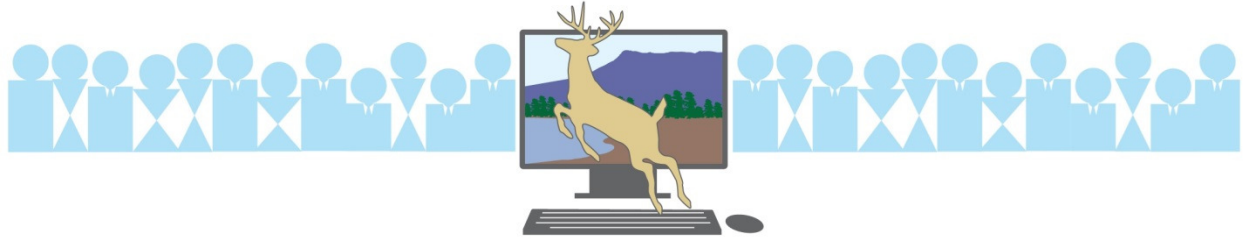


Responsive Management™



REACTIVATING LAPSED BOWHUNTERS: EVALUATING THE EFFECTIVENESS OF VARIOUS EMAIL CAMPAIGN MESSAGES

Study conducted for the Archery Trade Association

by Responsive Management

2018

REACTIVATING LAPSED BOWHUNTERS: EVALUATING THE EFFECTIVENESS OF VARIOUS EMAIL CAMPAIGN MESSAGES

2018

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EXECUTIVE SUMMARY

This project was undertaken to better understand the effectiveness of various email marketing messages at encouraging sporadic and lapsed bowhunters to purchase a bowhunting license. This pilot project entailed both a proactive marketing campaign, involving the distribution of email messages to encourage license purchases and bowhunting participation, and analyses to assess the most effective campaign messages and images as well as the timing of such messages. This project serves as the pilot to a continuing effort to encourage bowhunting participation and license purchasing that is being undertaken in 2018-2019.

The centerpiece of this project was a reactivation email campaign that was intended to boost bowhunting license renewal rates. Four different email message themes and two different email timings (when feasible) were tested among two groups of bowhunters: avid bowhunters and sporadic/lapsed bowhunters.

The four email message themes were as follows:

1. **Social** image and message.
2. **Aesthetic** image and message.
3. **Hunting-Recreation** image and message.
4. **Hunting-Success** image and message.

The two timing approaches were as follows:

- Timing 1:** Approximately at the **beginning** of the hunting season.
Timing 2: Approximately in the **middle** of the hunting season.

The two bowhunting groups were defined as follows:

Avid bowhunters were those who had bought a license in at least 4 of the 5 previous seasons.

Sporadic bowhunters were those who had bought a license in no more than 3 of the 5 previous seasons.

The result of the 4 image/message themes, the 2 timing strategies, and 2 avidity groupings is shown in a matrix (Table ES.1), with control groups added to be compared against the treatment groups.

Table ES.1. Matrix Based on Theme, Timing, and Avidity

| THEME | TIMING OF EMAILS | | | |
|--------------------------------|--------------------------------------|--------------------------------|--------------------------------------|--------------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (Beginning of Season) | Timing 2 (Middle of Season) | Timing 1 (Beginning of Season) | Timing 2 (Middle of Season) |
| Social | Group 1 | Group 2 | Group 10 | Group 11 |
| Aesthetic | Group 3 | Group 4 | Group 12 | Group 13 |
| Hunting- Recreation | Group 5 | Group 6 | Group 14 | Group 15 |
| Hunting- Success | Group 7 | Group 8 | Group 16 | Group 17 |
| Control | NO EMAILS | | | |
| | Group 9 | | Group 18 | |

Five states participated in the pilot study: Florida, Georgia, Indiana, New Jersey, and Oklahoma. Each participating state provided a database of bowhunting license holders from the previous 5 years. This database was used to prepare the treatment and control samples in each state; note that only those license records with email addresses were used. After the treatment, the states provided a database of bowhunting license purchasers within the 2017-2018 season, which was compared to the initial database.

APPROACH AND METHODOLOGY

As described briefly, the project entailed grouping bowhunters into 18 groups (16 treatment groups and 2 control groups) based on theme, timing, and bowhunting avidity. Emails would then be sent to the treatment groups. Therefore, after the initial design of the study, the first task was obtaining license databases from participating states. Note that the license databases were used only for this project and no other purpose. All license information is kept completely confidential.

Obtaining the Database of License Holders and Preparing the Sample Groups

Each state provided the research team with its database of bowhunting license holders for the previous 5 years. The databases were screened to include only those with email addresses, because the study and treatment were to be conducted online. All remaining bowhunters in the databases were then categorized through the license records as being either avid bowhunters or sporadic bowhunters. Then, each of the avidity groupings was randomly divided into 9 groups (see Table ES.1 for this matrix).

Once the databases were divided into the various treatment and control groups, they were ready for the actual treatments themselves. This brings us to the next part of the project.

Designing the Email Messages

Based on a review of previous research that was conducted (shown in Appendix A), the research team chose the following themes and messages to be tested; states could tweak the message slightly if keeping within the overall boundaries of the theme.

1. Social: Bowhunting in [STATE] Is Quality Time—Make Memories This Hunting Season
2. Aesthetic: Connect to Nature—Go Bowhunting in [STATE]
3. Hunting-Recreation: Join the Excitement, Go Bowhunting in [STATE]
4. Hunting-Success: Big Game, Good Meat—Go Bowhunting in [STATE]

Note that the actual name of the state was used in place of [STATE].

The messages were accompanied by imagery that fit that message. The imagery was selected by the states in conjunction with the research team to be representative of that state. The images that were chosen in conjunction with each state were based on the guidelines outlined below:

1. Social: men and women together in hunting clothes/youngsters in hunting clothes/men, women, and children in hunting clothes around a fire.
2. Aesthetic: wildlife (deer or elk)/sunrise/landscape.
3. Hunting-Recreation: man walking through pleasing-looking field or other habitat/man or woman aiming a bow and arrow/man or woman getting into a tree stand.
4. Hunting-Success: youngster posing with deer or elk/man posing with deer or elk/a person preparing food or eating (or the food itself).

Under the message and the images were the season dates and a link to the state's license purchasing site.

Sending Out the Email Treatments

After the treatments were designed, the samples broken into the treatment and control groups, and the specific treatments assigned to the specific groups, the agencies sent out the email treatments. The agencies used in-house software and facilities or their own vendors for sending out the treatments.

The agencies sent the treatments according to the times listed for the various groups. All states sent two email treatments, with the exception of Florida, where only a single email treatment was sent using the Timing 2 dates. Each treatment consisted of two emails for those who had not purchased a license in the meantime, except for Georgia and Indiana's Timing 2 treatment (in both cases, the agency inadvertently missed the second email of that treatment schedule).

Obtaining the Databases of License Purchasers Within the Past Year and Comparing Them to the Initial Databases

At the conclusion of each state's 2017-2018 seasons that allowed bowhunting, the state provided the database of license purchasers within the 2017-2018 seasons. These databases were then matched to the initial databases, allowing each license holder in the initial database to be

categorized as a license purchaser or a non-purchaser. It is this rate of 2017-2018 purchase among those in the initial database in each group that was examined in the statistical analysis.

Survey of License Holders in Each Group

In addition to the analyses of databases, an email survey was conducted to assess awareness of and reaction to the email reminders. The email survey was closed—in other words, only those who were in the initial database and specifically invited to participate in the survey could do so. Although the survey was conducted online, it was not an open survey in which anybody surfing the Internet could participate.

Every hunter in each group previously categorized was sent the survey invitation, including those in the control groups, who had received no treatments. The survey invitation explained the purpose of the survey and included a unique link that the respondent had to use to take the survey. This allowed the survey to track the grouping in which the respondent was in, and it prevented uninvited people from taking the survey. Each potential respondent was sent the initial email invitation and, if he or she had not completed the survey, a reminder to complete the survey, with the exception of Georgia, where only a single survey invitation was sent.

The final data contained surveys from 25,255 bowhunters who were in the initial database. Note that some of these bowhunters were not in the post-season database, meaning that the survey included some hunters who did not purchase a license for the 2017-2018 season.

RECOMMENDATIONS AND BEST PRACTICES

The survey suggests that a little more than half of the people who received the email at least opened it. Thus, the email is reaching potential bowhunters; in this respect, the email campaign is effective. Furthermore, the statistical analyses of the databases suggest that treatments work. A comparison of any treatment versus no treatment found statistically significant lift was produced in Indiana and New Jersey, as well as on bowhunters as a whole when the states were combined (GA, IN, NJ, and OK) in the analysis.

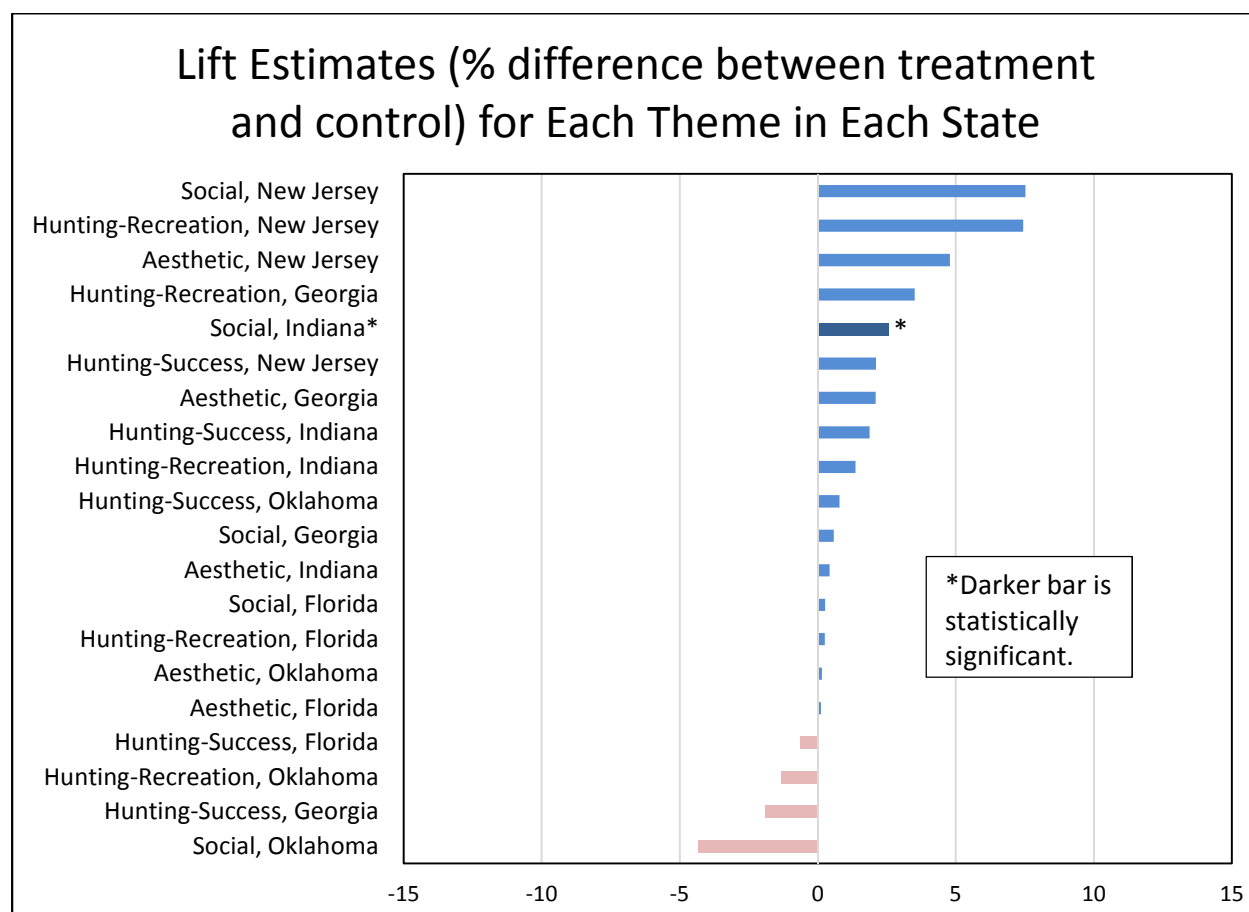
Note that the survey results suggest that the email may simply serve as a reminder to those who would have been very likely to purchase anyway. Nonetheless, this is not to say that there is no value in sending the emails because, although the emails by themselves may not change potential bowhunters' minds regarding whether to purchase or renew licenses, the emails may keep hunting at the top of potential bowhunters' minds.

Regarding the themes themselves, the results for each message theme are mixed. Some themes worked well in some states but not in others. Some themes showed positive results in the lift analysis but were not rated highly in the survey, while others were positively rated in the survey but did not show much actual lift in license purchases. The lift results and survey ratings also varied by state.

In general, the social and hunting-recreation themes did well in both the statistical analyses of databases (i.e., based on the analyses of license sales) and in the survey. While the hunting-success theme showed some statistically significant lift in the analyses of databases, the survey

data suggest that the hunting-success theme was not well received. The last theme—the aesthetic theme—seemed to be memorable in the survey (as discussed below) but did not have any statistically significant lift in any of the statistical tests.

Specifically within the lift analysis, each of the five participating states in the study experienced some lift for at least one message theme, although in some cases the lift may not have been statistically significant (Figure ES.1). The following graph shows the total lift by theme by state ranked from the greatest to the least lift.



*Significant at the 95% confidence level (t-test statistic = 2.125 and p-value = 0.0336).

Figure ES.1. Lift Estimates on All States Cumulatively

Most notably, New Jersey received 7.52% lift in license sales with the social message theme and 7.44% lift with the hunting-recreation theme. The greatest lift for Georgia was with the hunting-recreation and the aesthetic themes. In Indiana, the social and hunting-success themes resulted in the most lift. Florida experienced modest lift with the social and hunting-recreation themes, while Oklahoma also had modest lift with the hunting-success theme.

The social, aesthetic, and hunting-recreation themes appeared to be more memorable than the hunting-success theme; those who received the former email campaign themes were more likely to correctly remember which message they received than were those who received the hunting-

success theme. Indeed, those receiving the hunting-success theme hardly remembered it at all, and the research suggests that it was not effective in this regard.

The hunting-recreation theme did not do as well among avid bowhunters as it did among sporadic bowhunters in the survey. It may be the email's attempt to create "excitement" is not needed for those who are already avid.

In one part of the assessment of themes, the survey presented the four emails to respondents and asked them to indicate the one that they thought would be the most effective. Across all states, the hunting-success theme with the imagery of meat did *not* do well, while the social theme was consistently in one of the top two spots in most states. Figure ES.2 shows the overall survey results regarding opinions on effectiveness. Table ES.2 shows the ranking of the effectiveness (again, based on survey respondent opinion) of the different themes by state; the hunting-success theme is at the bottom for each state.

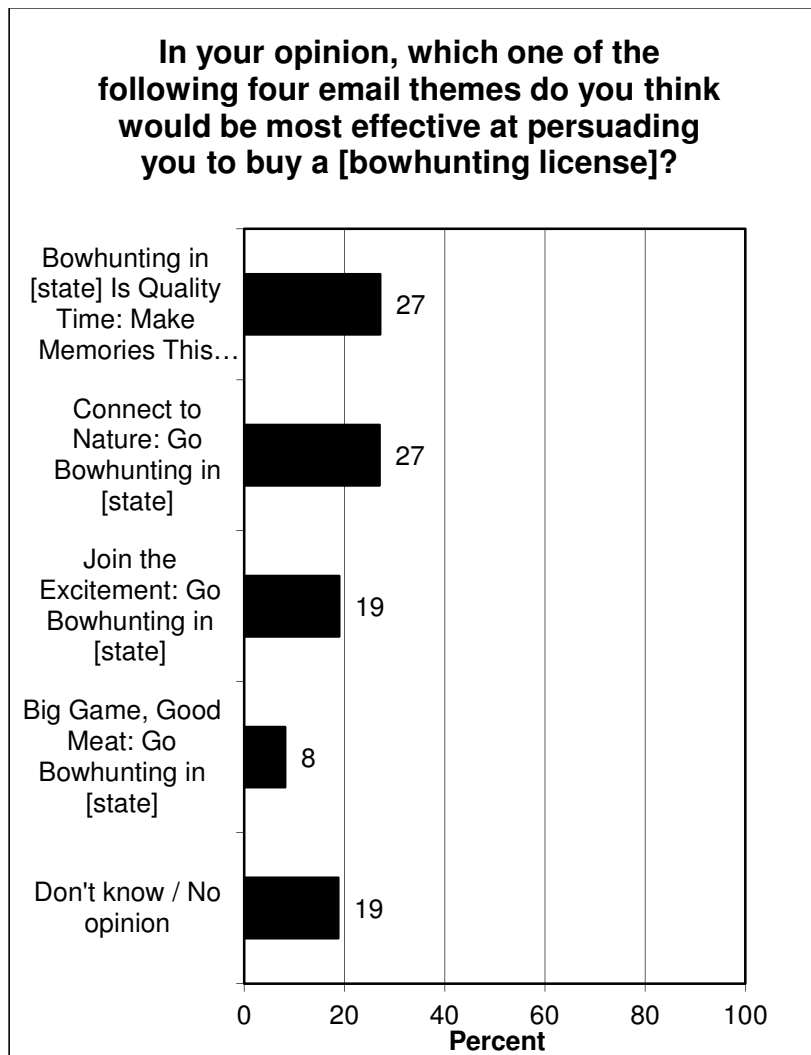


Figure ES.2. Opinions on Message Themes on All State Cumulatively

Table ES.2. Percent in Each State Selecting Each Message Theme as Most Effective, Ranked by Percent

| State | Theme | Percent Who Selected Theme as Most Effective |
|-------|--------------------|--|
| OK | Aesthetic | 34.05 |
| GA | Social | 29.96 |
| IN | Social | 29.06 |
| FL | Aesthetic | 28.11 |
| NJ | Aesthetic | 27.73 |
| GA | Aesthetic | 27.68 |
| NJ | Social | 26.87 |
| IN | Hunting-recreation | 26.87 |
| FL | Social | 24.62 |
| OK | Hunting-recreation | 22.61 |
| FL | Hunting-recreation | 22.45 |
| NJ | Hunting-recreation | 20.42 |
| IN | Aesthetic | 19.95 |
| OK | Social | 19.48 |
| GA | Success | 11.46 |
| GA | Hunting-recreation | 10.70 |
| OK | Hunting-success | 8.99 |
| IN | Hunting-success | 6.94 |
| NJ | Hunting-success | 6.87 |
| FL | Hunting-success | 5.75 |

Message Themes

1. **Social: Bowhunting in [STATE] Is Quality Time—Make Memories This Hunting Season** (image of two adults walking with or using archery/bowhunting equipment)
2. **Aesthetic: Connect to Nature—Go Bowhunting in [STATE]** (image of one or several bucks)
3. **Hunting-Recreation: Join the Excitement, Go Bowhunting in [STATE]** (image of a bowhunter with bow drawn and aimed)
4. **Hunting-Success: Big Game, Good Meat—Go Bowhunting in [STATE]** (image of game meat served as a meal)

Note that each state used an image consistent with the descriptions above, but the actual image used varied across the states.

In summary regarding the themes, the research suggests that the social and the hunting-recreation themes were received the best and were the most effective. The aesthetic theme also proved memorable and well-received in the survey. The social, hunting-recreation, and aesthetic themes should be tested again in a subsequent study.

Regarding timing, some evidence suggests that sporadic bowhunters responded better with the middle-of-the-season timing of the treatment than at the beginning of the season, while the avid responded better with the beginning-of-the-season treatment. However, the email timing (beginning versus middle of the season) was applied inconsistently among states, which created challenges in interpreting the results. Moreover, using a middle-of-the-season timing makes the sample sizes small (because only a small section of the season is being compared), which can sometimes produce statistically unreliable estimates (the 95% confidence limit was greater than 50% of the estimate). This affected results in New Jersey and Florida, for example. In future projects, comparing themes across a single timing schedule may produce more substantial findings regarding the efficacy of various themes.

Although not related to the themes or timing, it is worth noting that the survey found that a lack of time is the top constraint to bowhunting participation. About half of all survey respondents (51%) cited a lack of time as a reason they have not gone bowhunting at all or as much as they would like. Furthermore, this is a constraint that repeatedly ranks highest in previous studies on hunting participation. It may be beneficial to test a message that addresses the time constraint issue in future studies.

Access also appears to be a constraint that is affecting participation in bowhunting. Additionally, many bowhunters responded to the question about constraints by saying that the weather was too

warm or otherwise having a complaint about the season timing. Such problems with season timing and weather again effectively limit “access” to bowhunting.

In addition to constraints, motivations for bowhunting were also explored in the survey. While the top motivations reflect some of the more successful message themes in the study, such as getting out to enjoy nature or the outdoors; for fun, recreation, and adventure; and spending time with friends and family, the second top ranked response is for the challenge that archery or bowhunting offer (Figure ES.3). Testing a message theme that focuses on the challenge or skills aspect of bowhunting is recommended for future studies.

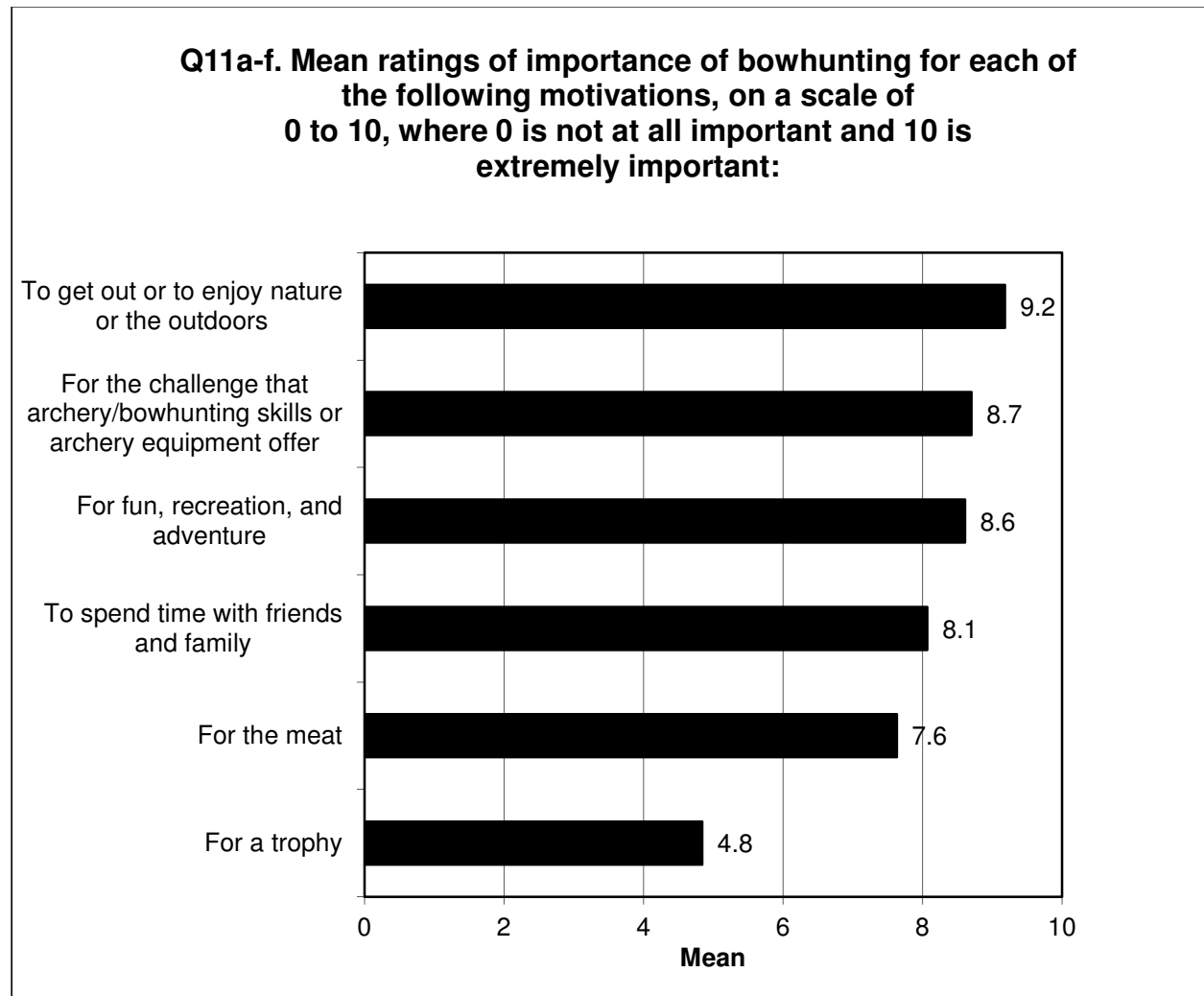


Figure ES.3. Motivations for Bowhunting

In a qualitative review of open-ended answers and comments in the survey, the idea of the “hunting heritage” and “tradition” were commonly identified as an important concept to bowhunters and a reason to participate in bowhunting. Testing a message theme that focuses on the heritage or tradition of bowhunting is recommended for future studies.

Finally, regarding the implementation of the campaigns, the project revealed some aspects of the pilot project that can inform implementation of the follow-up (and ongoing) email campaign. As much as possible, consistency in timelines, implementation factors, and message design is important for successful execution of the research.

One aspect of the research that led to challenges was having two timings in each state. The largest drawback with Timing 2 was that it simply had such a narrow window of time in which a license could be purchased by bowhunters—it is late in the season after most licenses are typically purchased anyway. Therefore, differences can become less meaningful, statistically speaking, if the second timing is too late in the year because the percentage rate of purchase in both control and treatment groups in such a scenario would both be so low.

Note that, by itself, administering a single timing in all the participating states still entails a different timing in each state, as each participating state has different hunting season dates and regulations, and numerous additional factors may result in changes and delays (which was the case for several states in this pilot project). Therefore, those administering similar email campaigns in the future should determine how to best ensure that the two timings are carried out in relatively similar fashions in the various states, both for comparability of data as well as for the ease of administering the campaigns themselves.

Based on the pilot study, the research team has determined that the images and message themes are more important variables than timing and avidity. Therefore, in addition to using a single timing, it is recommended that the separation of avid and sporadic bowhunters also be removed for the follow-up study. The additional sample groups that result from having separate avid and sporadic groups result in much lower n-values. The follow-up research will likely benefit from focusing on the message themes for further testing and refining. If desired, avid and sporadic bowhunters can instead be identified and examined further during the analysis stage of the research, when appropriate.

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1. PROJECT BACKGROUND

The purpose of this project is to better understand the effectiveness of various email marketing messages at encouraging sporadic and lapsed bowhunters to purchase a bowhunting license (or a license with bowhunting privileges). This pilot project entailed both a proactive marketing campaign, involving the distribution of email messages to encourage license purchases and bowhunting participation, and a research component, the analyses to be used to assess the most effective campaign messages and images as well as the timing of such messages. The research was ultimately used to produce a chapter of recommendations and best practices to assist agencies and organizations in implementing similar campaigns in the future. Indeed, this project serves as the pilot to a continuing effort to encourage bowhunting participation and license purchasing that is being undertaken in 2018-2019.

The centerpiece of this project was a reactivation email campaign that was intended to boost bowhunting license renewal rates. Four different email message themes and two different email timings (when feasible) were tested among two groups of bowhunters: avid bowhunters and sporadic/lapsed bowhunters.

The four email message themes were as follows:

1. **Social** image and message.
2. **Aesthetic** image and message.
3. **Hunting-Recreation** image and message.
4. **Hunting-Success** image and message.

The two timing approaches were as follows:

- Timing 1:** Approximately at the **beginning** of the hunting season, with a second identical follow-up email sent about a week later.
- Timing 2:** Approximately in the **middle** of the hunting season, with a second identical follow-up email sent about a week later.

The two bowhunting groups were defined as follows:

- Avid** bowhunters were those who had bought a license in at least 4 of the 5 previous seasons (which was determined through data in the license records database).
- Sporadic** bowhunters were those who had bought a license in no more than 3 of the 5 previous seasons (also determined through the data in the license records database).

The result of the 4 image/message themes, the 2 timing strategies, and 2 avidity groupings is shown in a matrix (Table 1.1), with control groups added to be compared against the treatment groups.

Table 1.1. Matrix Based on Theme, Timing, and Avidity

| THEME | TIMING OF EMAILS | | | |
|--------------------------------|--------------------------------------|--------------------------------|--------------------------------------|--------------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (Beginning of Season) | Timing 2 (Middle of Season) | Timing 1 (Beginning of Season) | Timing 2 (Middle of Season) |
| Social | Group 1 | Group 2 | Group 10 | Group 11 |
| Aesthetic | Group 3 | Group 4 | Group 12 | Group 13 |
| Hunting- Recreation | Group 5 | Group 6 | Group 14 | Group 15 |
| Hunting- Success | Group 7 | Group 8 | Group 16 | Group 17 |
| Control | NO EMAILS | | | |
| | Group 9 | | Group 18 | |

Five states participated in the pilot study: Florida, Georgia, Indiana, New Jersey, and Oklahoma. Each participating state provided a database of bowhunting license holders (or any license that allowed bowhunting, if a separate archery license was not required by the state) from the previous 5 years. This database was used to prepare the treatment and control samples in each state; note that only those license records with email addresses were used. After the treatment, the states provided a database of bowhunting license purchasers within the 2017-2018 season, which was compared to the initial database. The full methodology for the administration of the treatments and the subsequent analyses is detailed in Chapter 2 of this report.

This comparison of license sales data for the 2017-2018 season and the initial license database provided by the states allowed each treatment group and control group to be tracked to determine the percentage of each group that purchased a license during the 2017-2018 season. These analyses of databases and their results are discussed in Chapter 3.

In addition to the analyses of the databases, another measure of the treatments was undertaken: a survey of the bowhunters from the initial database, whether they subsequently purchased a license or not. This survey explored the differences between the treatment groups and the control groups. The survey results, including crosstabulations by email campaign theme, are presented in Chapter 4.

Chapter 5 shows the initial recommendations and best practices that were based on the results thus far. This chapter will be used in the design of forthcoming email campaigns in 2018-2019 that are an outgrowth of this pilot project.

2. APPROACH AND METHODOLOGY

As described briefly, the project entailed grouping bowhunters into 18 groups (16 treatment groups and 2 control groups) based on theme, timing, and bowhunting avidity. Emails would then be sent to the treatment groups. Therefore, after the initial design of the study, the first task was obtaining license databases from participating states. Note that the license databases were used only for this project and no other purpose. All license information is kept completely confidential.

OBTAINING THE DATABASE OF LICENSE HOLDERS AND PREPARING THE SAMPLE GROUPS

Each state provided the research team with its database of bowhunting license holders for the previous 5 years. The databases needed some initial cleanup to remove obviously erroneous data (e.g., emails with nonexistent addresses) or duplicate people (i.e., the same person in the database twice because of separate license purchases).

The databases were then screened to include only those with email addresses, because the study and treatment were to be conducted online. All remaining bowhunters in the databases were then categorized through the license records as being either avid bowhunters (bought a license at least 4 of the previous 5 years) or sporadic bowhunters (those who bought a license no more than 3 of the previous 5 years). Then, each of the avidity groupings was randomly divided into 9 groups (see Table 1.1 in the first chapter for this matrix). Randomizing the selection produced divisions that were fairly homogenous. In other words, each group was similar to every other group within the avidity groupings.

The proportions of the 9 groups within each avidity grouping were as follows: 20% of the entire avidity group is put into the control group; they would receive no treatments. The remainder of the avidity group was equally divided among the 8 treatment groups (10% in each). The control group was bigger because it needed to have enough in the sample to be statistically valid in the comparisons, particularly when the other groups were combined in some of the analyses.

Once the databases were divided into the various treatment and control groups, they were ready for the actual treatments themselves. This brings us to the next part of the project.

DESIGNING THE EMAIL MESSAGES

Based on a review of previous research that was conducted (shown in Appendix A), the research team chose the following themes and messages to be tested; states could tweak the message slightly if keeping within the overall boundaries of the theme.

1. Social: Bowhunting in [STATE] Is Quality Time—Make Memories This Hunting Season
2. Aesthetic: Connect to Nature—Go Bowhunting in [STATE]
3. Hunting-Recreation: Join the Excitement, Go Bowhunting in [STATE]
4. Hunting-Success: Big Game, Good Meat—Go Bowhunting in [STATE]


Note that the actual name of the state was used in place of [STATE].

The messages were accompanied by imagery that fit that message. The imagery was selected by the states in conjunction with the research team to be representative of that state. The images that were chosen in conjunction with each state were based on the guidelines outlined below:

1. Social: men and women together in hunting clothes/youngsters in hunting clothes/men, women, and children in hunting clothes around a fire.
2. Aesthetic: wildlife (deer or elk)/sunrise/landscape.
3. Hunting-Recreation: man walking through pleasing-looking field or other habitat/man or woman aiming a bow and arrow/man or woman getting into a tree stand.
4. Hunting-Success: youngster posing with deer or elk/man posing with deer or elk/a person preparing food or eating (or the food itself).


Under the message and the images were the season dates and a link to the state's license purchasing site.

An example of the imagery and the full email “package” that was sent to bowhunters is presented here, consisting of the agency logo, the slogan, the imagery, and the links to the license purchasing webpage. Georgia is used as the example. (The full array of imagery for each state is included in Appendix B.) The imagery is presented in the same order as in the guidelines discussion above: social, aesthetic, hunting recreation, and hunting success (Figures 2.1 to 2.4).



GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION


Bowhunting in Georgia is Quality Time
Make Memories this Hunting Season!




Bowhunting season is here! Don't forget to [buy or renew your license](#) if you haven't already

Renew Your License!

Figure 2.1. Social Image and Message (Georgia Is Used as an Example)




Connect to Nature
Go Bowhunting in Georgia!




Bowhunting season is here! Don't forget to [buy or renew your license](#) if you haven't already

Renew Your License!

Figure 2.2. Aesthetic Image and Message (Georgia Is Used as an Example)



Join the Excitement
Go Bowhunting in Georgia!



Bowhunting season is here! Don't forget to [buy or renew your license](#) if you haven't already

Renew Your License!

Figure 2.3. Hunting Recreation Image and Message (Georgia Is Used as an Example)



GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

Big Game = Good Meat
Go Bowhunting in Georgia!



Photo Credit: Holly A. Heyser courtesy of Hunter Angler Gardener Cook

Bowhunting season is here! Don't forget to [buy or renew your license](#) if you haven't already

Renew Your License!

Figure 2.4. Hunting Success Image and Message (Georgia Is Used as an Example)

SENDING OUT THE EMAIL TREATMENTS

After the treatments were designed, the samples broken into the treatment and control groups, and the specific treatments assigned to the specific groups, the agencies sent out the email treatments. The agencies used in-house software and facilities or their own vendors for sending out the treatments.

The agencies sent the treatments according to the times listed for the various groups. All states sent two email treatments, with the exception of Florida, where only a single email treatment was sent using the Timing 2 dates. Each treatment consisted of two emails for those who had not purchased a license in the meantime, except for Georgia and Indiana's Timing 2 treatment (in both cases, the agency inadvertently missed the second email of that treatment schedule). The timing of the emails, along with the opening season date and ending season date for each state, is shown in Table 2.1.

Table 2.1. Season Dates and Treatment Dates

| State | Earliest Bowhunting Season Date | Timing 1: Early-Season Email 1 | Timing 1: Early-Season Email 2 | Timing 2: Mid-Season Email 1 | Timing 2: Mid-Season Email 2 | Season End |
|------------|---------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|------------|
| Florida | 7/28/2017 | NA | NA | 10/11/2017 | 10/18/2017 | 2/25/2018 |
| Georgia | 9/9/2017 | 9/19/2017 | 10/11/2017 | 12/1/2017 | NA | 1/31/2018 |
| Indiana | 10/1/2017 | 9/27/2017 | 10/27/2017 | 11/2/2017 | NA | 1/7/2018 |
| New Jersey | 9/9/2017 | 9/28/2017 | 10/12/2017 | 10/30/2017 | 11/6/2017 | 2/17/2018 |
| Oklahoma | 10/1/2017 | 9/27/2017 | 10/4/2017 | 10/25/2017 | 11/3/2017 | 1/15/2018 |

OBTAINING THE DATABASES OF LICENSE PURCHASERS WITHIN THE PAST YEAR AND COMPARING THEM TO THE INITIAL DATABASES

At the conclusion of each state's 2017-2018 seasons that allowed bowhunting, the state provided the database of license purchasers within the 2017-2018 seasons. These databases were then matched to the initial databases, allowing each license holder in the initial database to be categorized as a license purchaser or a non-purchaser. It is this rate of 2017-2018 purchase among those in the initial database in each group that was examined in the statistical analysis.

Specifically, based on the matrix previously shown in Table 1.1, but shown again in this section for the reader's convenience as Table 2.2, the comparisons listed below the table were made on the data within each state as well as overall (i.e., all states combined). For overall results, however, Florida's data were excluded because its timing schedule did not match those of the other states (Florida had only a single timing; all other states had two timings of the treatments).

Table 2.2. Matrix of Treatment and Control Groups, Based on the Variables of Theme, Timing, and Avidity

| THEME | TIMING OF EMAILS | | | |
|---------------------------|-----------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (beginning of season) | Timing 2 (middle of season) | Timing 1 (beginning of season) | Timing 2 (middle of season) |
| Social | Group 1 | Group 2 | Group 10 | Group 11 |
| Aesthetic | Group 3 | Group 4 | Group 12 | Group 13 |
| Hunting-Recreation | Group 5 | Group 6 | Group 14 | Group 15 |
| Hunting-Success | Group 7 | Group 8 | Group 16 | Group 17 |
| Control | NO EMAILS | | | |
| | Group 9 | | Group 18 | |

ANY TREATMENT VS NO TREATMENT, AVID AND SPORADIC SEPARATE

Group 1, 3, 5, 7 combined vs. Group 9 (using Timing 1 parameters for the control group)

Group 2, 4, 6, 8 combined vs. Group 9 (using Timing 2 parameters for the control group)

Group 10, 12, 14, 16 combined vs. Group 18 (using Timing 1 parameters for the control group)

Group 11, 13, 15, 17 combined vs. Group 18 (using Timing 2 parameters for the control group)

ANY TREATMENT VS NO TREATMENT, AVID AND SPORADIC TOGETHER

Group 1, 3, 5, 7, 10, 12, 14, 16 combined vs. Group 9 and 18 combined (using Timing 1 parameters for the control groups)

Group 2, 4, 6, 8, 11, 13, 15, 17 combined vs. Group 9 and 18 combined (using Timing 2 parameters for the control groups)

COMPARISON OF THEMES, AVID AND SPORADIC SEPARATE

Compare each group against the control group: Group 1 vs. Group 9, Group 3 vs. Group 9, Group 5 vs. Group 9, Group 7 vs. Group 9 (using Timing 1 parameters for the control group)

Compare each group against the control group: Group 2 vs. Group 9, Group 4 vs. Group 9, Group 6 vs. Group 9, Group 8 vs. Group 9 (using Timing 2 parameters for the control group)

Compare each group against the control group: Group 10 vs. Group 18, Group 12 vs. Group 18, Group 14 vs. Group 18, Group 16 vs. Group 18 (using Timing 1 parameters for the control group)

Compare each group against the control group: Group 11 vs. Group 18, Group 13 vs. Group 18, Group 15 vs. Group 18, Group 17 vs. Group 18 (using Timing 2 parameters for the control group)

COMPARISON OF THEMES, AVID AND SPORADIC TOGETHER

Compare each group against the control group: Groups 1 and 10 together vs Groups 9 and 18 together, Groups 3 and 12 together vs Group 9 and 18 together, Groups 5 and 14 together vs Group 9 and 18 together, Groups 7 and 16 together vs Group 9 and 18 together (using Timing 1 parameters for the control groups)

Compare each group against the control group: Groups 2 and 11 together vs Group 9 and 18 together, Groups 4 and 13 together vs Group 9 and 18 together, Groups 6 and 15 together vs Group 9 and 18 together, Groups 8 and 17 together vs Group 9 and 18 together (using Timing 2 parameters for the control groups)

The percentage of each of these groups that bought in the time frame was compared to the percentage of the control group that bought in the time frame. These percentages were then compared, and the comparisons were tested for statistical significance. An independent samples t-test was run on each of these comparisons. The t-test statistic and the p-value is shown in the results section for each of these comparisons.

SURVEY OF LICENSE HOLDERS IN EACH GROUP

In addition to the analyses of databases, an email survey was conducted to assess awareness of and reaction to the email reminders. The email survey was closed—in other words, only those who were in the initial database and specifically invited to participate in the survey could do so. Although the survey was conducted online, it was not an open survey in which anybody surfing the Internet could participate.

Questionnaire Design

The research team developed the survey questionnaire that delved into the hunters' reactions to the email and their subsequent behaviors regarding purchasing or not purchasing a license in the 2017-2018 season. This included recall of and receptiveness to the campaign messages; opinions on messages, images, and email delivery frequency and timing; and characteristics of each group's bowhunting participation (or non-participation) for the 2017-2018 season, including avidity, species hunted, equipment used, purchases made, future interest, and other relevant data.

Sampling, Contact Procedures, and Administration of the Survey

Every hunter in each group previously categorized was sent the survey invitation, including those in the control groups, who had received no treatments. The survey invitation explained the purpose of the survey and included a unique link that the respondent had to use to take the survey. This allowed the survey to track the grouping in which the respondent was in, and it prevented uninvited people from taking the survey. Each potential respondent was sent the initial email invitation and, if he or she had not completed the survey, a reminder to complete the survey, with the exception of Georgia, where only a single survey invitation was sent. The dates of the email invitations for the survey are shown in Table 2.3. An example of the email invitation is shown in Figure 2.5.

Table 2.3. Schedule of Email Invitations for the Post-Treatment Survey

| Group | Email Sent | Day Email Sent | Reminder Email Sent | Day Reminder Sent |
|-----------------------|-------------------|-----------------------|----------------------------|--------------------------|
| FL Social Group | 4/29/2018 | Sun | 5/15/2018 | Tue |
| FL Aesthetic Group | 4/27/2018 | Fri | 5/14/2018 | Mon |
| FL Recreation Group | 4/28/2018 | Sat | 5/14/2018 | Mon |
| FL Success Group | 5/3/2018 | Thu | 5/15/2018 | Tue |
| FL Control Group | 5/9/2018 | Wed | 5/18/2018 | Fri |
| GA Social Group 1 | 5/2/2018 | Wed | N/A | N/A |
| GA Social Group 2 | 5/10/2018 | Thu | N/A | N/A |
| GA Aesthetic Group 1 | 4/30/2018 | Mon | N/A | N/A |
| GA Aesthetic Group 2 | 5/9/2018 | Wed | N/A | N/A |
| GA Recreation Group 1 | 5/2/2018 | Wed | N/A | N/A |
| GA Recreation Group 2 | 5/9/2018 | Wed | N/A | N/A |
| GA Success Group 1 | 5/5/2018 | Sat | N/A | N/A |
| GA Success Group 2 | 5/10/2018 | Thu | N/A | N/A |
| GA Control Group | 5/11/2018 | Fri | N/A | N/A |
| IN Social Group 1 | 5/1/2018 | Tue | 5/15/2018 | Tue |
| IN Social Group 2 | 5/7/2018 | Mon | 5/17/2018 | Thu |
| IN Aesthetic Group 1 | 4/27/2018 | Fri | 5/14/2018 | Mon |
| IN Aesthetic Group 2 | 5/4/2018 | Fri | 5/16/2018 | Wed |
| IN Recreation Group 1 | 5/1/2018 | Tue | 5/14/2018 | Mon |
| IN Recreation Group 2 | 5/5/2018 | Sat | 5/16/2018 | Wed |
| IN Success Group 1 | 5/3/2018 | Thu | 5/15/2018 | Tue |
| IN Success Group 2 | 5/10/2018 | Thu | 5/17/2018 | Thu |
| IN Control Group | 5/11/2018 | Fri | 5/18/2018 | Fri |
| NJ Social Group 1 | 5/1/2018 | Tue | 5/15/2018 | Tue |
| NJ Social Group 2 | 5/9/2018 | Wed | 5/17/2018 | Thu |
| NJ Aesthetic Group 1 | 4/28/2018 | Sat | 5/14/2018 | Mon |
| NJ Aesthetic Group 2 | 5/4/2018 | Fri | 5/16/2018 | Wed |
| NJ Recreation Group 1 | 5/1/2018 | Tue | 5/14/2018 | Mon |
| NJ Recreation Group 2 | 5/5/2018 | Sat | 5/16/2018 | Wed |
| NJ Success Group 1 | 5/3/2018 | Thu | 5/15/2018 | Tue |
| NJ Success Group 2 | 5/10/2018 | Thu | 5/17/2018 | Thu |
| NJ Control Group | 5/11/2018 | Fri | 5/18/2018 | Fri |
| OK Social Group 1 | 5/4/2018 | Fri | 5/15/2018 | Tue |
| OK Social Group 2 | 5/10/2018 | Thu | 5/17/2018 | Thu |
| OK Aesthetic Group 1 | 4/30/2018 | Mon | 5/14/2018 | Mon |
| OK Aesthetic Group 2 | 5/7/2018 | Mon | 5/16/2018 | Wed |
| OK Recreation Group 1 | 5/2/2018 | Wed | 5/14/2018 | Mon |
| OK Recreation Group 2 | 5/10/2018 | Thu | 5/16/2018 | Wed |
| OK Success Group 1 | 5/5/2018 | Sat | 5/15/2018 | Tue |
| OK Success Group 2 | 5/10/2018 | Thu | 5/17/2018 | Thu |
| OK Control Group | 5/11/2018 | Fri | 5/18/2018 | Fri |

From: Georgia Department of Natural Resources (GDNR) <invites@mailers.surveygizmo.com>
Sent: Monday, April 30, 2018 10:48 AM
To: andrea@responsivemanagement.com
Subject: Georgia Hunting Study



Hello Andrea,

In cooperation with the Georgia Department of Natural Resources (GDNR), the Archery Trade Association (ATA) is conducting a study of hunters about bowhunting participation and interest in bowhunting. Your responses will help the GDNR better serve hunters' needs and improve our communication with the public.

We would like your feedback, regardless of whether you have participated in bowhunting or even purchased a hunting license in general in the past couple years. The GDNR encourages your participation in this study.

[Click Here to Start the Survey](#)

Selection for being contacted to participate in this study was random among those who purchased a Georgia hunting license at least 1 of the past 5 years. Selection is random to maintain a scientifically valid study. To ensure that results truly represent hunters in Georgia, your response is very important to this study.

Thank you in advance for your time and feedback.

Sincerely,
Georgia Department of Natural Resources
and
Archery Trade Association

Responsive Management, an independent research firm that specializes in fish and wildlife issues, has been contracted to conduct this study for the GDNR and ATA. If you need technical assistance with the survey, please contact Responsive Management via email at

research@responsivemanagement.com.

Please note that the link in this email can only be used from the original email to ensure that the survey is only completed once by each randomly selected respondent. If this email or the link is forwarded to another account (even your own), it will not work when forwarded.

This message was sent by Responsive Management, 130 Franklin Street,
Harrisonburg, VA 22801. To unsubscribe, click below: [Unsubscribe](#)

Figure 2.5. Sample of the Email Survey Invitation (Georgia Is Used as an Example)

Survey Center Facilities

A central survey administration site at the Responsive Management office allowed for rigorous quality control over the survey data collection. Responsive Management maintains its own in-house survey administration facilities, which are staffed by survey administrators with experience conducting surveys on the subjects of outdoor recreation and natural resources.

Analysis of Survey Data

The final data contained surveys from 25,255 bowhunters who were in the initial database. Note that some of these bowhunters were not in the post-season database, meaning that the survey included some hunters who did not purchase a license for the 2017-2018 season. For each of the groups, the final count of completed questionnaires is presented in Table 2.4. The matrix breaks down the sample by Timing 1 and Timing 2 for the four states that had two timings; Florida had only a single timing and, therefore, has its own columns for the treatment groups.

Table 2.4. Sample Obtained Among Each Group

| THEME | TIMING OF EMAILS | | | | | |
|--------------------------|--|-----------------------------------|-----------------------------------|--|-----------------------------------|-----------------------------------|
| | AVID BOWHUNTERS | | | SPORADIC BOWHUNTERS | | |
| | Timing 1 (beginning of season) | Timing 2 (middle of season) | Florida (only a single timing) | Timing 1 (beginning of season) | Timing 2 (middle of season) | Florida (only a single timing) |
| Social | Group 1: 957 | Group 2: 917 | Group 1/2: 810 | Group 10: 882 | Group 11: 820 | Group 10/11: 788 |
| Aesthetic | Group 3: 971 | Group 4: 871 | Group 3/4: 732 | Group 12: 864 | Group 13: 805 | Group 12/13: 719 |
| Hunting- Recreation | Group 5: 892 | Group 6: 1,006 | Group 5/6: 788 | Group 14: 888 | Group 15: 838 | Group 14/15: 835 |
| Hunting- Success | Group 7: 926 | Group 8: 899 | Group 7/8: 724 | Group 16: 834 | Group 17: 769 | Group 16/17: 642 |
| Control | NO EMAILS | | | | | |
| | Group 9: 2,660 | | | Group 18: 2,418 | | |
| Total Sample Obtained | 13,153 completed questionnaires among avid bowhunters | | | 12,102 completed questionnaires among sporadic bowhunters | | |
| | 25,255 completed questionnaires in total | | | | | |

The state-by-state completed surveys are shown in Tables 2.5 through 2.9.

Table 2.5. Completed Surveys in Florida

| THEME | TIMING OF EMAILS | |
|--------------------|-------------------|---------------------|
| | AVID BOWHUNTERS | SPORADIC BOWHUNTERS |
| Social | Group 1/2: 810 | Group 10/11: 788 |
| Aesthetic | Group 3/4: 732 | Group 12/13: 719 |
| Hunting-Recreation | Group 5/6: 788 | Group 14/15: 835 |
| Hunting-Success | Group 7/8: 724 | Group 16/17: 642 |
| Control | NO EMAILS | |
| | Group 9: 751 | Group 18: 735 |
| Subtotal | 3,805 | 3,719 |
| State Total | 7,524 | |

Table 2.6. Completed Surveys in Georgia

| THEME | TIMING OF EMAILS | | | |
|--------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (beginning of season) | Timing 2 (middle of season) | Timing 1 (beginning of season) | Timing 2 (middle of season) |
| Social | Group 1: 133 | Group 2: 117 | Group 10: 226 | Group 11: 223 |
| Aesthetic | Group 3: 127 | Group 4: 101 | Group 12: 220 | Group 13: 202 |
| Hunting-Recreation | Group 5: 98 | Group 6: 135 | Group 14: 209 | Group 15: 207 |
| Hunting-Success | Group 7: 127 | Group 8: 114 | Group 16: 228 | Group 17: 192 |
| Control | NO EMAILS | | | |
| | Group 9: 165 | | Group 18: 408 | |
| Subtotal | 1,117 | | 2,115 | |
| State Total | 3,232 | | | |

Table 2.7. Completed Surveys in Indiana

| THEME | TIMING OF EMAILS | | | |
|--------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (beginning of season) | Timing 2 (middle of season) | Timing 1 (beginning of season) | Timing 2 (middle of season) |
| Social | Group 1: 306 | Group 2: 321 | Group 10: 225 | Group 11: 220 |
| Aesthetic | Group 3: 314 | Group 4: 297 | Group 12: 221 | Group 13: 230 |
| Hunting-Recreation | Group 5: 294 | Group 6: 344 | Group 14: 224 | Group 15: 223 |
| Hunting-Success | Group 7: 331 | Group 8: 283 | Group 16: 220 | Group 17: 208 |
| Control | NO EMAILS | | | |
| | Group 9: 634 | | Group 18: 473 | |
| Subtotal | 3,124 | | 2,244 | |
| State Total | 5,368 | | | |

Table 2.8. Completed Surveys in New Jersey

| THEME | TIMING OF EMAILS | | | |
|--------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (beginning of season) | Timing 2 (middle of season) | Timing 1 (beginning of season) | Timing 2 (middle of season) |
| Social | Group 1: 467 | Group 2: 435 | Group 10: 266 | Group 11: 235 |
| Aesthetic | Group 3: 474 | Group 4: 416 | Group 12: 225 | Group 13: 197 |
| Hunting-Recreation | Group 5: 453 | Group 6: 484 | Group 14: 258 | Group 15: 240 |
| Hunting-Success | Group 7: 442 | Group 8: 456 | Group 16: 219 | Group 17: 229 |
| Control | NO EMAILS | | | |
| | Group 9: 1,029 | | Group 18: 483 | |
| Subtotal | 4,656 | | 2,352 | |
| State Total | 7,008 | | | |

Table 2.9. Completed Surveys in Oklahoma

| THEME | TIMING OF EMAILS | | | |
|--------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|
| | AVID BOWHUNTERS | | SPORADIC BOWHUNTERS | |
| | Timing 1 (beginning of season) | Timing 2 (middle of season) | Timing 1 (beginning of season) | Timing 2 (middle of season) |
| Social | Group 1: 51 | Group 2: 44 | Group 10: 165 | Group 11: 142 |
| Aesthetic | Group 3: 56 | Group 4: 57 | Group 12: 198 | Group 13: 176 |
| Hunting-Recreation | Group 5: 47 | Group 6: 43 | Group 14: 197 | Group 15: 168 |
| Hunting-Success | Group 7: 26 | Group 8: 46 | Group 16: 167 | Group 17: 140 |
| Control | NO EMAILS | | | |
| | Group 9: 81 | | Group 18: 319 | |
| Subtotal | 451 | | 1,672 | |
| State Total | 2,123 | | | |

The analysis of survey data was performed using IBM SPSS Statistics as well as proprietary software developed by Responsive Management.

Additional Information About the Presentation of Survey Results in the Report

In examining the survey results, it is important to be aware that the questionnaire included several types of questions:

- Open-ended questions are those in which no answer set is read to the respondents; rather, they can respond with anything that comes to mind from the question.
- Closed-ended questions have an answer set from which to choose.
- Single or multiple response questions: Some questions allow only a single response, while other questions allow respondents to give more than one response or choose all that apply. Those that allow more than a single response are indicated on the graphs with the label, “Multiple Responses Allowed.”
- Scaled questions: Many closed-ended questions (but not all) are in a scale, such as excellent-good-fair-poor.
- Series questions: Many questions are part of a series, and the results are primarily intended to be examined relative to the other questions in that series (although results of the questions individually can also be valuable). Typically, results of all questions in a series are shown together.

Most graphs show results rounded to the nearest integer; however, all data are stored in decimal format, and all calculations are performed on unrounded numbers. For this reason, some results may not sum to exactly 100% because of this rounding on the graphs. Additionally, rounding may cause apparent discrepancies of 1 percentage point between the graphs and the reported results of combined responses (e.g., when “very satisfied” and “somewhat satisfied” are summed to determine the total percentage being satisfied).

3. ANALYSIS OF LICENSE DATABASE REGARDING THE RESULTS OF THE OUTREACH CAMPAIGN

Each state is examined separately here in the analyses. The states are presented alphabetically, except that Florida's results are shown last because the state had different timing schedule than the other states. For this reason, the reader will better follow the analyses from the states that had the standard timing schedule (i.e., two timing dates for treatment within the state, one at the beginning of the season and the second at the midpoint of the season) before looking at Florida's results. This section starts with Georgia, followed by Indiana, New Jersey, and Oklahoma, and then Florida. The overall results then follow the states' results.

For the overall results, Florida was excluded because its timing schedule differed from all the other states. Florida had one timing, whereas all the other states had two timings.

GEORGIA'S RESULTS

Prior to any statistical tests, the raw data were tabulated for analyses. Taking the number in the original sample, the first step in the analysis was to categorize each of these hunters as having purchased a hunting license or having not purchased a license in the time period (Table 3.1). Additionally, the purchasing time period was divided in two: from the Timing 1 treatment date to the Timing 2 treatment date, then any time after the Timing 2 treatment date up to the end of the season. This allowed the treatment and control groups to be compared over the same time periods.

Table 3.1. Purchasers of Licenses in the 2017-2018 Season After the First Treatment Date, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|
| Group 1: Social, Timing 1, Avid | 1,648 | 299 | 272 | 27 | 1,349 |
| Group 2: Social, Timing 2, Avid | 1,705 | 316 | 286 | 30 | 1,389 |
| Group 3: Aesthetic, Timing 1, Avid | 1,678 | 319 | 297 | 22 | 1,359 |
| Group 4: Aesthetic, Timing 2, Avid | 1,601 | 314 | 295 | 19 | 1,287 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 1,637 | 320 | 296 | 24 | 1,317 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 1,642 | 338 | 310 | 28 | 1,304 |
| Group 7: Hunting - Success, Timing 1, Avid | 1,644 | 322 | 285 | 37 | 1,322 |
| Group 8: Hunting - Success, Timing 2, Avid | 1,666 | 352 | 321 | 31 | 1,314 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | 2,562 |
| Group 10: Social, Timing 1, Sporadic | 10,970 | 1,101 | 952 | 149 | 9,869 |
| Group 11: Social, Timing 2, Sporadic | 11,045 | 1,081 | 929 | 152 | 9,964 |
| Group 12: Aesthetic, Timing 1, Sporadic | 10,866 | 1,067 | 920 | 147 | 9,799 |
| Group 13: Aesthetic, Timing 2, Sporadic | 10,918 | 1,105 | 959 | 146 | 9,813 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 10,895 | 1,087 | 960 | 127 | 9,808 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 11,039 | 1,116 | 961 | 155 | 9,923 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 11,111 | 1,035 | 907 | 128 | 10,076 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 10,921 | 1,016 | 872 | 144 | 9,905 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | 20,253 |

Based on the data above, statistical tests were run. The first tests looked at any treatment at all versus no treatment, run separately on avid and sporadic bowhunters, and also run separately on the different timing schedules.

For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7 combined (any treatment, Timing 1, avid) vs. Group 9 (using Timing 1 for the control group)

Groups 2, 4, 6, 8 combined (any treatment, Timing 2, avid) vs. Group 9 (using Timing 2 for the control group)

Groups 10, 12, 14, 16 combined (any treatment, Timing 1, sporadic) vs. Group 18 (using Timing 1 for the control group)

Groups 11, 13, 15, 17 combined (any treatment, Timing 2, sporadic) vs. Group 18 (using Timing 2 for the control group)

Taking the first of those (Groups 1, 3, 5, 7 combined vs. Group 9) produces Table 3.2. In this test, all those with Timing 1 treatment were compared to the control using Timing 1 dates. In other words, any treatment was compared to no treatment, keeping the timing groups separate. In Table 3.2, Groups 1, 3, 5, and 7 combined have 6,607 hunters of which 1,260 bought licenses in the time period, and this is compared to 3,192 in the control group, of which 630 bought licenses. The control group bought at a higher rate; however, this difference in lift (which is slightly negative) is not significant, based on an independent samples t-test.

Table 3.2. Any Treatment Versus No Treatment, Timing 1, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 1: Social, Timing 1, Avid | 1,648 | 299 | | 272 | 27 | 1,349 |
| Group 3: Aesthetic, Timing 1, Avid | 1,678 | 319 | | 297 | 22 | 1,359 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 1,637 | 320 | | 296 | 24 | 1,317 |
| Group 7: Hunting - Success, Timing 1, Avid | 1,644 | 322 | | 285 | 37 | 1,322 |
| Sum of Groups 1, 3, 5, and 7 | 6,607 | 1,260 | 19.1% | 1,150 | 110 | 5,347 |
| Group 9: Control, Avid | 3,192 | 630 | 19.7% | 583 | 47 | 2,562 |

Not significant (t-test statistic = -0.780 and p-value = 0.436).

Likewise, comparing all the Timing 2 avid groups that received treatment to the control group finds that the treatment groups bought at a slightly higher rate, but the difference was not significant (Table 3.3). The other tests of any treatment versus no treatment showed similar results to these, with positive slight lifts that were, nonetheless, not significant (Tables 3.4 and 3.5).

Table 3.3. Any Treatment Versus No Treatment, Timing 2, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 2: Social, Timing 2, Avid | 1,705 | 316 | 286 | 30 | | 1,389 |
| Group 4: Aesthetic, Timing 2, Avid | 1,601 | 314 | 295 | 19 | | 1,287 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 1,642 | 338 | 310 | 28 | | 1,304 |
| Group 8: Hunting - Success, Timing 2, Avid | 1,666 | 352 | 321 | 31 | | 1,314 |
| Sum of Groups 2, 4, 6, and 8 | 6,614 | 1,320 | 1,212 | 108 | 1.6% | 5,294 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | 1.5% | 2,562 |

Not significant (t-test statistic = 0.608 and p-value = 0.544).

Table 3.4. Any Treatment Versus No Treatment, Timing 1, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 10: Social, Timing 1, Sporadic | 10,970 | 1,101 | | 952 | 149 | 9,869 |
| Group 12: Aesthetic, Timing 1, Sporadic | 10,866 | 1,067 | | 920 | 147 | 9,799 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 10,895 | 1,087 | | 960 | 127 | 9,808 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 11,111 | 1,035 | | 907 | 128 | 10,076 |
| Sum of Groups 10, 12, 14, and 16 | 43,842 | 4,290 | 9.8% | 3,739 | 551 | 39,552 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 9.7% | 1,886 | 293 | 20,253 |

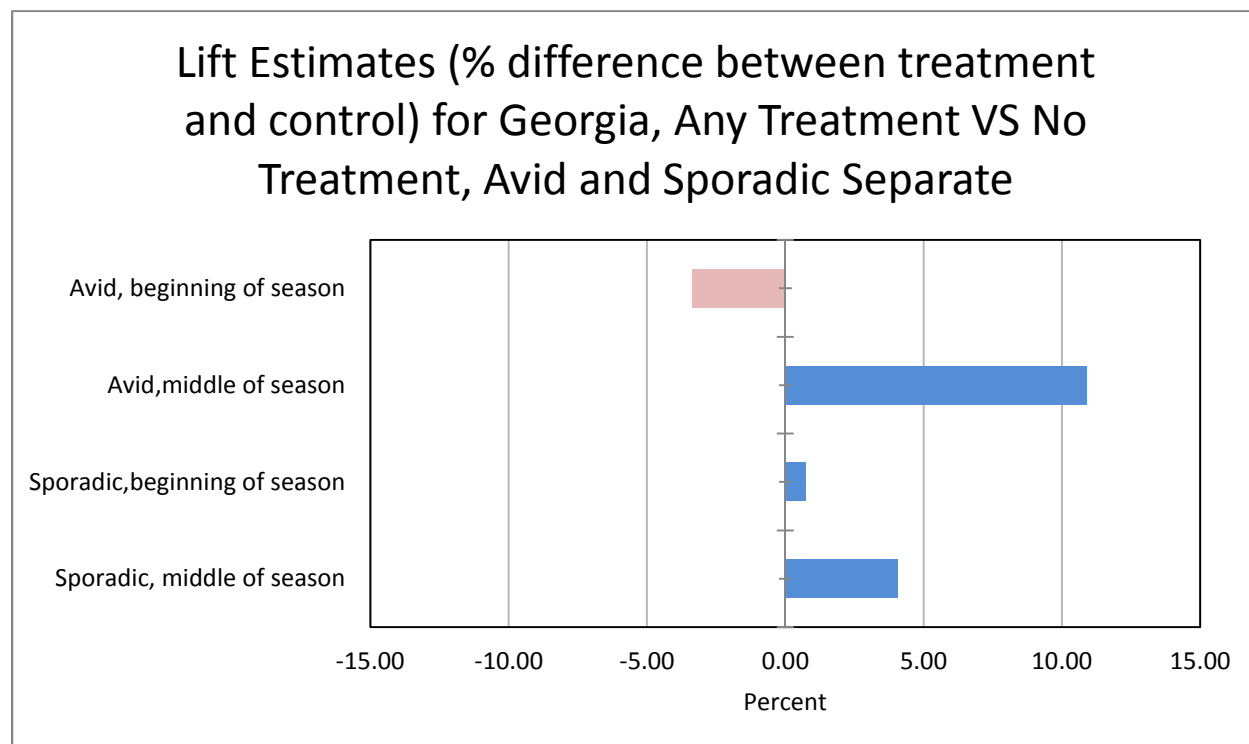
Not significant (t-test statistic = 0.293 and p-value = 0.769).

Table 3.5. Any Treatment Versus No Treatment, Timing 2, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 11: Social, Timing 2, Sporadic | 11,045 | 1,081 | 929 | 152 | | 9,964 |
| Group 13: Aesthetic, Timing 2, Sporadic | 10,918 | 1,105 | 959 | 146 | | 9,813 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 11,039 | 1,116 | 961 | 155 | | 9,923 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 10,921 | 1,016 | 872 | 144 | | 9,905 |
| Sum of Groups 11, 13, 15, and 17 | 43,923 | 4,318 | 3,721 | 597 | 1.4% | 39,605 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | 1.3% | 20,253 |

Not significant (t-test statistic = 0.565 and p-value = 0.572).

The four tables above are summarized in Figure 3.1, with one instance of negative lift and three instances of positive lift, albeit none being statistically significant.

**Figure 3.1. Lift Estimates, Any Treatment, Avid and Sporadic Separate, Georgia**

The next set of tests looked at any treatment versus no treatment, and it combined avid and sporadic bowhunters. For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7, 10, 12, 14, 16 combined (any treatment, Timing 1, avid and sporadic together) vs. Groups 9 and 18 (using Timing 1 for the control groups)

Groups 2, 4, 6, 8, 11, 13, 15, 17 combined (any treatment, Timing 2, avid and sporadic together) vs. Groups 9 and 18 (using Timing 2 for the control groups)

Although the treatment was higher for Timing 2, neither of the results were statistically significant (Tables 3.6 and 3.7).

Table 3.6. Any Treatment Versus No Treatment, Timing 1, Avid and Sporadic Bowhunters Together, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 1: Social, Timing 1, Avid | 1,648 | 299 | | 272 | 27 | 1,349 |
| Group 3: Aesthetic, Timing 1, Avid | 1,678 | 319 | | 297 | 22 | 1,359 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 1,637 | 320 | | 296 | 24 | 1,317 |
| Group 7: Hunting - Success, Timing 1, Avid | 1,644 | 322 | | 285 | 37 | 1,322 |
| Group 10: Social, Timing 1, Sporadic | 10,970 | 1,101 | | 952 | 149 | 9,869 |
| Group 12: Aesthetic, Timing 1, Sporadic | 10,866 | 1,067 | | 920 | 147 | 9,799 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 10,895 | 1,087 | | 960 | 127 | 9,808 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 11,111 | 1,035 | | 907 | 128 | 10,076 |
| Sum of Groups 1, 3, 5, 7, 10, 12, 14, and 16 | 50,449 | 5,550 | 11.0% | 4,889 | 661 | 44,899 |
| Group 9: Control, Avid | 3,192 | 630 | | 583 | 47 | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | | 1,886 | 293 | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 11.0% | 2,469 | 340 | 22,815 |

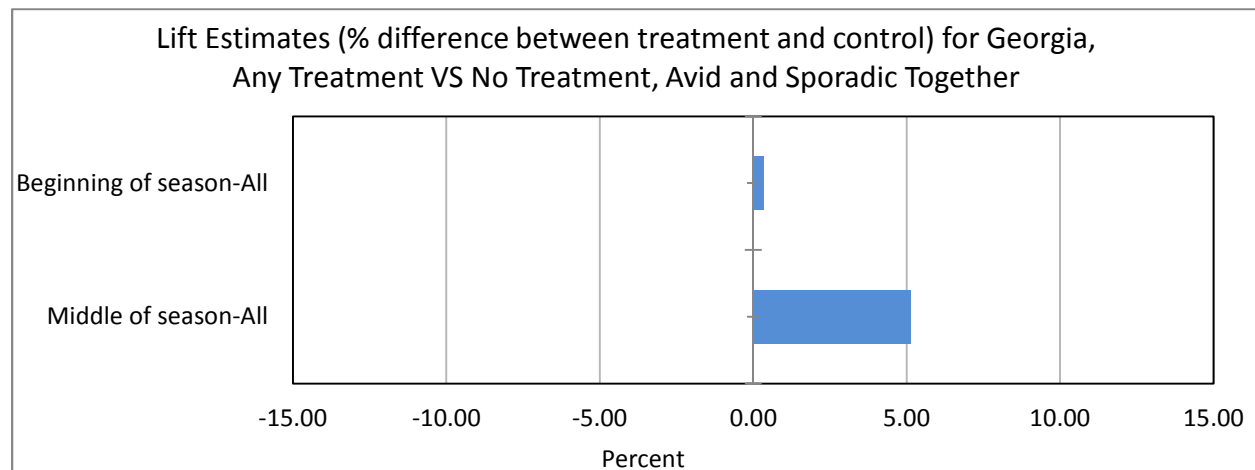
Not significant (t-test statistic = 0.162 and p-value = 0.871).

Table 3.7. Any Treatment Versus No Treatment, Timing 2, Avid and Sporadic Bowhunters Together, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 2: Social, Timing 2, Avid | 1,705 | 316 | 286 | 30 | | 1,389 |
| Group 4: Aesthetic, Timing 2, Avid | 1,601 | 314 | 295 | 19 | | 1,287 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 1,642 | 338 | 310 | 28 | | 1,304 |
| Group 8: Hunting - Success, Timing 2, Avid | 1,666 | 352 | 321 | 31 | | 1,314 |
| Group 11: Social, Timing 2, Sporadic | 11,045 | 1,081 | 929 | 152 | | 9,964 |
| Group 13: Aesthetic, Timing 2, Sporadic | 10,918 | 1,105 | 959 | 146 | | 9,813 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 11,039 | 1,116 | 961 | 155 | | 9,923 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 10,921 | 1,016 | 872 | 144 | | 9,905 |
| Sum of Groups 2, 4, 6, 8, 11, 13, 15, and 17 | 50,537 | 5,638 | 4,933 | 705 | 1.4% | 44,899 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 2,469 | 340 | 1.3% | 22,815 |

Not significant (t-test statistic = 0.770 and p-value = 0.442).

The two tables above are summarized in Figure 3.2. While both lifts are positive, they are not statistically significant.

**Figure 3.2. Lift Estimates, Any Treatment, Avid and Sporadic Together, Georgia**

One set of tests looked at the individual treatments (social, aesthetic, hunting-recreation, and hunting-success) against the control group, to assess the effectiveness of the various message themes, run separately on avid and sporadic bowhunters. The first of these tests compared Group 1 (the social message, Timing 1, avid) to Group 9 (the avid control group, using the Timing 1 date) (see the shaded cells in Table 3.8).

In this comparison, 299 purchasers out of 1,648 was compared to 630 purchasers out of 3,192. In other words, in Group 1, the rate of purchase in the time period was 18.1%, while the rate of purchase in Group 9 over that same time period was 19.7%. This would be considered *negative* lift (i.e., the control group bought at a higher rate than the treatment group). Nonetheless, significance tests were run. Using an independent samples t-test, there was no statistically significant difference between Group 1 and Group 9 using the Timing 1 date (t-test statistic = -1.348 and p-value = 0.178).

Table 3.8. Social Theme Versus Control Group, Timing 1, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|---|--|--|--|---|
| Group 1: Social, Timing 1, Avid | 1,648 | 299 | 18.1% | 272 | 27 | 1,349 |
| Group 9: Control, Avid | 3,192 | 630 | 19.7% | 583 | 47 | 2,562 |

Not significant (t-test statistic = -1.348 and p-value = 0.178).

The next comparison is Group 2 to Group 9 (the control group, but using Timing 2 date), again they are the shaded cells (Table 3.9). In Group 2, there were 30 purchasers out of 1,705 in the given time period (1.8%). This is compared to 47 purchasers out of 3,192 (1.5%) in Group 9 using the Timing 2 date. While this is a positive lift, it is not statistically significant based on an independent samples t-test (t-test statistic = 0.749 and p-value = 0.456).

Table 3.9. Social Theme Versus Control Group, Timing 2, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|---|--|--|--|---|
| Group 2: Social, Timing 2, Avid | 1,705 | 316 | 286 | 30 | 1.8% | 1,389 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | 1.5% | 2,562 |

Not significant (t-test statistic = 0.749 and p-value = 0.456).

Likewise, comparisons were made of the rest of the individual groups, with the significance test results listed (Tables 3.10 through 3.23).

Table 3.10. Aesthetic Theme Versus Control Group, Timing 1, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|--|--|---|
| Group 3: Aesthetic, Timing 1, Avid | 1,678 | 319 | 19.0% | 297 | 22 | 1,359 |
| Group 9: Control, Avid | 3,192 | 630 | 19.7% | 583 | 47 | 2,562 |

Not significant (t-test statistic = -0.611 and p-value = 0.542).

Table 3.11. Aesthetic Theme Versus Control Group, Timing 2, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|--|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 1,601 | 314 | 295 | 19 | 1.2% | 1,287 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | 1.5% | 2,562 |

Not significant (t-test statistic = -0.829 and p-value = 0.410).

Table 3.12. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 1,637 | 320 | 19.5% | 296 | 24 | 1,317 |
| Group 9: Control, Avid | 3,192 | 630 | 19.7% | 583 | 47 | 2,562 |

Not significant (t-test statistic = -0.156 and p-value = 0.876).

Table 3.13. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 1,642 | 338 | 310 | 28 | 1.7% | 1,304 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | 1.5% | 2,562 |

Not significant (t-test statistic = 0.606 and p-value = 0.546).

Table 3.14. Hunting-Success Theme Versus Control Group, Timing 1, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 7: Hunting - Success, Timing 1, Avid | 1,644 | 322 | 19.6% | 285 | 37 | 1,322 |
| Group 9: Control, Avid | 3,192 | 630 | 19.7% | 583 | 47 | 2,562 |

Not significant (t-test statistic = -0.125 and p-value = 0.901).

Table 3.15. Hunting-Success Theme Versus Control Group, Timing 2, Avid Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 1,666 | 352 | 321 | 31 | 1.9% | 1,314 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | 1.5% | 2,562 |

Not significant (t-test statistic = 0.986 and p-value = 0.327).

Table 3.16. Social Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|--|---|
| Group 10: Social, Timing 1, Sporadic | 10,970 | 1,101 | 10.0% | 952 | 149 | 9,869 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 9.7% | 1,886 | 293 | 20,253 |

Not significant (t-test statistic = 0.926 and p-value = 0.355).

Table 3.17. Social Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|--|---|
| Group 11: Social, Timing 2, Sporadic | 11,045 | 1,081 | 929 | 152 | 1.4% | 9,964 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | 1.3% | 20,253 |

Not significant (t-test statistic = 0.521 and p-value = 0.602).

Table 3.18. Aesthetic Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 12: Aesthetic, Timing 1, Sporadic | 10,866 | 1,067 | 9.8% | 920 | 147 | 9,799 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 9.7% | 1,886 | 293 | 20,253 |

Not significant (t-test statistic = 0.305 and p-value = 0.761).

Table 3.19. Aesthetic Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 13: Aesthetic, Timing 2, Sporadic | 10,918 | 1,105 | 959 | 146 | 1.3% | 9,813 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | 1.3% | 20,253 |

Not significant (t-test statistic = 0.233 and p-value = 0.816).

Table 3.20. Hunting-Recreation Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 10,895 | 1,087 | 10.0% | 960 | 127 | 9,808 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 9.7% | 1,886 | 293 | 20,253 |

Not significant (t-test statistic = 0.755 and p-value = 0.450).

Table 3.21. Hunting-Recreation Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 11,039 | 1,116 | 961 | 155 | 1.4% | 9,923 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | 1.3% | 20,253 |

Not significant (t-test statistic = 0.724 and p-value = 0.469).

Table 3.22. Hunting-Success Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 16: Hunting - Success, Timing 1, Sporadic | 11,111 | 1,035 | 9.3% | 907 | 128 | 10,076 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 9.7% | 1,886 | 293 | 20,253 |

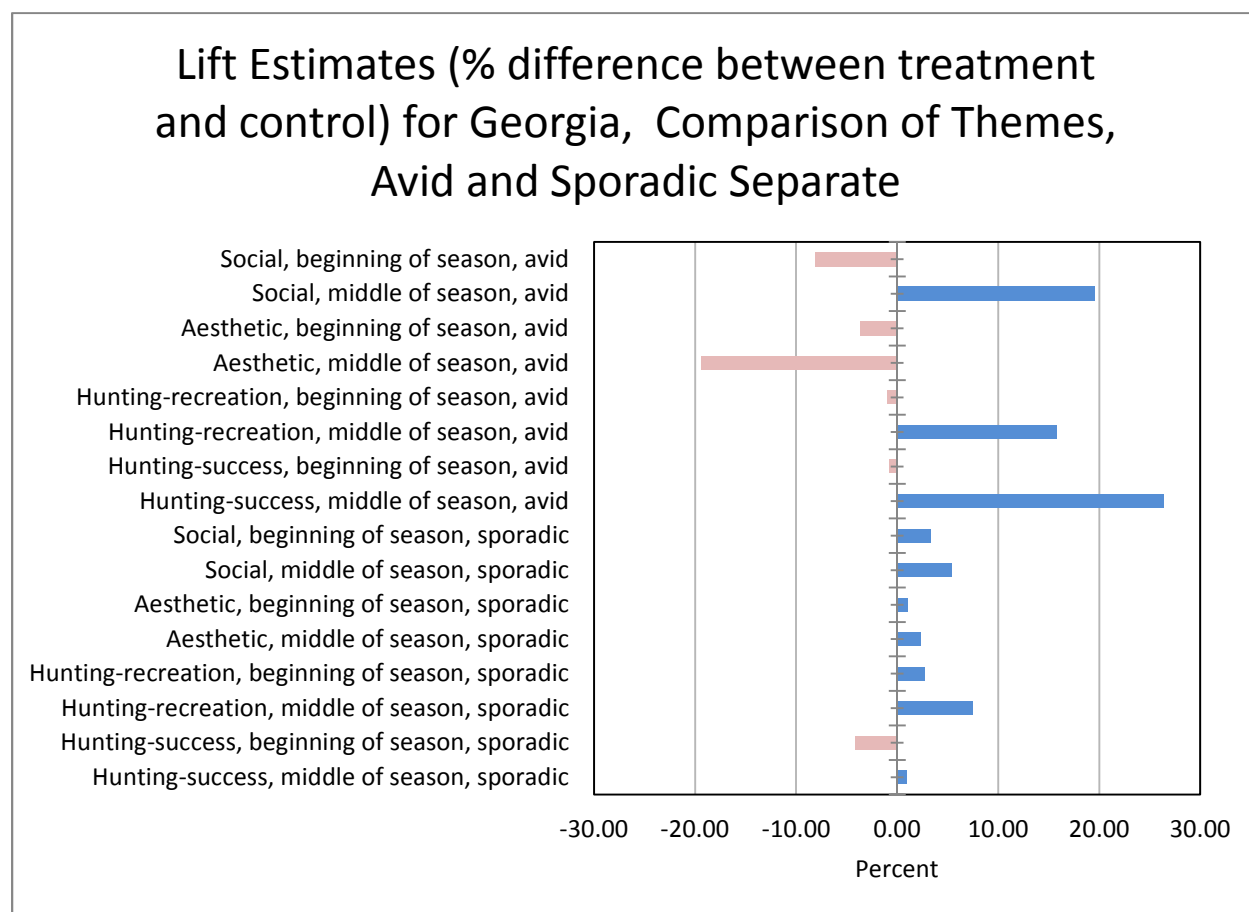
Not significant (t-test statistic = -1.175 and p-value = 0.240).

Table 3.23. Hunting-Success Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 17: Hunting - Success, Timing 2, Sporadic | 10,921 | 1,016 | 872 | 144 | 1.3% | 9,905 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | 1.3% | 20,253 |

Not significant (t-test statistic = 0.093 and p-value = 0.926).

The tables above of all the groups separately are summarized in Figure 3.3. While there are 10 positive lifts and 6 negative lifts, non of the findings are statistically significant.

**Figure 3.3. Lift Estimates, Individual Treatments, Avid and Sporadic Separate, Georgia**

The last set of statistical tests looked at the message themes, but putting the avid and sporadic together (Tables 3.24 through 3.31). None of the differences were statistically significant.

Table 3.24. Social Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|--|---|
| Group 1: Social, Timing 1, Avid | 1,648 | 299 | | 272 | 27 | 1,349 |
| Group 10: Social, Timing 1, Sporadic | 10,970 | 1,101 | | 952 | 149 | 9,869 |
| Sum of Groups 1 and 10 | 12,618 | 1,400 | 11.1% | 1,224 | 176 | 11,218 |
| Group 9: Control, Avid | 3,192 | 630 | | 583 | 47 | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | | 1,886 | 293 | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 11.0% | 2,469 | 340 | 22,815 |

Not significant (t-test statistic = 0.390 and p-value = 0.697).

Table 3.25. Aesthetic Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 3: Aesthetic, Timing 1, Avid | 1,678 | 319 | | 297 | 22 | 1,359 |
| Group 12: Aesthetic, Timing 1, Sporadic | 10,866 | 1,067 | | 920 | 147 | 9,799 |
| Sum of Groups 3 and 12 | 12,544 | 1,386 | 11.0% | 1,217 | 169 | 11,158 |
| Group 9: Control, Avid | 3,192 | 630 | | 583 | 47 | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | | 1,886 | 293 | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 11.0% | 2,469 | 340 | 22,815 |

Not significant (t-test statistic = 0.254 and p-value = 0.799).

Table 3.26. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 1,637 | 320 | | 296 | 24 | 1,317 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 10,895 | 1,087 | | 960 | 127 | 9,808 |
| Sum of Groups 5 and 14 | 12,532 | 1,407 | 11.2% | 1,256 | 151 | 11,125 |
| Group 9: Control, Avid | 3,192 | 630 | | 583 | 47 | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | | 1,886 | 293 | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 11.0% | 2,469 | 340 | 22,815 |

Not significant (t-test statistic = 0.772 and p-value = 0.440).

Table 3.27. Hunting-Success Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 7: Hunting - Success, Timing 1, Avid | 1,644 | 322 | | 285 | 37 | 1,322 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 11,111 | 1,035 | | 907 | 128 | 10,076 |
| Sum of Groups 7 and 16 | 12,755 | 1,357 | 10.6% | 1,192 | 165 | 11,398 |
| Group 9: Control, Avid | 3,192 | 630 | | 583 | 47 | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | | 1,886 | 293 | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 11.0% | 2,469 | 340 | 22,815 |

Not significant (t-test statistic = -0.964 and p-value = 0.335).

Table 3.28. Social Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|--|---|
| Group 2: Social, Timing 2, Avid | 1,705 | 316 | 286 | 30 | | 1,389 |
| Group 11: Social, Timing 2, Sporadic | 11,045 | 1,081 | 929 | 152 | | 9,964 |
| Sum of Groups 2 and 11 | 12,750 | 1,397 | 1,215 | 182 | 1.4% | 11,353 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 2,469 | 340 | 1.3% | 22,815 |

Not significant (t-test statistic = 0.791 and p-value = 0.429).

Table 3.29. Aesthetic Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 1,601 | 314 | 295 | 19 | | 1,287 |
| Group 13: Aesthetic, Timing 2, Sporadic | 10,918 | 1,105 | 959 | 146 | | 9,813 |
| Sum of Groups 4 and 13 | 12,519 | 1,419 | 1,254 | 165 | 1.3% | 11,100 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 2,469 | 340 | 1.3% | 22,815 |

Not significant (t-test statistic = -0.071 and p-value = 0.943).

Table 3.30. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 1,642 | 338 | 310 | 28 | | 1,304 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 11,039 | 1,116 | 961 | 155 | | 9,923 |
| Sum of Groups 6 and 15 | 12,681 | 1,454 | 1,271 | 183 | 1.4% | 11,227 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 2,469 | 340 | 1.3% | 22,815 |

Not significant (t-test statistic = 0.910 and p-value = 0.363).

Table 3.31. Hunting-Success Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Georgia

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for GA, 9/19/2017 to 1/31/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for GA, from 9/19/2017 to 11/30/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for GA, 12/1/2017 to 1/31/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 1,666 | 352 | 321 | 31 | | 1,314 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 10,921 | 1,016 | 872 | 144 | | 9,905 |
| Sum of Groups 8 and 17 | 12,587 | 1,368 | 1,193 | 175 | 1.4% | 11,219 |
| Group 9: Control, Avid | 3,192 | 630 | 583 | 47 | | 2,562 |
| Group 18: Control, Sporadic | 22,432 | 2,179 | 1,886 | 293 | | 20,253 |
| Sum of Groups 9 and 18 | 25,624 | 2,809 | 2,469 | 340 | 1.3% | 22,815 |

Not significant (t-test statistic = 0.502 and p-value = 0.616).

The above tables of avid and sporadic bowhunters together are summarized in Figure 3.4. While there are more positive outcomes than negative, none of them are statistically significant.

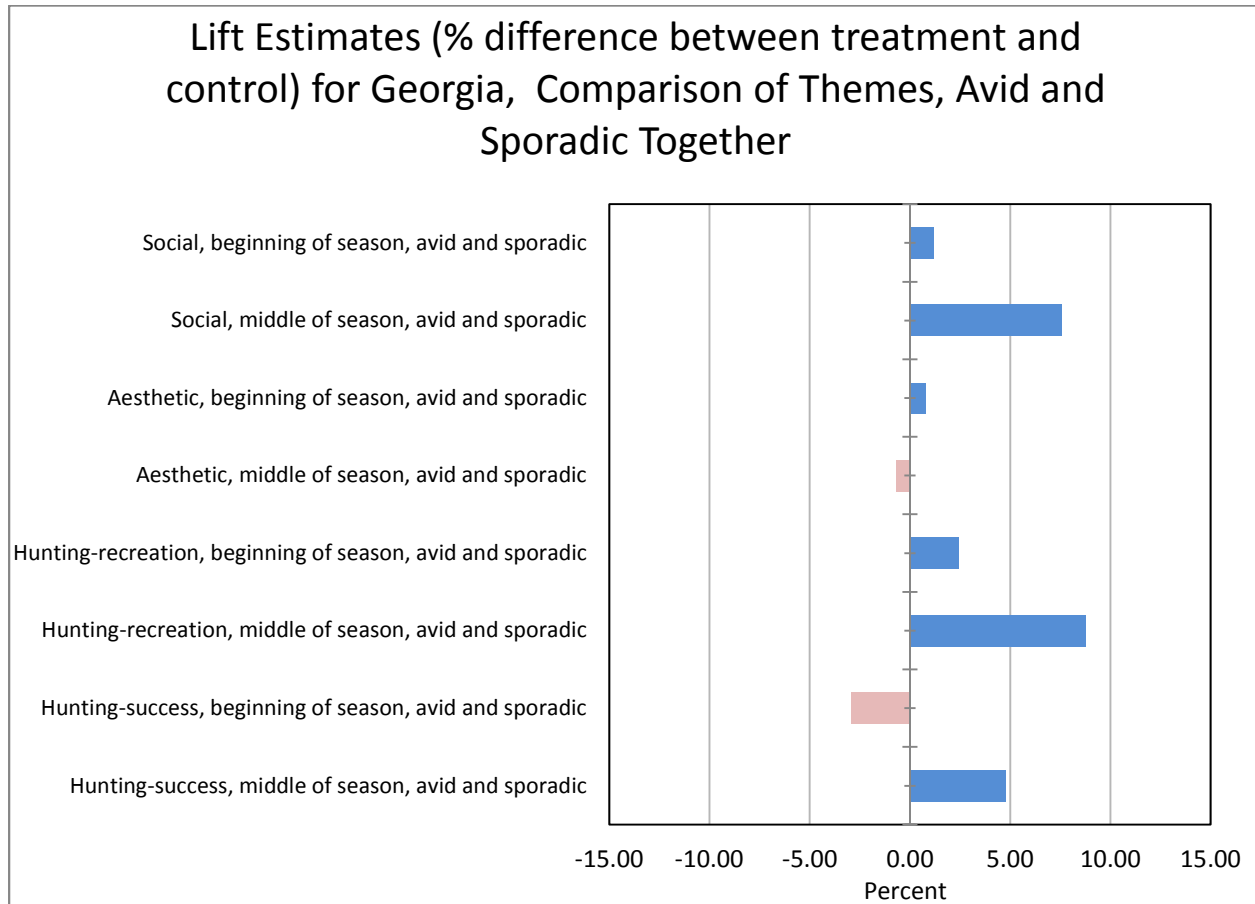


Figure 3.4. Lift Estimates, Individual Treatments, Avid and Sporadic Together, Georgia

INDIANA'S RESULTS

Prior to any statistical tests, the raw data were tabulated for analyses. Taking the number in the original sample, the first step in the analysis was to categorize each of these hunters as having purchased a hunting license or having not purchased a license in the time period (Table 3.32). Additionally, the purchasing time period was divided in two: from the Timing 1 treatment date to the Timing 2 treatment date, then any time after the Timing 2 treatment date up to the end of the season. This allowed the treatment and control groups to be compared over the same time periods.

Table 3.32. Purchasers of Licenses in the 2017-2018 Season After the First Treatment Date, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 4,231 | 2,506 | 1,735 | 771 | 1,725 |
| Group 2: Social, Timing 2, Avid | 4,222 | 2,490 | 1,740 | 750 | 1,732 |
| Group 3: Aesthetic, Timing 1, Avid | 4,070 | 2,363 | 1,661 | 702 | 1,707 |
| Group 4: Aesthetic, Timing 2, Avid | 4,325 | 2,492 | 1,721 | 771 | 1,833 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 4,210 | 2,482 | 1,728 | 754 | 1,728 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 4,256 | 2,463 | 1,745 | 718 | 1,793 |
| Group 7: Hunting - Success, Timing 1, Avid | 4,301 | 2,563 | 1,805 | 758 | 1,738 |
| Group 8: Hunting - Success, Timing 2, Avid | 4,294 | 2,481 | 1,750 | 731 | 1,813 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | 3,549 |
| Group 10: Social, Timing 1, Sporadic | 7,401 | 1,936 | 1,153 | 783 | 5,465 |
| Group 11: Social, Timing 2, Sporadic | 7,356 | 1,914 | 1,076 | 838 | 5,442 |
| Group 12: Aesthetic, Timing 1, Sporadic | 7,472 | 1,943 | 1,157 | 786 | 5,529 |
| Group 13: Aesthetic, Timing 2, Sporadic | 7,519 | 1,929 | 1,129 | 800 | 5,590 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 7,508 | 1,991 | 1,168 | 823 | 5,517 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 7,414 | 1,873 | 1,045 | 828 | 5,541 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 7,373 | 1,887 | 1,072 | 815 | 5,486 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 7,317 | 1,884 | 1,075 | 809 | 5,433 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | 11,055 |

Based on the data above, statistical tests were run. The first tests looked at any treatment at all versus no treatment, run separately on avid and sporadic bowhunters, and also run separately on the different timing schedules.

For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7 combined (any treatment, Timing 1, avid) vs. Group 9 (using Timing 1 for the control group)

Groups 2, 4, 6, 8 combined (any treatment, Timing 2, avid) vs. Group 9 (using Timing 2 for the control group)

Groups 10, 12, 14, 16 combined (any treatment, Timing 1, sporadic) vs. Group 18 (using Timing 1 for the control group)

Groups 11, 13, 15, 17 combined (any treatment, Timing 2, sporadic) vs. Group 18 (using Timing 2 for the control group)

Taking the first of those (Groups 1, 3, 5, 7 combined vs. Group 9) produces Table 3.33. In this test, all those with Timing 1 treatment were compared to the control using Timing 1 dates. In other words, any treatment was compared to no treatment, keeping the timing groups separate. In Table 3.33, Groups 1, 3, 5, and 7 combined have 16,812 bowhunters of which 9,914 bought licenses in the time period (59.0%), and this is compared to 8,404 in the control group, of which 4,855 bought licenses (57.8%). The control group bought at a higher rate, and this difference in lift is significant at the 90% confidence level.

Table 3.33. Any Treatment Versus No Treatment, Timing 1, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 4,231 | 2,506 | | 1,735 | 771 | 1,725 |
| Group 3: Aesthetic, Timing 1, Avid | 4,070 | 2,363 | | 1,661 | 702 | 1,707 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 4,210 | 2,482 | | 1,728 | 754 | 1,728 |
| Group 7: Hunting - Success, Timing 1, Avid | 4,301 | 2,563 | | 1,805 | 758 | 1,738 |
| Sum of Groups 1, 3, 5, and 7 | 16,812 | 9,914 | 59.0% | 6,929 | 2,985 | 6,898 |
| Group 9: Control, Avid | 8,404 | 4,855 | 57.8% | 3,434 | 1,421 | 3,549 |

Significant at the 90% confidence level (t-test statistic = 1.821 and p-value = 0.069).

Comparing all the Timing 2 avid groups that received treatment to the control group finds that the treatment groups bought at a slightly higher rate, but the difference was not significant (Table 3.34). The third test of any treatment versus no treatment showed not significant results (Table 3.35); however, the fourth test, which compared Timing 2 sporadic groups, found a positive lift that was statistically significant at the 90% confidence level (Table 3.36).

Table 3.34. Any Treatment Versus No Treatment, Timing 2, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 4,222 | 2,490 | 1,740 | 750 | | 1,732 |
| Group 4: Aesthetic, Timing 2, Avid | 4,325 | 2,492 | 1,721 | 771 | | 1,833 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 4,256 | 2,463 | 1,745 | 718 | | 1,793 |
| Group 8: Hunting - Success, Timing 2, Avid | 4,294 | 2,481 | 1,750 | 731 | | 1,813 |
| Sum of Groups 2, 4, 6, and 8 | 17,097 | 9,926 | 6,956 | 2,970 | 17.4% | 7,171 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | 16.9% | 3,549 |

Not significant (t-test statistic = 0.924 and p-value = 0.356).

Table 3.35. Any Treatment Versus No Treatment, Timing 1, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 10: Social, Timing 1, Sporadic | 7,401 | 1,936 | | 1,153 | 783 | 5,465 |
| Group 12: Aesthetic, Timing 1, Sporadic | 7,472 | 1,943 | | 1,157 | 786 | 5,529 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 7,508 | 1,991 | | 1,168 | 823 | 5,517 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 7,373 | 1,887 | | 1,072 | 815 | 5,486 |
| Sum of Groups 10, 12, 14, and 16 | 29,754 | 7,757 | 26.1% | 4,550 | 3,207 | 21,997 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 25.5% | 2,219 | 1,561 | 11,055 |

Not significant (t-test statistic = 1.344 and p-value = 0.179).

Table 3.36. Any Treatment Versus No Treatment, Timing 2, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 7,356 | 1,914 | 1,076 | 838 | | 5,442 |
| Group 13: Aesthetic, Timing 2, Sporadic | 7,519 | 1,929 | 1,129 | 800 | | 5,590 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 7,414 | 1,873 | 1,045 | 828 | | 5,541 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 7,317 | 1,884 | 1,075 | 809 | | 5,433 |
| Sum of Groups 11, 13, 15, and 17 | 29,606 | 7,600 | 4,325 | 3,275 | 11.1% | 22,006 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | 10.5% | 11,055 |

Significant at the 90% confidence level (t-test statistic = 1.735 and p-value = 0.083).

The tables above for Indiana are summarized in Figure 3.5. All showed positive lift, and two of them were statistically significant, as denoted by the two darker bars.

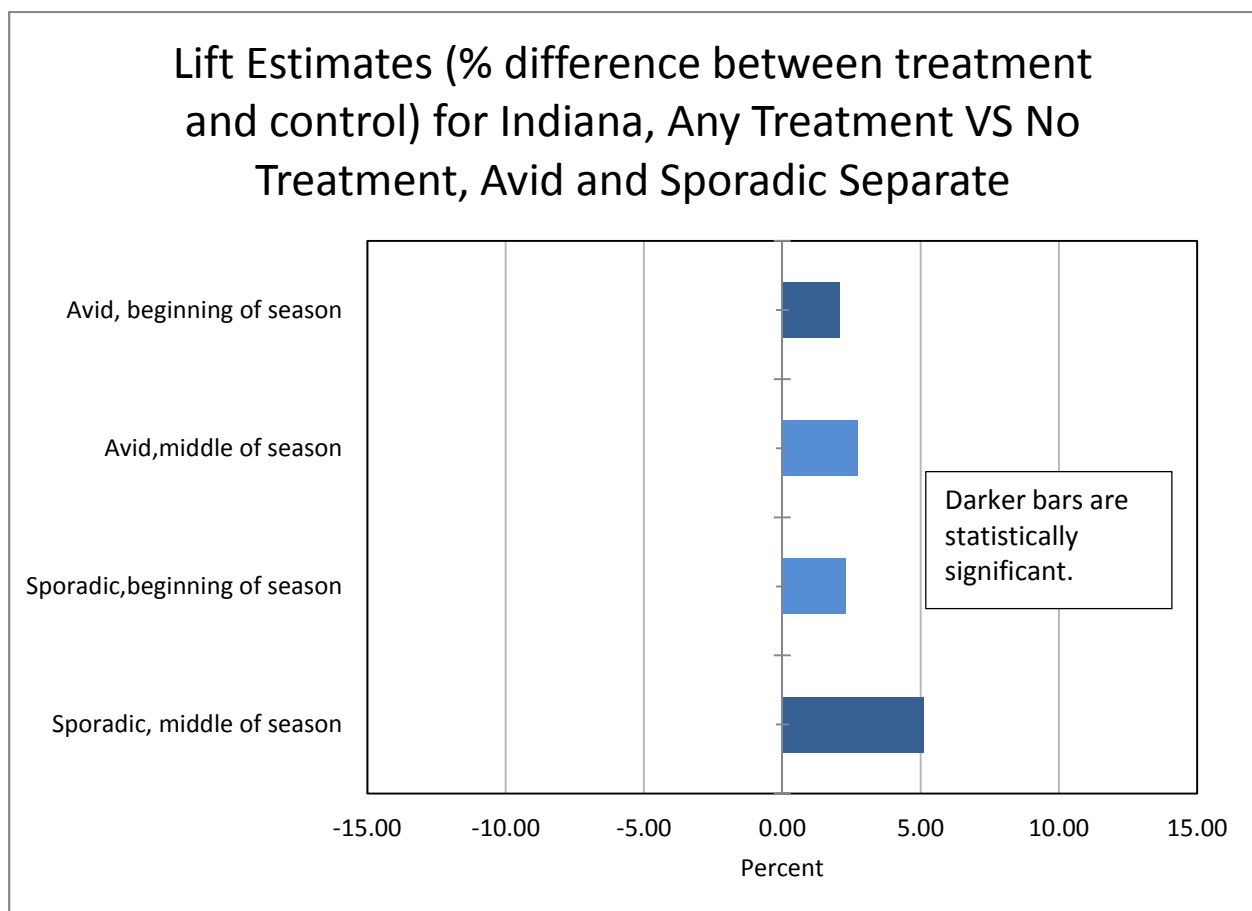


Figure 3.5. Lift Estimates, Any Treatment, Avid and Sporadic Separate, Indiana

The next set of tests looked at any treatment versus no treatment, and it combined avid and sporadic bowhunters. For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7, 10, 12, 14, 16 combined (any treatment, Timing 1, avid and sporadic together) vs. Groups 9 and 18 (using Timing 1 for the control groups)

Groups 2, 4, 6, 8, 11, 13, 15, 17 combined (any treatment, Timing 2, avid and sporadic together) vs. Groups 9 and 18 (using Timing 2 for the control groups)

The treatment was higher in both timings, and both were statistically significant at the 95% confidence level (Tables 3.37 and 3.38).

Table 3.37. Any Treatment Versus No Treatment, Timing 1, Avid and Sporadic Bowhunters Together, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 4,231 | 2,506 | | 1,735 | 771 | 1,725 |
| Group 3: Aesthetic, Timing 1, Avid | 4,070 | 2,363 | | 1,661 | 702 | 1,707 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 4,210 | 2,482 | | 1,728 | 754 | 1,728 |
| Group 7: Hunting - Success, Timing 1, Avid | 4,301 | 2,563 | | 1,805 | 758 | 1,738 |
| Group 10: Social, Timing 1, Sporadic | 7,401 | 1,936 | | 1,153 | 783 | 5,465 |
| Group 12: Aesthetic, Timing 1, Sporadic | 7,472 | 1,943 | | 1,157 | 786 | 5,529 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 7,508 | 1,991 | | 1,168 | 823 | 5,517 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 7,373 | 1,887 | | 1,072 | 815 | 5,486 |
| Sum of Groups 1, 3, 5, 7, 10, 12, 14, and 16 | 46,566 | 17,671 | 37.9% | 11,479 | 6,192 | 28,895 |
| Group 9: Control, Avid | 8,404 | 4,855 | | 3,434 | 1,421 | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | | 2,219 | 1,561 | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 37.2% | 5,653 | 2,982 | 14,604 |

Significant at the 95% confidence level (t-test statistic = 2.035 and p-value = 0.042).

Table 3.38. Any Treatment Versus No Treatment, Timing 2, Avid and Sporadic Bowhunters Together, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 4,222 | 2,490 | 1,740 | 750 | | 1,732 |
| Group 4: Aesthetic, Timing 2, Avid | 4,325 | 2,492 | 1,721 | 771 | | 1,833 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 4,256 | 2,463 | 1,745 | 718 | | 1,793 |
| Group 8: Hunting - Success, Timing 2, Avid | 4,294 | 2,481 | 1,750 | 731 | | 1,813 |
| Group 11: Social, Timing 2, Sporadic | 7,356 | 1,914 | 1,076 | 838 | | 5,442 |
| Group 13: Aesthetic, Timing 2, Sporadic | 7,519 | 1,929 | 1,129 | 800 | | 5,590 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 7,414 | 1,873 | 1,045 | 828 | | 5,541 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 7,317 | 1,884 | 1,075 | 809 | | 5,433 |
| Sum of Groups 2, 4, 6, 8, 11, 13, 15, and 17 | 46,703 | 17,526 | 11,281 | 6,245 | 13.4% | 29,177 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 5,653 | 2,982 | 12.8% | 14,604 |

Significant at the 95% confidence level (t-test statistic = 1.999 and p-value = 0.046).

These tables of any treatment versus no treatment with avid and sporadic together are graphically summarized in Figure 3.6. Note that both bars are statistically significant.

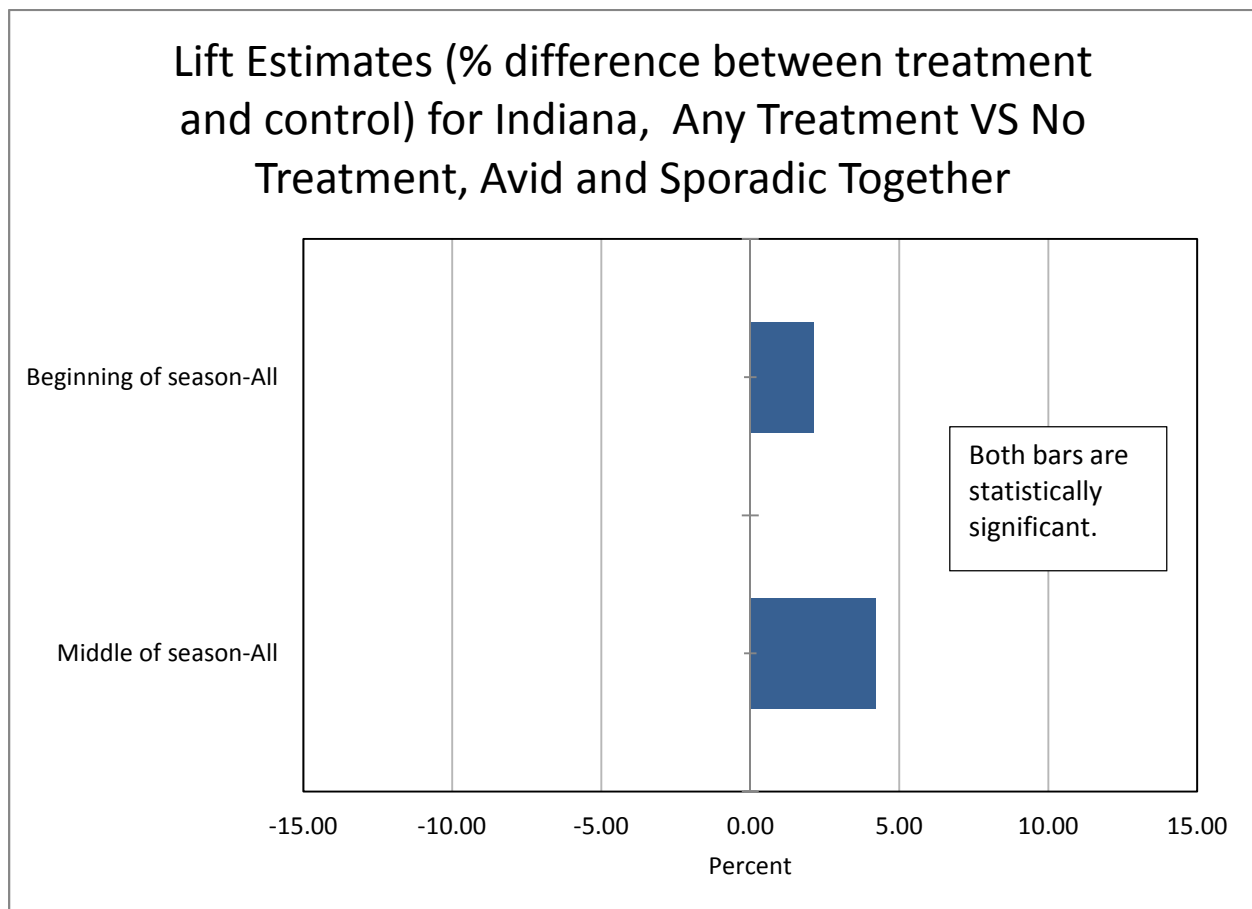


Figure 3.6. Lift Estimates, Any Treatment, Avid and Sporadic Together, Indiana

One set of tests looked at the individual treatments (social, aesthetic, hunting-recreation, and hunting-success) against the control group, to assess the effectiveness of the various message themes, run separately on avid and sporadic bowhunters. The first of these tests compared Group 1 (the social message, Timing 1, avid) to Group 9 (the avid control group, using the Timing 1 date) (see the shaded cells in Table 3.39). The second of these tests compared Group 2 to the Group 9, but it used the Timing 2 date (Table 3.40). All of the groups were compared likewise, with the notation at the bottom of the table regarding significance (Tables 3.41 through 3.54). While most were not statistically significant, Group 7 (hunting-success, Timing 1, among avid bowhunters), Group 11 (social, Timing 2, among sporadic bowhunters), and Group 14 (hunting-recreation, Timing 1, among sporadic bowhunters) showed positive lift and were significantly different from the control groups at the significance levels indicated.

Table 3.39. Social Theme Versus Control Group, Timing 1, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 4,231 | 2,506 | 59.2% | 1,735 | 771 | 1,725 |
| Group 9: Control, Avid | 8,404 | 4,855 | 57.8% | 3,434 | 1,421 | 3,549 |

Not significant (t-test statistic = 1.573 and p-value = 0.116).

Table 3.40. Social Theme Versus Control Group, Timing 2, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 4,222 | 2,490 | 1,740 | 750 | 17.8% | 1,732 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | 16.9% | 3,549 |

Not significant (t-test statistic = 1.194 and p-value = 0.233).

Table 3.41. Aesthetic Theme Versus Control Group, Timing 1, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|--|--|---|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 4,070 | 2,363 | 58.1% | 1,661 | 702 | 1,707 |
| Group 9: Control, Avid | 8,404 | 4,855 | 57.8% | 3,434 | 1,421 | 3,549 |

Not significant (t-test statistic = 0.306 and p-value = 0.759).

Table 3.42. Aesthetic Theme Versus Control Group, Timing 2, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|--|---|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 4,325 | 2,492 | 1,721 | 771 | 17.8% | 1,833 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | 16.9% | 3,549 |

Not significant (t-test statistic = 1.291 and p-value = 0.197).

Table 3.43. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 4,210 | 2,482 | 59.0% | 1,728 | 754 | 1,728 |
| Group 9: Control, Avid | 8,404 | 4,855 | 57.8% | 3,434 | 1,421 | 3,549 |

Not significant (t-test statistic = 1.274 and p-value = 0.203).

Table 3.44. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 4,256 | 2,463 | 1,745 | 718 | 16.9% | 1,793 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | 16.9% | 3,549 |

Not significant (t-test statistic = -0.054 and p-value = 0.957).

Table 3.45. Hunting-Success Theme Versus Control Group, Timing 1, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 4,301 | 2,563 | 59.6% | 1,805 | 758 | 1,738 |
| Group 9: Control, Avid | 8,404 | 4,855 | 57.8% | 3,434 | 1,421 | 3,549 |

Significant at the 95% confidence level (t-test statistic = 1.974 and p-value = 0.048).

Table 3.46. Hunting-Success Theme Versus Control Group, Timing 2, Avid Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 4,294 | 2,481 | 1,750 | 731 | 17.0% | 1,813 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | 16.9% | 3,549 |

Not significant (t-test statistic = 0.163 and p-value = 0.870).

Table 3.47. Social Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|--|---|---|---|
| Group 10: Social, Timing 1, Sporadic | 7,401 | 1,936 | 26.2% | 1,153 | 783 | 5,465 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 25.5% | 2,219 | 1,561 | 11,055 |

Not significant (t-test statistic = 1.088 and p-value = 0.277).

Table 3.48. Social Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|---|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 7,356 | 1,914 | 1,076 | 838 | 11.4% | 5,442 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | 10.5% | 11,055 |

Significant at the 90% confidence level (t-test statistic = 1.941 and p-value = 0.052).

Table 3.49. Aesthetic Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 12: Aesthetic, Timing 1, Sporadic | 7,472 | 1,943 | 26.0% | 1,157 | 786 | 5,529 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 25.5% | 2,219 | 1,561 | 11,055 |

Not significant (t-test statistic = 0.843 and p-value = 0.399).

Table 3.50. Aesthetic Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 13: Aesthetic, Timing 2, Sporadic | 7,519 | 1,929 | 1,129 | 800 | 10.6% | 5,590 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | 10.5% | 11,055 |

Not significant (t-test statistic = 0.269 and p-value = 0.788).

Table 3.51. Hunting-Recreation Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 7,508 | 1,991 | 26.5% | 1,168 | 823 | 5,517 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 25.5% | 2,219 | 1,561 | 11,055 |

Significant at the 90% confidence level (t-test statistic = 1.667 and p-value = 0.095).

Table 3.52. Hunting-Recreation Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 7,414 | 1,873 | 1,045 | 828 | 11.2% | 5,541 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | 10.5% | 11,055 |

Not significant (t-test statistic = 1.454 and p-value = 0.146).

Table 3.53. Hunting-Success Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 16: Hunting - Success, Timing 1, Sporadic | 7,373 | 1,887 | 25.6% | 1,072 | 815 | 5,486 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 25.5% | 2,219 | 1,561 | 11,055 |

Not significant (t-test statistic = 0.182 and p-value = 0.856).

Table 3.54. Hunting-Success Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 17: Hunting - Success, Timing 2, Sporadic | 7,317 | 1,884 | 1,075 | 809 | 11.1% | 5,433 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | 10.5% | 11,055 |

Not significant (t-test statistic = 1.200 and p-value = 0.230).

These individual group comparisons are summarized in Figure 3.7. Note that three of the positive results are statistically significant.

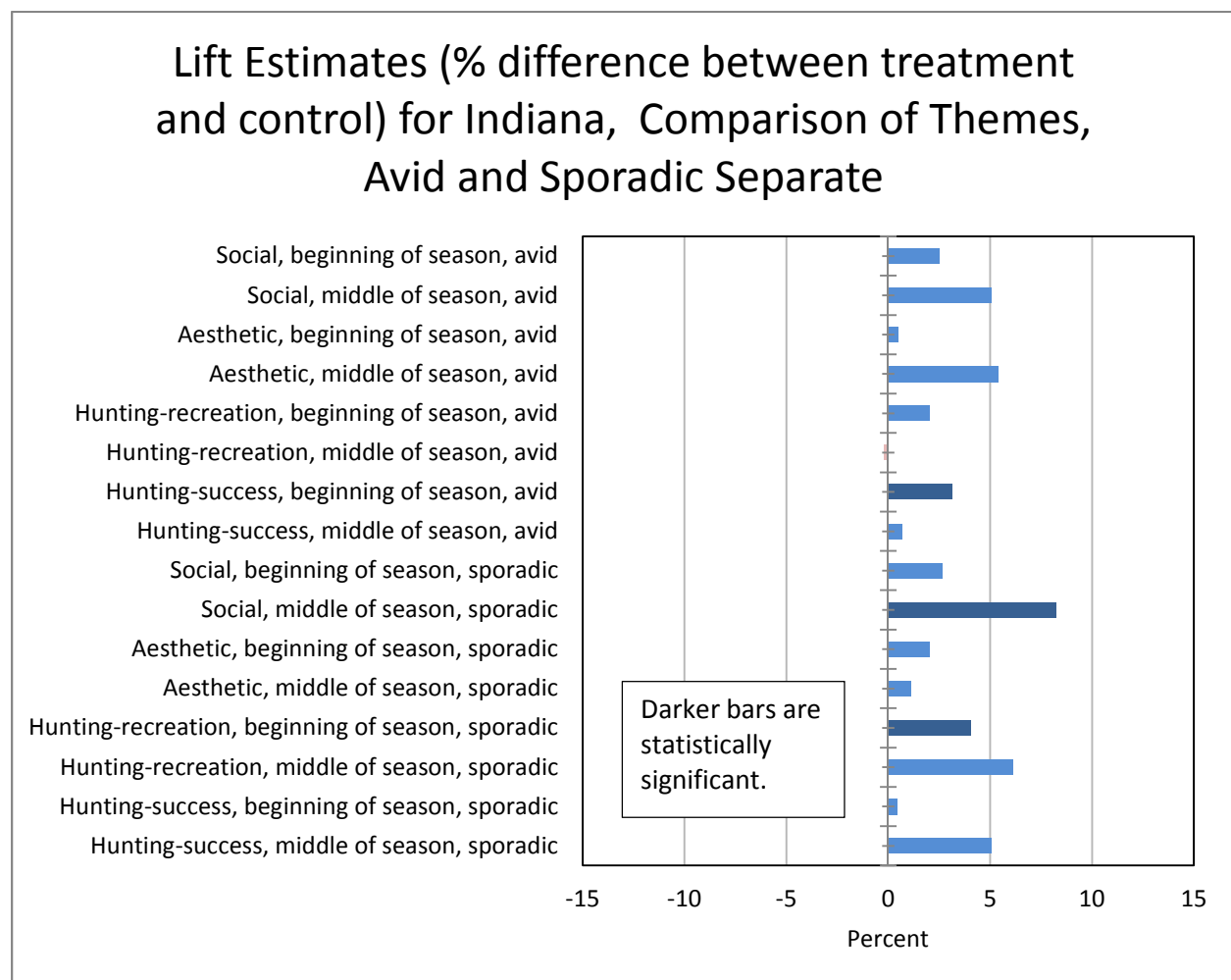


Figure 3.7. Lift Estimates, Individual Treatments, Avid and Sporadic Separate, Indiana

The last set of statistical tests looked at the message themes, but putting the avid and sporadic together (Tables 3.55 through 3.62). The social message under Timing 1 gave a positive lift and was statistically significant at the 90% confidence level. The hunting-recreation and hunting-success messages under Timing 1 both gave positive lift and were statistically significant at the 90% confidence level. Finally, the social message under Timing 2 gave a positive lift and was statistically significant at the 95% confidence level.

Table 3.55. Social Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 4,231 | 2,506 | | 1,735 | 771 | 1,725 |
| Group 10: Social, Timing 1, Sporadic | 7,401 | 1,936 | | 1,153 | 783 | 5,465 |
| Sum of Groups 1 and 10 | 11,632 | 4,442 | 38.2% | 2,888 | 1,554 | 7,190 |
| Group 9: Control, Avid | 8,404 | 4,855 | | 3,434 | 1,421 | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | | 2,219 | 1,561 | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 37.2% | 5,653 | 2,982 | 14,604 |

Significant at the 90% confidence level (t-test statistic = 1.871 and p-value = 0.061).

Table 3.56. Aesthetic Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 4,070 | 2,363 | 1,661 | 702 | | 1,707 |
| Group 12: Aesthetic, Timing 1, Sporadic | 7,472 | 1,943 | 1,157 | 786 | | 5,529 |
| Sum of Groups 3 and 12 | 11,542 | 4,306 | 37.3% | 1,488 | 0 | 7,236 |
| Group 9: Control, Avid | 8,404 | 4,855 | | 3,434 | 1,421 | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | | 2,219 | 1,561 | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 37.2% | 5,653 | 2,982 | 14,604 |

Not significant (t-test statistic = 0.272 and p-value = 0.785).

Table 3.57. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 4,210 | 2,482 | | 1,728 | 754 | 1,728 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 7,508 | 1,991 | | 1,168 | 823 | 5,517 |
| Sum of Groups 5 and 14 | 11,718 | 4,473 | 38.2% | 2,896 | 1,577 | 7,245 |
| Group 9: Control, Avid | 8,404 | 4,855 | | 3,434 | 1,421 | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | | 2,219 | 1,561 | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 37.2% | 5,653 | 2,982 | 14,604 |

Significant at the 90% confidence level (t-test statistic = 1.847 and p-value = 0.065).

Table 3.58. Hunting-Success Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 4,301 | 2,563 | 1,805 | 758 | | 1,738 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 7,373 | 1,887 | 1,072 | 815 | | 5,486 |
| Sum of Groups 7 and 16 | 11,674 | 4,450 | 38.1% | 1,573 | 0 | 7,224 |
| Group 9: Control, Avid | 8,404 | 4,855 | | 3,434 | 1,421 | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | | 2,219 | 1,561 | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 37.2% | 5,653 | 2,982 | 14,604 |

Significant at the 90% confidence level (t-test statistic = 1.748 and p-value = 0.080).

Table 3.59. Social Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 4,222 | 2,490 | 1,740 | 750 | | 1,732 |
| Group 11: Social, Timing 2, Sporadic | 7,356 | 1,914 | 1,076 | 838 | | 5,442 |
| Sum of Groups 2 and 11 | 11,578 | 4,404 | 2,816 | 1,588 | 13.7% | 7,174 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 5,653 | 2,982 | 12.8% | 14,604 |

Significant at the 95% confidence level (t-test statistic = 2.279 and p-value = 0.023).

Table 3.60. Aesthetic Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 4,325 | 2,492 | 1,721 | 771 | | 1,833 |
| Group 13: Aesthetic, Timing 2, Sporadic | 7,519 | 1,929 | 1,129 | 800 | | 5,590 |
| Sum of Groups 4 and 13 | 11,844 | 4,421 | 2,850 | 1,571 | 13.3% | 7,423 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 5,653 | 2,982 | 12.8% | 14,604 |

Not significant (t-test statistic = 1.134 and p-value = 0.257).

Table 3.61. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 4,256 | 2,463 | 1,745 | 718 | | 1,793 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 7,414 | 1,873 | 1,045 | 828 | | 5,541 |
| Sum of Groups 6 and 15 | 11,670 | 4,336 | 2,790 | 1,546 | 13.2% | 7,334 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 5,653 | 2,982 | 12.8% | 14,604 |

Not significant (t-test statistic = 1.086 and p-value = 0.278).

Table 3.62. Hunting-Success Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Indiana

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for IN, 9/27/2017 to 1/7/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for IN, from 9/27/2017 to 11/1/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for IN, 11/2/2017 to 1/7/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 4,294 | 2,481 | 1,750 | 731 | | 1,813 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 7,317 | 1,884 | 1,075 | 809 | | 5,433 |
| Sum of Groups 8 and 17 | 11,611 | 4,365 | 2,825 | 1,540 | 13.3% | 7,246 |
| Group 9: Control, Avid | 8,404 | 4,855 | 3,434 | 1,421 | | 3,549 |
| Group 18: Control, Sporadic | 14,835 | 3,780 | 2,219 | 1,561 | | 11,055 |
| Sum of Groups 9 and 18 | 23,239 | 8,635 | 5,653 | 2,982 | 12.8% | 14,604 |

Not significant (t-test statistic = 1.124 and p-value = 0.261).

Those last tables for Indiana are summarized in Figure 3.8. In this graph, four of the bars represent statistically significant findings.

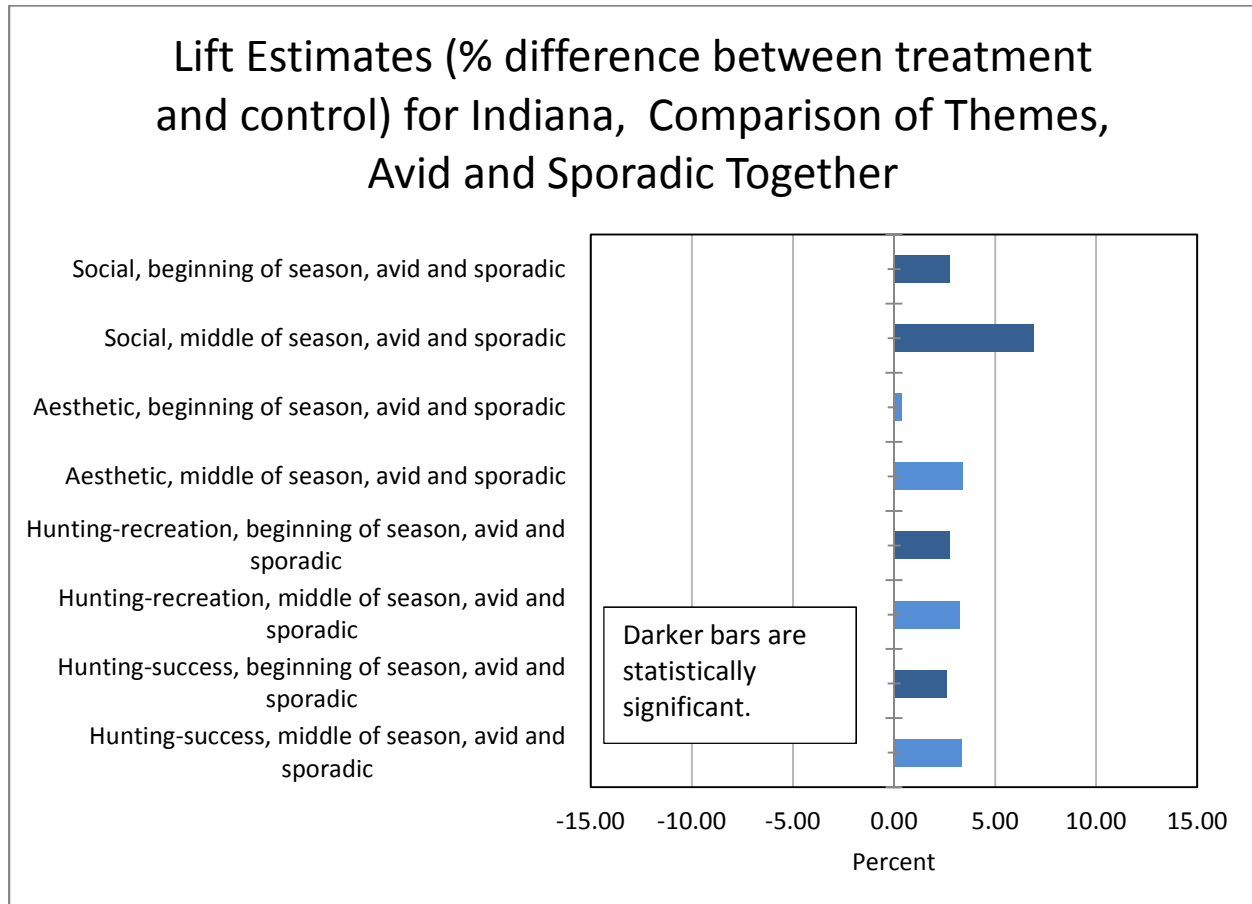


Figure 3.8. Lift Estimates, Individual Treatments, Avid and Sporadic Together, Indiana

NEW JERSEY'S RESULTS

Prior to any statistical tests, the raw data were tabulated for analyses. Taking the number in the original sample, the first step in the analysis was to categorize each of these hunters as having purchased a hunting license or having not purchased a license in the time period (Table 3.63). Additionally, the purchasing time period was divided in two: from the Timing 1 treatment date to the Timing 2 treatment date, then any time after the Timing 2 treatment date up to the end of the season. This allowed the treatment and control groups to be compared over the same time periods.

Table 3.63. Purchasers of Licenses in the 2017-2018 Season After the First Treatment Date, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|---|
| Group 1: Social, Timing 1, Avid | 2,223 | 167 | 129 | 38 | 2,056 |
| Group 2: Social, Timing 2, Avid | 2,206 | 207 | 158 | 49 | 1,999 |
| Group 3: Aesthetic, Timing 1, Avid | 2,263 | 191 | 143 | 48 | 2,072 |
| Group 4: Aesthetic, Timing 2, Avid | 2,213 | 182 | 135 | 47 | 2,031 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 2,250 | 195 | 142 | 53 | 2,055 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 2,226 | 193 | 146 | 47 | 2,033 |
| Group 7: Hunting - Success, Timing 1, Avid | 2,219 | 175 | 140 | 35 | 2,044 |
| Group 8: Hunting - Success, Timing 2, Avid | 2,246 | 187 | 139 | 48 | 2,059 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | 4,195 |
| Group 10: Social, Timing 1, Sporadic | 2,281 | 165 | 114 | 51 | 2,116 |
| Group 11: Social, Timing 2, Sporadic | 2,179 | 153 | 105 | 48 | 2,026 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,212 | 161 | 106 | 55 | 2,051 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,209 | 141 | 98 | 43 | 2,068 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,384 | 170 | 111 | 59 | 2,214 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,254 | 151 | 111 | 40 | 2,103 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,268 | 161 | 108 | 53 | 2,107 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,276 | 143 | 99 | 44 | 2,133 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | 4,171 |

Based on the data above, statistical tests were run. The first tests looked at any treatment at all versus no treatment, run separately on avid and sporadic bowhunters, and also run separately on the different timing schedules.

For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7 combined (any treatment, Timing 1, avid) vs. Group 9 (using Timing 1 for the control group)

Groups 2, 4, 6, 8 combined (any treatment, Timing 2, avid) vs. Group 9 (using Timing 2 for the control group)

Groups 10, 12, 14, 16 combined (any treatment, Timing 1, sporadic) vs. Group 18 (using Timing 1 for the control group)

Groups 11, 13, 15, 17 combined (any treatment, Timing 2, sporadic) vs. Group 18 (using Timing 2 for the control group)

Taking the first of those (Groups 1, 3, 5, 7 combined vs. Group 9) produces Table 3.64. In this test, all those with Timing 1 treatment were compared to the control using Timing 1 dates. In other words, any treatment was compared to no treatment, keeping the timing groups separate. In Table 3.64, Groups 1, 3, 5, and 7 combined have 8,955 hunters of which 728 bought licenses in the time period (8.1%), and this is compared to 4,526 in the control group, of which 331 bought licenses (7.3%). The treatment group bought at a higher rate, with the difference being statistically significant at the 90% confidence level.

Table 3.64. Any Treatment Versus No Treatment, Timing 1, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 2,223 | 167 | | 129 | 38 | 2,056 |
| Group 3: Aesthetic, Timing 1, Avid | 2,263 | 191 | | 143 | 48 | 2,072 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 2,250 | 195 | | 142 | 53 | 2,055 |
| Group 7: Hunting - Success, Timing 1, Avid | 2,219 | 175 | | 140 | 35 | 2,044 |
| Sum of Groups 1, 3, 5, and 7 | 8,955 | 728 | 8.1% | 554 | 174 | 8,227 |
| Group 9: Control, Avid | 4,526 | 331 | 7.3% | 234 | 97 | 4,195 |

Significant at the 90% confidence level (t-test statistic = 1.690 and p-value = 0.091).

Comparing all the Timing 2 avid groups that received treatment to the control group finds that the treatment groups bought at about the same rate; the difference was not significant (Table 3.65). The other tests of any treatment versus no treatment are included (Tables 3.66 and 3.67), with the only significant difference (at the 90% confidence level) being among sporadic bowhunters who received any treatment using Timing 2, in which the treatment group bought at a lower rate than the control group.

Table 3.65. Any Treatment Versus No Treatment, Timing 2, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 2,206 | 207 | 158 | 49 | | 1,999 |
| Group 4: Aesthetic, Timing 2, Avid | 2,213 | 182 | 135 | 47 | | 2,031 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 2,226 | 193 | 146 | 47 | | 2,033 |
| Group 8: Hunting - Success, Timing 2, Avid | 2,246 | 187 | 139 | 48 | | 2,059 |
| Sum of Groups 2, 4, 6, and 8 | 8,891 | 769 | 578 | 191 | 2.1% | 8,122 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | 2.1% | 4,195 |

Not significant (t-test statistic = 0.019 and p-value = 0.985).

Table 3.66. Any Treatment Versus No Treatment, Timing 1, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 10: Social, Timing 1, Sporadic | 2,281 | 165 | | 114 | 51 | 2,116 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,212 | 161 | | 106 | 55 | 2,051 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,384 | 170 | | 111 | 59 | 2,214 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,268 | 161 | | 108 | 53 | 2,107 |
| Sum of Groups 10, 12, 14, and 16 | 9,145 | 657 | 7.2% | 439 | 218 | 8,488 |
| Group 18: Control, Sporadic | 4,493 | 322 | 7.2% | 210 | 112 | 4,171 |

Not significant (t-test statistic = 0.037 and p-value = 0.970).

Table 3.67. Any Treatment Versus No Treatment, Timing 2, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 2,179 | 153 | 105 | 48 | | 2,,026 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,209 | 141 | 98 | 43 | | 2,068 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,254 | 151 | 111 | 40 | | 2,103 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,276 | 143 | 99 | 44 | | 2,133 |
| Sum of Groups 11, 13, 15, and 17 | 8,918 | 588 | 413 | 175 | 2.0% | 6,304 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | 2.5% | 4,171 |

Significant at the 90% confidence level (t-test statistic = -1.928 and p-value = 0.055).

A summary of these first four tables for New Jersey is shown in Figure 3.9. Two of the four bars are statistically significant, including the negative one.

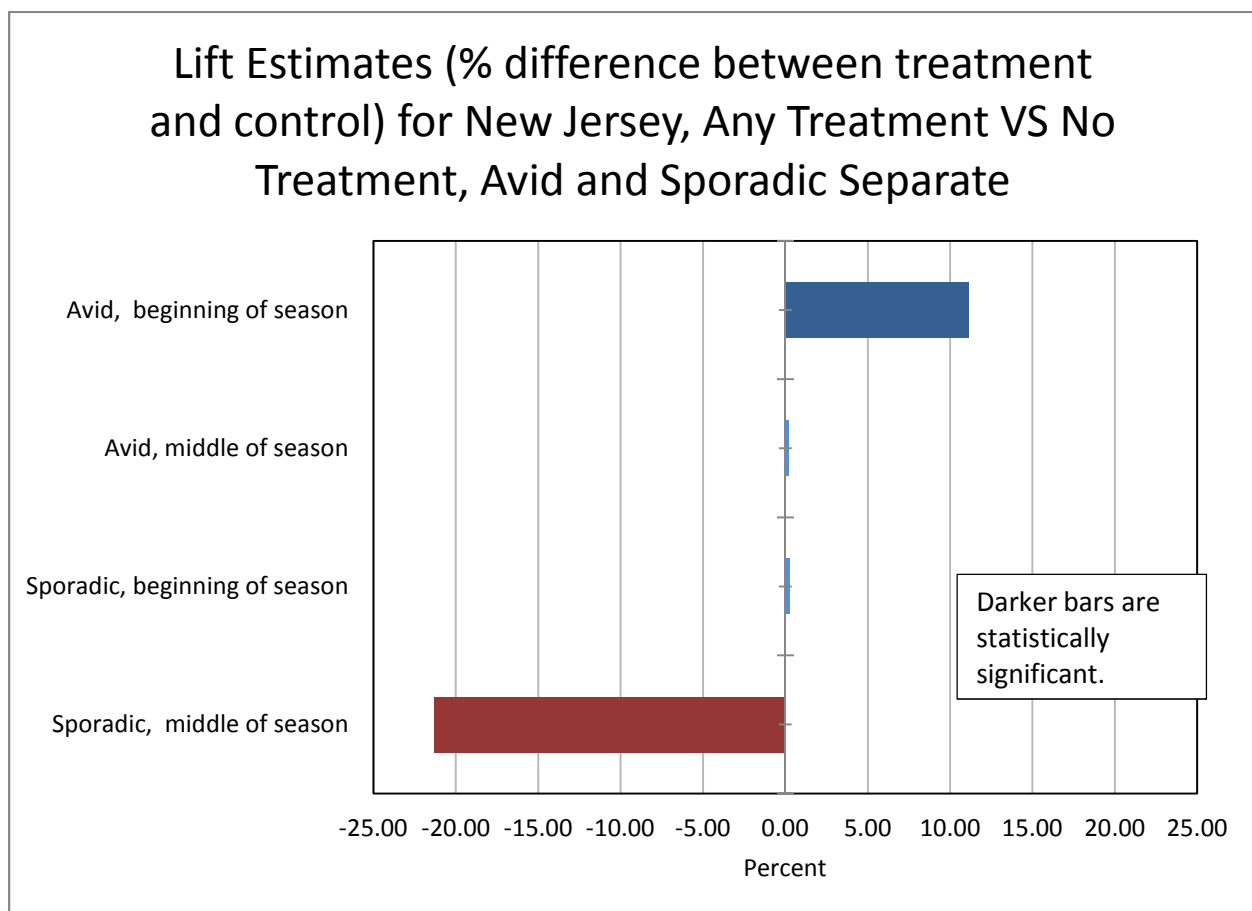


Figure 3.9. Lift Estimates, Any Treatment, Avid and Sporadic Separate, New Jersey

The next set of tests looked at any treatment versus no treatment, and it combined avid and sporadic bowhunters. For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7, 10, 12, 14, 16 combined (any treatment, Timing 1, avid and sporadic together) vs. Groups 9 and 18 (using Timing 1 for the control groups)

Groups 2, 4, 6, 8, 11, 13, 15, 17 combined (any treatment, Timing 2, avid and sporadic together) vs. Groups 9 and 18 (using Timing 2 for the control groups)

Although the treatment was higher for Timing 1, neither of the results were statistically significant (Tables 3.68 and 3.69).

Table 3.68. Any Treatment Versus No Treatment, Timing 1, Avid and Sporadic Bowhunters Together, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 2,223 | 167 | | 129 | 38 | 2,056 |
| Group 3: Aesthetic, Timing 1, Avid | 2,263 | 191 | | 143 | 48 | 2,072 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 2,250 | 195 | | 142 | 53 | 2,055 |
| Group 7: Hunting - Success, Timing 1, Avid | 2,219 | 175 | | 140 | 35 | 2,044 |
| Group 10: Social, Timing 1, Sporadic | 2,281 | 165 | | 114 | 51 | 2,116 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,212 | 161 | | 106 | 55 | 2,051 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,384 | 170 | | 111 | 59 | 2,214 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,268 | 161 | | 108 | 53 | 2,107 |
| Sum of Groups 1, 3, 5, 7, 10, 12, 14, and 16 | 18,100 | 1,385 | 7.7% | 993 | 392 | 16,715 |
| Group 9: Control, Avid | 4,526 | 331 | | 234 | 97 | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | | 210 | 112 | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 7.2% | 444 | 209 | 8,366 |

Not significant (t-test statistic = 1.222 and p-value = 0.222).

Table 3.69. Any Treatment Versus No Treatment, Timing 2, Avid and Sporadic Bowhunters Together, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 2,206 | 207 | 158 | 49 | | 1,999 |
| Group 4: Aesthetic, Timing 2, Avid | 2,213 | 182 | 135 | 47 | | 2,031 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 2,226 | 193 | 146 | 47 | | 2,033 |
| Group 8: Hunting - Success, Timing 2, Avid | 2,246 | 187 | 139 | 48 | | 2,059 |
| Group 11: Social, Timing 2, Sporadic | 2,179 | 153 | 105 | 48 | | 2,026 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,209 | 141 | 98 | 43 | | 2,068 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,254 | 151 | 111 | 40 | | 2,103 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,276 | 143 | 99 | 44 | | 2,133 |
| Sum of Groups 2, 4, 6, 8, 11, 13, 15, and 17 | 17,809 | 1,357 | 991 | 366 | 2.1% | 16,452 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 444 | 209 | 2.3% | 8,366 |

Not significant (t-test statistic = -1.374 and p-value = 0.170).

These two tables are summarized in Figure 3.10; neither result in this graph is statistically significant.

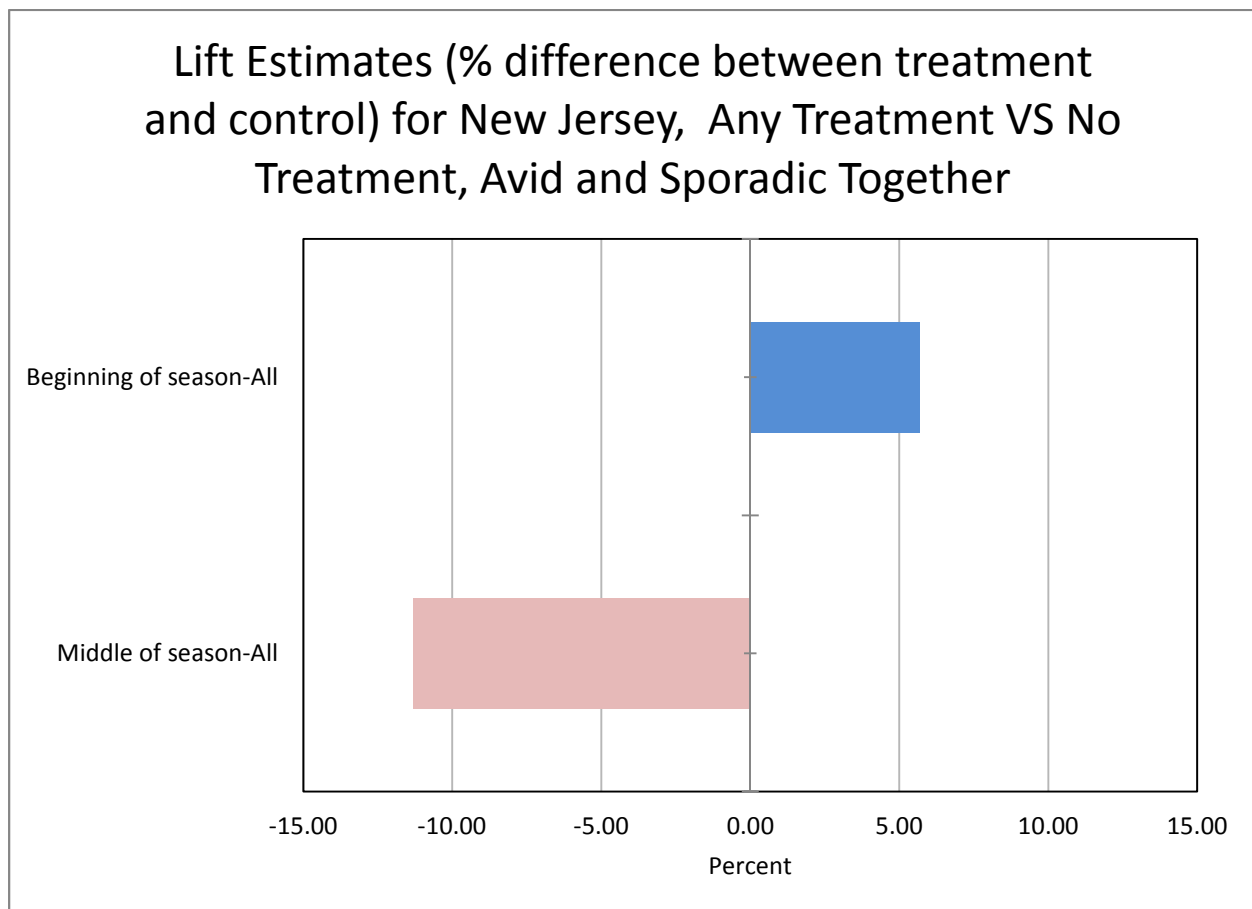


Figure 3.10. Lift Estimates, Any Treatment, Avid and Sporadic Together, New Jersey

One set of tests looked at the individual treatments (social, aesthetic, hunting-recreation, and hunting-success) against the control group, to assess the effectiveness of the various message themes, run separately on avid and sporadic bowhunters. The first of these tests compared Group 1 (the social message, Timing 1, avid) to Group 9 (the avid control group, using the Timing 1 date) (see the shaded cells in Table 3.70). In this comparison, 167 purchasers out of 2,223 was compared to 331 purchasers out of 4,526. In other words, in Group 1, the rate of purchase in the time period was 7.5%, while the rate of purchase in Group 9 over that same time period was 7.3%. This is positive lift; nonetheless, it was not significant.

The rest of the individual group tests are presented in Tables 3.71 through 3.85. There was a significant difference between Group 5 (hunting-recreation message among avid bowhunters using Timing 1) and the control group, with the treatment group purchasing a license at a higher rate (8.7%) than the control group (7.3%), a significant difference at the 90% confidence level (t-test statistic = 1.911 and p-value = 0.057).

Table 3.70. Social Theme Versus Control Group, Timing 1, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 2,223 | 167 | 7.5% | 129 | 38 | 2,056 |
| Group 9: Control, Avid | 4,526 | 331 | 7.3% | 234 | 97 | 4,195 |

Not significant (t-test statistic = 0.293 and p-value = 0.770).

Table 3.71. Social Theme Versus Control Group, Timing 2, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 2,206 | 207 | 158 | 49 | 2.2% | 1,999 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | 2.1% | 4,195 |

Not significant (t-test statistic = 0.205 and p-value = 0.838).

Table 3.72. Aesthetic Theme Versus Control Group, Timing 1, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|--|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 2,263 | 191 | 8.4% | 143 | 48 | 2,072 |
| Group 9: Control, Avid | 4,526 | 331 | 7.3% | 234 | 97 | 4,195 |

Not significant (t-test statistic = 1.607 and p-value = 0.109).

Table 3.73. Aesthetic Theme Versus Control Group, Timing 2, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 2,213 | 182 | 135 | 47 | 2.1% | 2,031 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | 2.1% | 4,195 |

Not significant (t-test statistic = -0.052 and p-value = 0.959).

Table 3.74. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 2,250 | 195 | 8.7% | 142 | 53 | 2,055 |
| Group 9: Control, Avid | 4,526 | 331 | 7.3% | 234 | 97 | 4,195 |

Significant at the 90% confidence level (t-test statistic = 1.911 and p-value = 0.057).

Table 3.75. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 2,226 | 193 | 146 | 47 | 2.1% | 2,033 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | 2.1% | 4,195 |

Not significant (t-test statistic = -0.085 and p-value = 0.932).

Table 3.76. Hunting-Success Theme Versus Control Group, Timing 1, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 2,219 | 175 | 7.9% | 140 | 35 | 2,044 |
| Group 9: Control, Avid | 4,526 | 331 | 7.3% | 234 | 97 | 4,195 |

Not significant (t-test statistic = 0.830 and p-value = 0.407).

Table 3.77. Hunting-Success Theme Versus Control Group, Timing 2, Avid Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 2,246 | 187 | 139 | 48 | 2.1% | 2,059 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | 2.1% | 4,195 |

Not significant (t-test statistic = -0.016 and p-value = 0.987).

Table 3.78. Social Theme Versus Control Group, Timing 1, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|---|---|
| Group 10: Social, Timing 1, Sporadic | 2,281 | 165 | 7.2% | 114 | 51 | 2,116 |
| Group 18: Control, Sporadic | 4,493 | 322 | 7.2% | 210 | 112 | 4,171 |

Not significant (t-test statistic = 0.101 and p-value = 0.920).

Table 3.79. Social Theme Versus Control Group, Timing 2, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 2,179 | 153 | 105 | 48 | 2.2% | 2,026 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | 2.5% | 4,171 |

Not significant (t-test statistic = -0.741 and p-value = 0.460).

Table 3.80. Aesthetic Theme Versus Control Group, Timing 1, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 12: Aesthetic, Timing 1, Sporadic | 2,212 | 161 | 7.3% | 106 | 55 | 2,051 |
| Group 18: Control, Sporadic | 4,493 | 322 | 7.2% | 210 | 112 | 4,171 |

Not significant (t-test statistic = 0.166 and p-value = 0.868).

Table 3.81. Aesthetic Theme Versus Control Group, Timing 2, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 13: Aesthetic, Timing 2, Sporadic | 2,209 | 141 | 98 | 43 | 1.9% | 2,068 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | 2.5% | 4,171 |

Not significant (t-test statistic = -1.457 and p-value = 0.147).

Table 3.82. Hunting-Recreation Theme Versus Control Group, Timing 1, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,384 | 170 | 7.1% | 111 | 59 | 2,214 |
| Group 18: Control, Sporadic | 4,493 | 322 | 7.2% | 210 | 112 | 4,171 |

Not significant (t-test statistic = -0.055 and p-value = 0.956).

Table 3.83. Hunting-Recreation Theme Versus Control Group, Timing 2, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,254 | 151 | 111 | 40 | 1.8% | 2,103 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | 2.5% | 4,171 |

Significant at the 90% confidence level (t-test statistic = -1.981 and p-value = 0.049).

Table 3.84. Hunting-Success Theme Versus Control Group, Timing 1, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,268 | 161 | 7.1% | 108 | 53 | 2,107 |
| Group 18: Control, Sporadic | 4,493 | 322 | 7.2% | 210 | 112 | 4,171 |

Not significant (t-test statistic = -0.103 and p-value = 0.918).

Table 3.85. Hunting-Success Theme Versus Control Group, Timing 2, Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,276 | 143 | 99 | 44 | 1.9% | 2,133 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | 2.5% | 4,171 |

Not significant (t-test statistic = -1.509 and p-value = 0.133).

All of these individual group tables are summarized in Figure 3.11. Note that one positive and one negative bar are statistically significant.

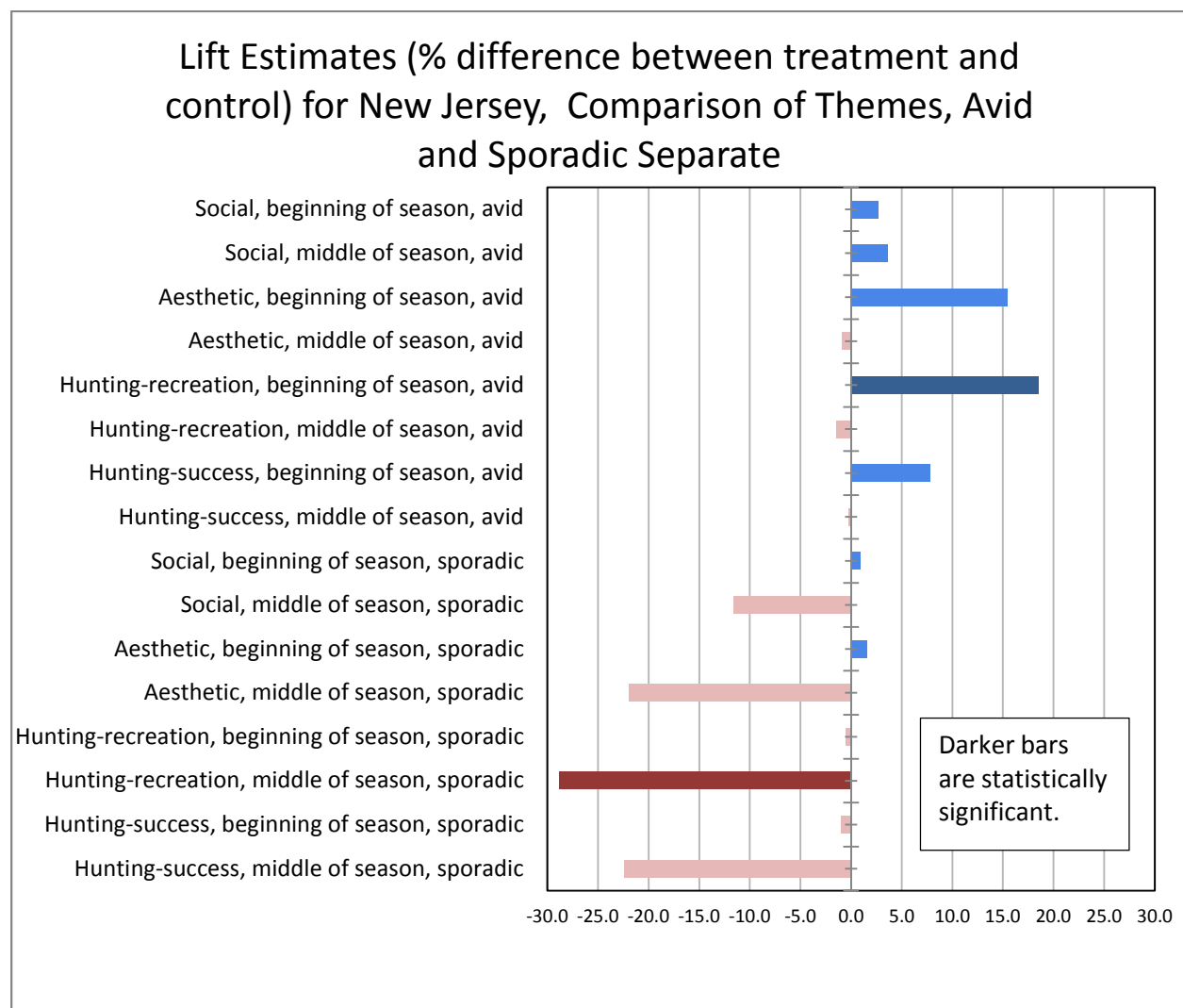


Figure 3.11. Lift Estimates, Individual Treatments, Avid and Sporadic Separate, New Jersey

The last set of statistical tests looked at the message themes, but putting the avid and sporadic together. These are presented in Tables 3.86 through 3.93. None of the differences in these tables is statistically significant.

Table 3.86. Social Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 2,223 | 167 | | 129 | 38 | 2,056 |
| Group 10: Social, Timing 1, Sporadic | 2,281 | 165 | | 114 | 51 | 2,116 |
| Sum of Groups 1 and 10 | 4,504 | 332 | 7.4% | 243 | 89 | 4,172 |
| Group 9: Control, Avid | 4,526 | 331 | | 234 | 97 | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | | 210 | 112 | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 7.2% | 444 | 209 | 8,366 |

Not significant (t-test statistic = 0.275 and p-value = 0.783).

Table 3.87. Aesthetic Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 2,263 | 191 | | 143 | 48 | 2,072 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,212 | 161 | | 106 | 55 | 2,051 |
| Sum of Groups 3 and 12 | 4,475 | 352 | 7.9% | 249 | 103 | 4,123 |
| Group 9: Control, Avid | 4,526 | 331 | | 234 | 97 | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | | 210 | 112 | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 7.2% | 444 | 209 | 8,366 |

Not significant (t-test statistic = 1.287 and p-value = 0.199).

Table 3.88. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 2,250 | 195 | | 142 | 53 | 2,055 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,384 | 170 | | 111 | 59 | 2,214 |
| Sum of Groups 5 and 14 | 4,634 | 365 | 7.9% | 253 | 112 | 4,269 |
| Group 9: Control, Avid | 4,526 | 331 | | 234 | 97 | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | | 210 | 112 | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 7.2% | 444 | 209 | 8,366 |

Not significant (t-test statistic = 1.324 and p-value = 0.186).

Table 3.89. Hunting-Success Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 2,219 | 175 | | 140 | 35 | 2,044 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,268 | 161 | | 108 | 53 | 2,107 |
| Sum of Groups 7 and 16 | 4,487 | 336 | 7.5% | 248 | 88 | 4,151 |
| Group 9: Control, Avid | 4,526 | 331 | | 234 | 97 | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | | 210 | 112 | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 7.2% | 444 | 209 | 8,366 |

Not significant (t-test statistic = 0.518 and p-value = 0.604).

Table 3.90. Social Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 2,206 | 207 | 158 | 49 | | 1,999 |
| Group 11: Social, Timing 2, Sporadic | 2,179 | 153 | 105 | 48 | | 2,026 |
| Sum of Groups 2 and 11 | 4,385 | 360 | 263 | 97 | 2.2% | 4,025 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 444 | 209 | 2.3% | 8,366 |

Not significant (t-test statistic = -0.386 and p-value = 0.700).

Table 3.91. Aesthetic Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 2,213 | 182 | 135 | 47 | | 2,031 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,209 | 141 | 98 | 43 | | 2,068 |
| Sum of Groups 4 and 13 | 4,422 | 323 | 233 | 90 | 2.0% | 4,099 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 444 | 209 | 2.3% | 8,366 |

Not significant (t-test statistic = -1.065 and p-value = 0.288).

Table 3.92. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 2,226 | 193 | 146 | 47 | | 2,033 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,254 | 151 | 111 | 40 | | 2,103 |
| Sum of Groups 6 and 15 | 4,480 | 344 | 257 | 87 | 1.9% | 4,136 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 444 | 209 | 2.3% | 8,366 |

Not significant (t-test statistic = -1.444 and p-value = 0.150).

Table 3.93. Hunting-Success Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, New Jersey

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for NJ, 9/28/2017 to 2/17/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for NJ, from 9/28/2017 to 10/29/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for NJ, 10/30/2017 to 2/17/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 2,246 | 187 | 139 | 48 | | 2,059 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,276 | 143 | 99 | 44 | | 2,133 |
| Sum of Groups 8 and 17 | 4,522 | 330 | 238 | 92 | 2.0% | 4,192 |
| Group 9: Control, Avid | 4,526 | 331 | 234 | 97 | | 4,195 |
| Group 18: Control, Sporadic | 4,493 | 322 | 210 | 112 | | 4,171 |
| Sum of Groups 9 and 18 | 9,019 | 653 | 444 | 209 | 2.3% | 8,366 |

Not significant (t-test statistic = -1.075 and p-value = 0.283).

The last of these New Jersey tables are summarized in Figure 3.12. In this graph, none of the findings are statistically significant.

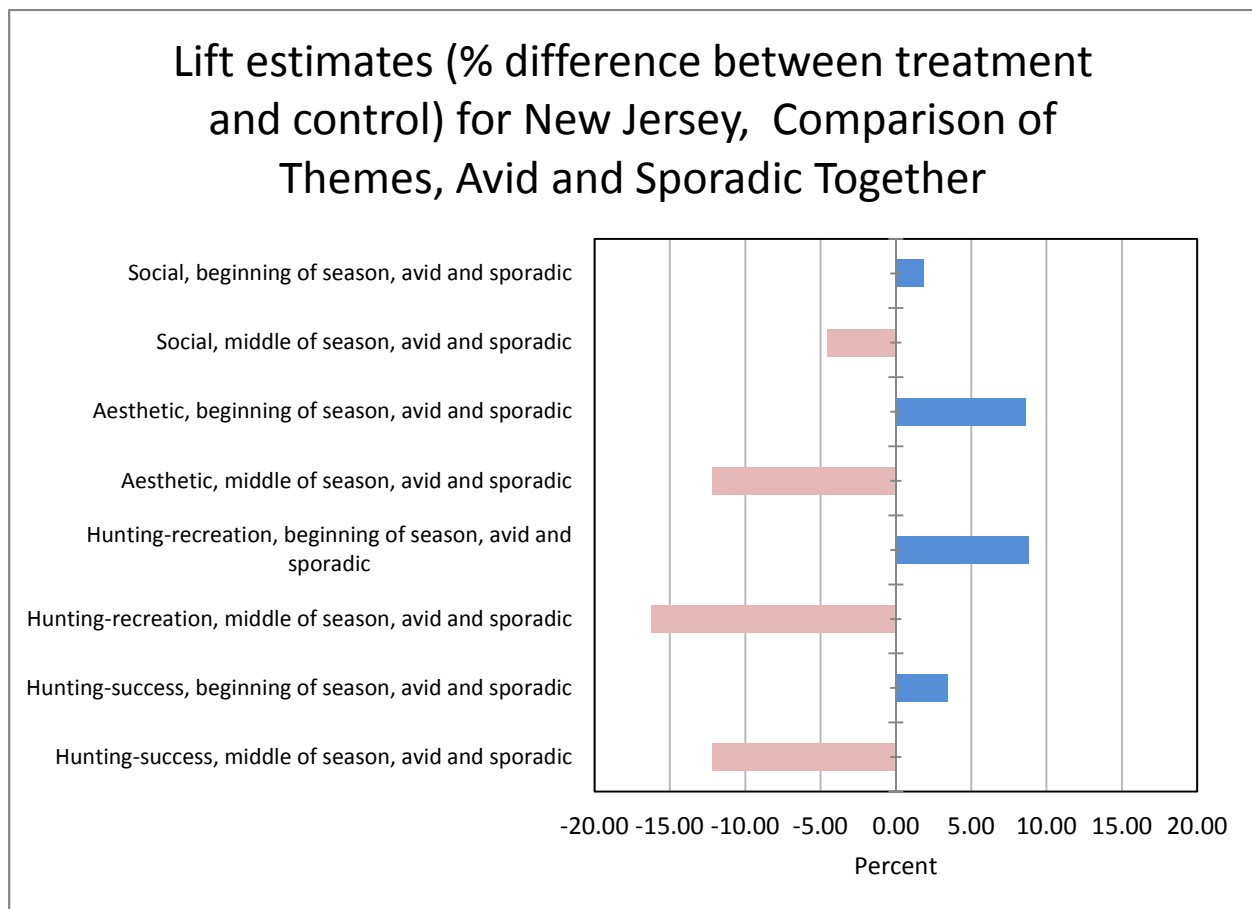


Figure 3.12. Lift Estimates, Individual Treatments, Avid and Sporadic Together, New Jersey

OKLAHOMA'S RESULTS

Prior to any statistical tests, the raw data were tabulated for analyses. Taking the number in the original sample, the first step in the analysis was to categorize each of these hunters as having purchased a hunting license or having not purchased a license in the time period (Table 3.94). Additionally, the purchasing time period was divided in two: from the Timing 1 treatment date to the Timing 2 treatment date, then any time after the Timing 2 treatment date up to the end of the season. This allowed the treatment and control groups to be compared over the same time periods.

Table 3.94. Purchasers of Licenses in the 2017-2018 Season After the First Treatment Date, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/25/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|---|
| Group 1: Social, Timing 1, Avid | 334 | 154 | 100 | 54 | 180 |
| Group 2: Social, Timing 2, Avid | 364 | 169 | 106 | 63 | 195 |
| Group 3: Aesthetic, Timing 1, Avid | 394 | 206 | 129 | 77 | 188 |
| Group 4: Aesthetic, Timing 2, Avid | 373 | 167 | 110 | 57 | 206 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 338 | 167 | 112 | 55 | 171 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 352 | 158 | 100 | 58 | 194 |
| Group 7: Hunting - Success, Timing 1, Avid | 333 | 166 | 115 | 51 | 167 |
| Group 8: Hunting - Success, Timing 2, Avid | 382 | 199 | 141 | 58 | 183 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | 373 |
| Group 10: Social, Timing 1, Sporadic | 2,789 | 467 | 290 | 177 | 2,322 |
| Group 11: Social, Timing 2, Sporadic | 2,757 | 460 | 281 | 179 | 2,297 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,700 | 442 | 281 | 161 | 2,258 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,670 | 471 | 308 | 163 | 2,199 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,795 | 463 | 302 | 161 | 2,332 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,685 | 486 | 303 | 183 | 2,199 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,790 | 501 | 300 | 201 | 2,289 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,797 | 463 | 282 | 181 | 2,334 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | 4,589 |

Based on the data above, statistical tests were run. The first tests looked at any treatment at all versus no treatment, run separately on avid and sporadic bowhunters, and also run separately on the different timing schedules.

For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7 combined (any treatment, Timing 1, avid) vs. Group 9 (using Timing 1 for the control group)

Groups 2, 4, 6, 8 combined (any treatment, Timing 2, avid) vs. Group 9 (using Timing 2 for the control group)

Groups 10, 12, 14, 16 combined (any treatment, Timing 1, sporadic) vs. Group 18 (using Timing 1 for the control group)

Groups 11, 13, 15, 17 combined (any treatment, Timing 2, sporadic) vs. Group 18 (using Timing 2 for the control group)

Taking the first of those (Groups 1, 3, 5, 7 combined vs. Group 9) produces Table 3.95. In this test, all those with Timing 1 treatment were compared to the control using Timing 1 dates. In other words, any treatment was compared to no treatment, keeping the timing groups separate. In Table 3.95, Groups 1, 3, 5, and 7 combined have 1,399 hunters of which 693 bought licenses in the time period (49.5%), and this is compared to 733 in the control group, of which 360 bought licenses (49.1%). Although the treatment group bought at a higher rate, the difference was not significant.

Table 3.95. Any Treatment Versus No Treatment, Timing 1, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 334 | 154 | | 100 | 54 | 180 |
| Group 3: Aesthetic, Timing 1, Avid | 394 | 206 | | 129 | 77 | 188 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 338 | 167 | | 112 | 55 | 171 |
| Group 7: Hunting - Success, Timing 1, Avid | 333 | 166 | | 115 | 51 | 167 |
| Sum of Groups 1, 3, 5, and 7 | 1,399 | 693 | 49.5% | 456 | 237 | 706 |
| Group 9: Control, Avid | 733 | 360 | 49.1% | 235 | 125 | 373 |

Not significant (t-test statistic = 0.185 and p-value = 0.853).

Comparing all the Timing 2 avid groups that received treatment to the control group finds that the treatment groups bought at a lower rate, but the difference was not significant (Table 3.96). The other tests of any treatment versus no treatment showed similar results to these, with negative differences that were not significant (Tables 3.97 and 3.98).

Table 3.96. Any Treatment Versus No Treatment, Timing 2, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 364 | 169 | 106 | 63 | | 195 |
| Group 4: Aesthetic, Timing 2, Avid | 373 | 167 | 110 | 57 | | 206 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 352 | 158 | 100 | 58 | | 194 |
| Group 8: Hunting - Success, Timing 2, Avid | 382 | 199 | 141 | 58 | | 183 |
| Sum of Groups 2, 4, 6, and 8 | 1,471 | 693 | 457 | 236 | 16.0% | 778 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | 17.1% | 373 |

Not significant (t-test statistic = -0.598 and p-value = 0.550).

Table 3.97. Any Treatment Versus No Treatment, Timing 1, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 10: Social, Timing 1, Sporadic | 2,789 | 467 | | 290 | 177 | 2,322 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,700 | 442 | | 281 | 161 | 2,258 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,795 | 463 | | 302 | 161 | 2,332 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,790 | 501 | | 300 | 201 | 2,289 |
| Sum of Groups 10, 12, 14, and 16 | 11,074 | 1,873 | 16.9% | 1,173 | 700 | 9,201 |
| Group 18: Control, Sporadic | 5,542 | 953 | 17.2% | 585 | 368 | 4,589 |

Not significant (t-test statistic = -0.456 and p-value = 0.648).

Table 3.98. Any Treatment Versus No Treatment, Timing 2, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 2,757 | 460 | 281 | 179 | | 2,297 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,670 | 471 | 308 | 163 | | 2,199 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,685 | 486 | 303 | 183 | | 2,199 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,797 | 463 | 282 | 181 | | 2,334 |
| Sum of Groups 11, 13, 15, and 17 | 10,909 | 1,880 | 1,174 | 706 | 6.5% | 9,029 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | 6.6% | 4,589 |

Not significant (t-test statistic = -0.412 and p-value = 0.681).

These four tables are summarized in Figure 3.13. Note that the findings are not statistically significant.

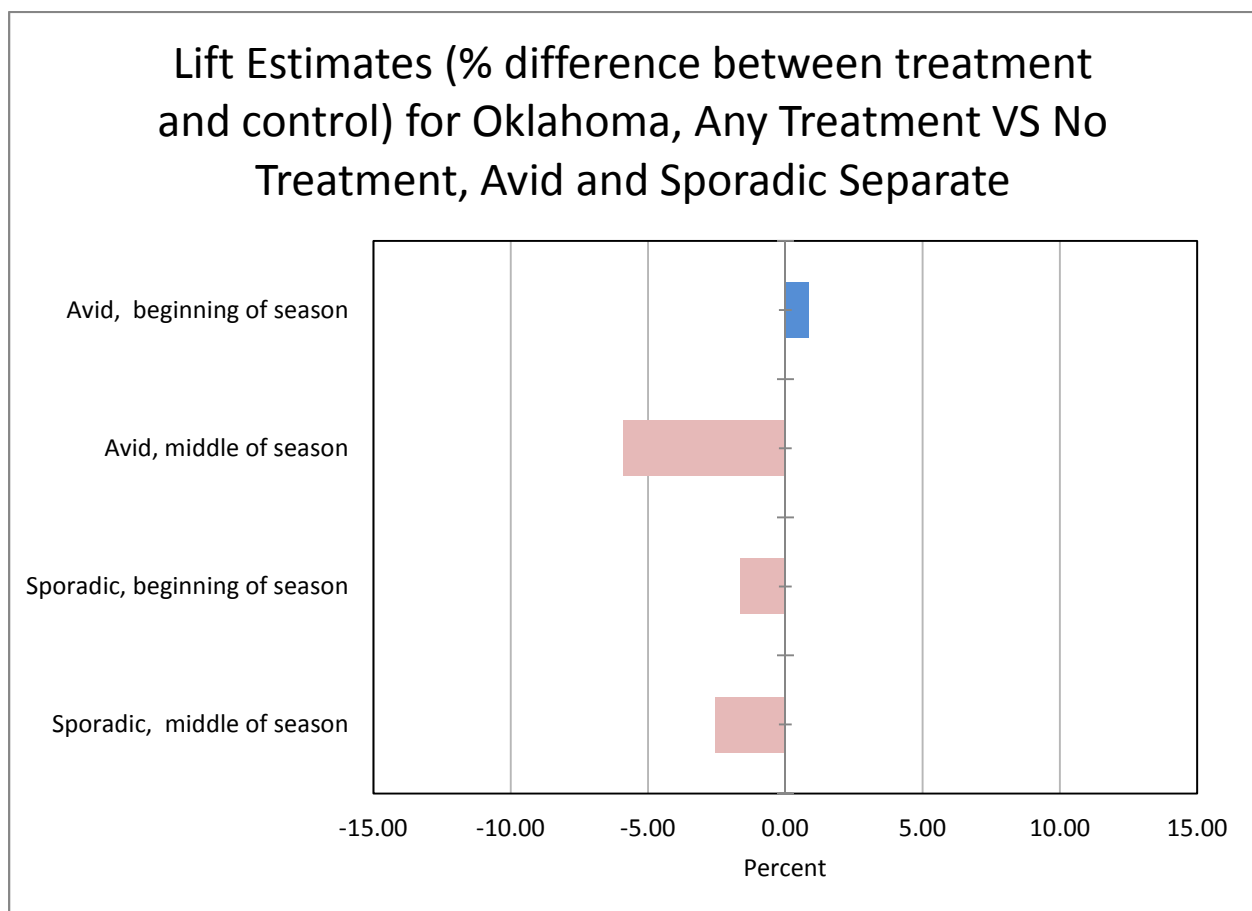


Figure 3.13. Lift Estimates, Any Treatment, Avid and Sporadic Separate, Oklahoma

The next set of tests looked at any treatment versus no treatment, and it combined avid and sporadic bowhunters. For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7, 10, 12, 14, 16 combined (any treatment, Timing 1, avid and sporadic together) vs. Groups 9 and 18 (using Timing 1 for the control groups)

Groups 2, 4, 6, 8, 11, 13, 15, 17 combined (any treatment, Timing 2, avid and sporadic together) vs. Groups 9 and 18 (using Timing 2 for the control groups)

Although the treatment groups bought at a lower rate than did the control group in Timing 2, neither of the results were statistically significant (Tables 3.99 and 3.100).

Table 3.99. Any Treatment Versus No Treatment, Timing 1, Avid and Sporadic Bowhunters Together, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 334 | 154 | | 100 | 54 | 180 |
| Group 3: Aesthetic, Timing 1, Avid | 394 | 206 | | 129 | 77 | 188 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 338 | 167 | | 112 | 55 | 171 |
| Group 7: Hunting - Success, Timing 1, Avid | 333 | 166 | | 115 | 51 | 167 |
| Group 10: Social, Timing 1, Sporadic | 2,789 | 467 | | 290 | 177 | 2,322 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,700 | 442 | | 281 | 161 | 2,258 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,795 | 463 | | 302 | 161 | 2,332 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,790 | 501 | | 300 | 201 | 2,289 |
| Sum of Groups 1, 3, 5, 7, 10, 12, 14, and 16 | 12,473 | 2,566 | 20.6% | 1,629 | 937 | 9,907 |
| Group 9: Control, Avid | 733 | 360 | | 235 | 125 | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | | 585 | 368 | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 20.9% | 820 | 493 | 4,962 |

Not significant (t-test statistic = -0.560 and p-value = 0.575).

Table 3.100. Any Treatment Versus No Treatment, Timing 2, Avid and Sporadic Bowhunters Together, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 364 | 169 | 106 | 63 | | 195 |
| Group 4: Aesthetic, Timing 2, Avid | 373 | 167 | 110 | 57 | | 206 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 352 | 158 | 100 | 58 | | 194 |
| Group 8: Hunting - Success, Timing 2, Avid | 382 | 199 | 141 | 58 | | 183 |
| Group 11: Social, Timing 2, Sporadic | 2,757 | 460 | 281 | 179 | | 2,297 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,670 | 471 | 308 | 163 | | 2,199 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,685 | 486 | 303 | 183 | | 2,199 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,797 | 463 | 282 | 181 | | 2,334 |
| Sum of Groups 2, 4, 6, 8, 11, 13, 15, and 17 | 12,380 | 2,573 | 1,631 | 942 | 7.6% | 9,807 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 820 | 493 | 7.9% | 4,962 |

Not significant (t-test statistic = -0.597 and p-value = 0.551).

These two tables are summarized in Figure 3.14. While both are negative, they are not statistically significant.

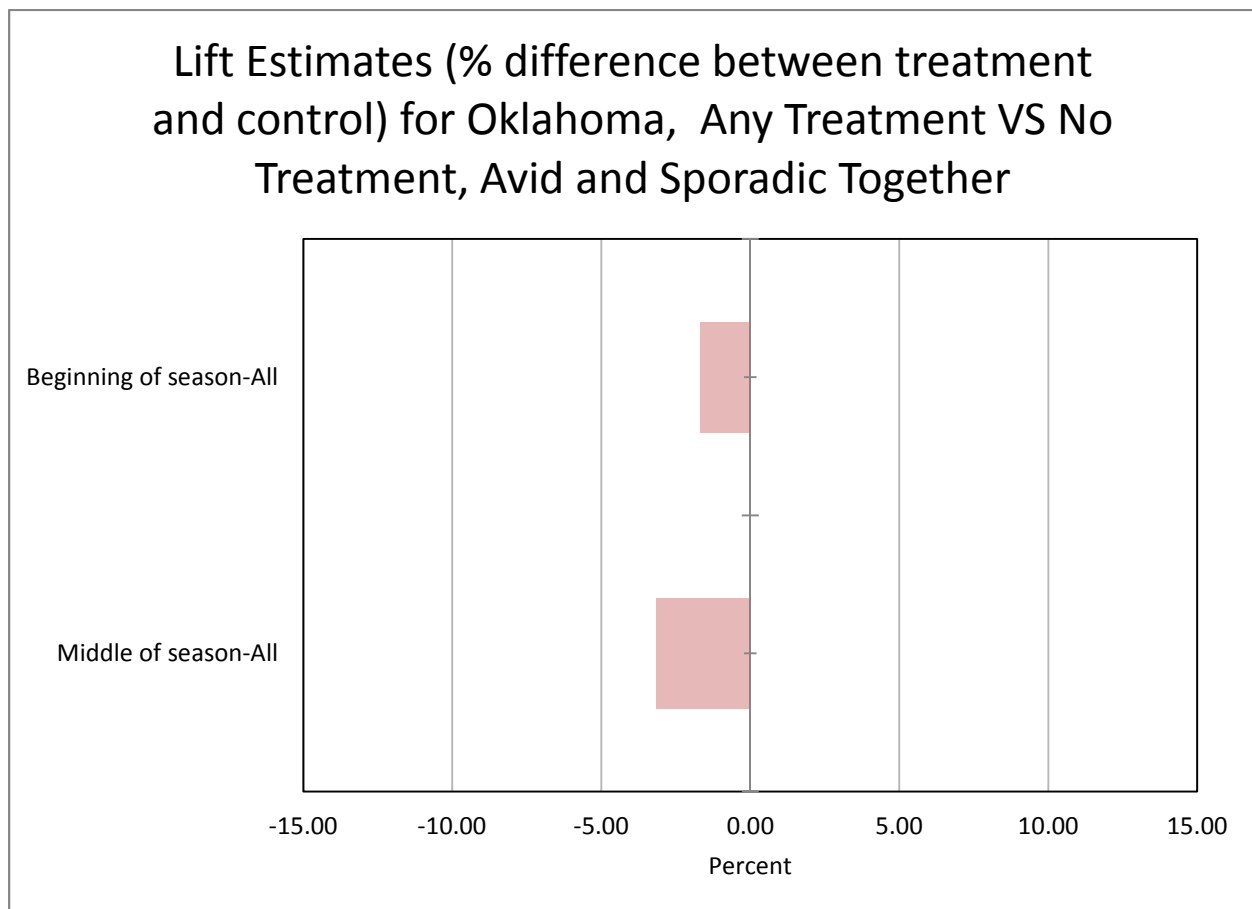


Figure 3.14. Lift Estimates, Any Treatment, Avid and Sporadic Together, Oklahoma

One set of tests looked at the individual treatments (social, aesthetic, hunting-recreation, and hunting-success) against the control group, to assess the effectiveness of the various message themes, run separately on avid and sporadic bowhunters. The first of these tests compared Group 1 (the social message, Timing 1, avid) to Group 9 (the avid control group, using the Timing 1 date) (see the shaded cells) (Table 3.101).

In this first comparison, 154 purchasers out of 334 was compared to 360 purchasers out of 733. In other words, in Group 1, the rate of purchase in the time period was 46.1%, while the rate of purchase in Group 9 over that same time period was 49.1%. This would be considered *negative* lift (i.e., the control group bought at a higher rate than the treatment group). However, using an independent samples t-test, there was no statistically significant difference between Group 1 and Group 9 using the Timing 1 date (t-test statistic = -0.911 and p-value = 0.363).

Table 3.101. Social Theme Versus Control Group, Timing 1, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 334 | 154 | 46.1% | 100 | 54 | 180 |
| Group 9: Control, Avid | 733 | 360 | 49.1% | 235 | 125 | 373 |

Not significant (t-test statistic = -0.911 and p-value = 0.363).

The next comparison is Group 2 to Group 9 (the control group, but using Timing 2 date), again they are the shaded cells. Likewise, in Group 2, there were 63 purchasers out of 364 in the given time period (17.3%) (Table 3.102). This is compared to 125 purchasers out of 733 (17.1%) in Group 9 using the Timing 2 date. While this is a positive lift, it is not statistically significant based on an independent samples t-test (t-test statistic = 1.492 and p-value = 0.105).

Table 3.102. Social Theme Versus Control Group, Timing 2, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 364 | 169 | 106 | 63 | 17.3% | 195 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | 17.1% | 373 |

Not significant (t-test statistic = 1.492 and p-value = 0.105).

Likewise, comparisons were made of the rest of the individual groups, with the significance test results listed. There were no statistically significant differences (Tables 3.103 through 3.116).

Table 3.103. Aesthetic Theme Versus Control Group, Timing 1, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|--|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 394 | 206 | 52.3% | 129 | 77 | 188 |
| Group 9: Control, Avid | 733 | 360 | 49.1% | 235 | 125 | 373 |

Not significant (t-test statistic = 1.015 and p-value = 0.311).

Table 3.104. Aesthetic Theme Versus Control Group, Timing 2, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 373 | 167 | 110 | 57 | 15.3% | 206 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | 17.1% | 373 |

Not significant (t-test statistic = -0.762 and p-value = 0.447).

Table 3.105. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 338 | 167 | 49.4% | 112 | 55 | 171 |
| Group 9: Control, Avid | 733 | 360 | 49.1% | 235 | 125 | 373 |

Not significant (t-test statistic = 0.090 and p-value = 0.929).

Table 3.106. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 352 | 158 | 100 | 58 | 16.5% | 194 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | 17.1% | 373 |

Not significant (t-test statistic = -0.238 and p-value = 0.812).

Table 3.107. Hunting-Success Theme Versus Control Group, Timing 1, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 333 | 166 | 49.8% | 115 | 51 | 167 |
| Group 9: Control, Avid | 733 | 360 | 49.1% | 235 | 125 | 373 |

Not significant (t-test statistic = 0.223 and p-value = 0.824).

Table 3.108. Hunting-Success Theme Versus Control Group, Timing 2, Avid Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 382 | 199 | 141 | 58 | 15.2% | 183 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | 17.1% | 373 |

Not significant (t-test statistic = -0.811 and p-value = 0.418).

Table 3.109. Social Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|---|---|
| Group 10: Social, Timing 1, Sporadic | 2,789 | 467 | 16.7% | 290 | 177 | 2,322 |
| Group 18: Control, Sporadic | 5,542 | 953 | 17.2% | 585 | 368 | 4,589 |

Not significant (t-test statistic = -0.519 and p-value = 0.604).

Table 3.110. Social Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 2,757 | 460 | 281 | 179 | 6.5% | 2,297 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | 6.6% | 4,589 |

Not significant (t-test statistic = -0.256 and p-value = 0.798).

Table 3.111. Aesthetic Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 12: Aesthetic, Timing 1, Sporadic | 2,700 | 442 | 16.4% | 281 | 161 | 2,258 |
| Group 18: Control, Sporadic | 5,542 | 953 | 17.2% | 585 | 368 | 4,589 |

Not significant (t-test statistic = -0.944 and p-value = 0.345).

Table 3.112. Aesthetic Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 13: Aesthetic, Timing 2, Sporadic | 2,670 | 471 | 308 | 163 | 6.1% | 2,199 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | 6.6% | 4,589 |

Not significant (t-test statistic = -0.937 and p-value = 0.349).

Table 3.113. Hunting-Recreation Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,795 | 463 | 16.6% | 302 | 161 | 2,332 |
| Group 18: Control, Sporadic | 5,542 | 953 | 17.2% | 585 | 368 | 4,589 |

Not significant (t-test statistic = -0.727 and p-value = 0.467).

Table 3.114. Hunting-Recreation Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,685 | 486 | 303 | 183 | 6.8% | 2,199 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | 6.6% | 4,589 |

Not significant (t-test statistic = 0.297 and p-value = 0.766).

Table 3.115. Hunting-Success Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,790 | 501 | 18.0% | 300 | 201 | 2,289 |
| Group 18: Control, Sporadic | 5,542 | 953 | 17.2% | 585 | 368 | 4,589 |

Not significant (t-test statistic = 0.859 and p-value = 0.391).

Table 3.116. Hunting-Success Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,797 | 463 | 282 | 181 | 6.5% | 2,334 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | 6.6% | 4,589 |

Not significant (t-test statistic = -0.295 and p-value = 0.768).

The findings regarding the individual groups examined above are summarized in Figure 3.15. Although most bars show negative lift, the findings (both negative and positive) are not statistically significant.

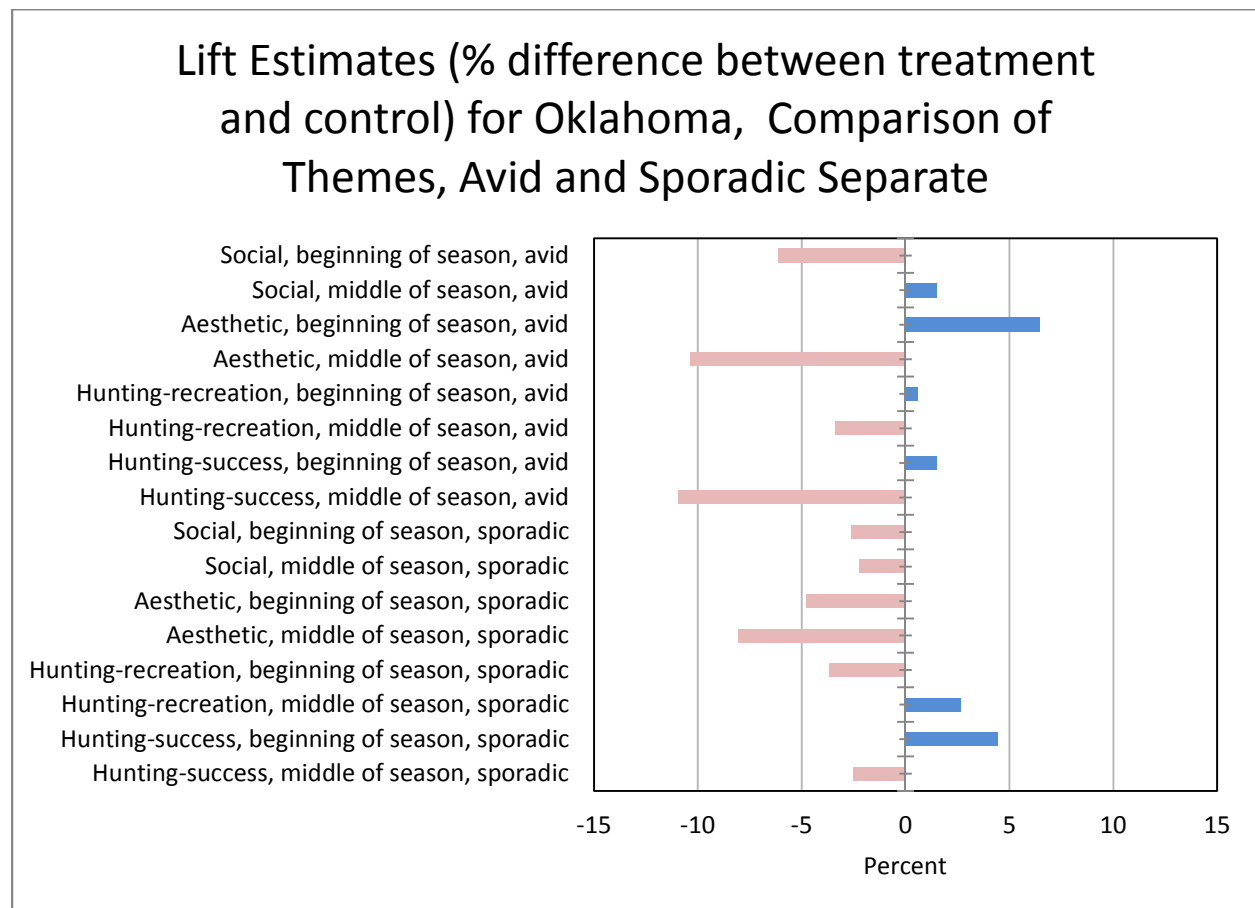


Figure 3.15. Lift Estimates, Individual Treatments, Avid and Sporadic Separate, Oklahoma

The last set of statistical tests looked at the message themes, but putting the avid and sporadic together. Again, there were no statistically significant differences (Tables 3.117 through 3.124).

Table 3.117. Social Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|--|---|---|
| Group 1: Social, Timing 1, Avid | 334 | 154 | | 100 | 54 | 180 |
| Group 10: Social, Timing 1, Sporadic | 2,789 | 467 | | 290 | 177 | 2,322 |
| Sum of Groups 1 and 10 | 3,123 | 621 | 19.9% | 390 | 231 | 2,502 |
| Group 9: Control, Avid | 733 | 360 | | 235 | 125 | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | | 585 | 368 | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 20.9% | 820 | 493 | 4,962 |

Not significant (t-test statistic = -1.182 and p-value = 0.237).

Table 3.118. Aesthetic Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 394 | 206 | | 129 | 77 | 188 |
| Group 12: Aesthetic, Timing 1, Sporadic | 2,700 | 442 | | 281 | 161 | 2,258 |
| Sum of Groups 3 and 12 | 3,094 | 648 | 20.9% | 410 | 238 | 2,446 |
| Group 9: Control, Avid | 733 | 360 | | 235 | 125 | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | | 585 | 368 | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 20.9% | 820 | 493 | 4,962 |

Not significant (t-test statistic = 0.022 and p-value = 0.983).

Table 3.119. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|--|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 338 | 167 | | 112 | 55 | 171 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 2,795 | 463 | | 302 | 161 | 2,332 |
| Sum of Groups 5 and 14 | 3,133 | 630 | 20.1% | 414 | 216 | 2,503 |
| Group 9: Control, Avid | 733 | 360 | | 235 | 125 | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | | 585 | 368 | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 20.9% | 820 | 493 | 4,962 |

Not significant (t-test statistic = -0.926 and p-value = 0.355).

Table 3.120. Hunting-Success Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|--|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 333 | 166 | | 115 | 51 | 167 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 2,790 | 501 | | 300 | 201 | 2,289 |
| Sum of Groups 7 and 16 | 3,123 | 667 | 21.4% | 415 | 252 | 2,456 |
| Group 9: Control, Avid | 733 | 360 | | 235 | 125 | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | | 585 | 368 | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 20.9% | 820 | 493 | 4,962 |

Not significant (t-test statistic = 0.484 and p-value = 0.628).

Table 3.121. Social Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|---|--|---|--|---|
| Group 2: Social, Timing 2, Avid | 364 | 169 | 106 | 63 | | 195 |
| Group 11: Social, Timing 2, Sporadic | 2,757 | 460 | 281 | 179 | | 2,297 |
| Sum of Groups 2 and 11 | 3,121 | 629 | 387 | 242 | 7.8% | 2,492 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 820 | 493 | 7.9% | 4,962 |

Not significant (t-test statistic = -0.175 and p-value = 0.861).

Table 3.122. Aesthetic Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 373 | 167 | 110 | 57 | | 206 |
| Group 13: Aesthetic, Timing 2, Sporadic | 2,670 | 471 | 308 | 163 | | 2,199 |
| Sum of Groups 4 and 13 | 3,043 | 638 | 418 | 220 | 7.2% | 2,405 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 820 | 493 | 7.9% | 4,962 |

Not significant (t-test statistic = -1.082 and p-value = 0.280).

Table 3.123. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|---|--|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 352 | 158 | 100 | 58 | | 194 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 2,685 | 486 | 303 | 183 | | 2,199 |
| Sum of Groups 6 and 15 | 3,037 | 644 | 403 | 241 | 7.9% | 2,393 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 820 | 493 | 7.9% | 4,962 |

Not significant (t-test statistic = 0.132 and p-value = 0.895).

Table 3.124. Hunting-Success Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Oklahoma

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season (for OK, 9/27/2017 to 1/15/2018) | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates (for OK, from 9/27/2017 to 10/24/2017) | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year (for OK, 10/25/2017 to 1/15/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|---|--|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 382 | 199 | 141 | 58 | | 183 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 2,797 | 463 | 282 | 181 | | 2,334 |
| Sum of Groups 8 and 17 | 3,179 | 662 | 423 | 239 | 7.5% | 2,517 |
| Group 9: Control, Avid | 733 | 360 | 235 | 125 | | 373 |
| Group 18: Control, Sporadic | 5,542 | 953 | 585 | 368 | | 4,589 |
| Sum of Groups 9 and 18 | 6,275 | 1,313 | 820 | 493 | 7.9% | 4,962 |

Not significant (t-test statistic = -0.586 and p-value = 0.558).

These last Oklahoma tables are summarized in Figure 3.16. Again, while there are more negative bars than positive, the findings are not statistically significant.

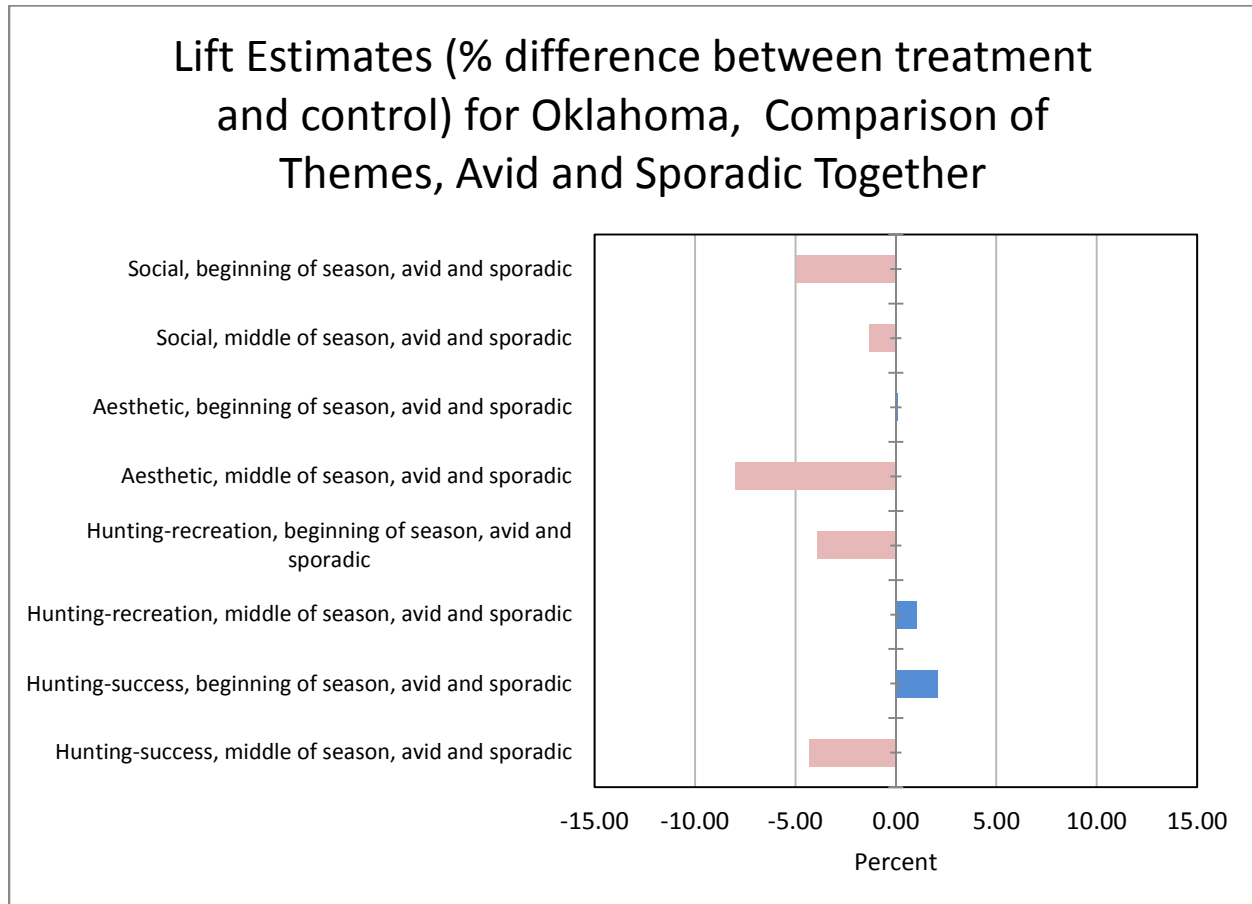


Figure 3.16. Lift Estimates, Individual Treatments, Avid and Sporadic Together, Oklahoma

FLORIDA'S RESULTS

There is a major difference in Florida's email campaign compared to the other states: Florida had only one timing schedule for treatment groups, using the Timing 2 dates. For this reason, there are fewer data runs in Florida because there are only 10 groups instead of 18 groups (Table 3.125), as each of the message groups within the avid and sporadic groups can be combined. In other words, Groups 1 and 2, both of which received the social message, were combined into a single group. (In the other states, Groups 1 and 2 would have both received the social message but would have received it under different timing schedules.)

As shown in Table 3.125, prior to any statistical tests, the raw data were tabulated for analyses. Taking the number in the original sample, the first step in the analysis was to categorize each of these hunters as having purchased a hunting license or having not purchased a license in the time period.

Table 3.125. Purchasers of Licenses in the 2017-2018 Season After the First Treatment Date, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|--|---------------------------|---|--|--|
| Groups 1 and 2: Social, Avid | 8,460 | 2,754 | 5,706 | 32.6% |
| Groups 3 and 4: Aesthetic, Avid | 8,251 | 2,791 | 5,460 | 33.8% |
| Groups 5 and 6: Hunting - Recreation, Avid | 8,254 | 2,745 | 5,509 | 33.3% |
| Groups 7 and 8: Hunting - Success, Avid | 8,438 | 2,727 | 5,711 | 32.3% |
| Group 9: Control, Avid | 8,294 | 2,732 | 5,562 | 32.9% |
| Groups 10 and 11: Social, Sporadic | 23,766 | 3,409 | 20,357 | 14.3% |
| Groups 12 and 13: Aesthetic, Sporadic | 23,826 | 3,334 | 20,492 | 14.0% |
| Groups 14 and 15: Hunting - Recreation, Sporadic | 23,568 | 3,340 | 20,228 | 14.2% |
| Groups 16 and 17: Hunting - Success, Sporadic | 23,530 | 3,331 | 20,199 | 14.2% |
| Group 18: Control, Sporadic | 23,526 | 3,337 | 20,189 | 14.2% |

*Florida had no Timing 1 treatment; its first treatment followed the Timing 2 schedule.

Based on the data above, statistical tests were run. The first tests looked at any treatment at all versus no treatment, run separately on avid and sporadic bowhunters.

For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1/2, 3/4, 5/6, 7/8 combined (any treatment, avid) vs. Group 9

Groups 10/11, 12/13, 14/15, 16/17 combined (any treatment, sporadic) vs. Group 18

Taking the first of those (all avid groups combined vs. Group 9) produces Table 3.126. In this table, all avid groups combined have 33,403 hunters of which 11,017 bought licenses in the time period (33.0%), and this is compared to 8,294 in the control group, of which 2,732 bought licenses (32.9%). While the control group bought at a slightly lower rate, this difference is not significant. The next test, also, showed no significance (Table 3.127).

Table 3.126. Any Treatment Versus No Treatment, Avid Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|---------------------------------------|---------------------------|---|--|--|
| Group 1/2: Social, Avid | 8,460 | 2,754 | | 5,706 |
| Group 3/4: Aesthetic, Avid | 8,251 | 2,791 | | 5,460 |
| Group 5/6: Hunting - Recreation, Avid | 8,254 | 2,745 | | 5,509 |
| Group 7/8: Hunting - Success, Avid | 8,438 | 2,727 | | 5,711 |
| Sum of Groups 1/2, 3/4, 5/6, and 7/8 | 33,403 | 11,017 | 33.0% | 22,386 |
| Group 9: Control, Avid | 8,294 | 2,732 | 32.9% | 5,562 |

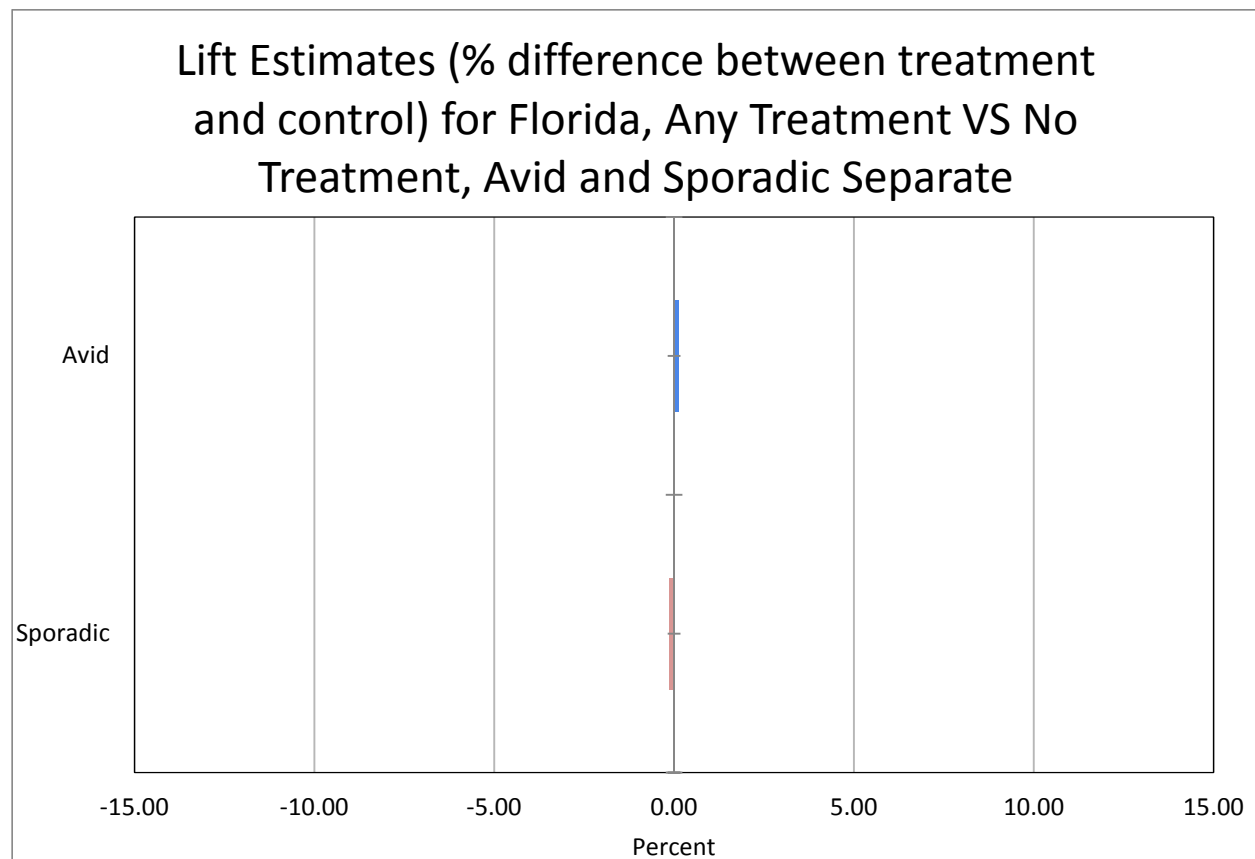
Not significant (t-test statistic = 0.074 and p-value = 0.941).

Table 3.127. Any Treatment Versus No Treatment, Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|--|---------------------------|--|--|--|
| Group 10/11: Social, Sporadic | 23,766 | 3,409 | | 20,357 |
| Group 12/13: Aesthetic, Sporadic | 23,826 | 3,334 | | 20,492 |
| Group 14/15: Hunting - Recreation, Sporadic | 23,568 | 3,340 | | 20,228 |
| Group 16/17: Hunting - Success, Sporadic | 23,530 | 3,331 | | 20,199 |
| Sum of Groups 10/11, 12/13, 14/15, and 16/17 | 94,690 | 13,414 | 14.2% | 81,276 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | 14.2% | 20,189 |

Not significant (t-test statistic = -0.071 and p-value = 0.943).

These two tables are summarized in Figure 3.17. The axis is kept consistent with the other graphs of these results that have been shown (going from -15.00 to 15.00), but the difference is so slight that it does not produce bars of any size at all.

**Figure 3.17. Lift Estimates, Any Treatment, Avid and Sporadic Separate, Florida**

The next test looked at any treatment versus no treatment, and it combined avid and sporadic bowhunters. For this, the following combination was made of the data, and then the comparison was made:

Groups 1/2, 3/4, 5/6, 7/8, 10/11, 12/13, 14/15, 16/17 combined (any treatment, avid and sporadic together) vs. Groups 9 and 18

The control and treatment groups have almost identical rates of purchase/renewal (indeed, the percentage would need to be shown out to six decimal places before a difference emerged; the control is just slightly higher than the treatment groups), and the difference, obviously, is not statistically significant (Table 3.128).

Table 3.128. Any Treatment Versus No Treatment, Avid and Sporadic Bowhunters Together, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|--|---------------------------|---|--|--|
| Group 1/2: Social, Avid | 8,460 | 2,754 | | 5,706 |
| Group 3/4: Aesthetic, Avid | 8,251 | 2,791 | | 5,460 |
| Group 5/6: Hunting - Recreation, Avid | 8,254 | 2,745 | | 5,509 |
| Group 7/8: Hunting - Success, Avid | 8,438 | 2,727 | | 5,711 |
| Group 10/11: Social, Sporadic | 23,766 | 3,409 | | 20,357 |
| Group 12/13: Aesthetic, Sporadic | 23,826 | 3,334 | | 20,492 |
| Group 14/15: Hunting - Recreation, Sporadic | 23,568 | 3,340 | | 20,228 |
| Group 16/17: Hunting - Success, Sporadic | 23,530 | 3,331 | | 20,199 |
| Sum of Groups 1/2, 3/4, 5/6, 7/8, 10/11, 12/13, 14/15, and 16/17 | 128,093 | 24,431 | 19.1% | 103,662 |
| Group 9: Control, Avid | 8,294 | 2,732 | | 5,562 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | | 20,189 |
| Sum of Groups 9 and 18 | 31,820 | 6,069 | 19.1% | 25,751 |

Not significant (t-test statistic = 0.000 and p-value = 1.000).

One set of tests looked at the individual treatments (social, aesthetic, hunting-recreation, and hunting-success) against the control group, to assess the effectiveness of the various message themes, run separately on avid and sporadic bowhunters. The first of these tests compared Group 1/2 (the social message, avid) to Group 9 (the avid control group) (see the shaded cells in Table 3.129). In this comparison, there are 2,754 purchasers out of 8,460 among avid bowhunters receiving the social message (32.6%), which is slightly lower than the control group, which had 2,732 purchasers out of 8,294 (32.9%). This would be considered *negative* lift (i.e., the control group bought at a higher rate than the treatment group); however, using an independent samples t-test, there was no statistically significant difference between Group 1/2 and Group 9 (t-test statistic = -0.533 and p-value = 0.594).

Table 3.129. Social Theme Versus Control Group, Avid Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|-------------------------|---------------------------|---|--|--|
| Group 1/2: Social, Avid | 8,460 | 2,754 | 32.6% | 5,706 |
| Group 9: Control, Avid | 8,294 | 2,732 | 32.9% | 5,562 |

Not significant (t-test statistic = -0.533 and p-value = 0.594).

Likewise, comparisons were made of the rest of the individual groups, with the significance test results listed (Tables 3.130 through 3.136).

Table 3.130. Aesthetic Theme Versus Control Group, Avid Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|----------------------------|---------------------------|---|--|--|
| Group 3/4: Aesthetic, Avid | 8,251 | 2,791 | 33.8% | 5,460 |
| Group 9: Control, Avid | 8,294 | 2,732 | 32.9% | 5,562 |

Not significant (t-test statistic = 1.209 and p-value = 0.227).

Table 3.131. Hunting-Recreation Theme Versus Control Group, Avid Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|---------------------------------------|---------------------------|---|--|--|
| Group 5/6: Hunting - Recreation, Avid | 8,254 | 2,745 | 33.3% | 5,509 |
| Group 9: Control, Avid | 8,294 | 2,732 | 32.9% | 5,562 |

Not significant (t-test statistic = 0.433 and p-value = 0.665).

Table 3.132. Hunting-Success Theme Versus Control Group, Avid Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|------------------------------------|---------------------------|---|--|--|
| Group 7/8: Hunting - Success, Avid | 8,438 | 2,727 | 32.3% | 5,711 |
| Group 9: Control, Avid | 8,294 | 2,732 | 32.9% | 5,562 |

Not significant (t-test statistic = -0.857 and p-value = 0.391).

Table 3.133. Social Theme Versus Control Group, Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|-------------------------------|---------------------------|---|--|--|
| Group 10/11: Social, Sporadic | 23,766 | 3,409 | 14.3% | 20,357 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | 14.2% | 20,189 |

Not significant (t-test statistic = 0.497 and p-value = 0.619).

Table 3.134. Aesthetic Theme Versus Control Group, Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|----------------------------------|---------------------------|---|--|--|
| Group 12/13: Aesthetic, Sporadic | 23,826 | 3,334 | 14.0% | 20,492 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | 14.2% | 20,189 |

Not significant (t-test statistic = -0.598 and p-value = 0.550).

Table 3.135. Hunting-Recreation Theme Versus Control Group, Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|---|---------------------------|---|--|--|
| Group 14/15: Hunting - Recreation, Sporadic | 23,568 | 3,340 | 14.2% | 20,228 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | 14.2% | 20,189 |

Not significant (t-test statistic = -0.039 and p-value = 0.969).

Table 3.136. Hunting-Success Theme Versus Control Group, Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|--|---------------------------|---|--|--|
| Group 16/17: Hunting - Success, Sporadic | 23,530 | 3,331 | 14.2% | 20,199 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | 14.2% | 20,189 |

Not significant (t-test statistic = -0.087 and p-value = 0.931).

These theme-based groups' results are summarized in Figure 3.18. While there are more negative results than positive, they are not statistically significant.

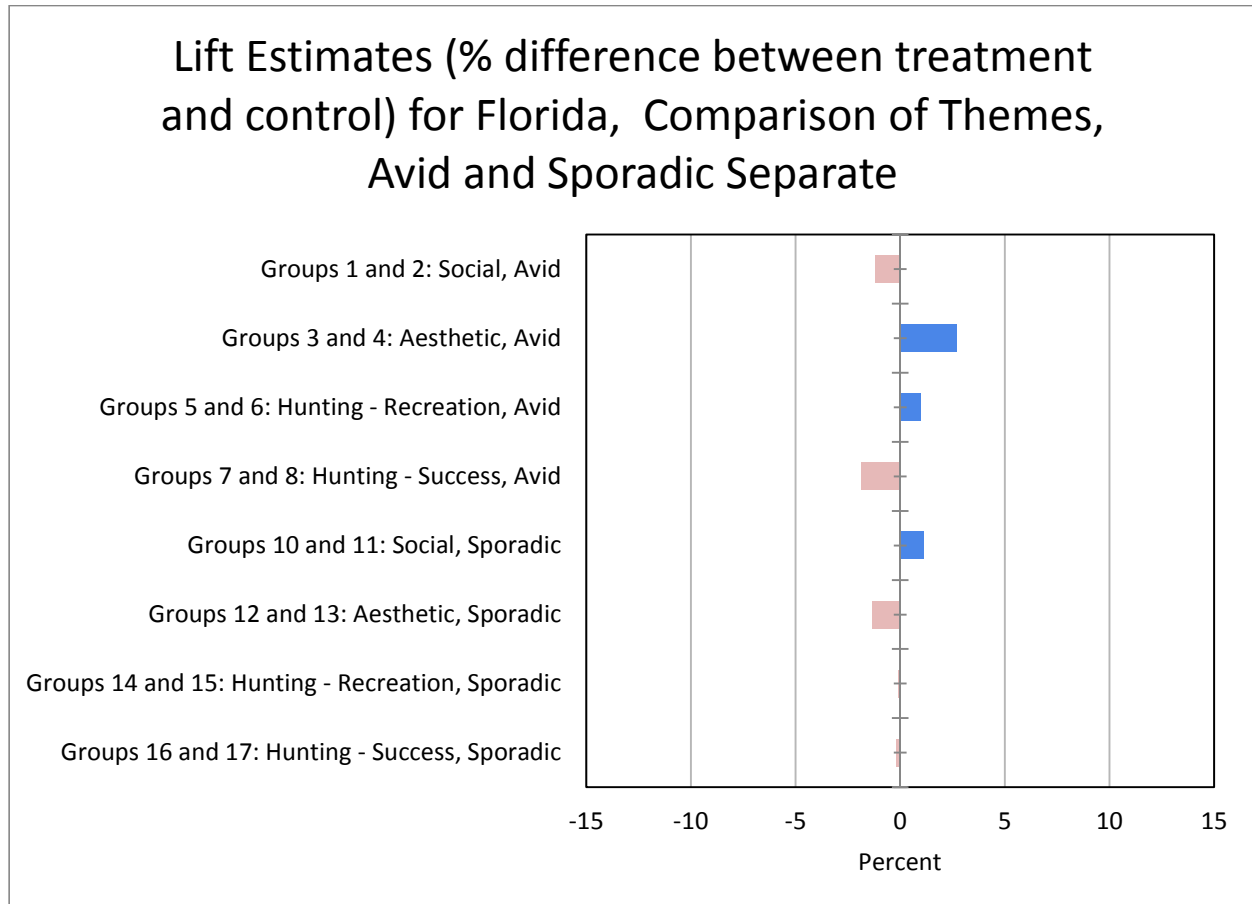


Figure 3.18. Lift Estimates, Individual Treatments, Avid and Sporadic Separate, Florida

The last set of statistical tests looked at the message themes, but putting the avid and sporadic together (Tables 3.137 through 3.140), with no statistically significant differences.

Table 3.137. Social Theme Versus Control Group, Avid and Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|-------------------------------|---------------------------|---|--|--|
| Group 1/2: Social, Avid | 8,460 | 2,754 | | 5,706 |
| Group 10/11: Social, Sporadic | 23,766 | 3,409 | | 20,357 |
| Sum of Groups 1/2 and 10/11 | 32,226 | 6,163 | 19.1% | 26,063 |
| Group 9: Control, Avid | 8,294 | 2,732 | | 5,562 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | | 20,189 |
| Sum of Groups 9 and 18 | 31,820 | 6,069 | 19.1% | 25,751 |

Not significant (t-test statistic = 0.165 and p-value = 0.869).

Table 3.138. Aesthetic Theme Versus Control Group, Avid and Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|----------------------------------|---------------------------|---|--|--|
| Group 3/4: Aesthetic, Avid | 8,251 | 2,791 | | 5,460 |
| Group 12/13: Aesthetic, Sporadic | 23,826 | 3,334 | | 20,492 |
| Sum of Groups 3/4 and 12/13 | 32,077 | 6,125 | 19.1% | 25,952 |
| Group 9: Control, Avid | 8,294 | 2,732 | | 5,562 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | | 20,189 |
| Sum of Groups 9 and 18 | 31,820 | 6,069 | 19.1% | 25,751 |

Not significant (t-test statistic = 0.070 and p-value = 0.944).

Table 3.139. Hunting-Recreation Theme Versus Control Group, Avid and Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|---|---------------------------|---|--|--|
| Group 5/6: Hunting - Recreation, Timing 1, Avid | 8,254 | 2,745 | | 5,509 |
| Group 14/15: Hunting - Recreation, Timing 1, Sporadic | 23,568 | 3,340 | | 20,228 |
| Sum of Groups 5/6 and 14/15 | 31,822 | 6,085 | 19.1% | 25,737 |
| Group 9: Control, Avid | 8,294 | 2,732 | | 5,562 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | | 20,189 |
| Sum of Groups 9 and 18 | 31,820 | 6,069 | 19.1% | 25,751 |

Not significant (t-test statistic = 0.157 and p-value = 0.875).

Table 3.140. Hunting-Success Theme Versus Control Group, Avid and Sporadic Bowhunters, Florida

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the Treatment Date of Timing 2* Until the End of the Season (for FL, 10/11/2017 to 2/25/2018) | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 2* Date Until the End of the Season) |
|--|---------------------------|---|--|--|
| Group 7/8: Hunting - Success, Timing 1, Avid | 8,438 | 2,727 | | 5,711 |
| Group 16/17: Hunting - Success, Timing 1, Sporadic | 23,530 | 3,331 | | 20,199 |
| Sum of Groups 7/8 and 16/17 | 31,968 | 6,058 | 19.0% | 25,910 |
| Group 9: Control, Avid | 8,294 | 2,732 | | 5,562 |
| Group 18: Control, Sporadic | 23,526 | 3,337 | | 20,189 |
| Sum of Groups 9 and 18 | 31,820 | 6,069 | 19.1% | 25,751 |

Not significant (t-test statistic = -0.395 and p-value = 0.693).

These last Florida tables are summarized in Figure 3.19.

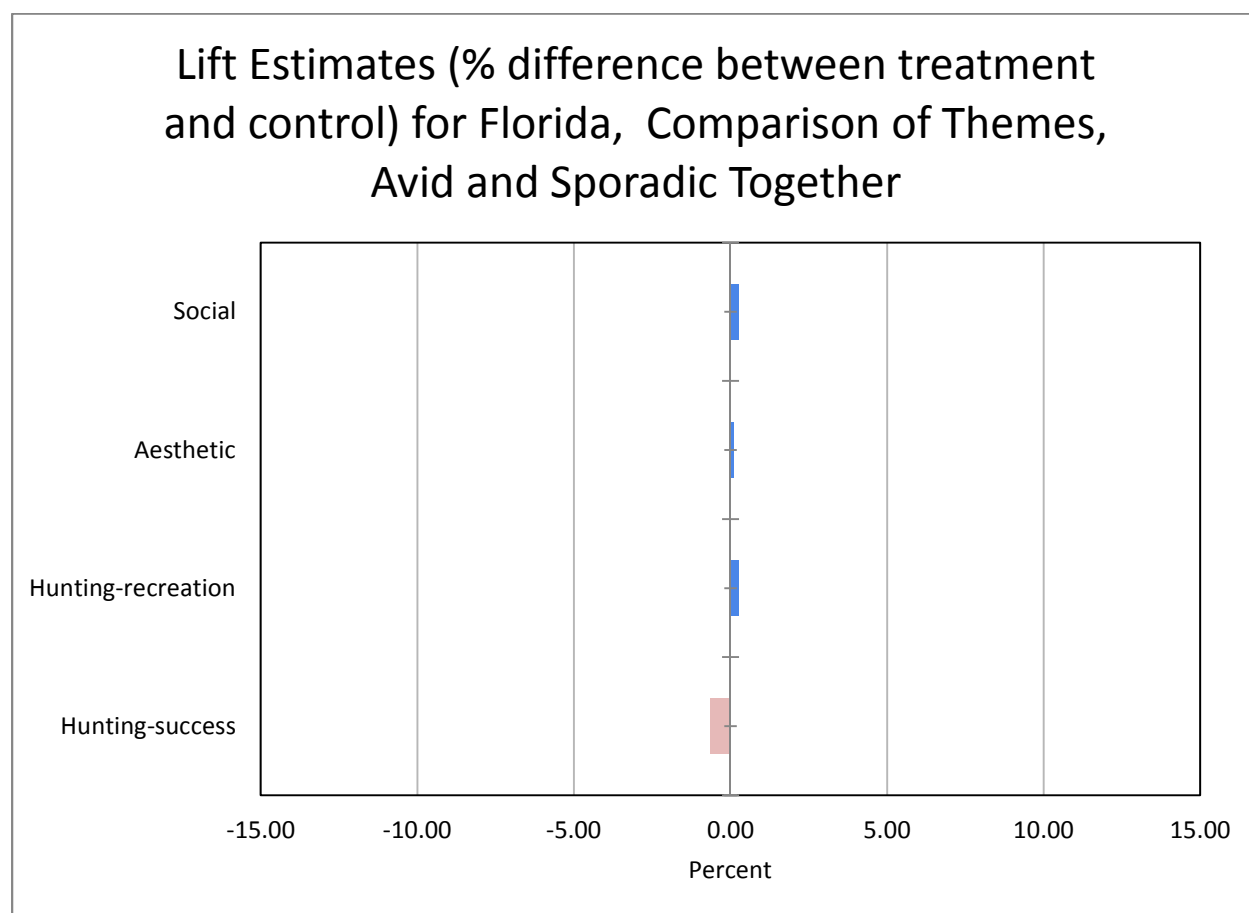


Figure 3.19. Lift Estimates, Individual Treatments, Avid and Sporadic Together, Florida

OVERALL RESULTS (GA, IN, NJ, OK)

In addition to running data for each state, an analysis was run of all states together that had two timings: Georgia, Indiana, New Jersey, and Oklahoma (Florida, having only a single timing, could not be included in the overall analysis). As was done for each state, the raw data were tabulated for analyses.

Taking the number in the original sample, the first step in the analysis was to categorize each of these hunters as having purchased a hunting license or having not purchased a license in each state's time period (Table 3.141). Again, the purchasing time period was divided in two: from the Timing 1 treatment date to the Timing 2 treatment date, then any time after the Timing 2 treatment date up to the end of the season. This allowed the treatment and control groups to be compared over the same time periods.

Table 3.141. Purchasers of Licenses in the 2017-2018 Season After the First Treatment Date, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 8,436 | 3,126 | 2,236 | 890 | 5,310 |
| Group 2: Social, Timing 2, Avid | 8,497 | 3,182 | 2,290 | 892 | 5,315 |
| Group 3: Aesthetic, Timing 1, Avid | 8,405 | 3,079 | 2,230 | 849 | 5,326 |
| Group 4: Aesthetic, Timing 2, Avid | 8,512 | 3,155 | 2,261 | 894 | 5,357 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 8,444 | 3,164 | 2,278 | 886 | 5,271 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 8,487 | 3,152 | 2,301 | 851 | 5,324 |
| Group 7: Hunting - Success, Timing 1, Avid | 8,507 | 3,226 | 2,345 | 881 | 5,271 |
| Group 8: Hunting - Success, Timing 2, Avid | 8,588 | 3,219 | 2,351 | 868 | 5,369 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | 10,679 |
| Group 10: Social, Timing 1, Sporadic | 23,441 | 3,669 | 2,509 | 1,160 | 19,772 |
| Group 11: Social, Timing 2, Sporadic | 23,337 | 3,608 | 2,391 | 1,217 | 19,729 |
| Group 12: Aesthetic, Timing 1, Sporadic | 23,250 | 3,613 | 2,464 | 1,149 | 19,637 |
| Group 13: Aesthetic, Timing 2, Sporadic | 23,316 | 3,646 | 2,494 | 1,152 | 19,670 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 23,582 | 3,711 | 2,541 | 1,170 | 19,871 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 23,392 | 3,626 | 2,420 | 1,206 | 19,766 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 23,542 | 3,584 | 2,387 | 1,197 | 19,958 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 23,311 | 3,506 | 2,328 | 1,178 | 19,805 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | 40,068 |

Based on the data above, statistical tests were run. The first tests looked at any treatment at all versus no treatment, run separately on avid and sporadic bowhunters, and also run separately on the different timing schedules.

For this, the following combinations were made of the data, and then the comparisons were made:

- Groups 1, 3, 5, 7 combined (any treatment, Timing 1, avid) vs. Group 9 (using Timing 1 for the control group)
- Groups 2, 4, 6, 8 combined (any treatment, Timing 2, avid) vs. Group 9 (using Timing 2 for the control group)
- Groups 10, 12, 14, 16 combined (any treatment, Timing 1, sporadic) vs. Group 18 (using Timing 1 for the control group)
- Groups 11, 13, 15, 17 combined (any treatment, Timing 2, sporadic) vs. Group 18 (using Timing 2 for the control group)

Taking the first of those (Groups 1, 3, 5, 7 combined vs. Group 9) produces Table 3.142. In this test, all those with Timing 1 treatment were compared to the control using Timing 1 dates. In other words, any treatment was compared to no treatment, keeping the timing groups separate. In Table 3.142, Groups 1, 3, 5, and 7 combined have 33,773 hunters of which 12,595 bought licenses in the time period (37.3%), and this is compared to 16,855 in the control group, of which 6,176 bought licenses (36.6%). The treatment group bought at a higher rate, but the difference was not statistically significant.

Table 3.142. Any Treatment Versus No Treatment, Timing 1, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 8,436 | 3,126 | | 2,236 | 890 | 5,310 |
| Group 3: Aesthetic, Timing 1, Avid | 8,405 | 3,079 | | 2,230 | 849 | 5,326 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 8,435 | 3,164 | | 2,278 | 886 | 5,271 |
| Group 7: Hunting - Success, Timing 1, Avid | 8,497 | 3,226 | | 2,345 | 881 | 5,271 |
| Sum of Groups 1, 3, 5, and 7 | 33,773 | 12,595 | 37.3% | 9,089 | 3,506 | 21,178 |
| Group 9: Control, Avid | 16,855 | 6,176 | 36.6% | 4,486 | 1,690 | 10,679 |

Not significant (t-test statistic = 1.431 and p-value = 0.152).

Comparing all the Timing 2 avid groups that received treatment to the control group finds that the treatment groups bought at a slightly higher rate, but the difference was not statistically significant (Table 3.143). The other tests of any treatment versus no treatment among sporadic bowhunters are included, but neither test shows any significant differences (Tables 3.144 and 3.145).

Table 3.143. Any Treatment Versus No Treatment, Timing 2, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 8,497 | 3,182 | 2,290 | 892 | | 5,315 |
| Group 4: Aesthetic, Timing 2, Avid | 8,512 | 3,155 | 2,261 | 894 | | 5,357 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 8,476 | 3,152 | 2,301 | 851 | | 5,324 |
| Group 8: Hunting - Success, Timing 2, Avid | 8,588 | 3,219 | 2,351 | 868 | | 5,369 |
| Sum of Groups 2, 4, 6, and 8 | 34,073 | 12,708 | 9,203 | 3,505 | 10.3% | 21,365 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | 10.1% | 10,679 |

Not significant (t-test statistic = 0.916 and p-value = 0.360).

Table 3.144. Any Treatment Versus No Treatment, Timing 1, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 10: Social, Timing 1, Sporadic | 23,441 | 3,669 | | 2,509 | 1,160 | 19,772 |
| Group 12: Aesthetic, Timing 1, Sporadic | 23,250 | 3,613 | | 2,464 | 1,149 | 19,637 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 23,582 | 3,711 | | 2,541 | 1,171 | 19,871 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 23,542 | 3,584 | | 2,387 | 1,198 | 19,958 |
| Sum of Groups 10, 12, 14, and 16 | 93,815 | 14,577 | 15.5% | 9,901 | 4,676 | 79,238 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 15.3% | 4,900 | 2,334 | 40,068 |

Not significant (t-test statistic = 1.203 and p-value = 0.229).

Table 3.145. Any Treatment Versus No Treatment, Timing 2, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 23,337 | 3,608 | 2,391 | 1,217 | | 19,729 |
| Group 13: Aesthetic, Timing 2, Sporadic | 23,316 | 3,646 | 2,494 | 1,152 | | 19,670 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 23,392 | 3,626 | 2,420 | 1,206 | | 19,766 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 23,311 | 3,506 | 2,328 | 1,178 | | 19,805 |
| Sum of Groups 11, 13, 15, and 17 | 93,356 | 14,386 | 9,633 | 4,753 | 5.1% | 78,970 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | 4.9% | 40,068 |

Not significant (t-test statistic = 1.278 and p-value = 0.201).

These four tables for the overall results are summarized in Figure 3.20. They all show positive lift, albeit not statistically significant.

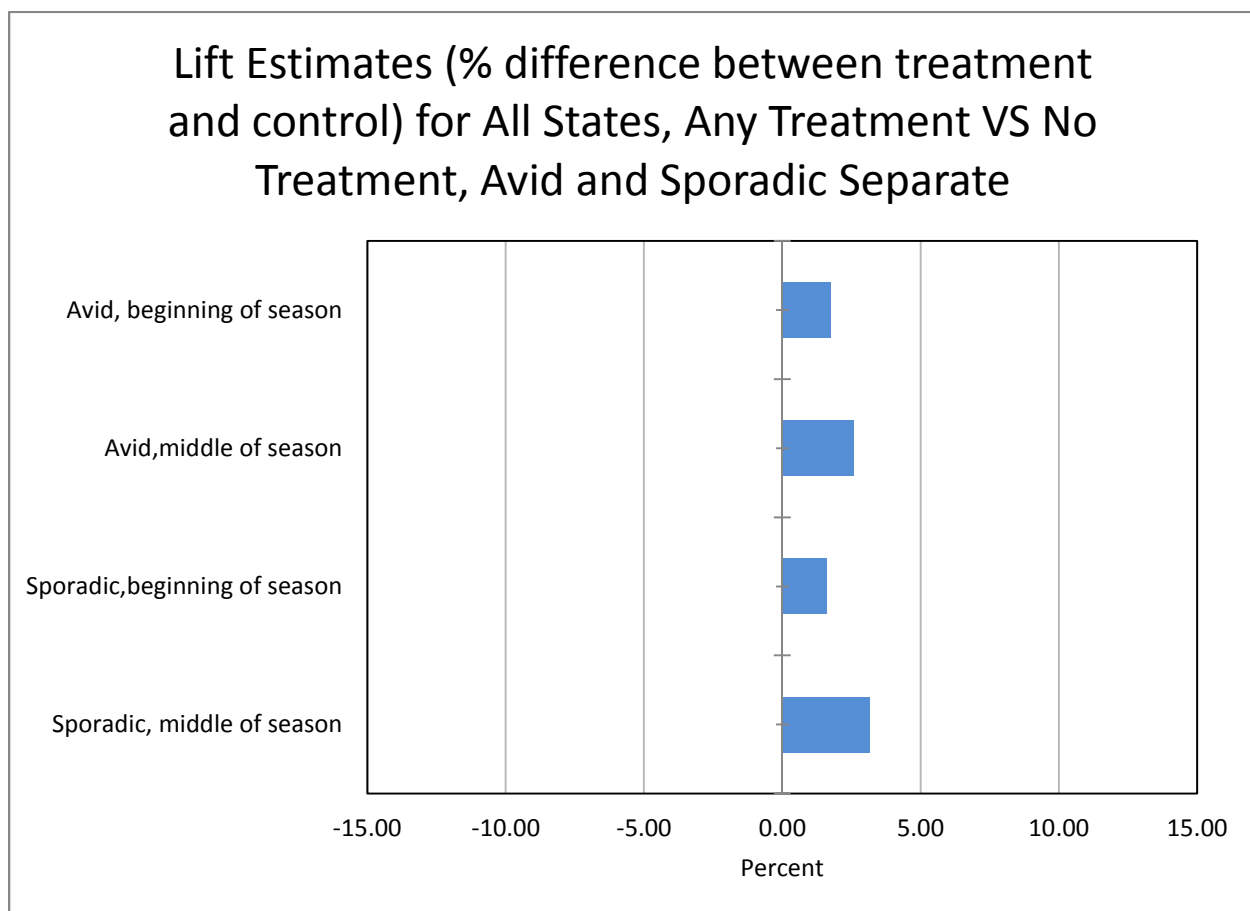


Figure 3.20. Lift Estimates, Any Treatment, Avid and Sporadic Separate, GA-IN-NJ-OK

The next set of tests looked at any treatment versus no treatment, and it combined avid and sporadic bowhunters. For this, the following combinations were made of the data, and then the comparisons were made:

Groups 1, 3, 5, 7, 10, 12, 14, 16 combined (any treatment, Timing 1, avid and sporadic together) vs. Groups 9 and 18 (using Timing 1 for the control groups)

Groups 2, 4, 6, 8, 11, 13, 15, 17 combined (any treatment, Timing 2, avid and sporadic together) vs. Groups 9 and 18 (using Timing 2 for the control groups)

The treatment was higher for Timing 1 and was statistically significant at the 95% confidence level (Table 3.146), while Timing 2, also higher, was significant at the 90% confidence level (Table 3.147).

Table 3.146. Any Treatment Versus No Treatment, Timing 1, Avid and Sporadic Bowhunters Together, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 8,436 | 3,126 | | 2,236 | 890 | 5,310 |
| Group 3: Aesthetic, Timing 1, Avid | 8,405 | 3,079 | | 2,230 | 849 | 5,326 |
| Group 5: Hunting - Recreation, Timing 1, Avid | 8,435 | 3,164 | | 2,278 | 886 | 5,271 |
| Group 7: Hunting - Success, Timing 1, Avid | 8,497 | 3,226 | | 2,345 | 881 | 5,271 |
| Group 10: Social, Timing 1, Sporadic | 23,441 | 3,669 | | 2,509 | 1,160 | 19,772 |
| Group 12: Aesthetic, Timing 1, Sporadic | 23,250 | 3,613 | | 2,465 | 1,149 | 19,637 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 23,582 | 3,711 | | 2,541 | 1,170 | 19,871 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 23,542 | 3,584 | | 2,387 | 1,197 | 19,958 |
| Sum of Groups 1, 3, 5, 7, 10, 12, 14, and 16 | 127,588 | 27,172 | 21.3% | 18,990 | 8,182 | 100,416 |
| Group 9: Control, Avid | 16,855 | 6,176 | | 4,486 | 1,690 | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | | 4,900 | 2,334 | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 20.9% | 9,386 | 4,024 | 50,747 |

Significant at the 95% confidence level (t-test statistic = 2.002 and p-value = 0.045).

Table 3.147. Any Treatment Versus No Treatment, Timing 2, Avid and Sporadic Bowhunters Together, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 8,497 | 3,182 | 2,290 | 892 | | 5,315 |
| Group 4: Aesthetic, Timing 2, Avid | 8,512 | 3,155 | 2,261 | 894 | | 5,357 |
| Group 6: Hunting - Recreation, Timing 2, Avid | 8,476 | 3,152 | 2,301 | 851 | | 5,324 |
| Group 8: Hunting - Success, Timing 2, Avid | 8,588 | 3,219 | 2,351 | 868 | | 5,369 |
| Group 11: Social, Timing 2, Sporadic | 23,337 | 3,608 | 2,391 | 1,217 | | 19,729 |
| Group 13: Aesthetic, Timing 2, Sporadic | 23,316 | 3,646 | 2,494 | 1,152 | | 19,670 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 23,392 | 3,626 | 2,420 | 1,206 | | 19,766 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 23,311 | 3,506 | 2,328 | 1,178 | | 19,805 |
| Sum of Groups 2, 4, 6, 8, 11, 13, 15, and 17 | 127,429 | 27,094 | 18,836 | 8,258 | 6.5% | 100,335 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 9,386 | 4,024 | 6.3% | 50,747 |

Significant at the 90% confidence level (t-test statistic = 1.766 and p-value = 0.077).

These two tables are summarized in Figure 3.21. Both bars represent statistically significant differences.

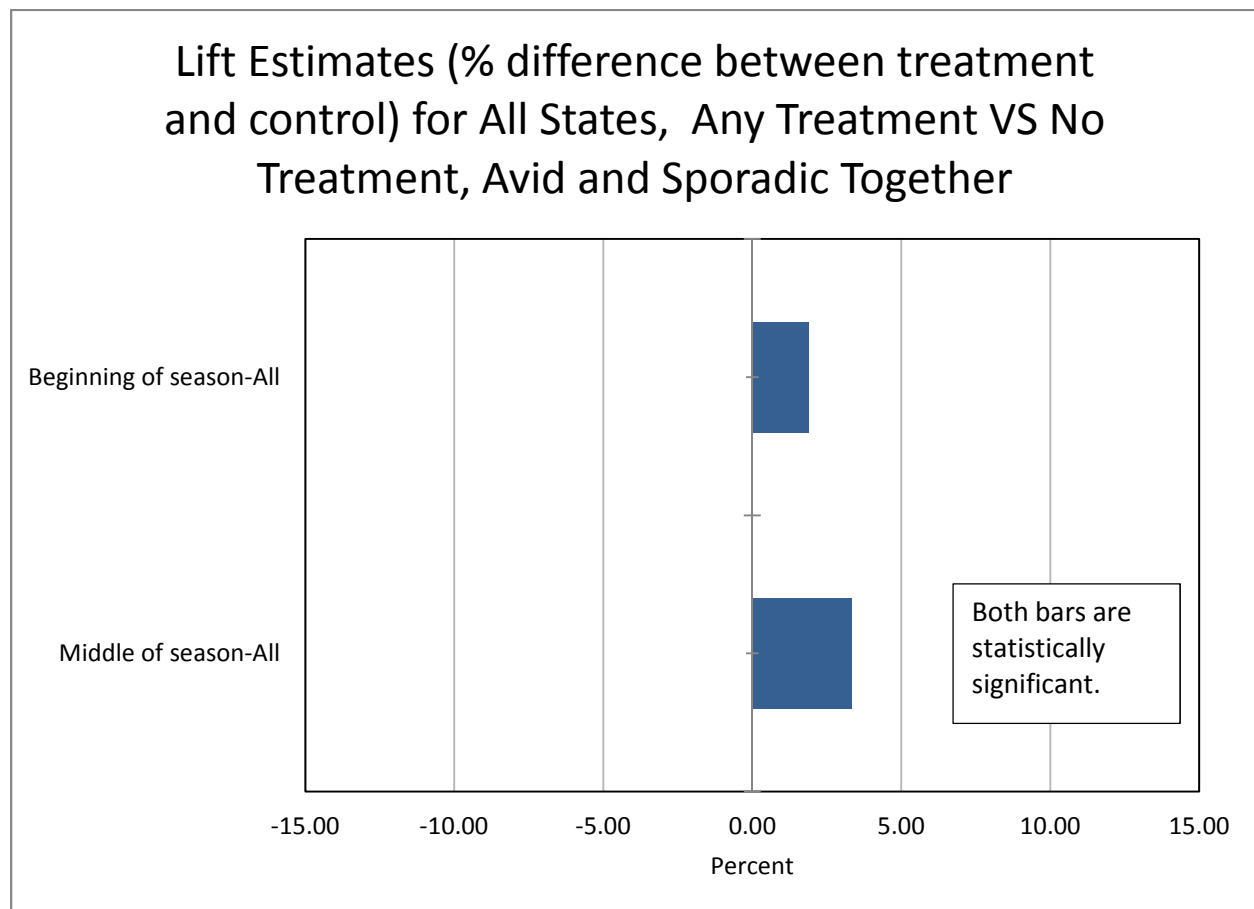


Figure 3.21. Lift Estimates, Any Treatment, Avid and Sporadic Together, GA-IN-NJ-OK

One set of tests looked at the individual treatments (social, aesthetic, hunting-recreation, and hunting-success) against the control group, to assess the effectiveness of the various message themes, run separately on avid and sporadic bowhunters. The first of these tests compared Group 1 (the social message, Timing 1, avid) to Group 9 (the avid control group, using the Timing 1 date) (see the shaded cells).

In this comparison, there were 3,126 purchasers out of 8,436 in Group 1, compared to 6,176 purchasers out of 16,855 in the control group (Table 3.148). In other words, in Group 1, the rate of purchase in the time period was 37.1%, while the rate of purchase in Group 9 over that same time period was 36.6%. Although this is positive lift, the difference was not statistically significant.

The rest of the individual group tests are presented in Tables 3.149 through 3.163. There was a significant difference between Group 7 (hunting-success message among avid bowhunters using Timing 1) and the control group, a significant difference at the 95% confidence level (t-test statistic = 2.031 and p-value = 0.042).

Table 3.148. Social Theme Versus Control Group, Timing 1, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 8,436 | 3,126 | 37.1% | 2,236 | 890 | 5,312 |
| Group 9: Control, Avid | 16,855 | 6,176 | 36.6% | 4,486 | 1,690 | 10,679 |

Not significant (t-test statistic = 0.642 and p-value = 0.521).

Table 3.149. Social Theme Versus Control Group, Timing 2, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---------------------------------|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 8,497 | 3,182 | 2,290 | 892 | 10.5% | 5,315 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | 10.0% | 10,679 |

Not significant (t-test statistic = 1.163 and p-value = 0.245).

Table 3.150. Aesthetic Theme Versus Control Group, Timing 1, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|--|--|---|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 8,405 | 3,079 | 36.6% | 2,230 | 849 | 5,326 |
| Group 9: Control, Avid | 16,855 | 6,176 | 36.6% | 4,486 | 1,690 | 10,679 |

Not significant (t-test statistic = -0.014 and p-value = 0.989).

Table 3.151. Aesthetic Theme Versus Control Group, Timing 2, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|------------------------------------|---------------------------|--|---|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 8,512 | 3,155 | 2,261 | 894 | 10.5% | 5,357 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | 10.0% | 10,679 |

Not significant (t-test statistic = 1.176 and p-value = 0.240).

Table 3.152. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 8,435 | 3,164 | 37.5% | 2,278 | 886 | 5,271 |
| Group 9: Control, Avid | 16,855 | 6,176 | 36.6% | 4,486 | 1,690 | 10,679 |

Not significant (t-test statistic = 1.347 and p-value = 0.178).

Table 3.153. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 8,476 | 3,152 | 2,301 | 851 | 10.0% | 5,324 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | 10.0% | 10,679 |

Not significant (t-test statistic = 0.034 and p-value = 0.973).

Table 3.154. Hunting-Success Theme Versus Control Group, Timing 1, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 8,497 | 3,226 | 38.0% | 2,345 | 881 | 5,271 |
| Group 9: Control, Avid | 16,855 | 6,176 | 36.6% | 4,486 | 1,690 | 10,679 |

Significant at the 95% confidence level (t-test statistic = 2.056 and p-value = 0.040).

Table 3.155. Hunting-Success Theme Versus Control Group, Timing 2, Avid Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 8,588 | 3,219 | 2,351 | 868 | 10.1% | 5,369 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | 10.0% | 10,679 |

Not significant (t-test statistic = 0.201 and p-value = 0.840).

Table 3.156. Social Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|--|---|---|---|
| Group 10: Social, Timing 1, Sporadic | 23,441 | 3,669 | 15.7% | 2,509 | 1,160 | 19,772 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 15.3% | 4,900 | 2,334 | 40,068 |

Not significant (t-test statistic = 1.240 and p-value = 0.215).

Table 3.157. Social Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|---|---|--|---|
| Group 11: Social, Timing 2, Sporadic | 23,337 | 3,608 | 2,391 | 1,217 | 5.2% | 19,729 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | 4.9% | 40,306 |

Not significant (t-test statistic = 1.591 and p-value = 0.112).

Table 3.158. Aesthetic Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 12: Aesthetic, Timing 1, Sporadic | 23,250 | 3,613 | 15.5% | 2,464 | 1,149 | 19,637 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 15.3% | 4,900 | 2,334 | 40,068 |

Not significant (t-test statistic = 0.852 and p-value = 0.394).

Table 3.159. Aesthetic Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 13: Aesthetic, Timing 2, Sporadic | 23,316 | 3,646 | 2,494 | 1,152 | 4.9% | 19,6707 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | 4.9% | 40,306 |

Not significant (t-test statistic = 0.038 and p-value = 0.970).

Table 3.160. Hunting-Recreation Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 23,582 | 3,711 | 15.7% | 2,541 | 1,170 | 19,871 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 15.3% | 4,900 | 2,334 | 40,068 |

Not significant (t-test statistic = 1.533 and p-value = 0.125).

Table 3.161. Hunting-Recreation Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 23,392 | 3,626 | 2,420 | 1,206 | 5.2% | 19,766 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | 4.9% | 40,306 |

Not significant (t-test statistic = 1.261 and p-value = 0.207).

Table 3.162. Hunting-Success Theme Versus Control Group, Timing 1, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 16: Hunting - Success, Timing 1, Sporadic | 23,542 | 3,584 | 15.2% | 2,387 | 1,197 | 19,958 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 15.3% | 4,900 | 2,334 | 40,068 |

Not significant (t-test statistic = -0.242 and p-value = 0.809).

Table 3.163. Hunting-Success Theme Versus Control Group, Timing 2, Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 17: Hunting - Success, Timing 2, Sporadic | 23,311 | 3,506 | 2,328 | 1,178 | 5.1% | 19,805 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | 4.9% | 40,306 |

Not significant (t-test statistic = 0.682 and p-value = 0.495).

These individual groups in the above tables are summarized in Figure 3.22. One of the bars shows a statistically significant difference.

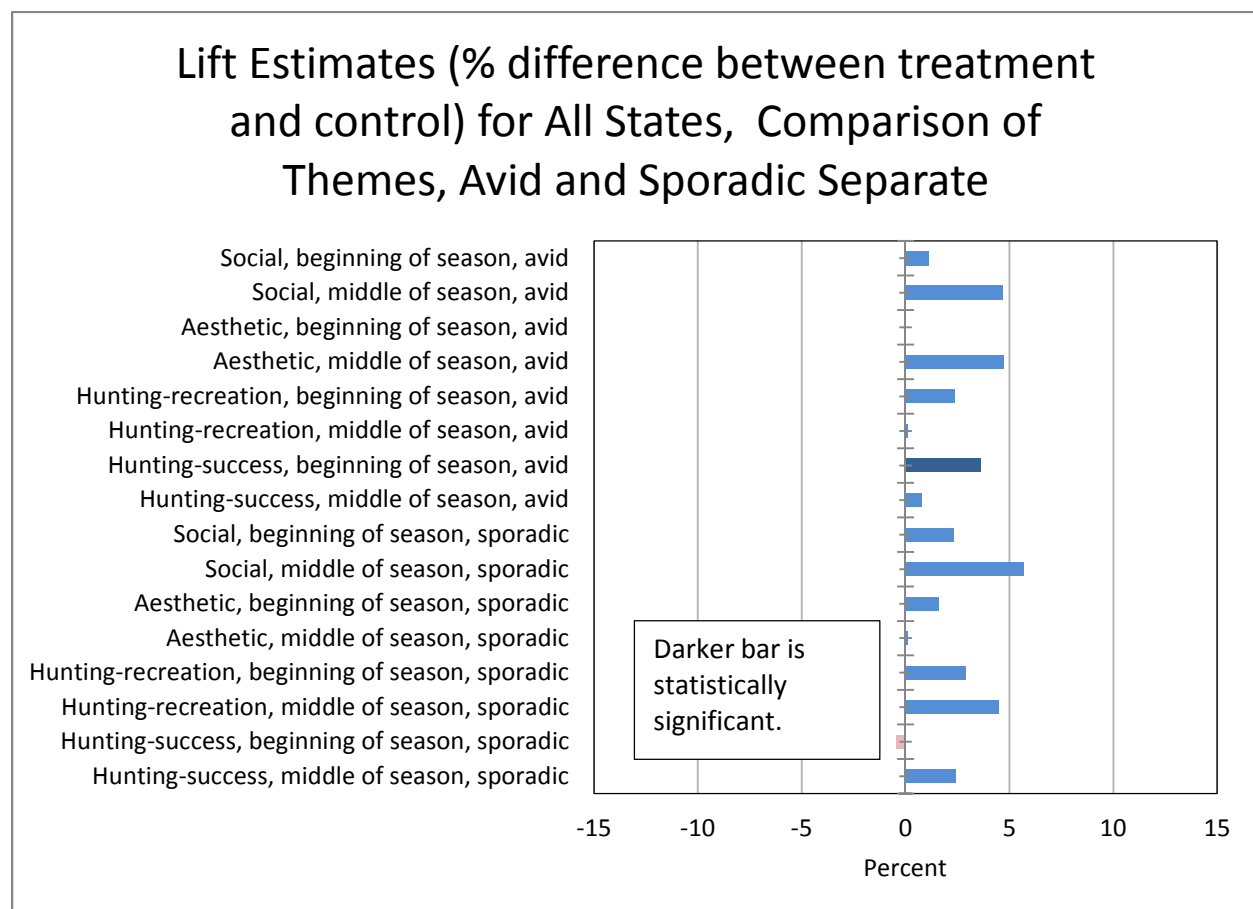


Figure 3.22. Lift Estimates, Individual Treatments, Avid and Sporadic Separate, GA-IN-NJ-OK

The last set of statistical tests looked at the message themes, but putting the avid and sporadic together. These are presented in Tables 3.164 through 3.171. Two of the tests showed statistically significant differences at the 95% confidence level: the hunting-recreation theme under Timing 1, and the social theme under Timing 2.

Table 3.164. Social Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|--|---|---|---|
| Group 1: Social, Timing 1, Avid | 8,436 | 3,126 | | 2,236 | 890 | 5,310 |
| Group 10: Social, Timing 1, Sporadic | 23,441 | 3,669 | | 2,509 | 1,160 | 19,772 |
| Sum of Groups 1 and 10 | 31,877 | 6795 | 21.3% | 4,745 | 2,050 | 25,082 |
| Group 9: Control, Avid | 16,855 | 6,176 | | 4,486 | 1,690 | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | | 4,900 | 2,334 | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 20.9% | 9,386 | 4,024 | 50,747 |

Not significant (t-test statistic = 1.480 and p-value = 0.139).

Table 3.165. Aesthetic Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 3: Aesthetic, Timing 1, Avid | 8,405 | 3,079 | | 2,230 | 849 | 5,326 |
| Group 12: Aesthetic, Timing 1, Sporadic | 23,250 | 3,613 | | 2,464 | 1,149 | 19,637 |
| Sum of Groups 3 and 12 | 31,655 | 6,692 | 21.1% | 4,694 | 1,998 | 24,963 |
| Group 9: Control, Avid | 16,855 | 6,176 | | 4,486 | 1,690 | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | | 4,900 | 2,334 | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 20.9% | 9,386 | 4,024 | 50,747 |

Not significant (t-test statistic = 0.852 and p-value = 0.394).

Table 3.166. Hunting-Recreation Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|--|---|---|---|
| Group 5: Hunting - Recreation, Timing 1, Avid | 8,435 | 3,164 | | 2,278 | 886 | 5,271 |
| Group 14: Hunting - Recreation, Timing 1, Sporadic | 23,582 | 3,711 | | 2,541 | 1,170 | 19,871 |
| Sum of Groups 5 and 14 | 32,017 | 6,875 | 21.5% | 4,819 | 2,056 | 25,142 |
| Group 9: Control, Avid | 16,855 | 6,176 | | 4,486 | 1,690 | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | | 4,900 | 2,334 | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 20.9% | 9,386 | 4,024 | 50,747 |

Significant at the 95% confidence level (t-test statistic = 2.039 and p-value = 0.041).

Table 3.167. Hunting-Success Theme Versus Control Group, Timing 1, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Percentage Purchasing in Time Period of Interest | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|--|---|---|---|
| Group 7: Hunting - Success, Timing 1, Avid | 8,497 | 3,226 | | 2,345 | 882 | 5,271 |
| Group 16: Hunting - Success, Timing 1, Sporadic | 23,542 | 3,584 | | 2,387 | 1,197 | 19,958 |
| Sum of Groups 7 and 16 | 32,039 | 6,810 | 21.3% | 4,732 | 2,078 | 25,229 |
| Group 9: Control, Avid | 16,855 | 6,176 | | 4,486 | 1,690 | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | | 4,900 | 2,334 | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 20.9% | 9,386 | 4,024 | 50,747 |

Not significant (t-test statistic = 1.266 and p-value = 0.206).

Table 3.168. Social Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--------------------------------------|---------------------------|--|---|---|--|---|
| Group 2: Social, Timing 2, Avid | 8,497 | 3,182 | 2,290 | 892 | | 5,3159 |
| Group 11: Social, Timing 2, Sporadic | 23,337 | 3,608 | 2,391 | 1,217 | | 19,729 |
| Sum of Groups 2 and 11 | 31,834 | 6,790 | 4,681 | 2,109 | 6.6% | 25,044 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 9,386 | 4,024 | 6.3% | 50,747 |

Significant at the 95% confidence level (t-test statistic = 2.087 and p-value = 0.037).

Table 3.169. Aesthetic Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 4: Aesthetic, Timing 2, Avid | 8,512 | 3,155 | 2,261 | 894 | | 5,357 |
| Group 13: Aesthetic, Timing 2, Sporadic | 23,316 | 3,646 | 2,494 | 1,152 | | 19,670 |
| Sum of Groups 4 and 13 | 31,828 | 6,801 | 4,755 | 2,046 | 6.4% | 25,027 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 9,386 | 4,024 | 6.3% | 50,747 |

Not significant (t-test statistic = 0.932 and p-value = 0.351).

Table 3.170. Hunting-Recreation Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|--|---------------------------|--|---|---|--|---|
| Group 6: Hunting - Recreation, Timing 2, Avid | 8,476 | 3,152 | 2,301 | 851 | | 5,324 |
| Group 15: Hunting - Recreation, Timing 2, Sporadic | 23,392 | 3,626 | 2,4206 | 1,206 | | 19,766 |
| Sum of Groups 6 and 15 | 31,868 | 6,778 | 4,721 | 2,057 | 6.5% | 25,090 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 9,386 | 4,024 | 6.3% | 50,747 |

Not significant (t-test statistic = 1.089 and p-value = 0.276).

Table 3.171. Hunting-Success Theme Versus Control Group, Timing 2, Avid and Sporadic Bowhunters, Overall (GA, IN, NJ, OK)

| | Number in Original Sample | Number That Purchased a License at Any Time in Year After the First Treatment Date of Timing 1 Until the End of the Season | Number That Purchased Between Timing 1 and Timing 2 Treatment Dates | Number That Purchased After the Timing 2 Treatment Date Until the End of the Year | Percentage Purchasing in Time Period of Interest | Number That Did Not Purchase a License in the Time Period (After Timing 1 Date Until the End of the Season) |
|---|---------------------------|--|---|---|--|---|
| Group 8: Hunting - Success, Timing 2, Avid | 8,588 | 3,219 | 2,351 | 868 | | 5,3696 |
| Group 17: Hunting - Success, Timing 2, Sporadic | 23,311 | 3,506 | 2,328 | 1,178 | | 19,805 |
| Sum of Groups 8 and 17 | 31,899 | 6,725 | 4,679 | 2,046 | 6.4% | 25,174 |
| Group 9: Control, Avid | 16,855 | 6,176 | 4,486 | 1,690 | | 10,679 |
| Group 18: Control, Sporadic | 47,302 | 7,234 | 4,900 | 2,334 | | 40,068 |
| Sum of Groups 9 and 18 | 64,157 | 13,410 | 9,386 | 4,024 | 6.3% | 50,747 |

Not significant (t-test statistic = 0.848 and p-value = 0.396).

The eight tables above of the overall results are summarized in Figure 3.23. It has two bars that represent statistically significant lift.

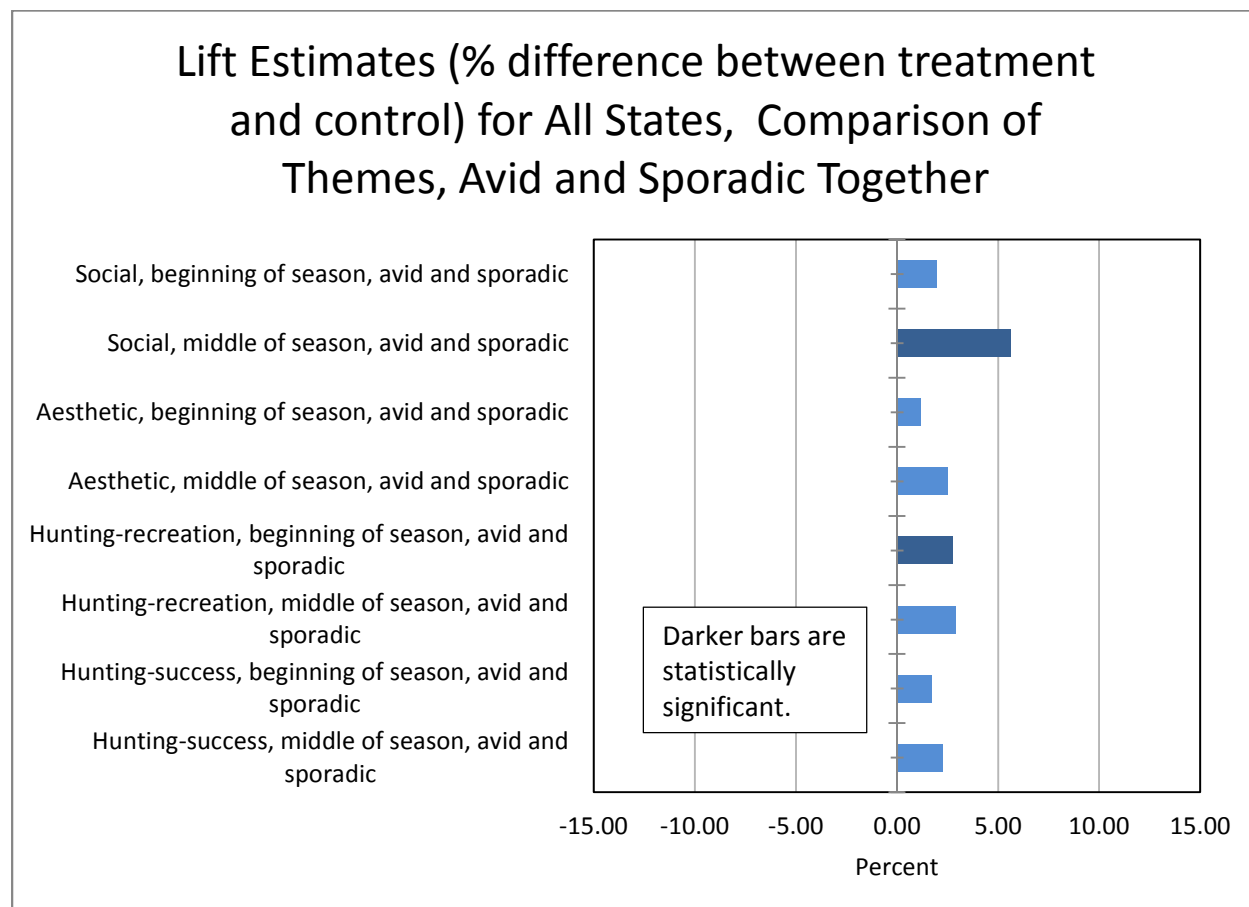
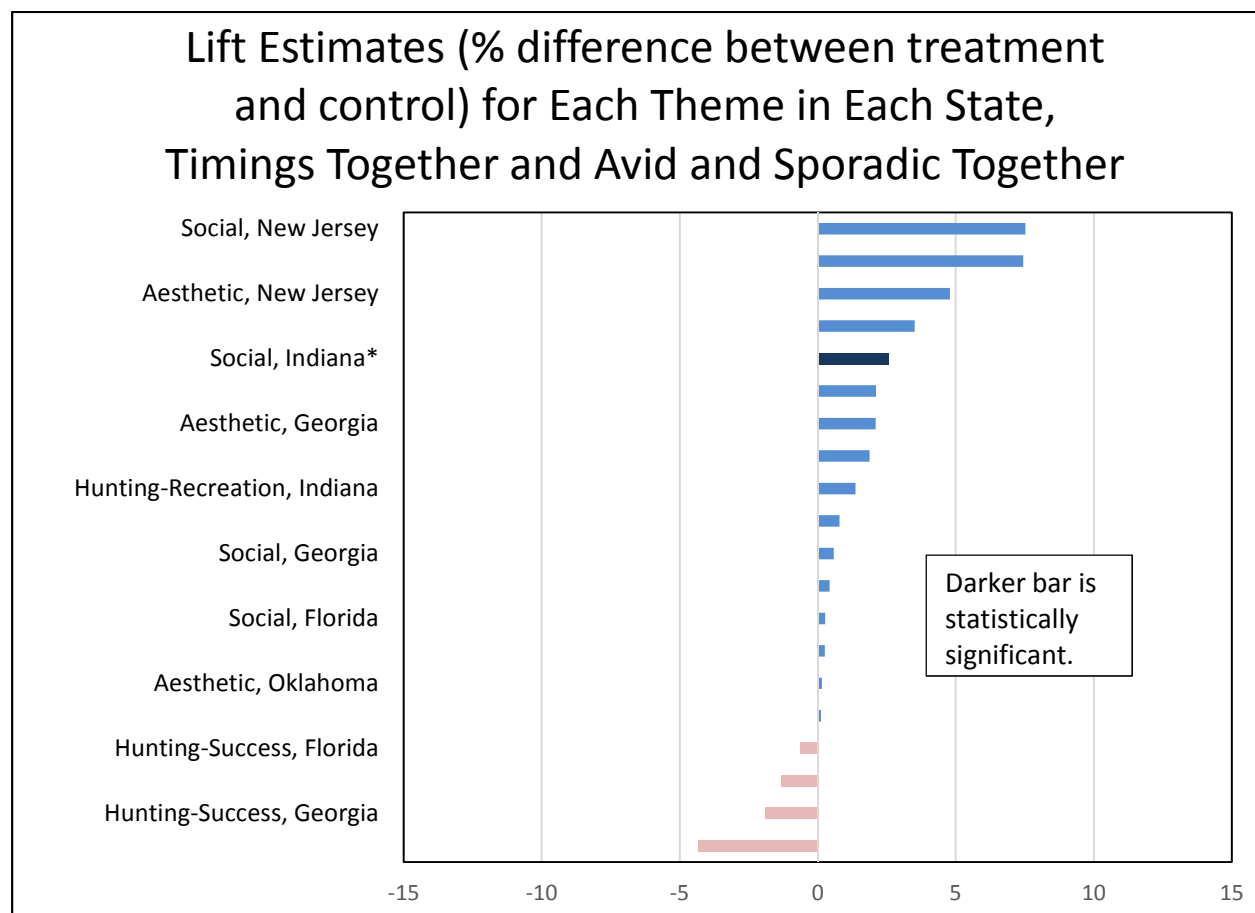


Figure 3.23. Lift Estimates, Individual Treatments, Avid and Sporadic Together, GA-IN-NJ-OK

A final analysis looks at each theme in each state, but the analysis combines the timings (in states that had two timings) and the avid and sporadic bowhunters together. In this lift analysis, each of the five participating states in the study experienced some lift for at least one message theme, although in some cases the lift may not have been statistically significant. Figure 3.24 shows the total lift by theme by state ranked from the greatest to the least lift.



*Significant at the 95% confidence level (t-test statistic = 2.125 and p-value = 0.0336).

Figure 3.24. Lift Estimates on All States Cumulatively

Most notably, New Jersey received 7.52% lift in license sales with the social message theme and 7.44% lift with the hunting-recreation theme. The greatest lift for Georgia was with the hunting-recreation and the aesthetic themes. In Indiana, the social and hunting-success themes resulted in the most lift. Florida experienced modest lift with the social and hunting-recreation themes, while Oklahoma also had modest lift with the hunting-success theme.

4. SURVEY RESULTS

The online survey was available to all hunters in the initial database representing all 18 groups (see Table 1.1). Those bowhunters who received a treatment are hereinafter referred to as “treatment bowhunters,” while the remaining respondents are referred to as the “control bowhunters.”

The main part of the survey is of bowhunters who had hunted in their state in the past 5 years. However, prior to this “screening” question, all hunters in the database who had hunted with anything in the past 5 years (i.e., the sample would still have included a few who had done *only* firearms hunting at this point) were asked some questions about the importance of various motivations for hunting. After those questions, the remainder of the survey was exclusive to those who had bowhunted within the past 5 years. Any graph with no label regarding of whom it was asked is of all survey respondents who bowhunted within the past 5 years. Otherwise, the graph title will indicate of whom the question was asked.

Some of the questions were asked primarily for survey flow control (i.e., for directing which questions get asked and which wording is used in the survey), as well as for later crosstabulations of the data. These questions are not presented unless their data are of interest on their own.

In the presentation of results, overall results are shown first, where applicable. On overall results, the states were properly weighted to be in the correct proportions. The overall results for each question are followed by state results, then crosstabulations by avidity (because avid and sporadic bowhunters have some differences), and then crosstabulations by theme, whenever it makes sense to show the crosstabulations.

This section first looks at the use of the email treatment link for purchasing a license, followed by respondent recall of the treatment and actions taken based on the treatment. Additional sections examine ratings of the emails and associated images, preferences regarding the images, and the perceived importance of hunting and bowhunting, among other topics.

USING THE EMAIL LINK TO PURCHASE A HUNTING LICENSE IN THE 2017-2018 SEASON

One of the more basic questions simply asked if those who had read or glanced at the email had clicked on the link and whether they had bought a license using the link; the results are shown out of all bowhunters who received a treatment email (i.e., excluding the control groups, which did not receive a treatment email). Of those who received the email campaign, 6% indicated that they clicked on the link (Figure 4.1), and 2% indicated that they purchased a license (Figure 4.2).

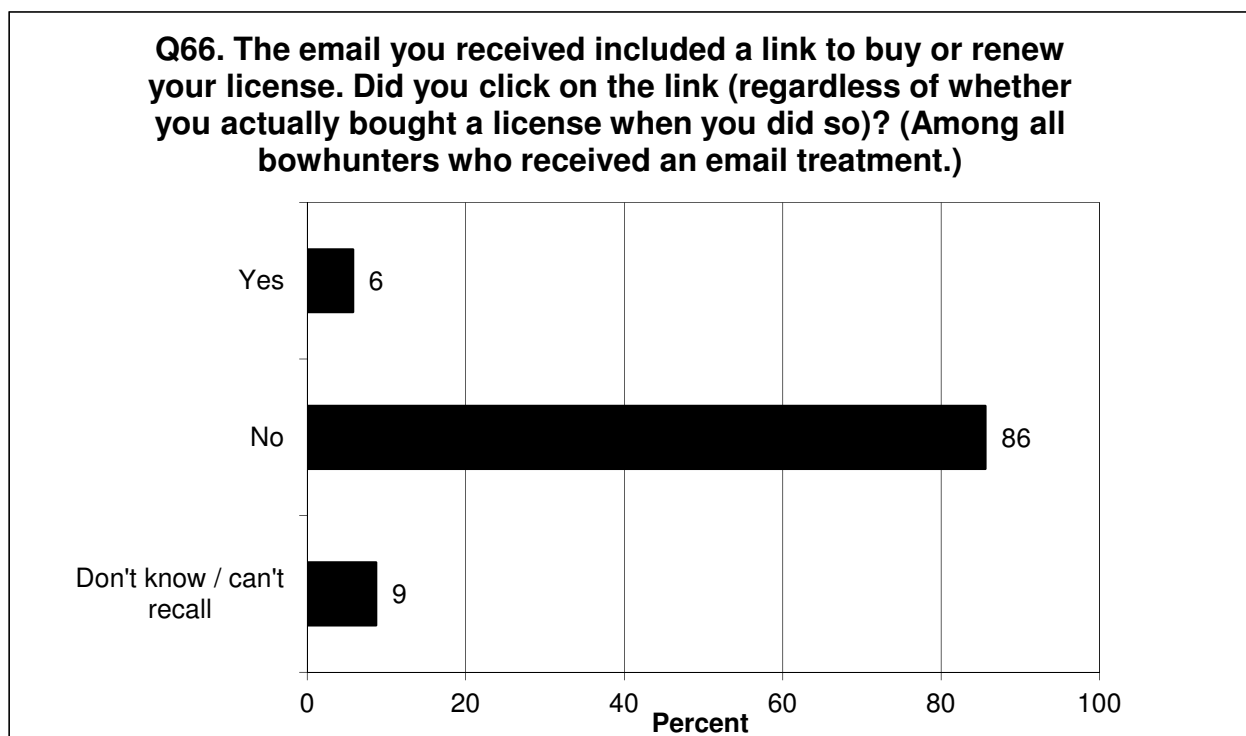


Figure 4. 1. Percentage Clicking on the Link, Overall

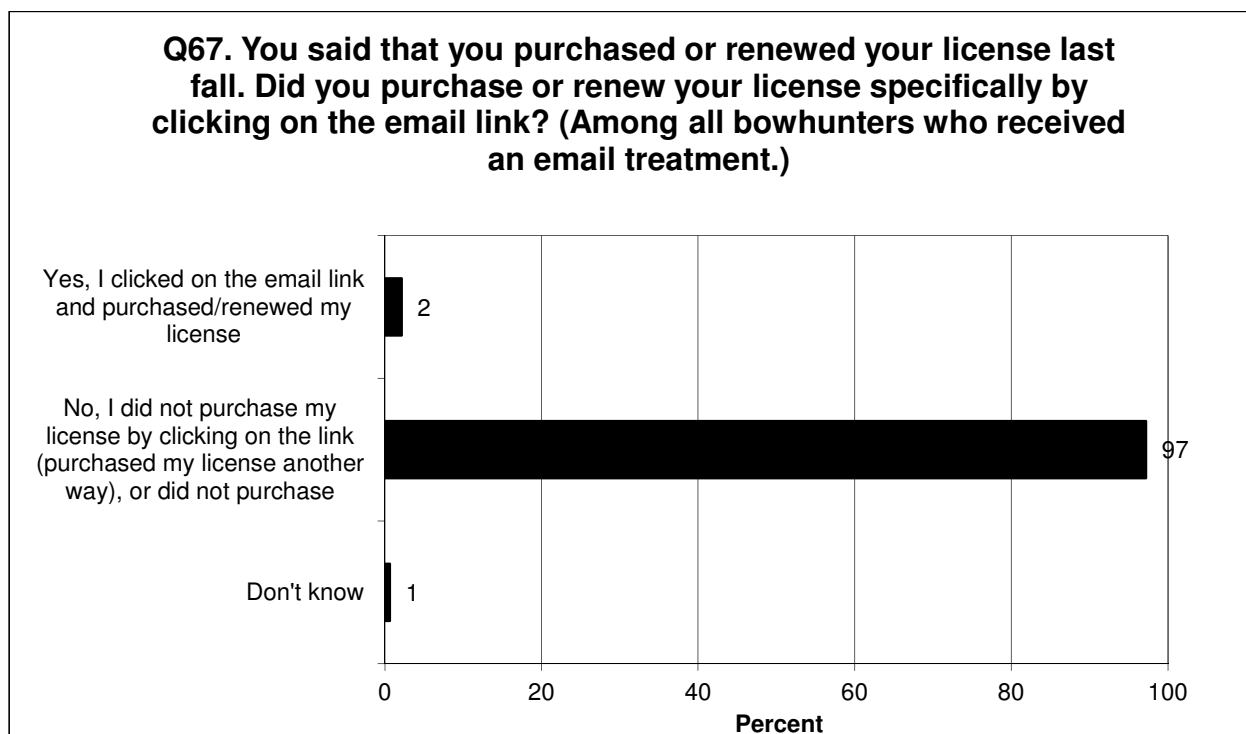


Figure 4.2. Percentage Using the Link to Purchase, Overall

The state-by-state results of these questions are shown. The rate of clicking on the license link ranges from 8% in Georgia to 3% in New Jersey, and the rate of purchase from the link ranges

from 1% of New Jersey and Oklahoma bowhunters to 3% of Georgia bowhunters who received the treatment (Figures 4.3 through 4.12).

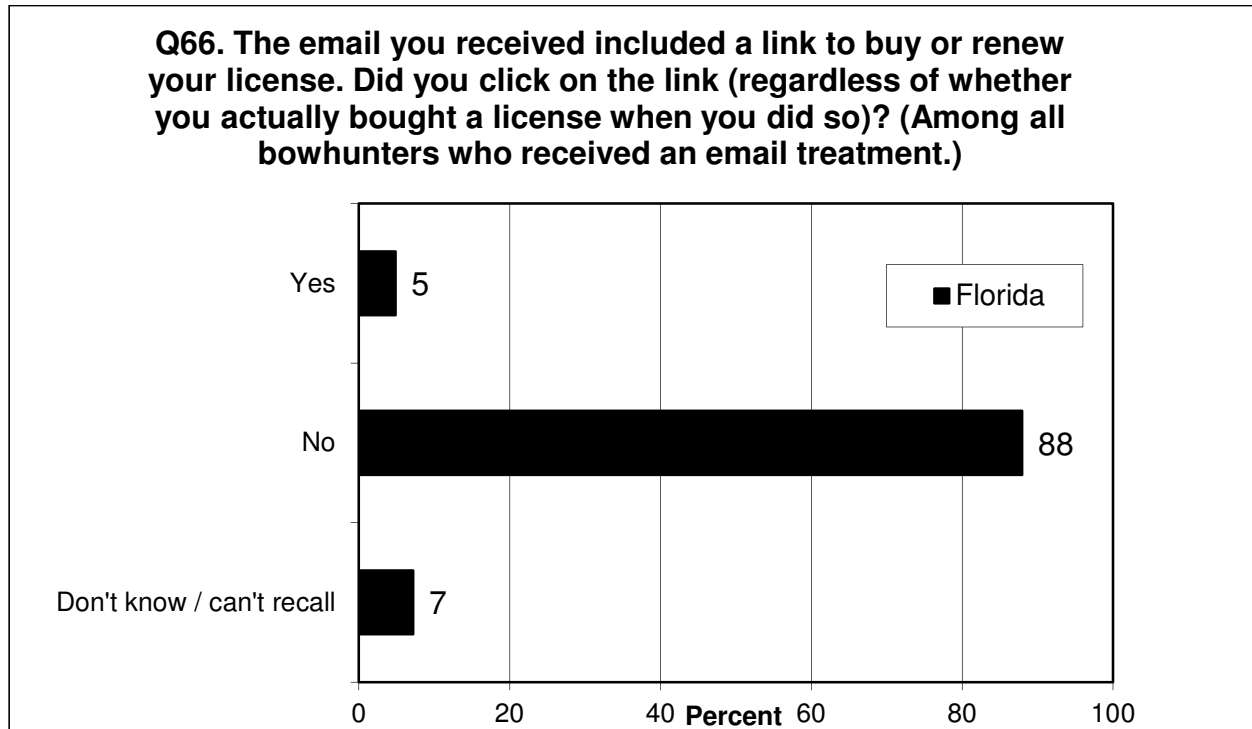


Figure 4.3. Percentage Clicking on the Link, Among Florida Bowhunters

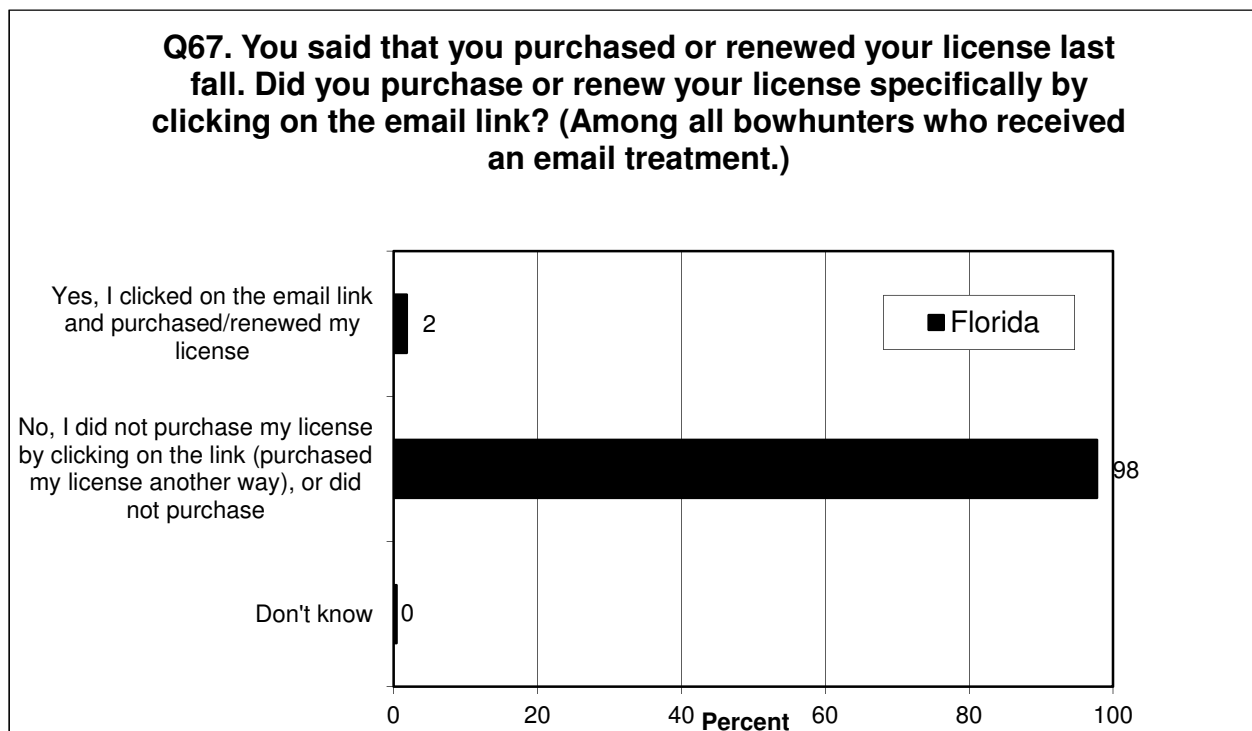


Figure 4.4. Percentage Using the Link to Purchase, Among Florida Bowhunters

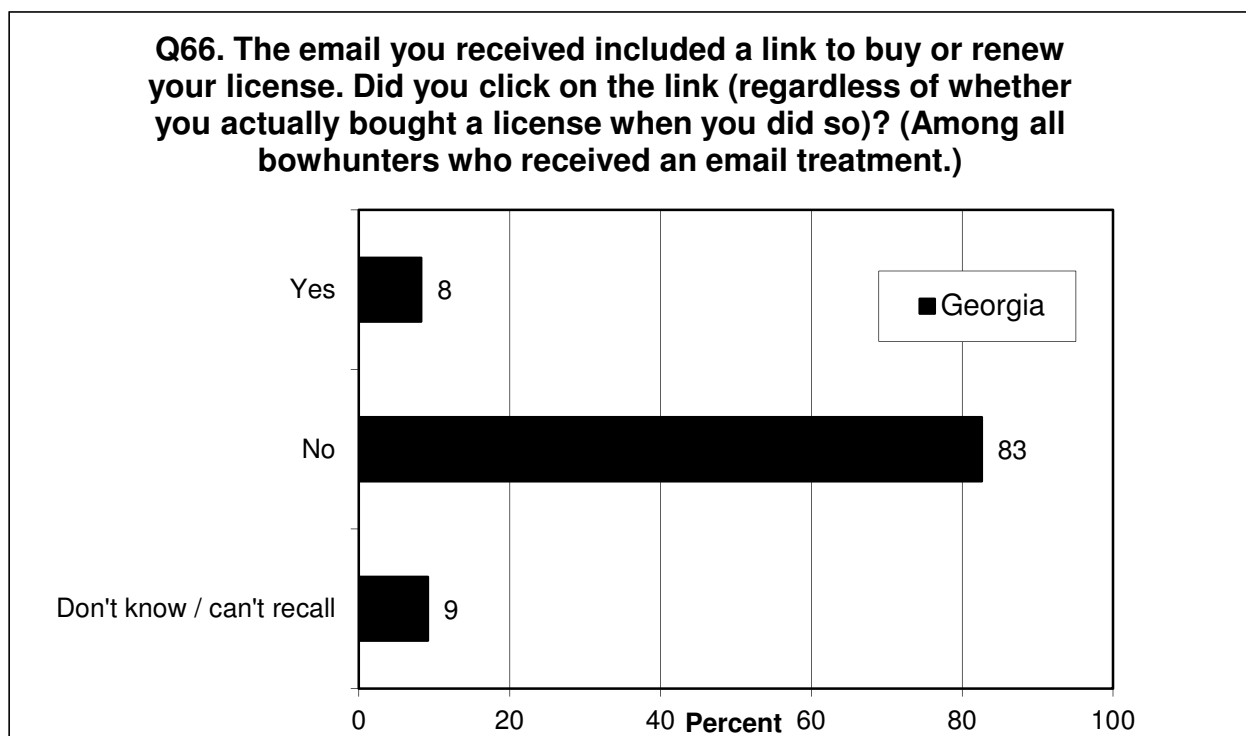


Figure 4.5. Percentage Clicking on the Link, Among Georgia Bowhunters

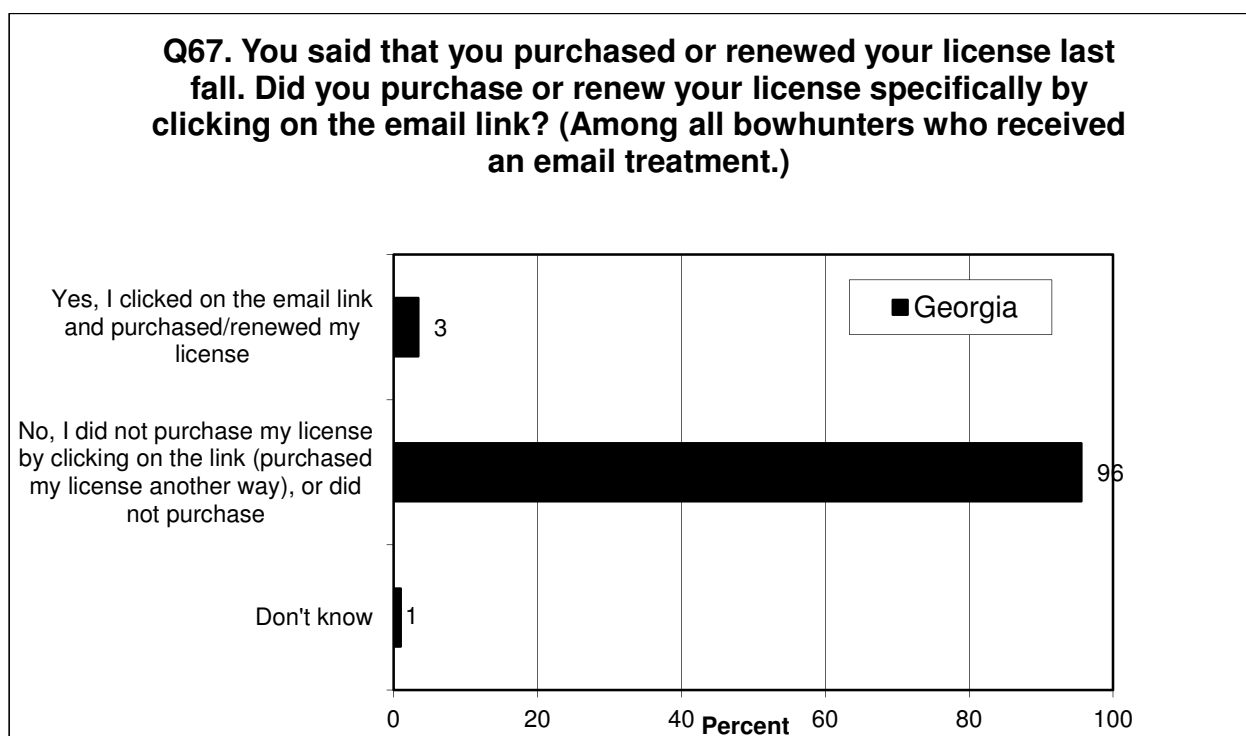


Figure 4.6. Percentage Using the Link to Purchase, Among Georgia Bowhunters

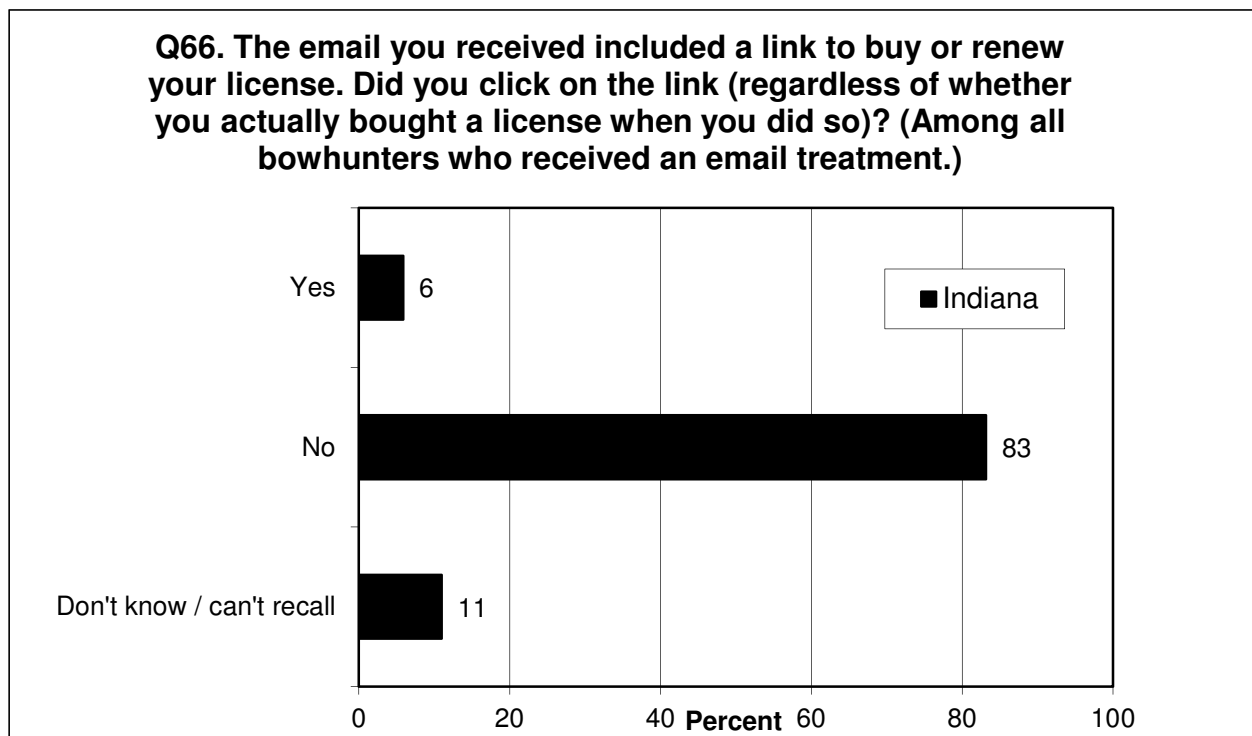


Figure 4.7. Percentage Clicking on the Link, Among Indiana Bowhunters

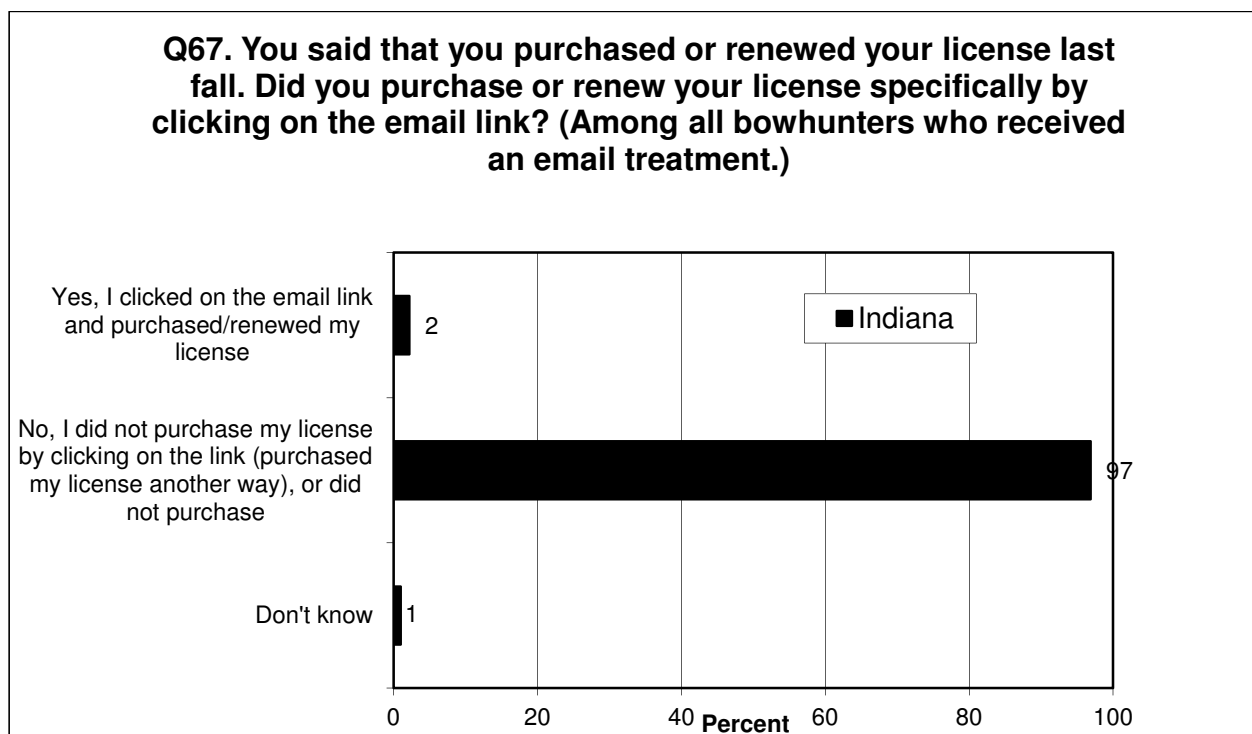


Figure 4.8. Percentage Using the Link to Purchase, Among Indiana Bowhunters

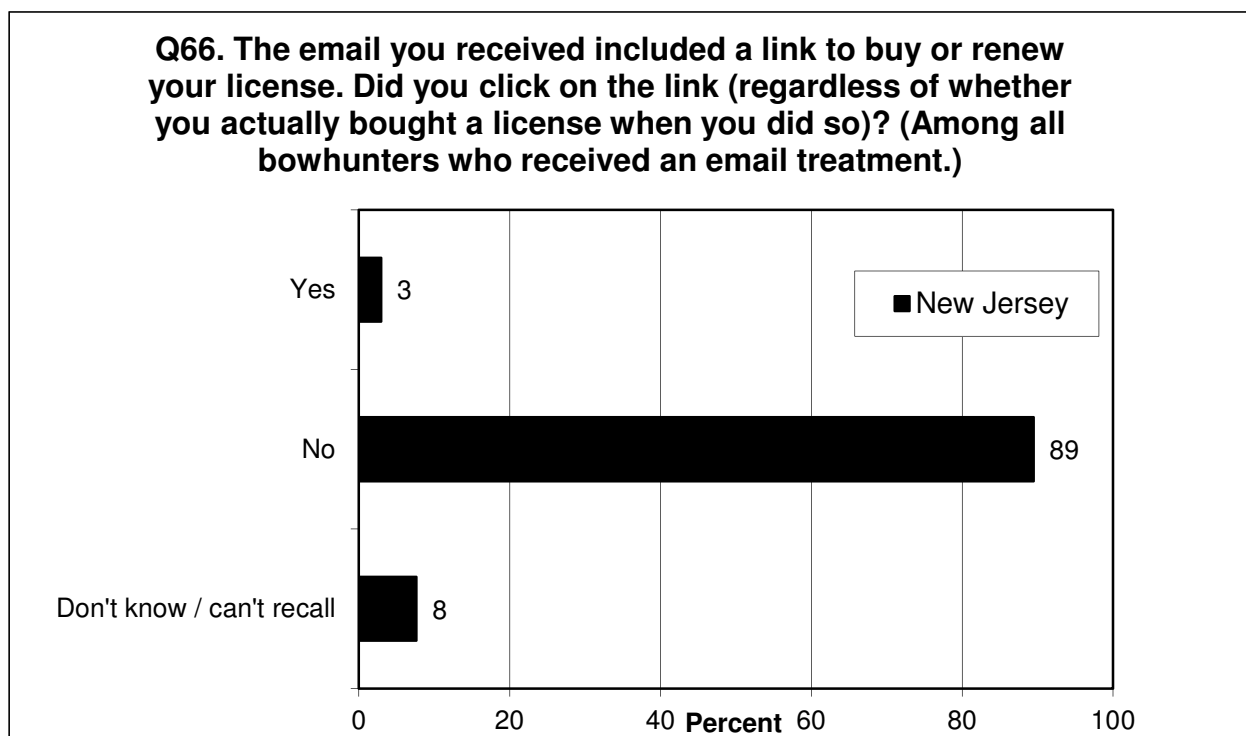


Figure 4.9. Percentage Clicking on the Link, Among New Jersey Bowhunters

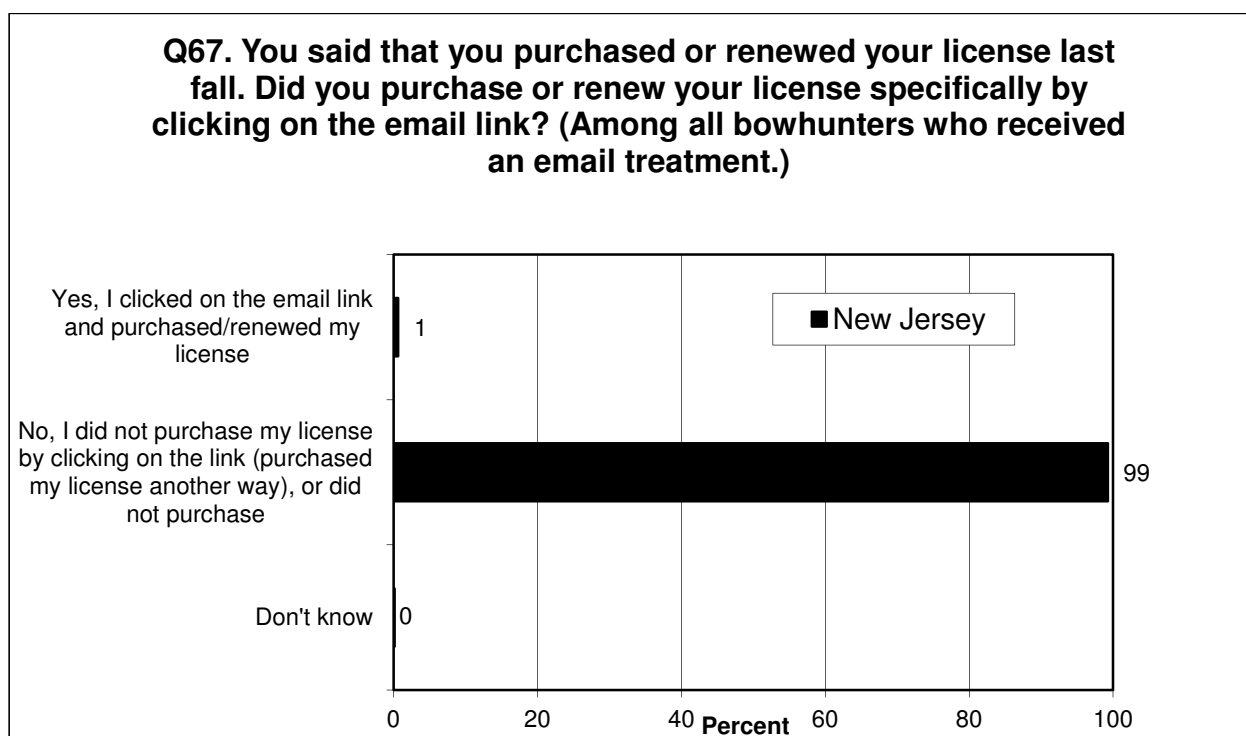


Figure 4.10. Percentage Using the Link to Purchase, Among New Jersey Bowhunters

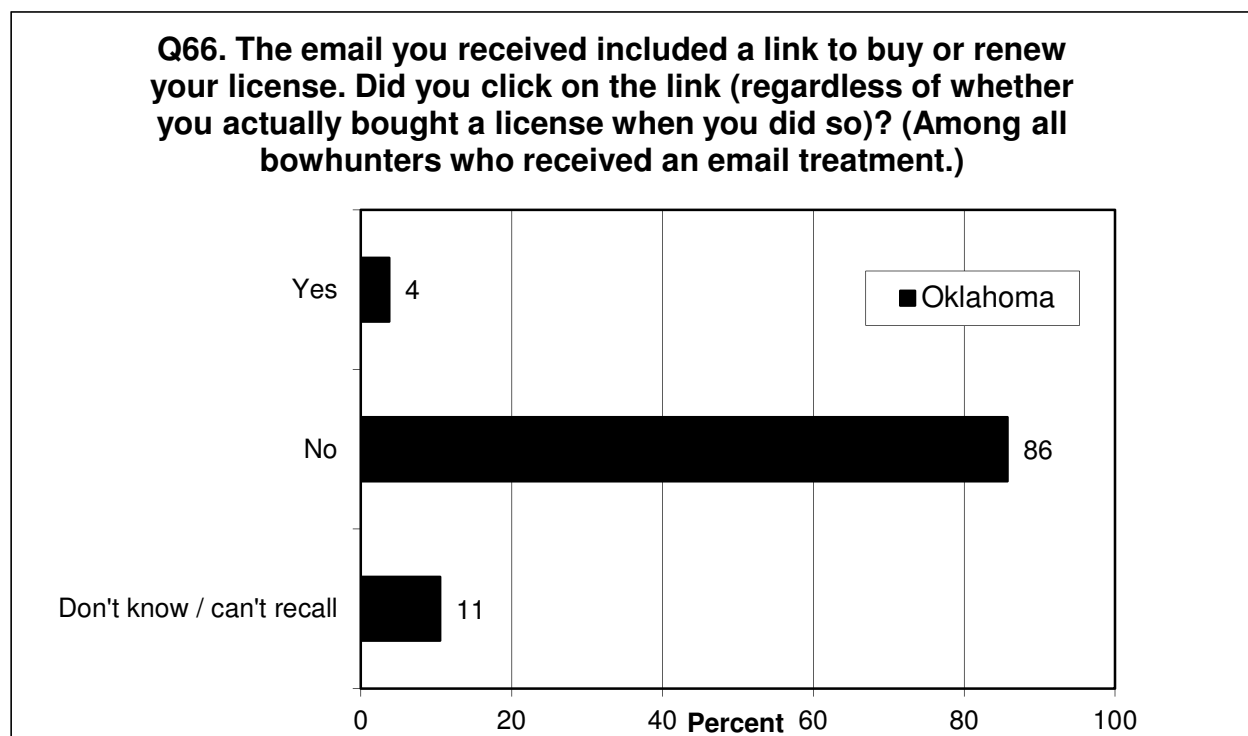


Figure 4.11. Percentage Clicking on the Link, Among Oklahoma Bowhunters

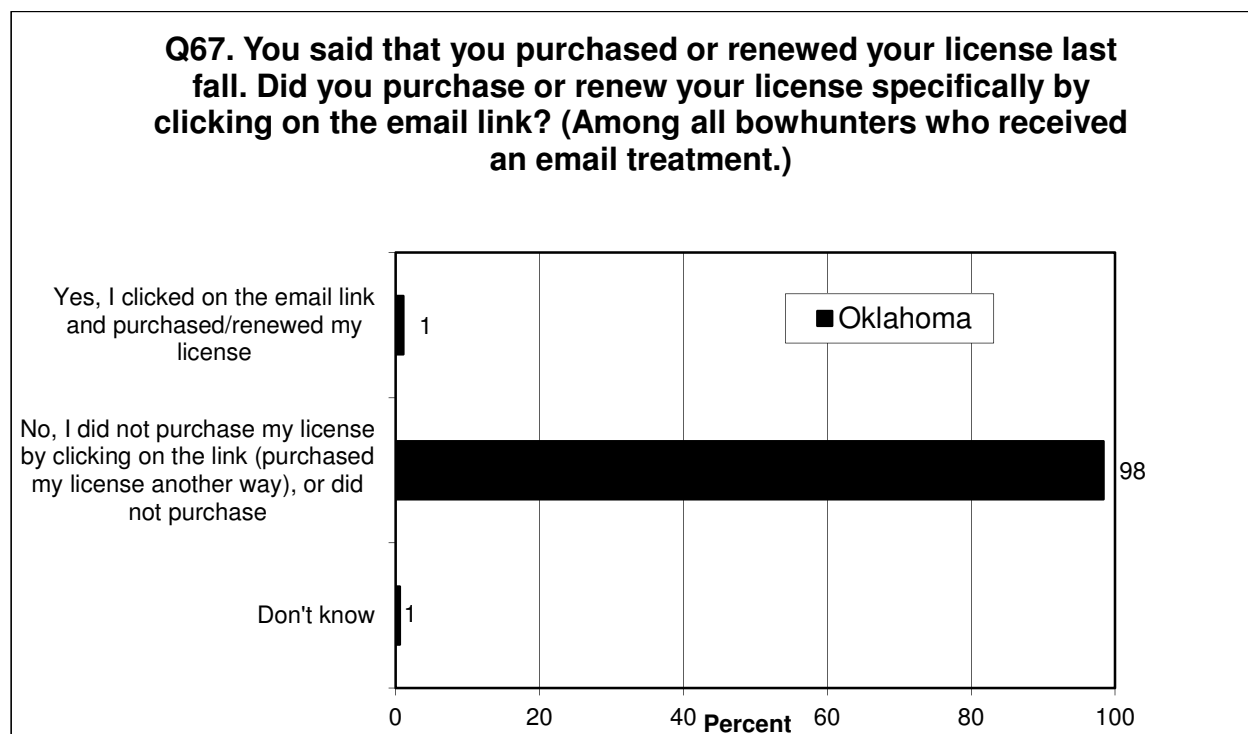


Figure 4.12. Percentage Using the Link to Purchase, Among Oklahoma Bowhunters

The avidity crosstabulations show the groups to be almost identical on these questions (Figures 4.13 and 4.14).

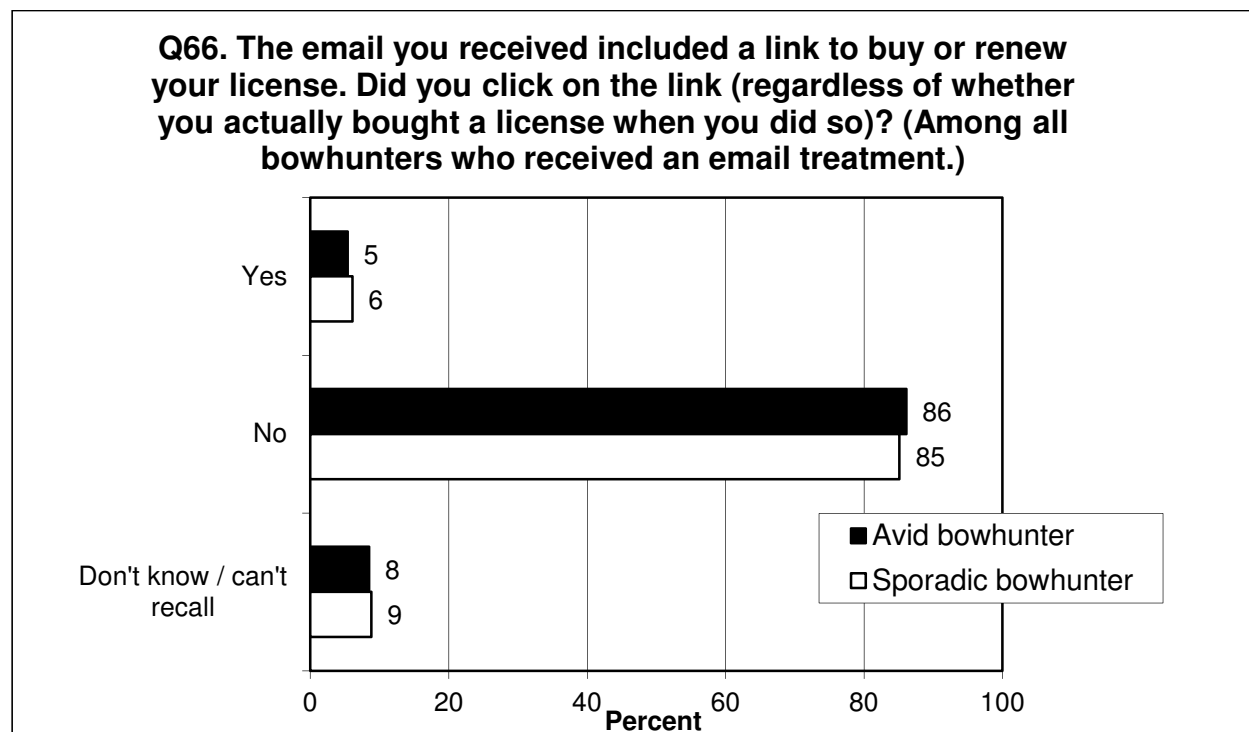


Figure 4.13. Percentage Clicking on the Link, by Avidity

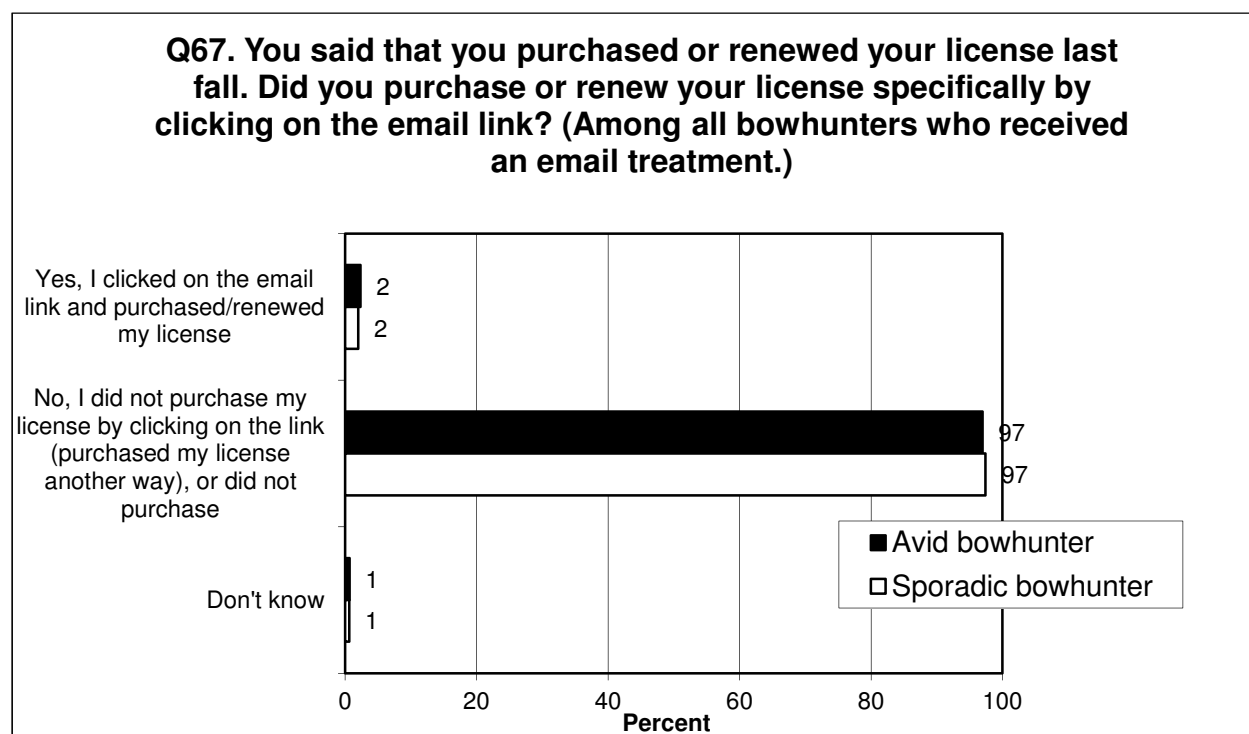


Figure 4.14. Percentage Using the Link to Purchase, by Avidity

The crosstabulation by theme, as well, shows little difference in the groups (Figures 4.15 and 4.16).

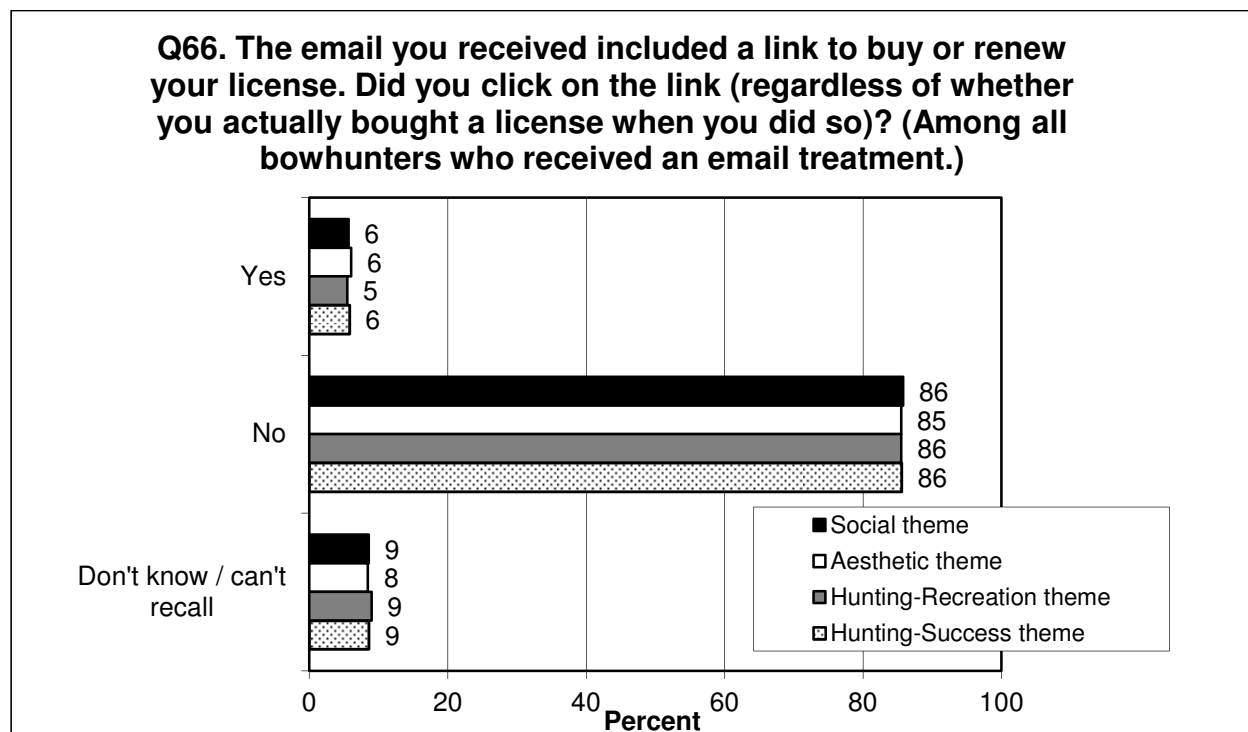


Figure 4.15. Percentage Clicking on the Link, by Theme

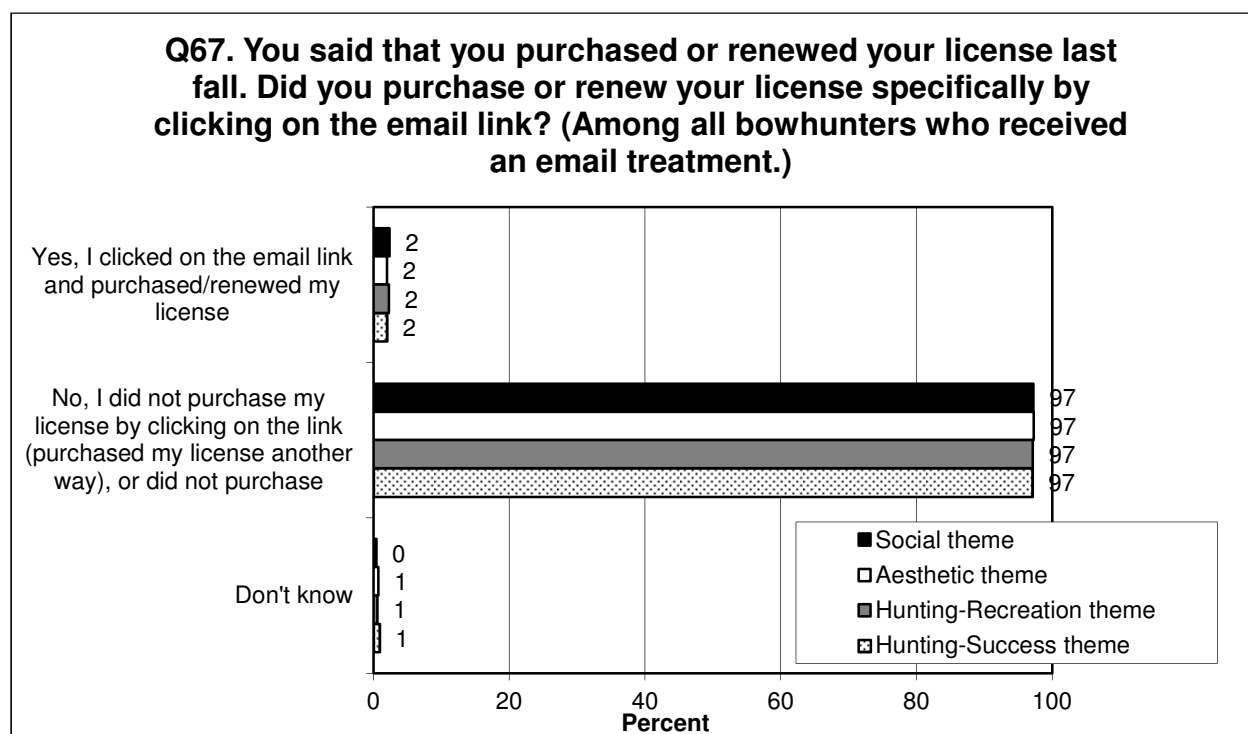


Figure 4.16. Percentage Using the Link to Purchase, by Theme

RECALL OF THE EMAIL REMINDER TO PURCHASE A LICENSE

Overall, 18% of bowhunters who received the email campaign say that they recall receiving an email from the agency encouraging them to go bowhunting and buy a license (note that the specific state agency was used in the wording of the question) (Figure 4.17). State-by-state results show that there is little difference from state to state (Figure 4.18). The crosstabulation by avidity also shows little difference between avid and sporadic bowhunters (Figure 4.19), and the crosstabulation by theme shows almost no differences according to which themed email message campaign the bowhunter received (Figure 4.20).

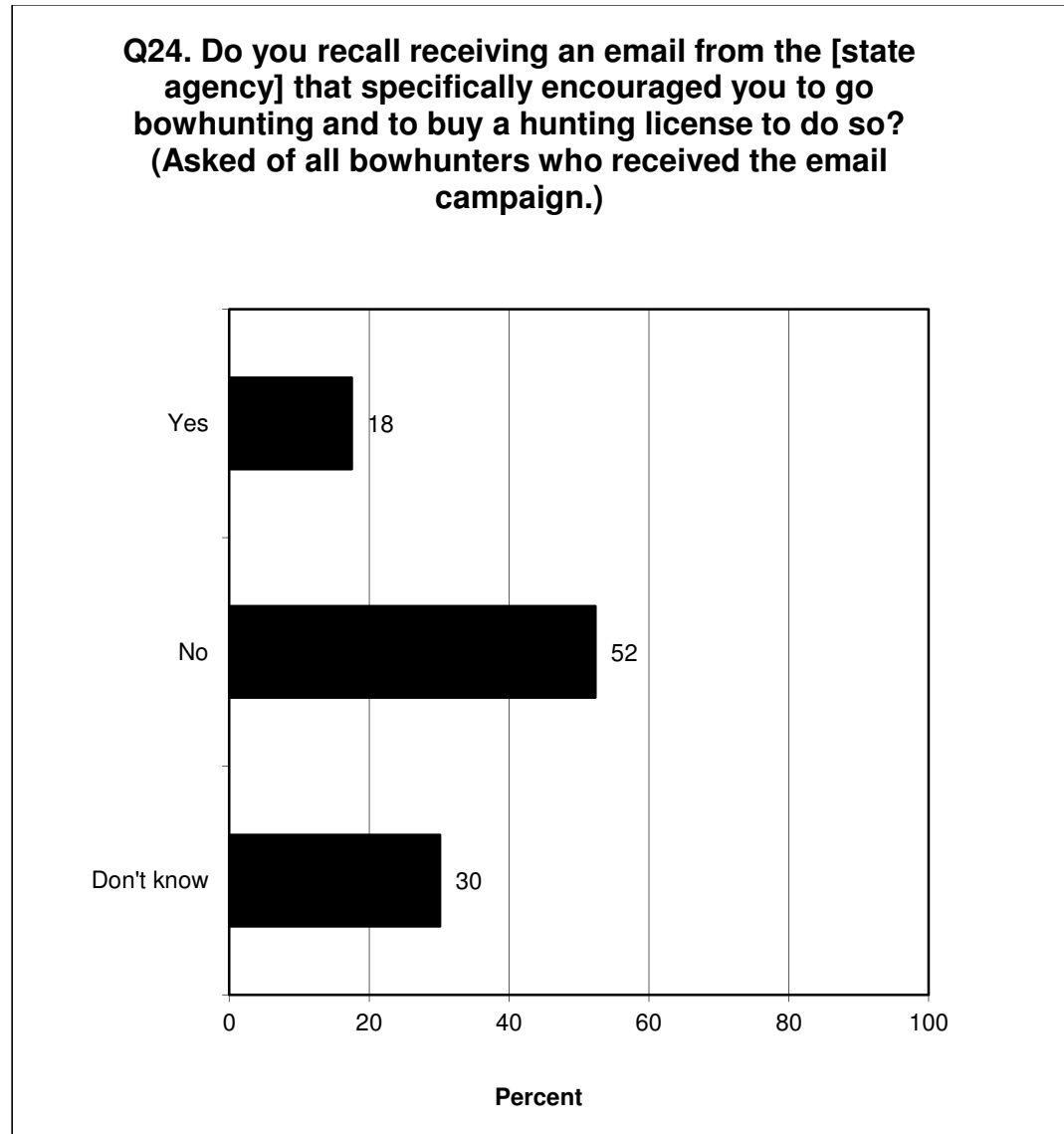


Figure 4.17. Recall of the Email, Overall

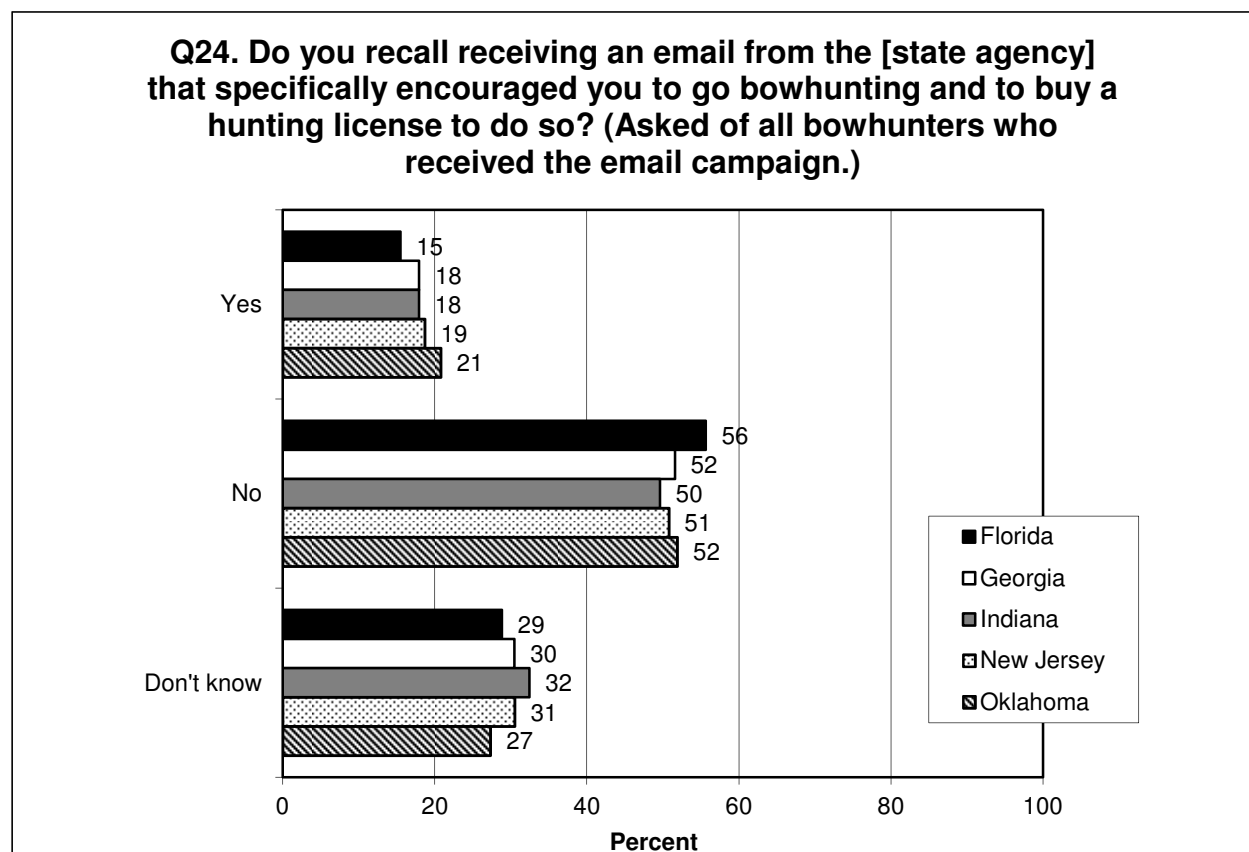


Figure 4.18. Recall of the Email, by State

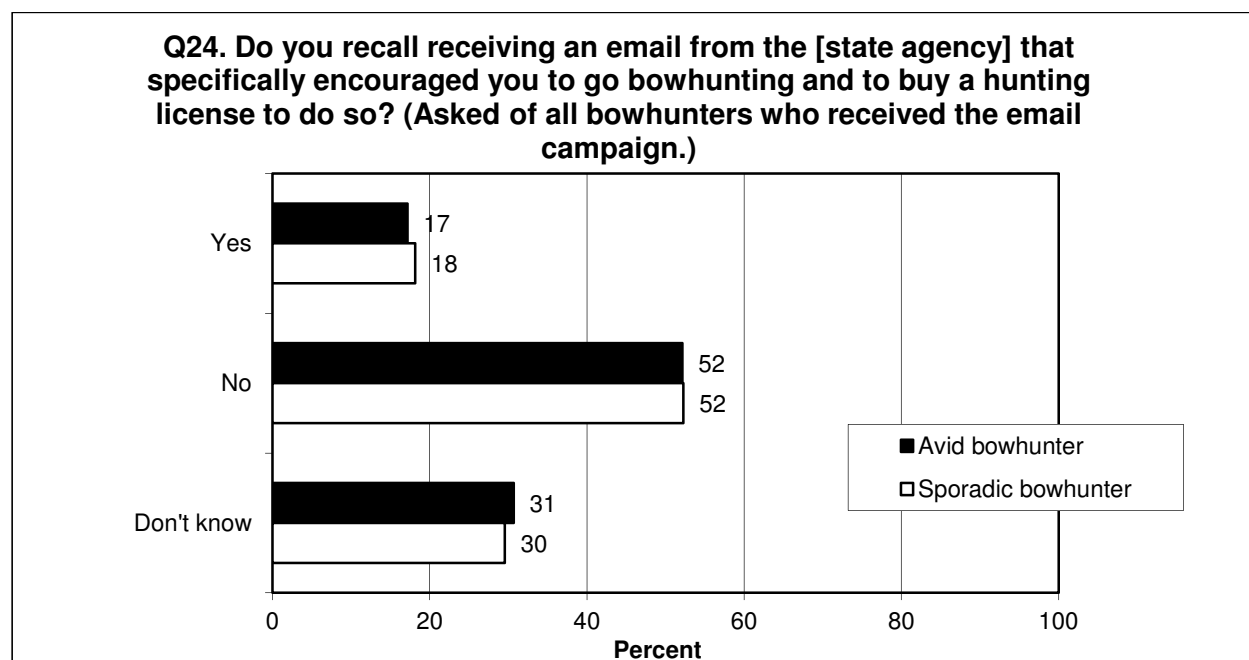


Figure 4.19. Recall of the Email, by Avidity

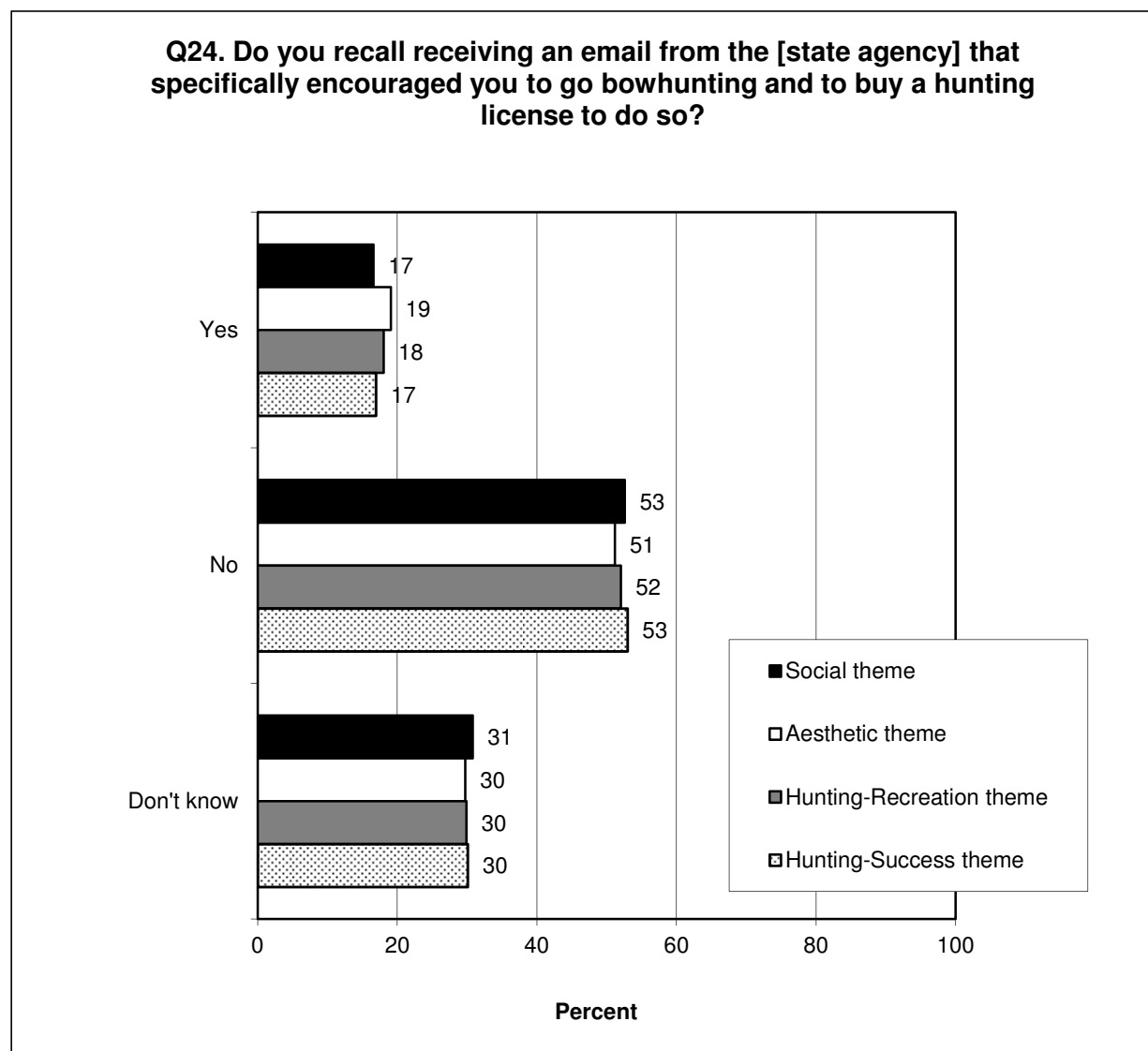


Figure 4.20. Recall of the Email, by Theme

The survey also tested recall of the particular email that the bowhunter received by presenting all four themes to the respondents and having them indicate which one that they had received. The results are shown for each theme, with one graph for each state in Figures 4.21 through 4.25. The answer set is shown in the same order as the theme bars on the graph; therefore, one would expect that the first bar would be the greatest on the top response, and the second bar would be the greatest on the second response, and so forth. For the most part, this held true, but not to the degree that one might expect.

For instance, in Florida's results, the social theme was named the most often by those who received it, the aesthetic theme was named more often by those who received it compared to the other theme groups, and the same is true just barely for those who received the hunting-recreation theme. However, the aesthetic, hunting-recreation, and hunting-success groups named

the social theme more than their own email that they actually received. Lastly, the hunting-success theme was not only remembered poorly by those who actually received it, but it was *not* often the “mistaken” email that the respondent named either. These Florida results are mirrored in the other states.

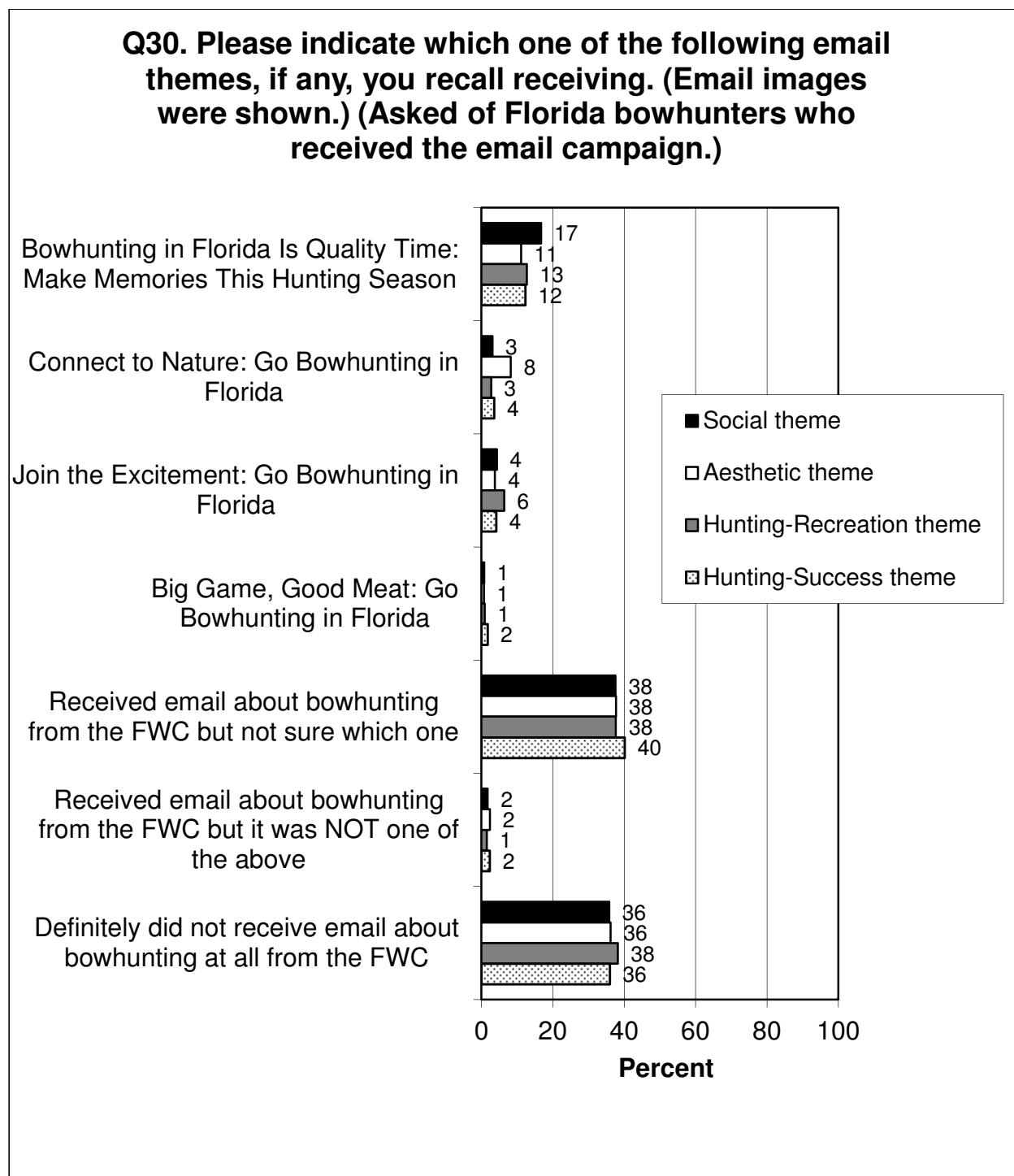


Figure 4.21. Recall of the Specific Email, Florida

Q31. Please indicate which one of the following email themes, if any, you recall receiving. (Email images were shown.) (Asked of Georgia bowhunters who received the email campaign.)

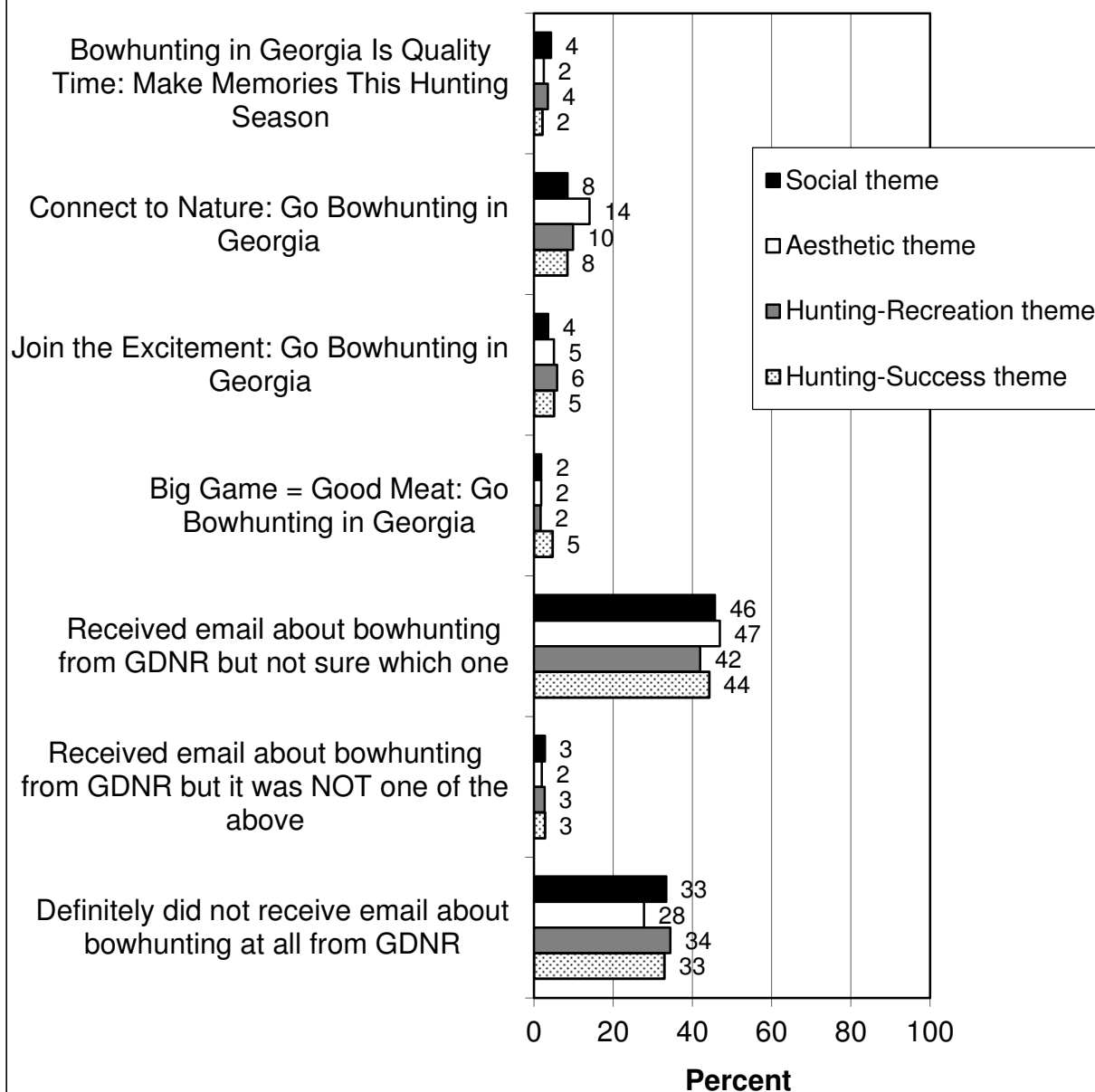


Figure 4.22. Recall of the Specific Email, Georgia

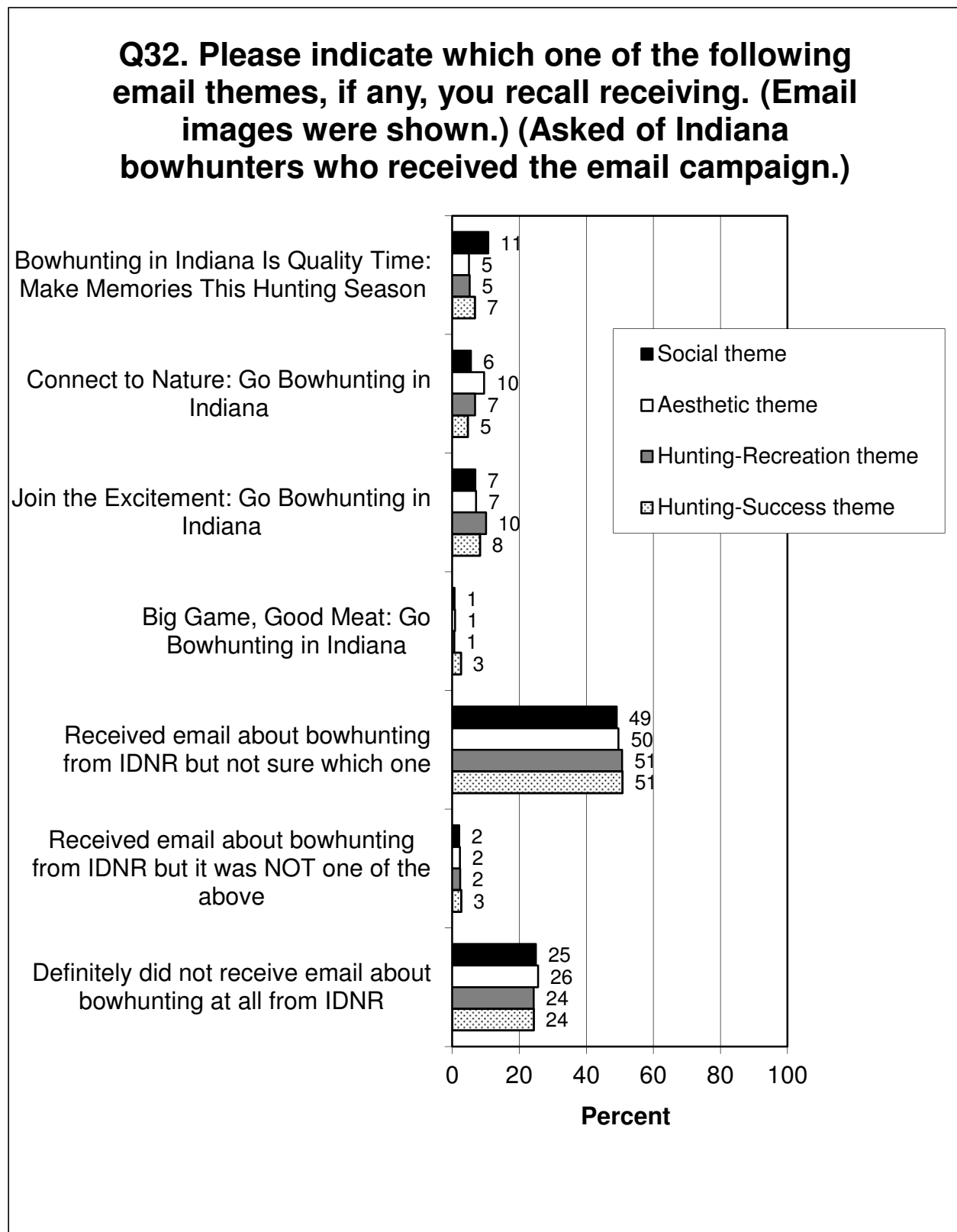


Figure 4.23. Recall of the Specific Email, Indiana

Q33. Please indicate which one of the following email themes, if any, you recall receiving. (Email images were shown.) (Asked of New Jersey bowhunters who received the email campaign.)

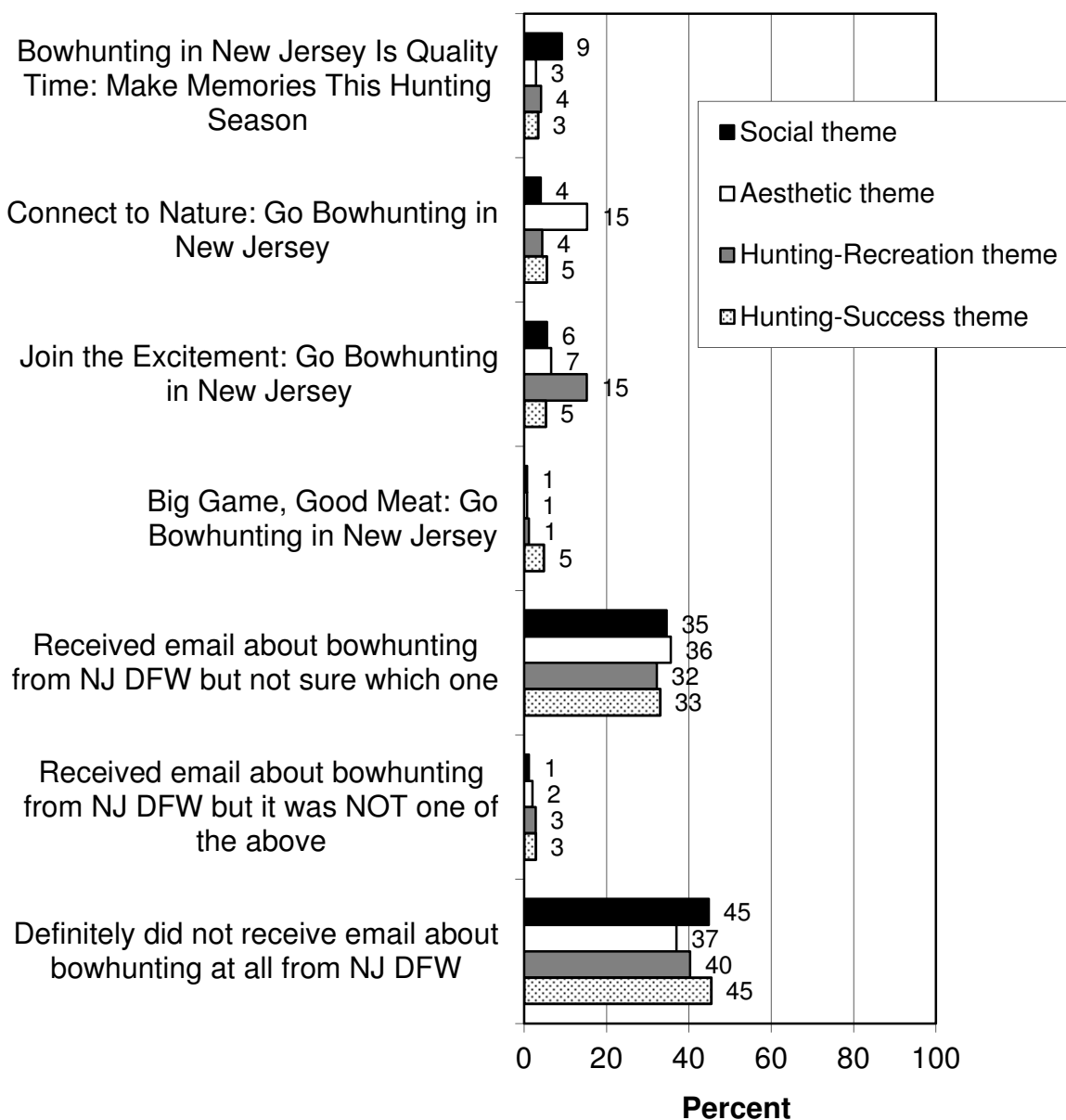


Figure 4.24. Recall of the Specific Email, New Jersey

Q34. Please indicate which one of the following email themes, if any, you recall receiving. (Email images were shown.) (Asked of Oklahoma bowhunters who received the email campaign.)

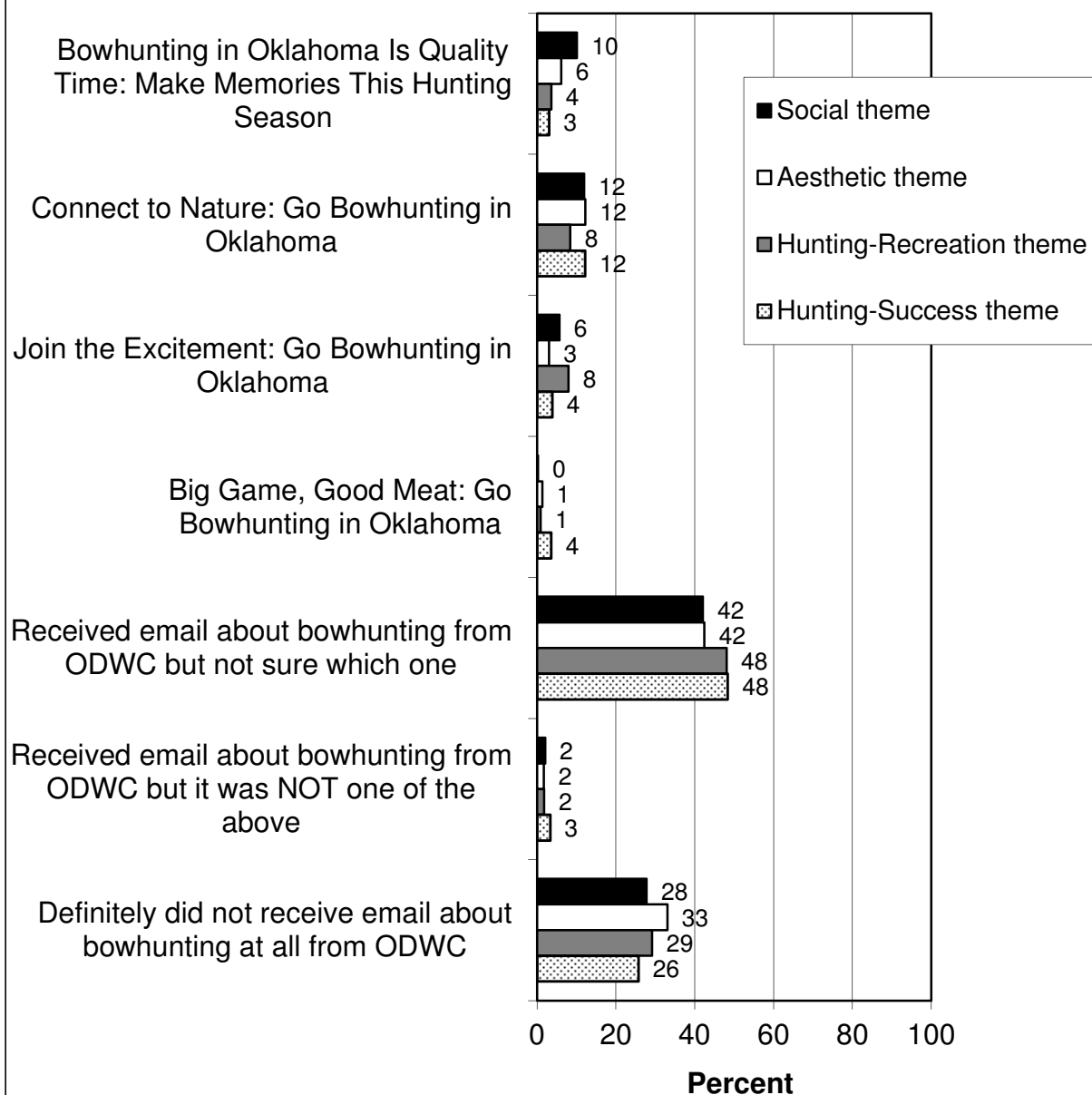


Figure 4.25. Recall of the Specific Email, Oklahoma

These results were also crosstabulated by avidity. There are no marked differences in the avidity groups (Figures 4.26 through 4.30).

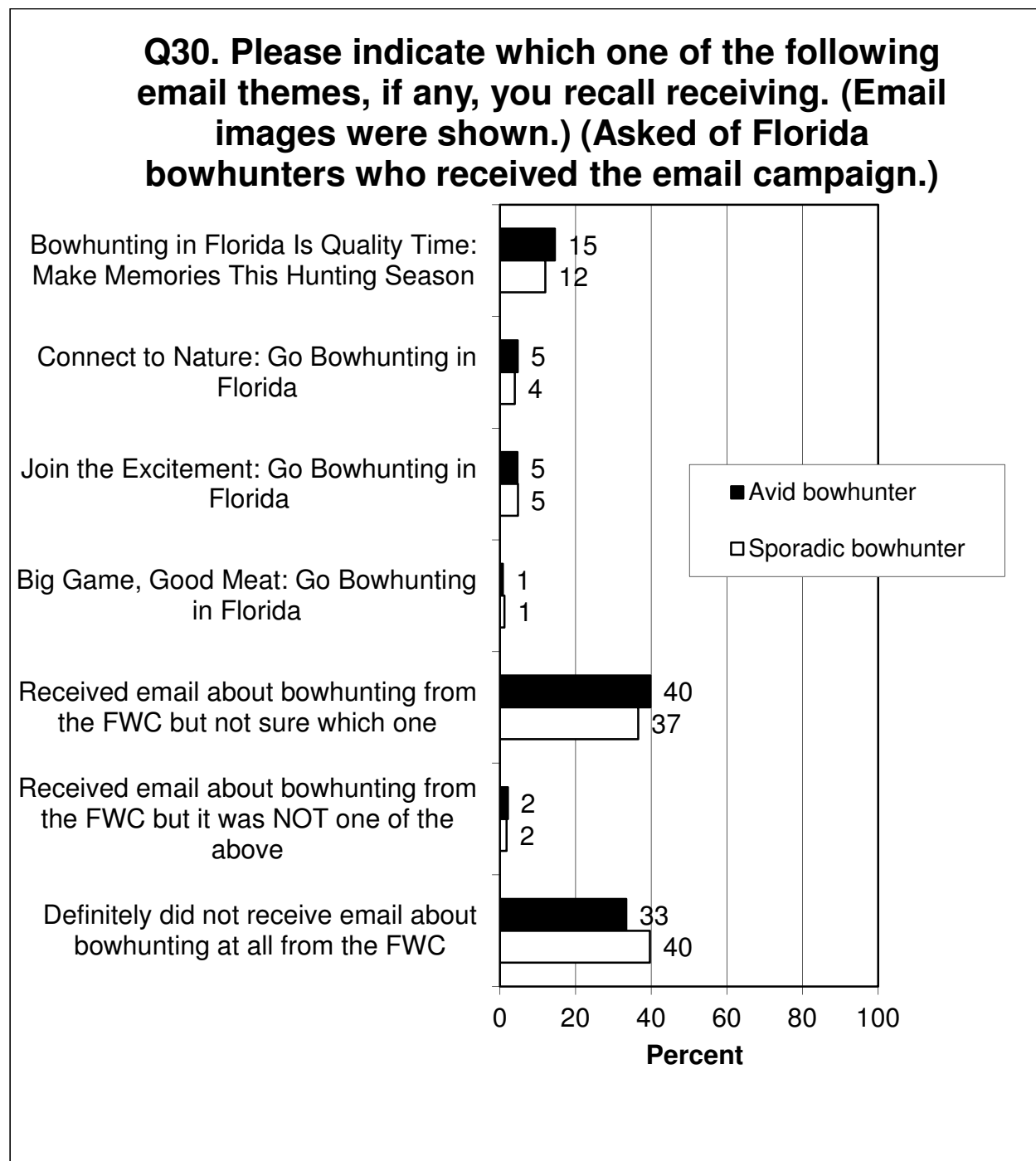


Figure 4.26. Recall of the Specific Email, Florida, Crosstabulated by Avidity

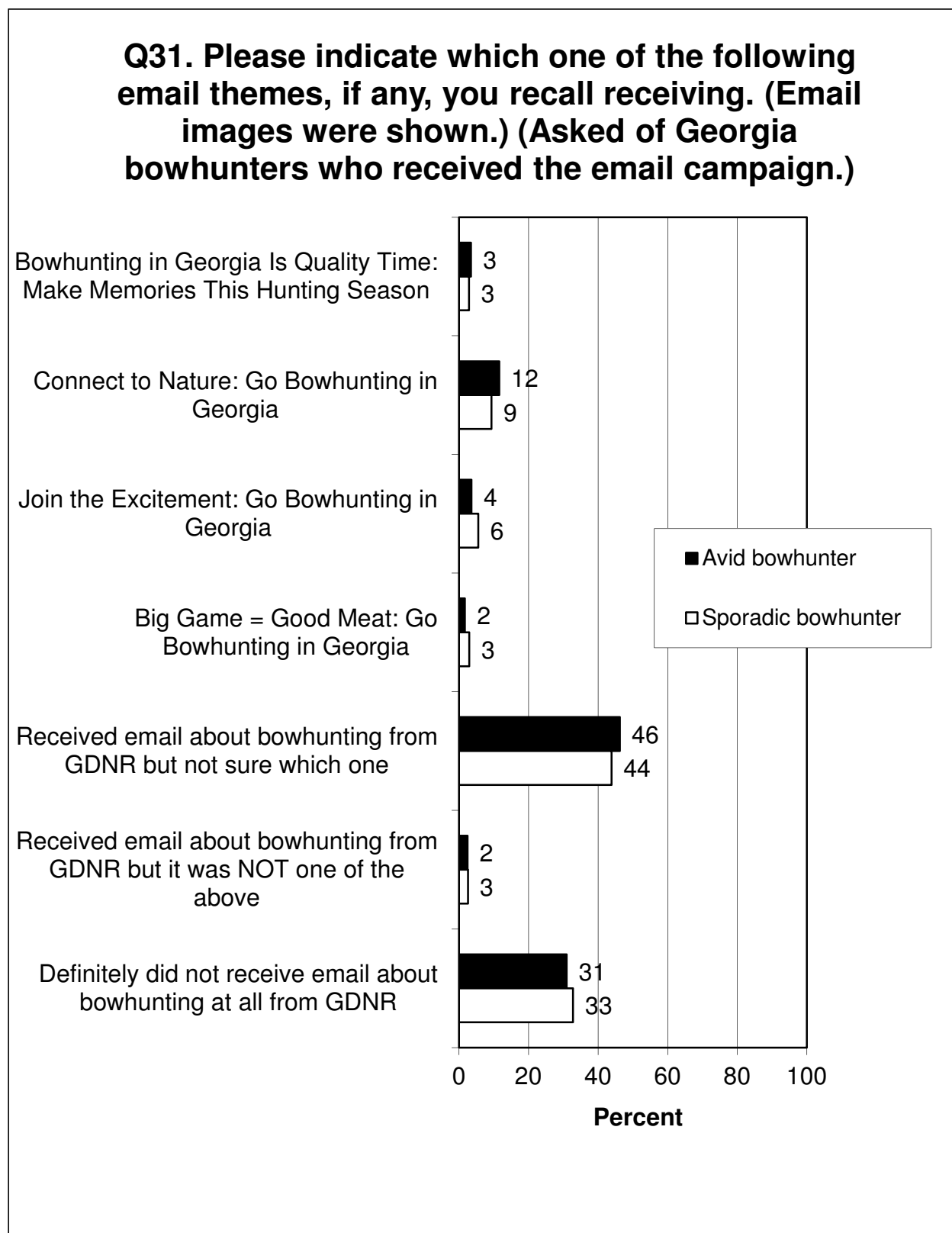


Figure 4.27. Recall of the Specific Email, Georgia, Crosstabulated by Avidity

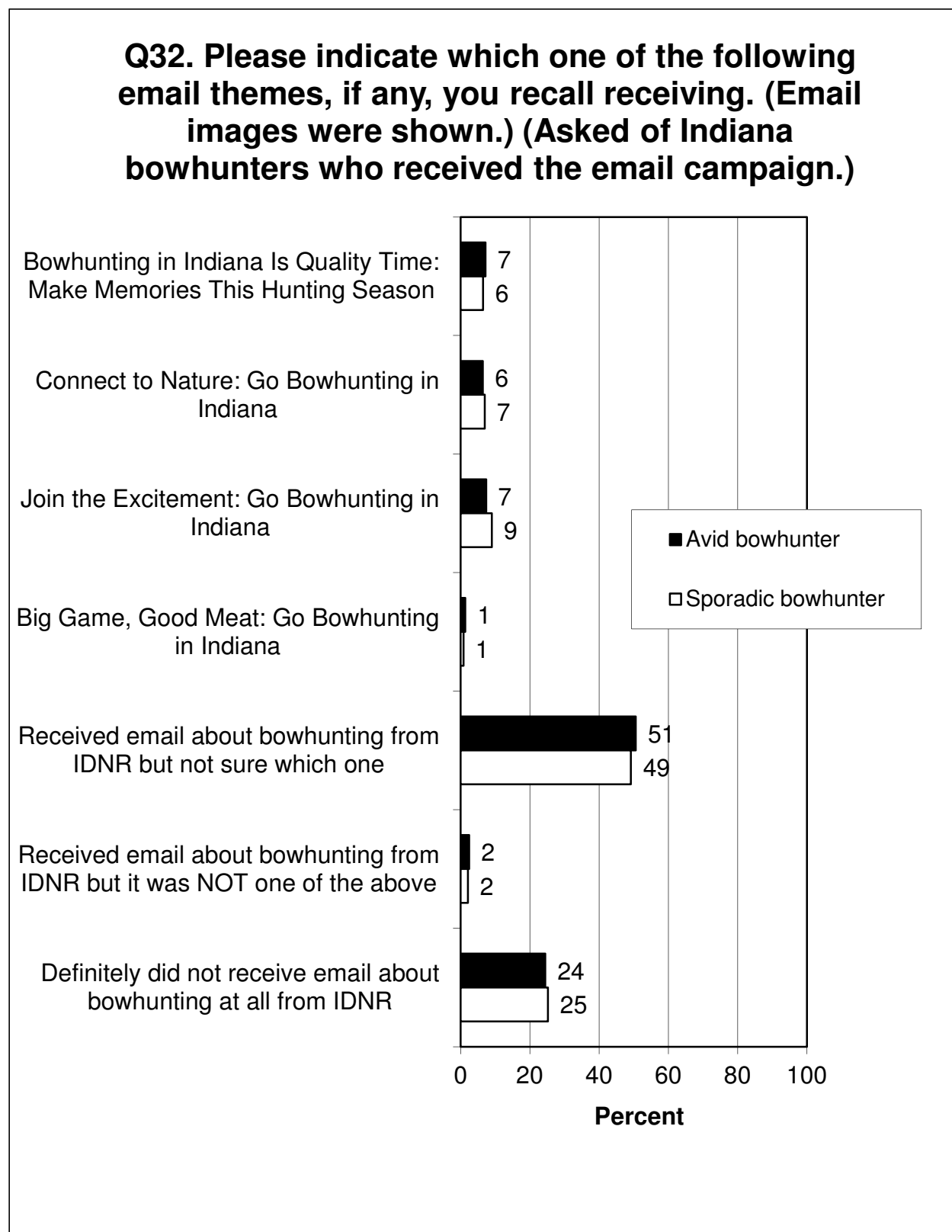


Figure 4.28. Recall of the Specific Email, Indiana, Crosstabulated by Avidity

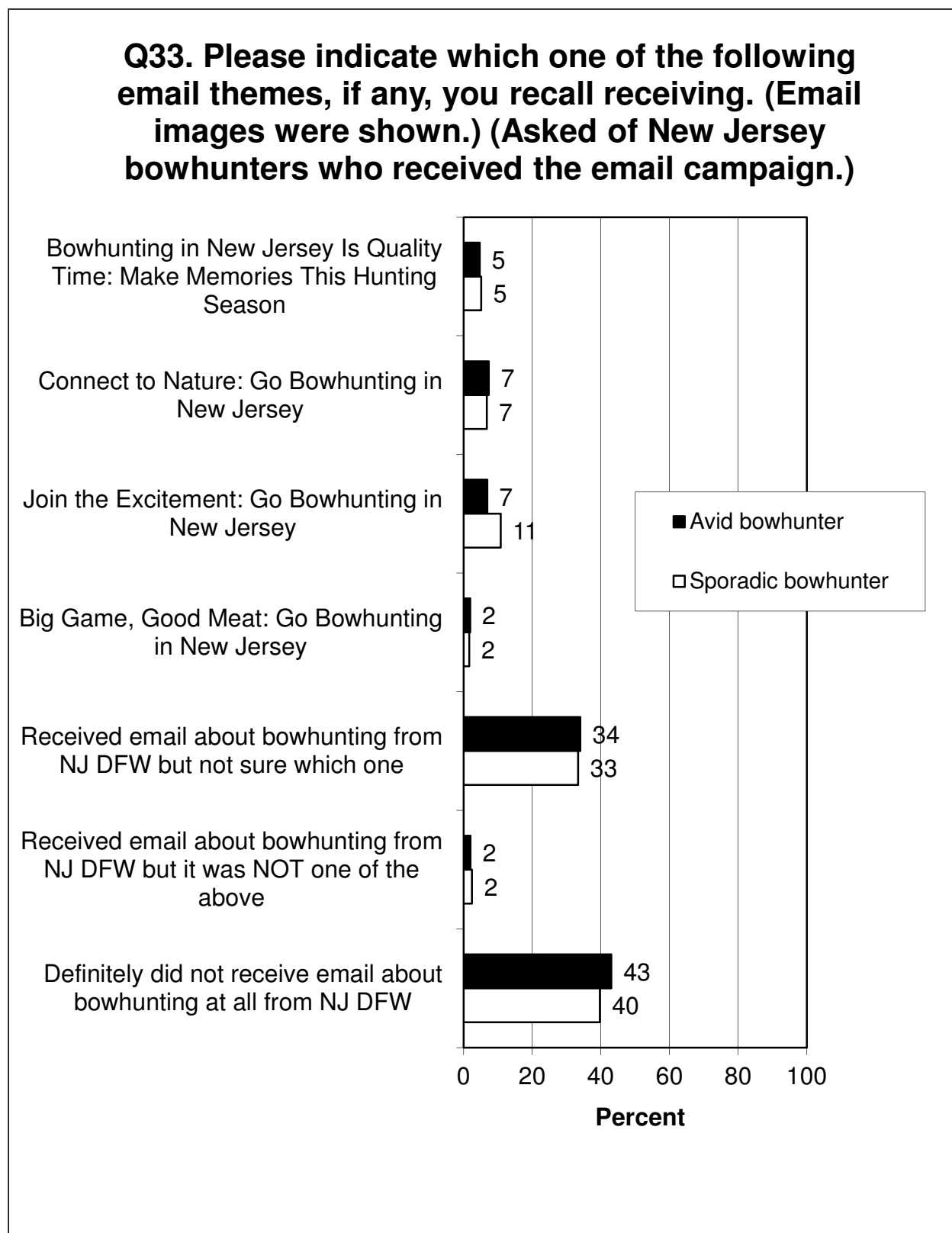


Figure 4.29. Recall of the Specific Email, New Jersey, Crosstabulated by Avidity

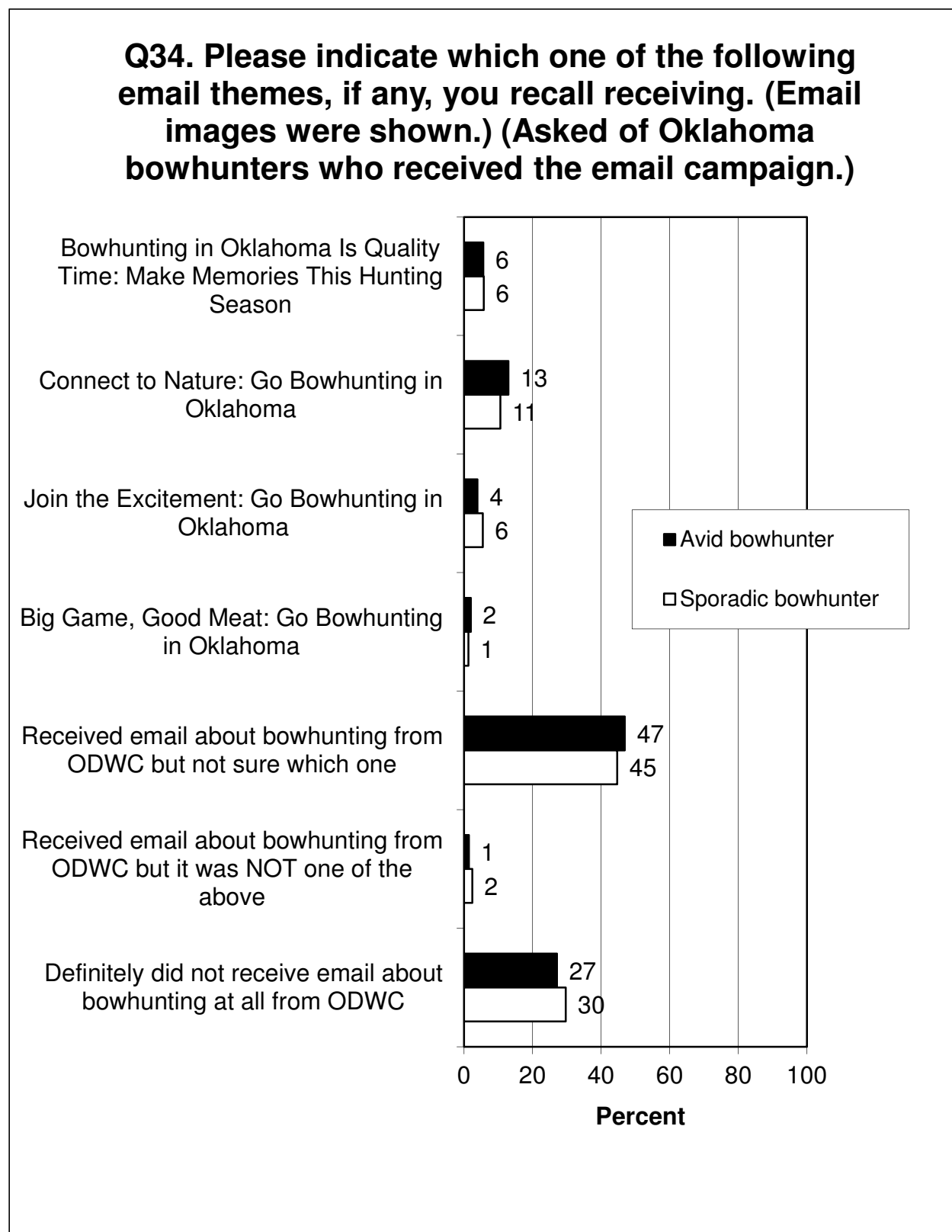


Figure 4.30. Recall of the Specific Email, Oklahoma, Crosstabulated by Avidity

ACTIONS PROMPTED BY THE EMAIL

In general, about a fifth to a quarter of bowhunters indicate that they had read the email that had been sent to them, ranging from 20% of Georgia treatment bowhunters to 25% of New Jersey and Oklahoma treatment bowhunters (Figures 4.31 through 4.35). Almost double that amount say that they glanced at the email but did not read it (38% to 42%). In sum, a majority of treatment bowhunters within each state opened the email.

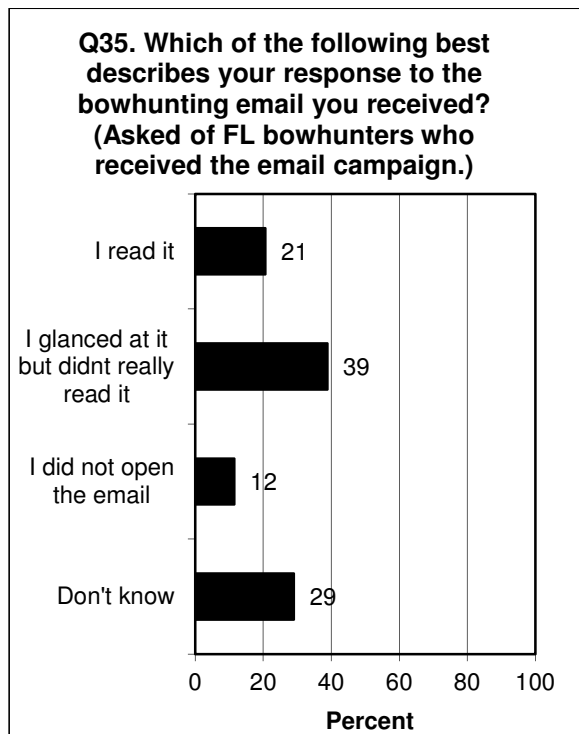


Figure 4.31. Response to Email, Florida Bowhunters

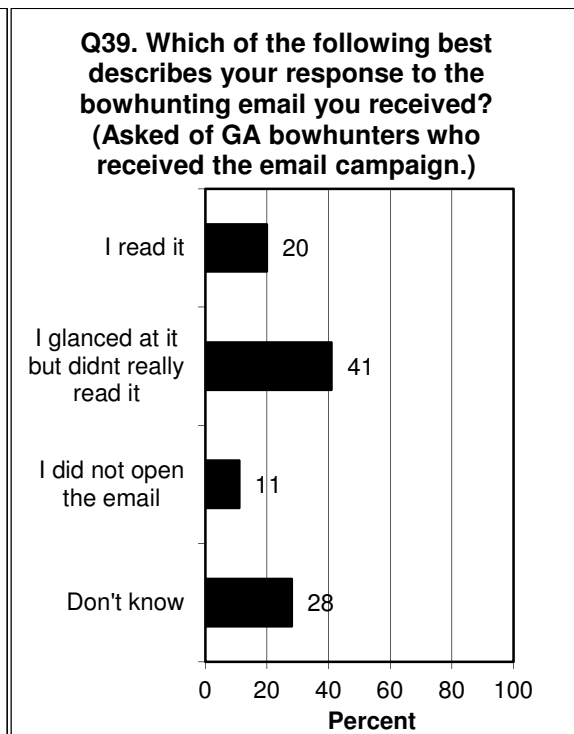


Figure 4.32. Response to Email, Georgia Bowhunters

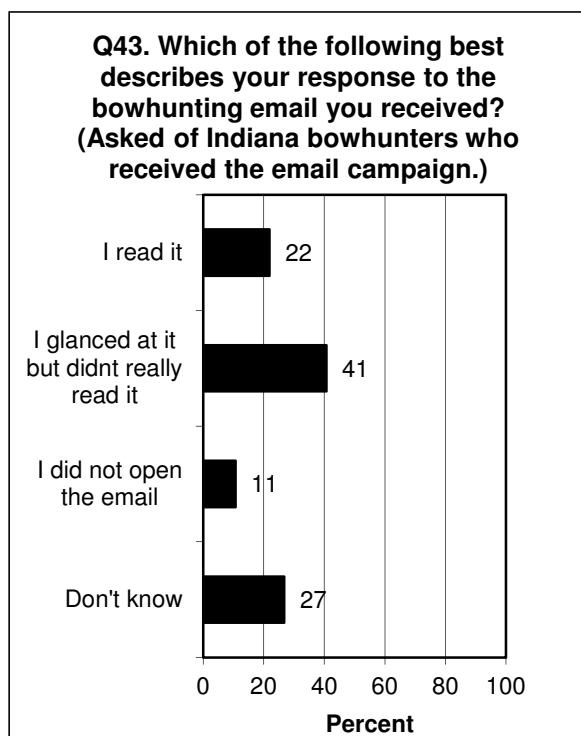


Figure 4.33. Response to Email, Indiana Bowhunters

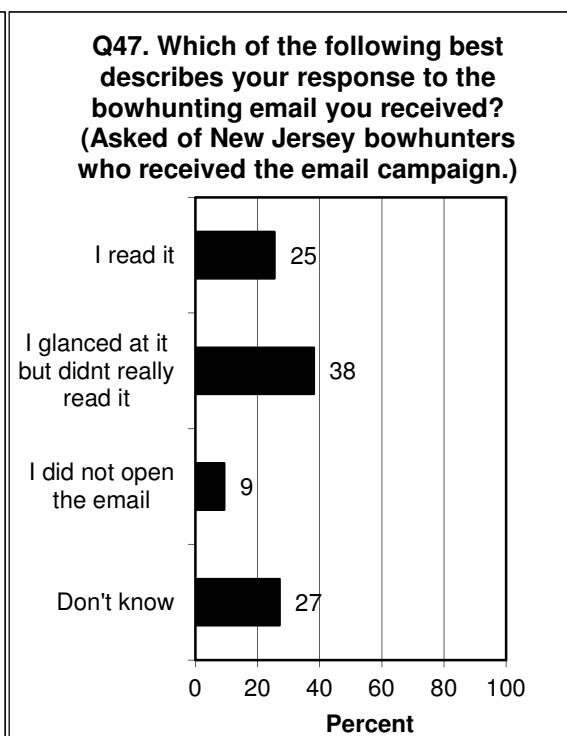


Figure 4.34. Response to Email, New Jersey Bowhunters

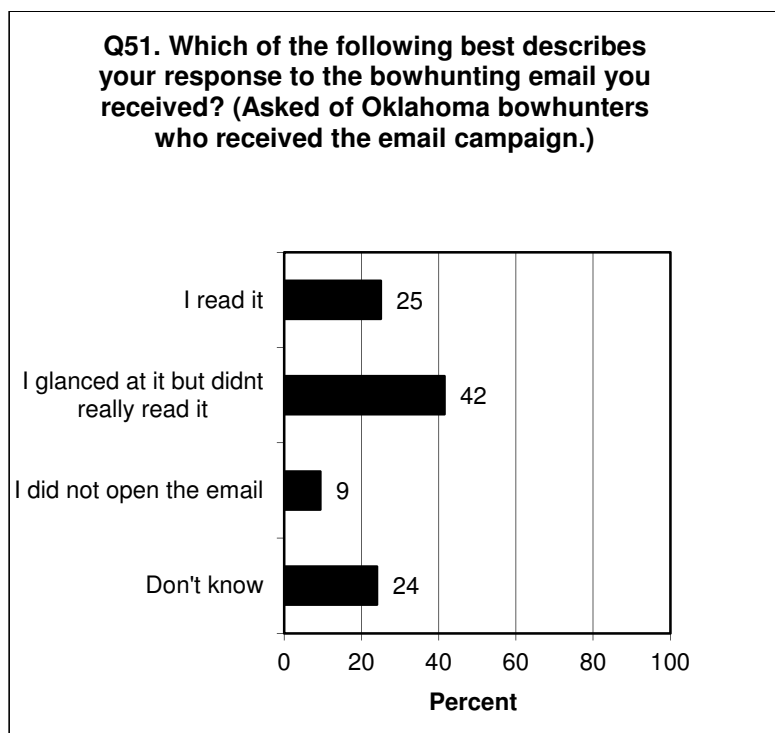


Figure 4.35. Response to Email, Oklahoma Bowhunters

These results were also crosstabulated by avidity. The avidity groups do not appreciably differ on these questions (Figures 4.36 through 4.40).

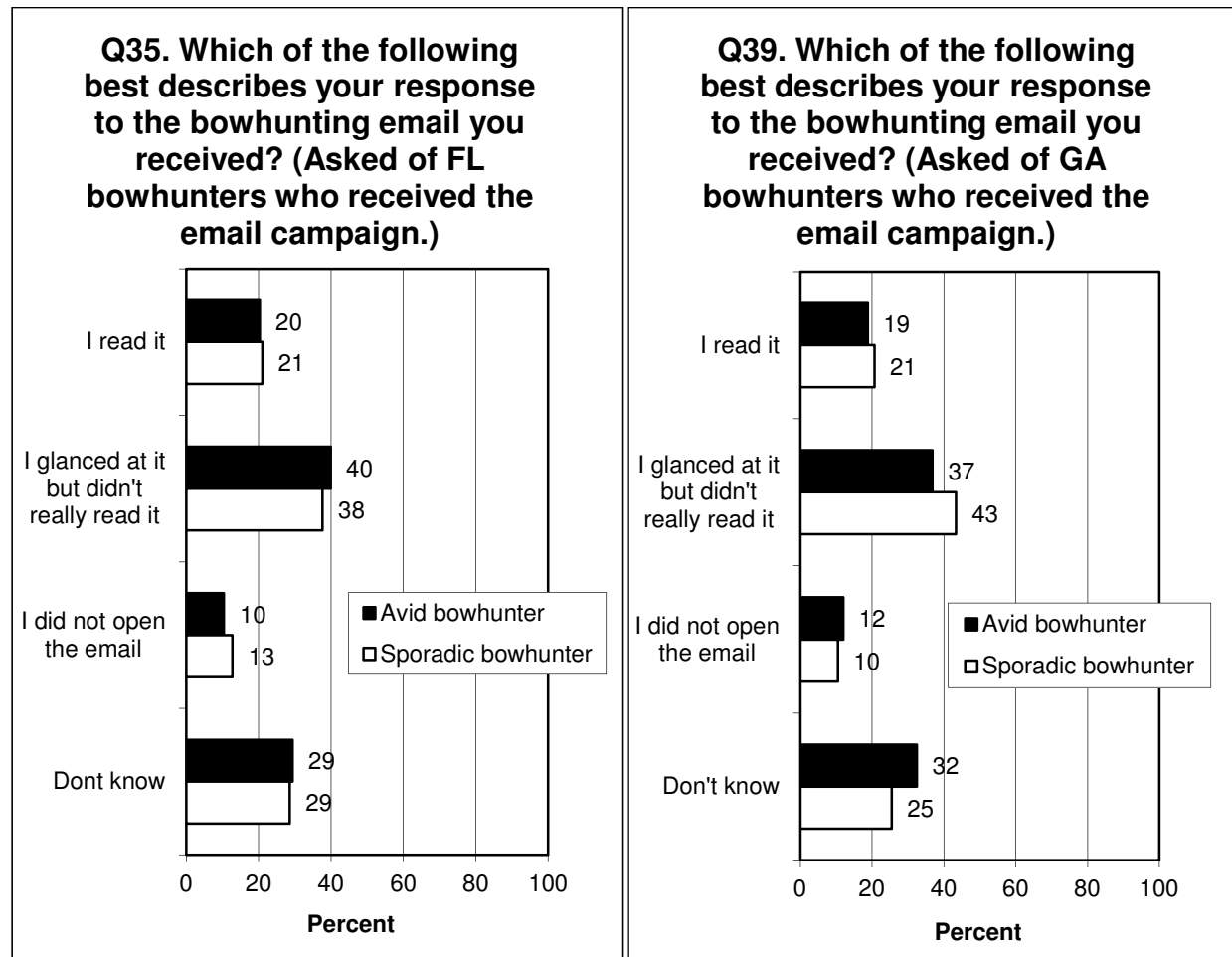


Figure 4.36. Response to Email, Florida Bowhunters, by Avidity

Figure 4.37. Response to Email, Georgia Bowhunters, by Avidity

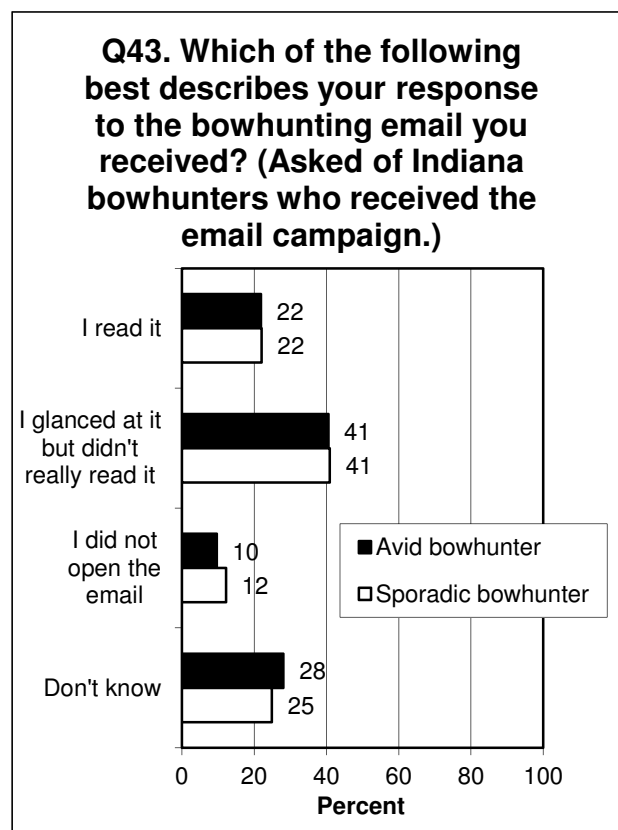


Figure 4.38. Response to Email, Indiana Bowhunters, by Avidity

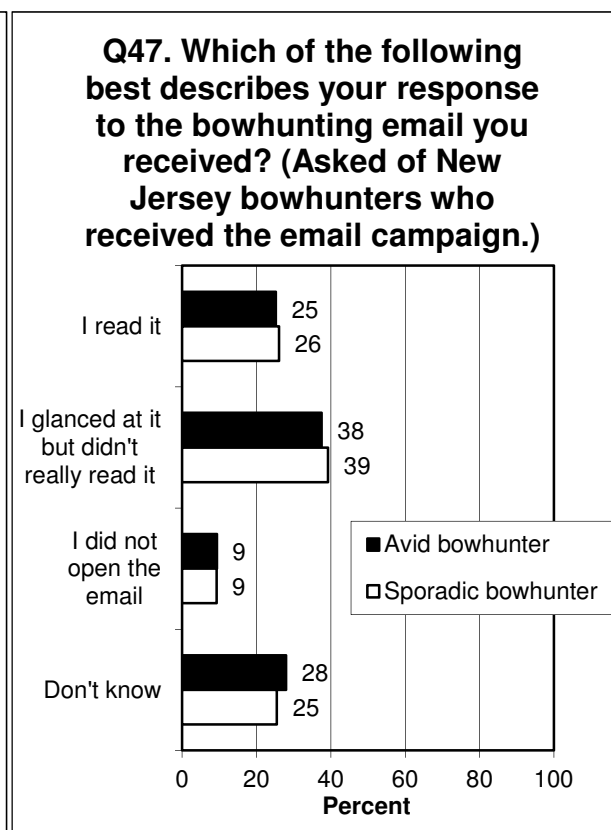


Figure 4.39. Response to Email, New Jersey Bowhunters, by Avidity

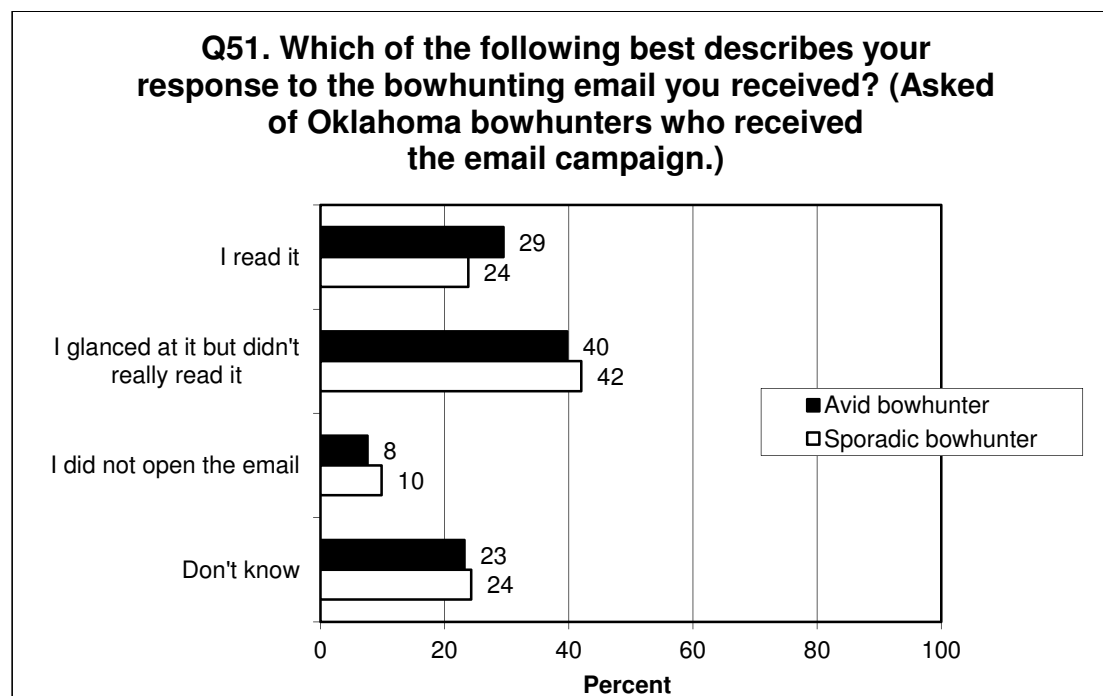


Figure 4.40. Response to Email, Oklahoma Bowhunters, by Avidity

The crosstabulations by theme show only slight differences among the groups, with no consistency in which theme is read the most. For instance, the aesthetic themed email was the most read in Florida (but by only a percentage point over the hunting-recreation theme) and Georgia (again, just slightly over the hunting-recreation theme) and Indiana (slightly over the social theme), but not in New Jersey or Oklahoma (in which the hunting-success theme was the most-read theme) (Figures 4.41 through 4.45).

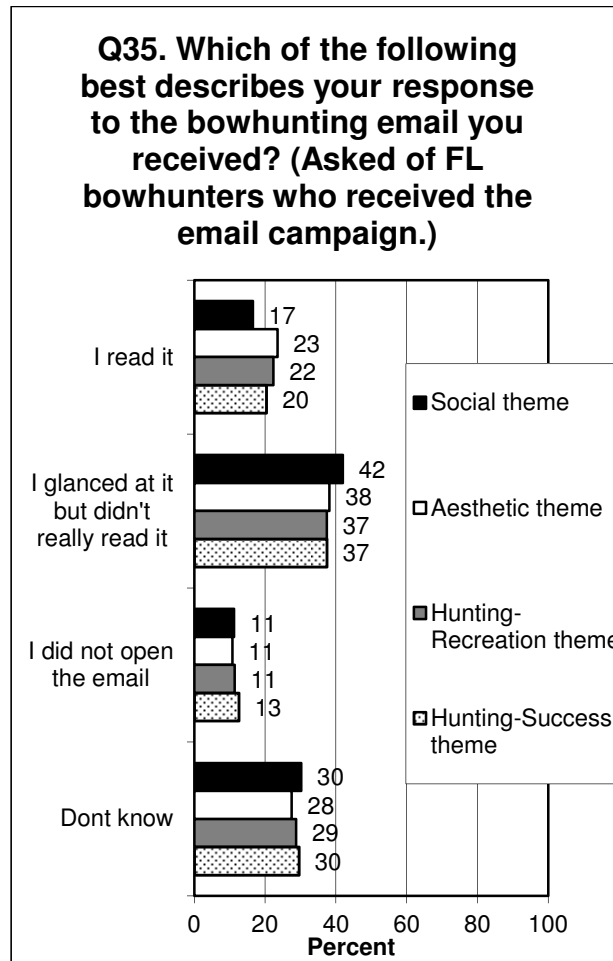


Figure 4.41. Response to Email, Florida Bowhunters, by Theme

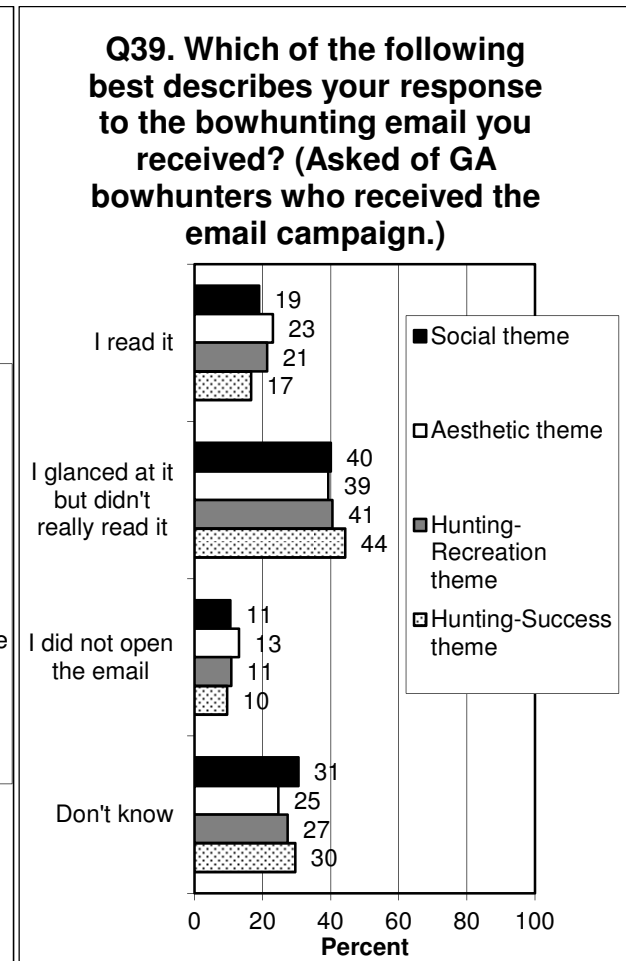


Figure 4.42. Response to Email, Georgia Bowhunters, by Theme

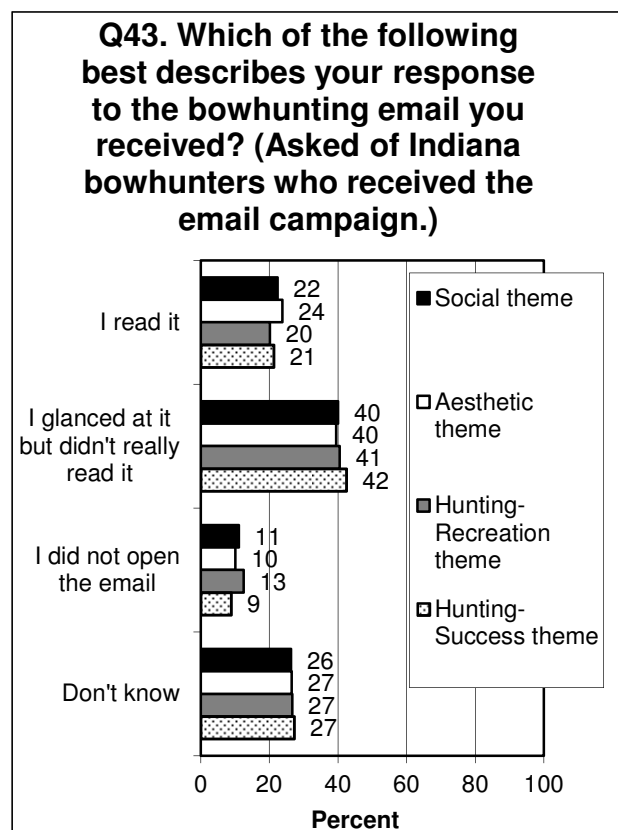


Figure 4.43. Response to Email, Indiana Bowhunters, by Theme

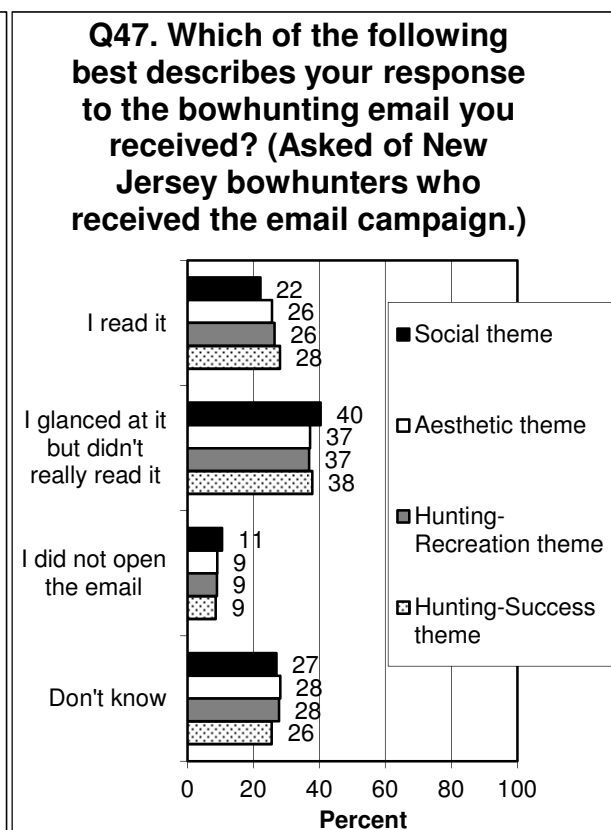


Figure 4.44. Response to Email, New Jersey Bowhunters, by Theme

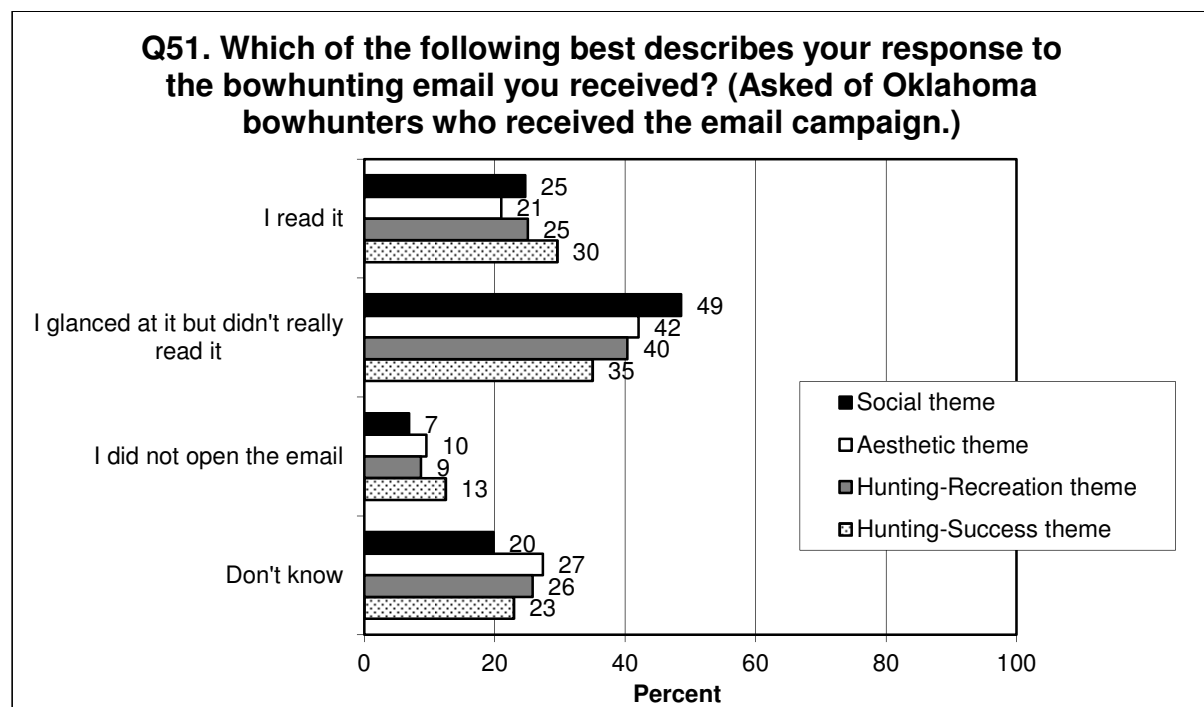


Figure 4.45. Response to Email, Oklahoma Bowhunters, by Theme

Those who opened the email and who had purchased or renewed their license in the past fall (although not necessarily making the purchase/renewal via the link in the email) were asked to rate the influence that the email played in their decision, using a scale from 0 to 10, with 0 being no influence at all to 10 being a great deal of influence. While the mean rating is not particularly high (2.4), of note is that 18% gave a rating higher than the midpoint (Figure 4.46).

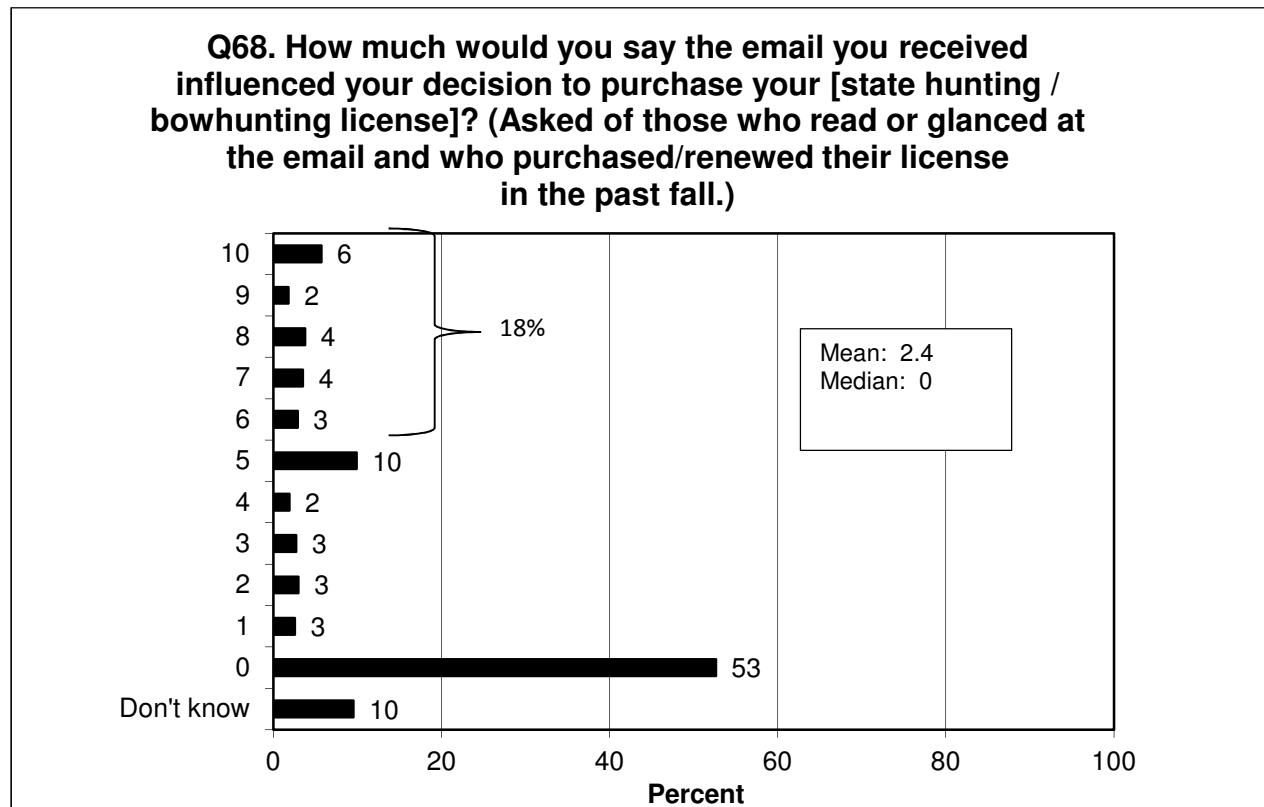


Figure 4.46. Ratings of Email Campaign's Influence, Overall

The crosstabulation by state shows little marked differences among the states (Figure 4.47). New Jersey had the lowest mean and the highest percentage rating the influence as a 0, but none of the states' bowhunters gave particularly high ratings.

The avidity crosstabulation shows that avid bowhunters were a little less influenced by the email campaign, compared to sporadic bowhunters (Figure 4.48). It may be that avid bowhunters were more likely to purchase anyway, regardless of the email campaign.

The crosstabulation by theme shows almost no differences between the themes (Figure 4.49).

Q68. How much would you say the email you received influenced your decision to purchase your [state hunting / bowhunting license? (Asked of those who read or glanced at the email and who purchased/renewed their license last fall.)

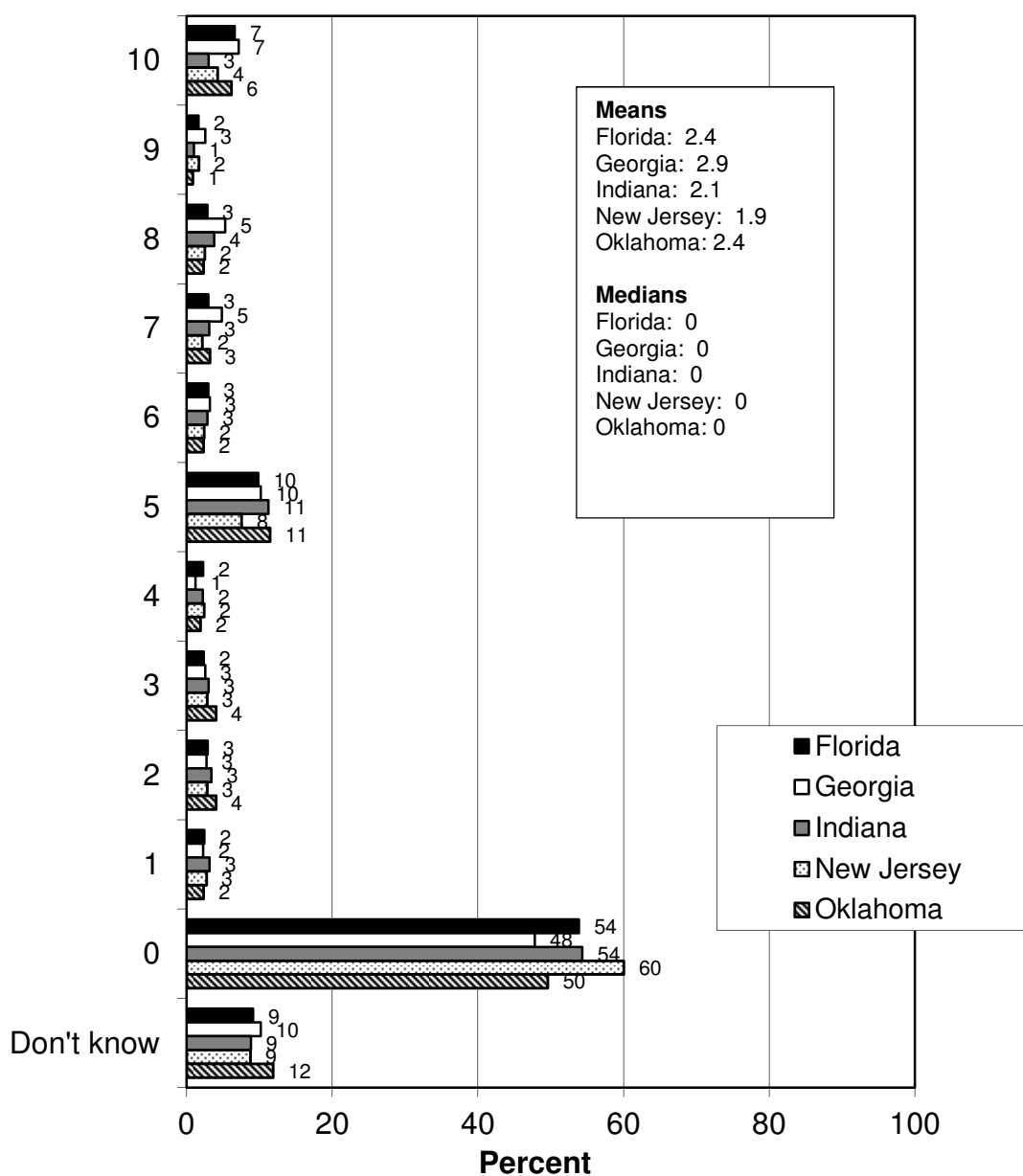


Figure 4.47. Ratings of Email Campaign's Influence, by State

Q68. How much would you say the email you received influenced your decision to purchase your [state hunting / bowhunting license? (Asked of those who read or glanced at the email and who purchased/renewed their license last fall.)

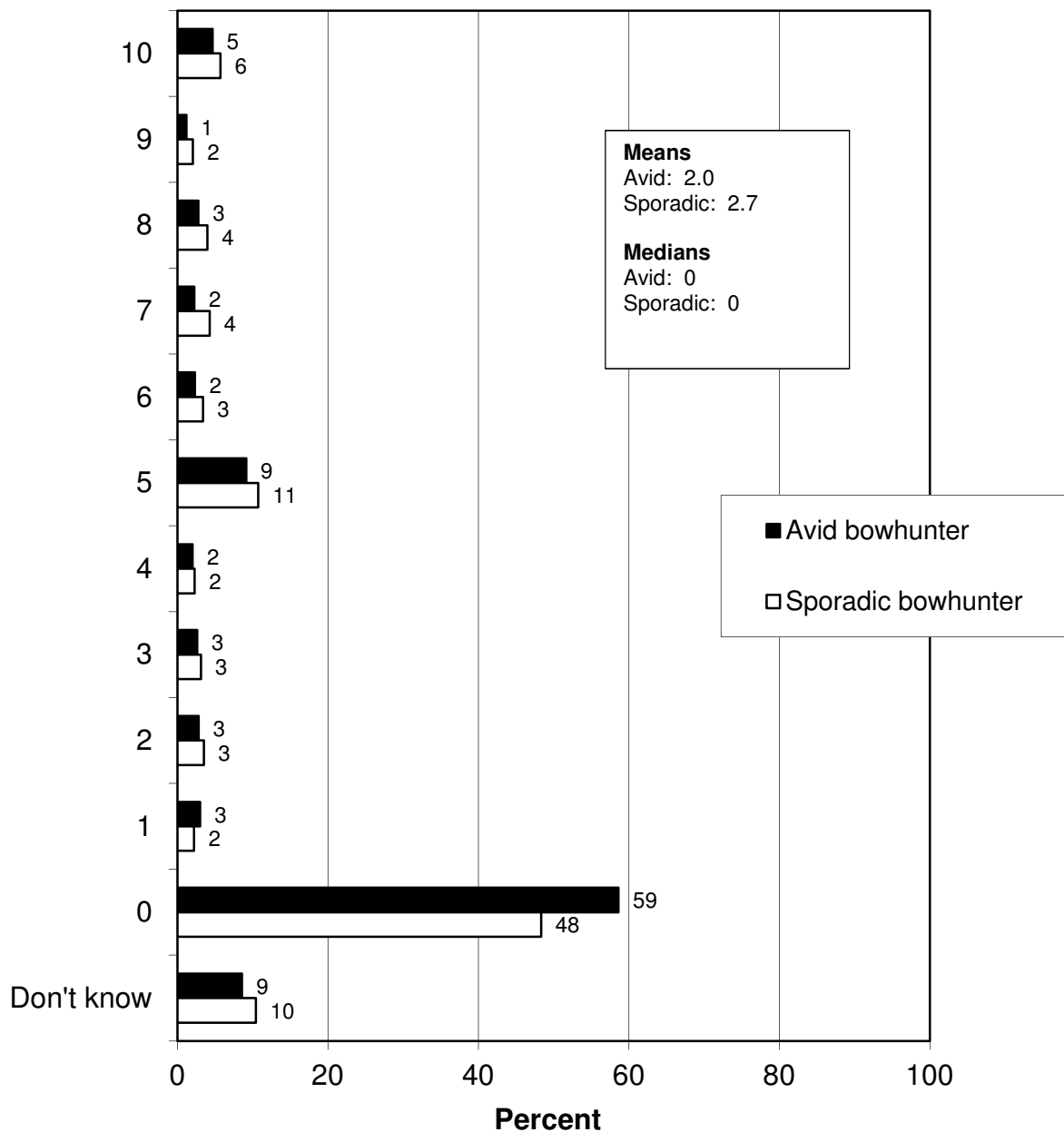


Figure 4.48. Ratings of Email Campaign's Influence, by Avidity

Q68. How much would you say the email you received influenced your decision to purchase your [state hunting / bowhunting license? (Asked of those who read or glanced at the email and who purchased/renewed their license last fall.)

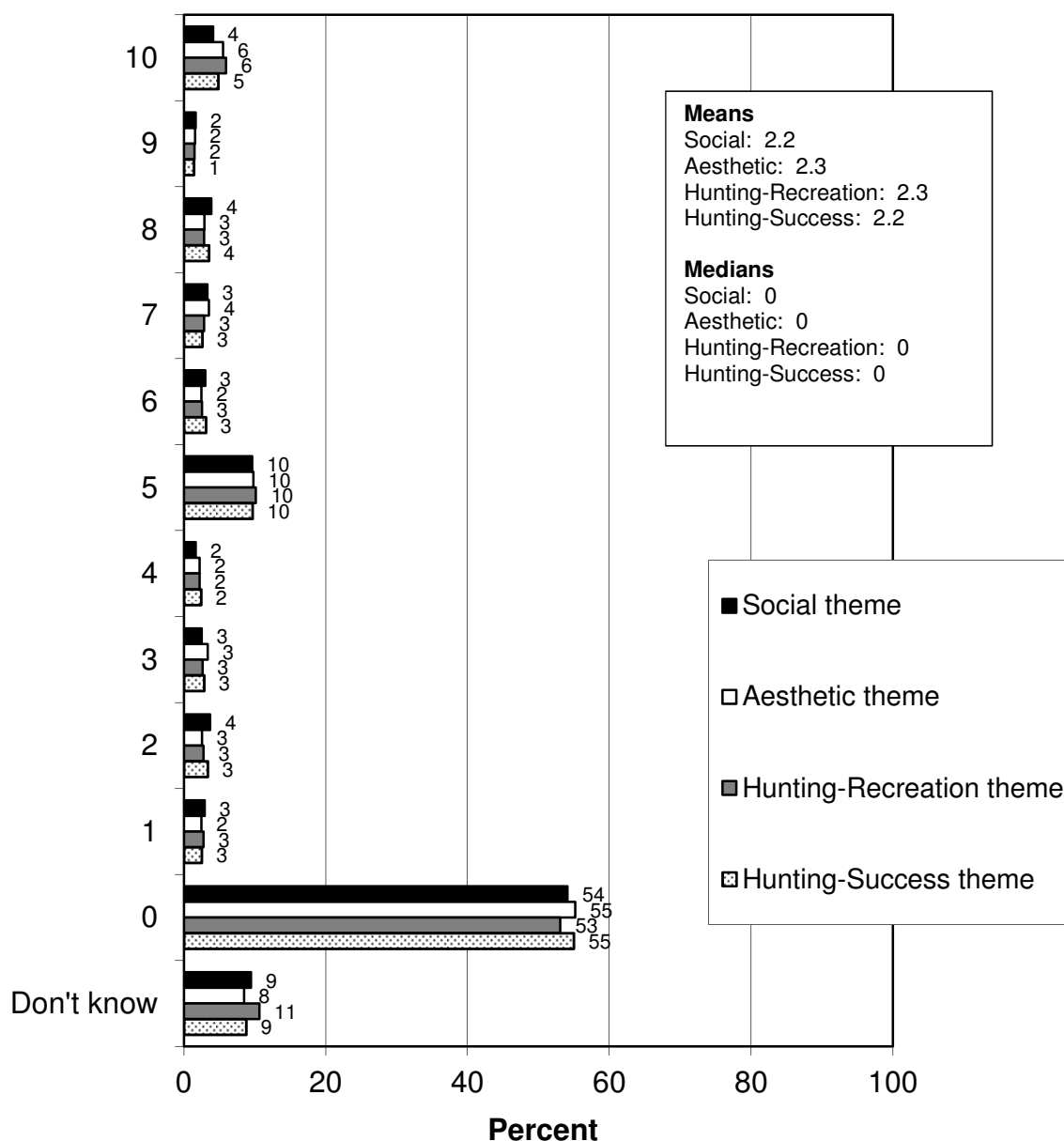


Figure 4.49. Ratings of Email Campaign's Influence, by Theme

Finally in this section, the results suggest that the email simply serves as a reminder to those who would have been very likely to purchase anyway (Figure 4.50). In other words, the email by itself may not change potential bowhunters' minds regarding whether to purchase or renew licenses, but its value may lie in simply keeping hunting at the top of potential bowhunters' minds.

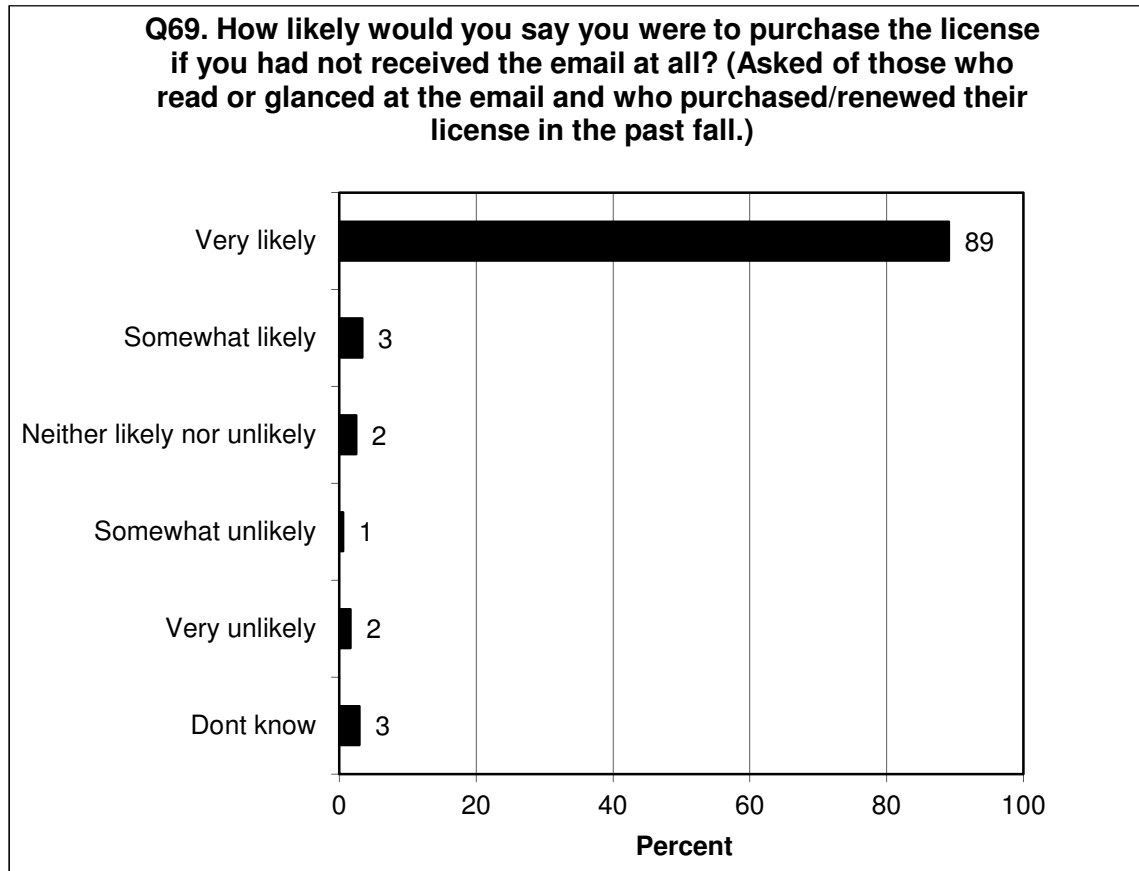


Figure 4.50. Likelihood to Purchase Without the Email Campaign, Overall

The state crosstabulation shows no marked differences (Figure 4.51). The avidity crosstabulations, on the other hand, shows that avid bowhunters (as was conjectured previously) were slightly more likely to say that it was very likely that they would purchase a license anyway (Figure 4.52). The last crosstabulation of this question shows that the themes were about the same (Figure 4.53).

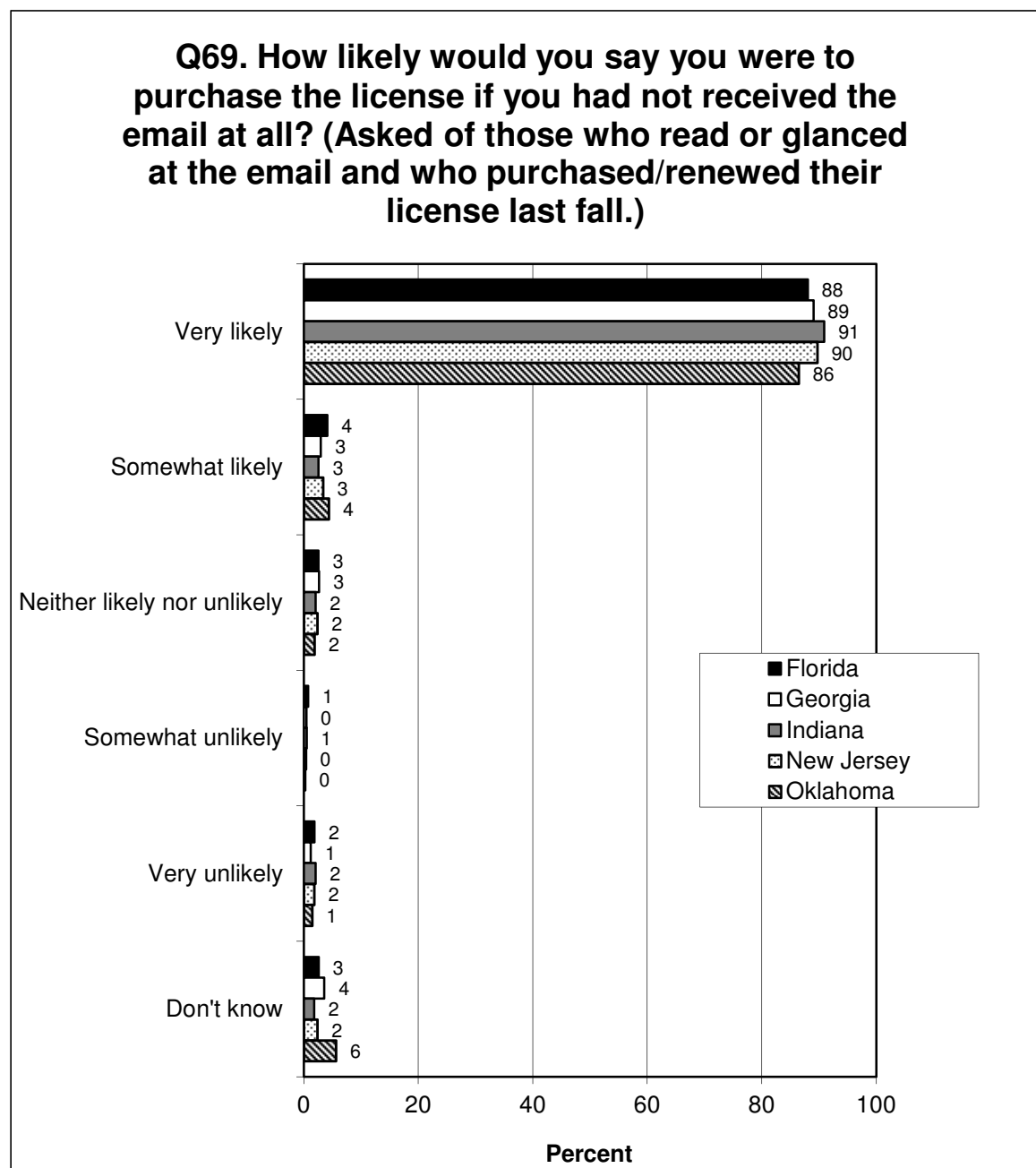


Figure 4.51. Likelihood to Purchase Without the Email Campaign, by State

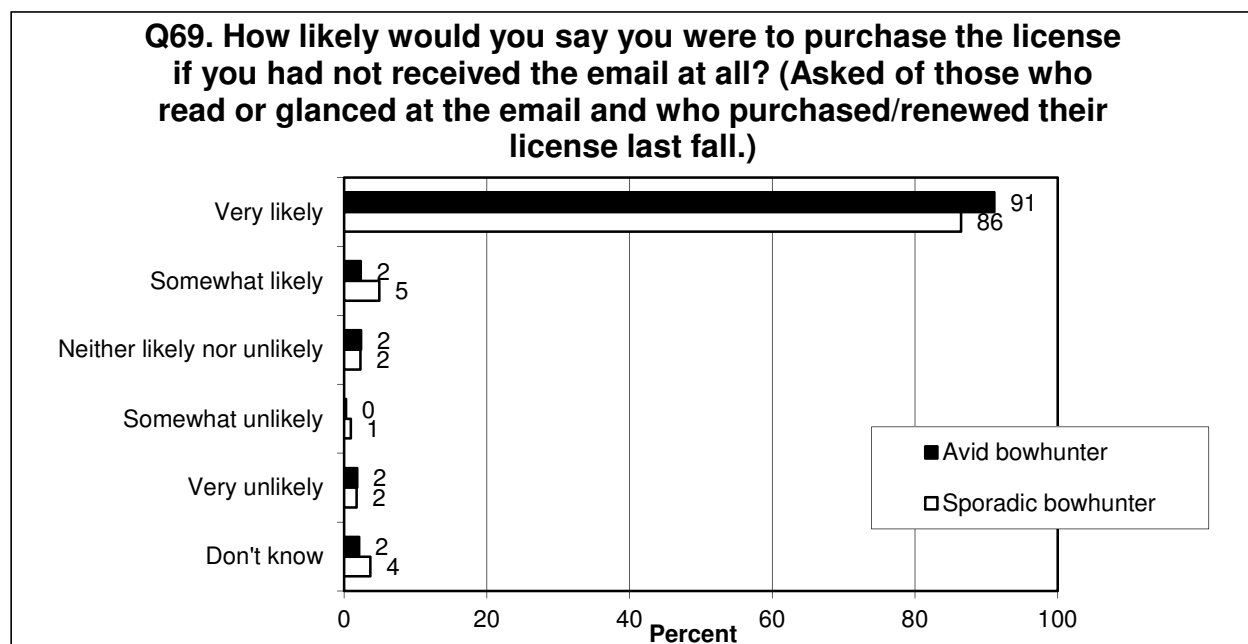


Figure 4.52. Likelihood to Purchase Without the Email Campaign, by Avidity

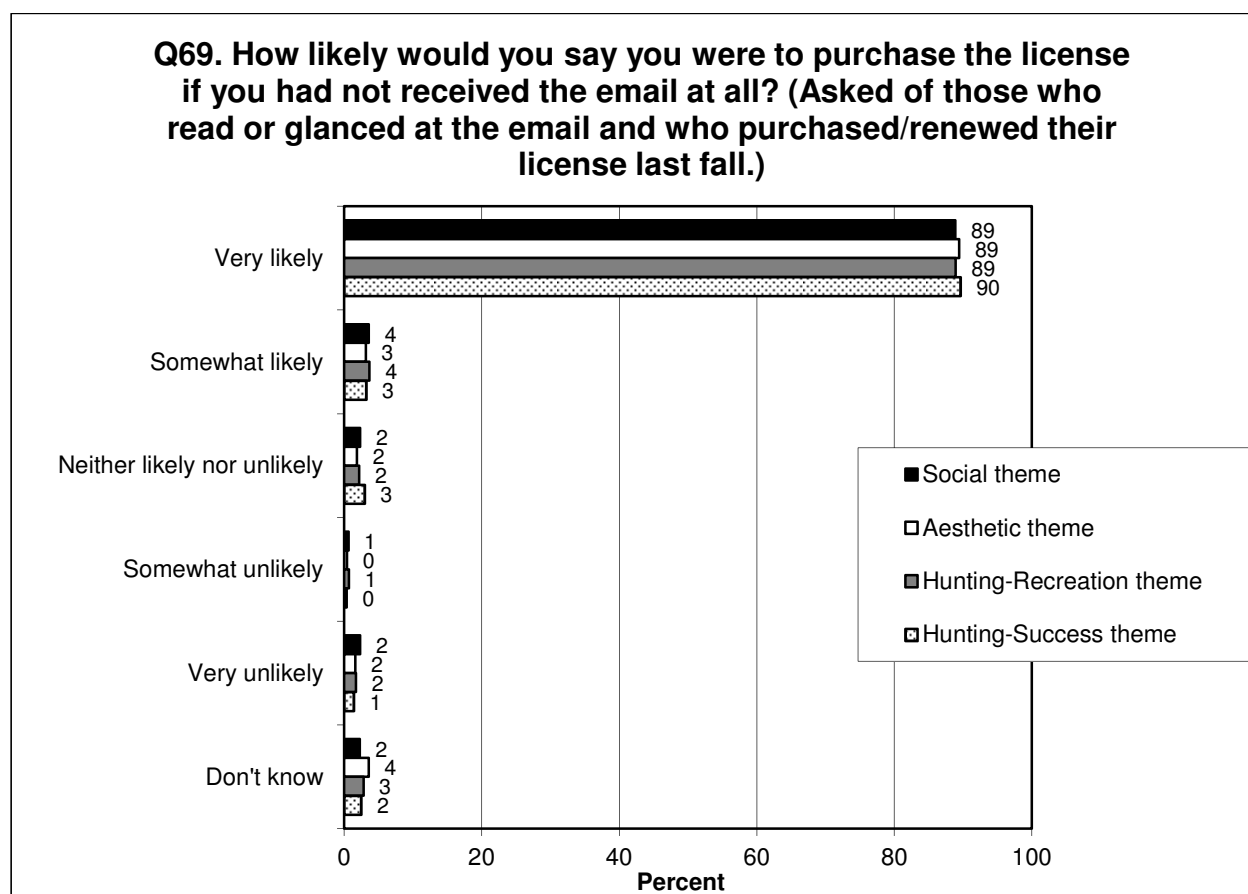


Figure 4.53. Likelihood to Purchase Without the Email Campaign, by Theme

RATINGS OF THE EMAIL LOOK AND EFFECTIVENESS

Each state's treatment bowhunters were asked to rate the overall appeal of the email, as well as the theme, imagery, timing, and ease of use, on a 0 to 10 scale, with 0 being poor and 10 being excellent. They also rated the effectiveness on a 0 to 10 scale, with 0 being not at all effective and 10 being extremely effective.

The questions were separated by state in the survey itself, so there are no overall ratings on these questions, only state-by-state results. The means and medians are shown for each graph, as well as the percentage who gave a rating above the midpoint. In general, mean ratings on the poor-excellent scale were in the 6s and 7s, while the ratings of effectiveness are in the 5s; the graphs start with Florida (Figures 4.54 through 4.60), followed by graphs for Georgia (Figures 4.61 through 4.67), Indiana (Figures 4.68 through 4.74), New Jersey (Figures 4.75 through 4.81), and Oklahoma (Figures 4.82 through 4.88).

Q36. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Florida bowhunters who read or glanced at the email.)

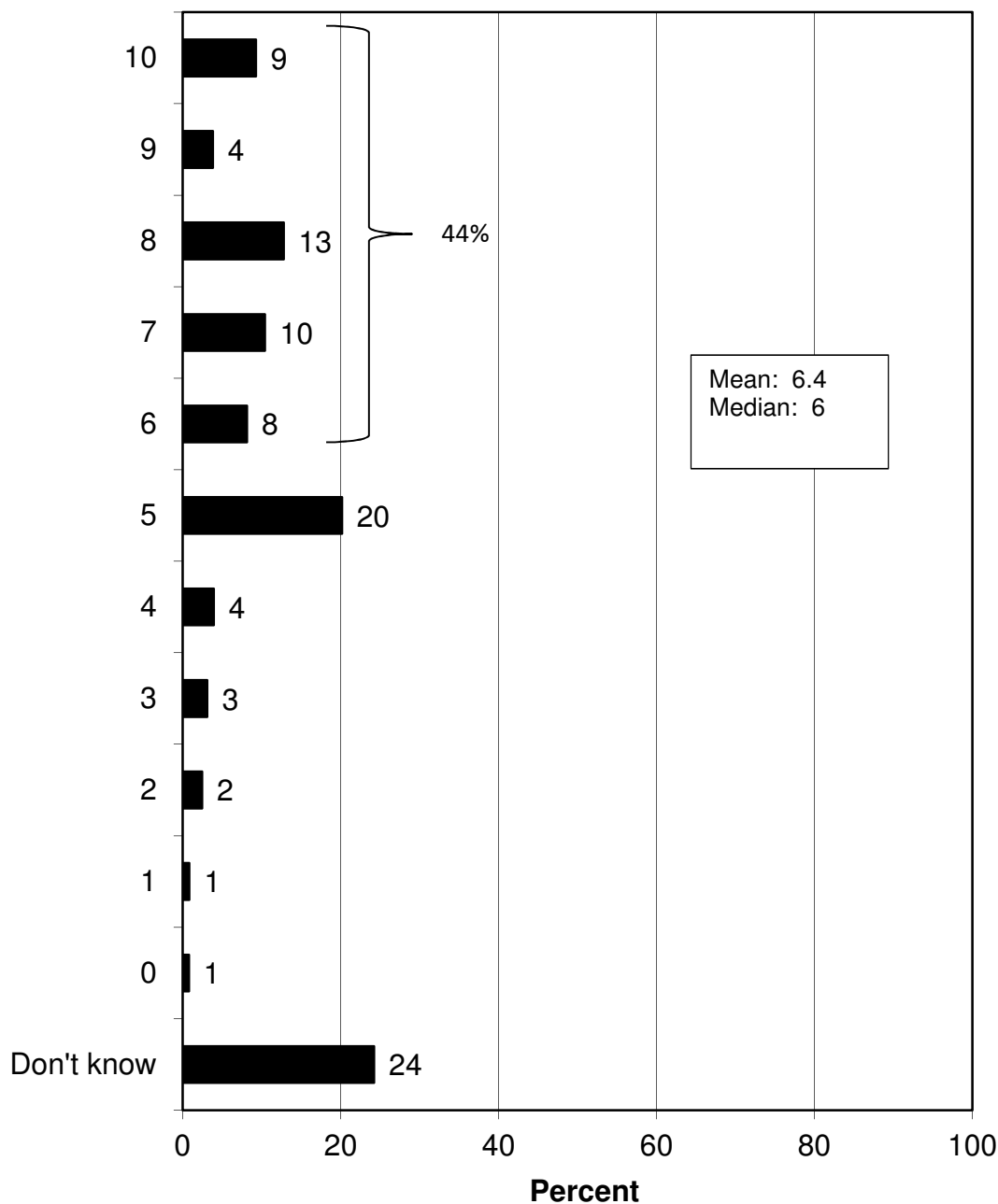


Figure 4.54. Ratings of the Email's Appeal, Florida Bowhunters

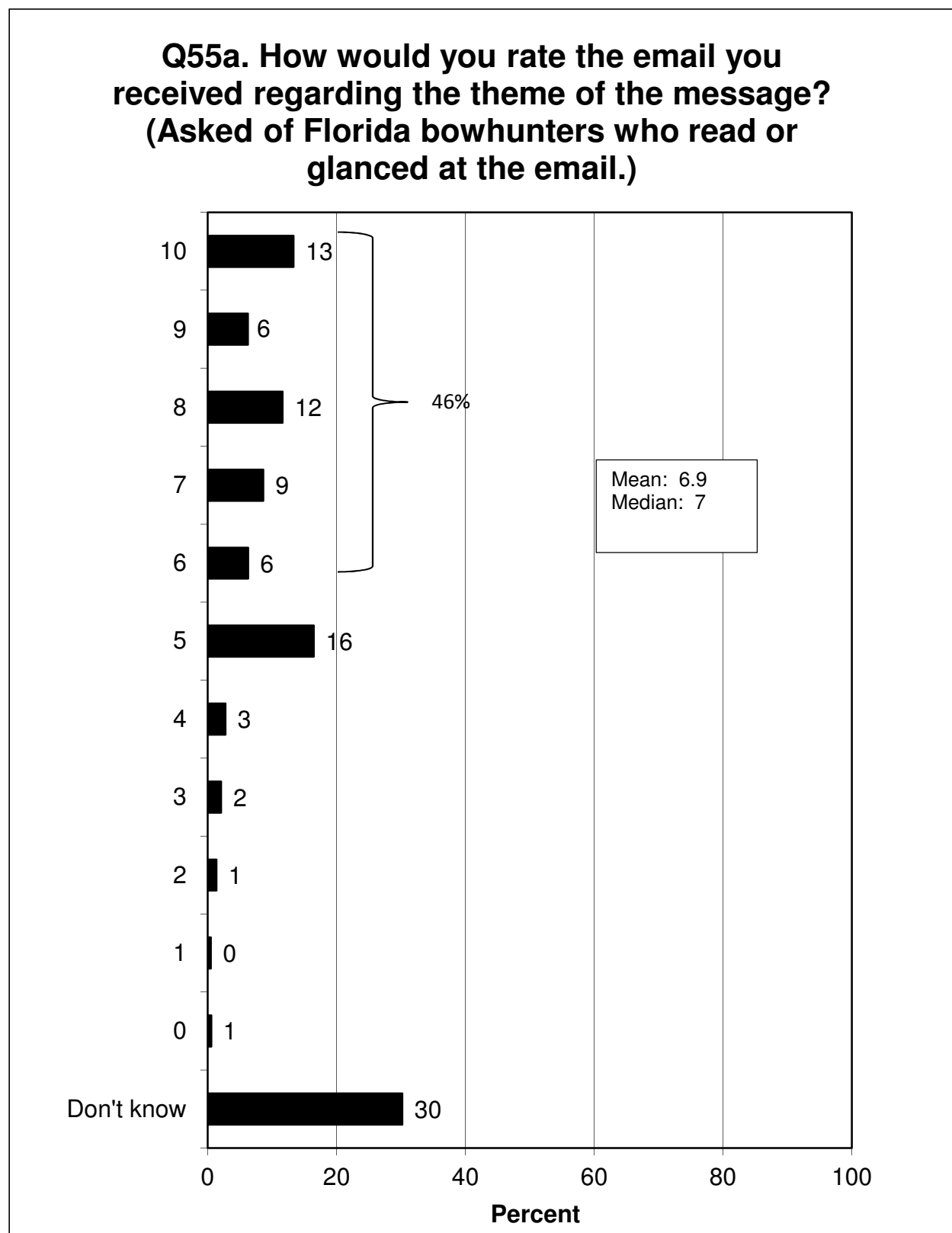


Figure 4.55. Ratings of the Email's Theme, Florida Bowhunters

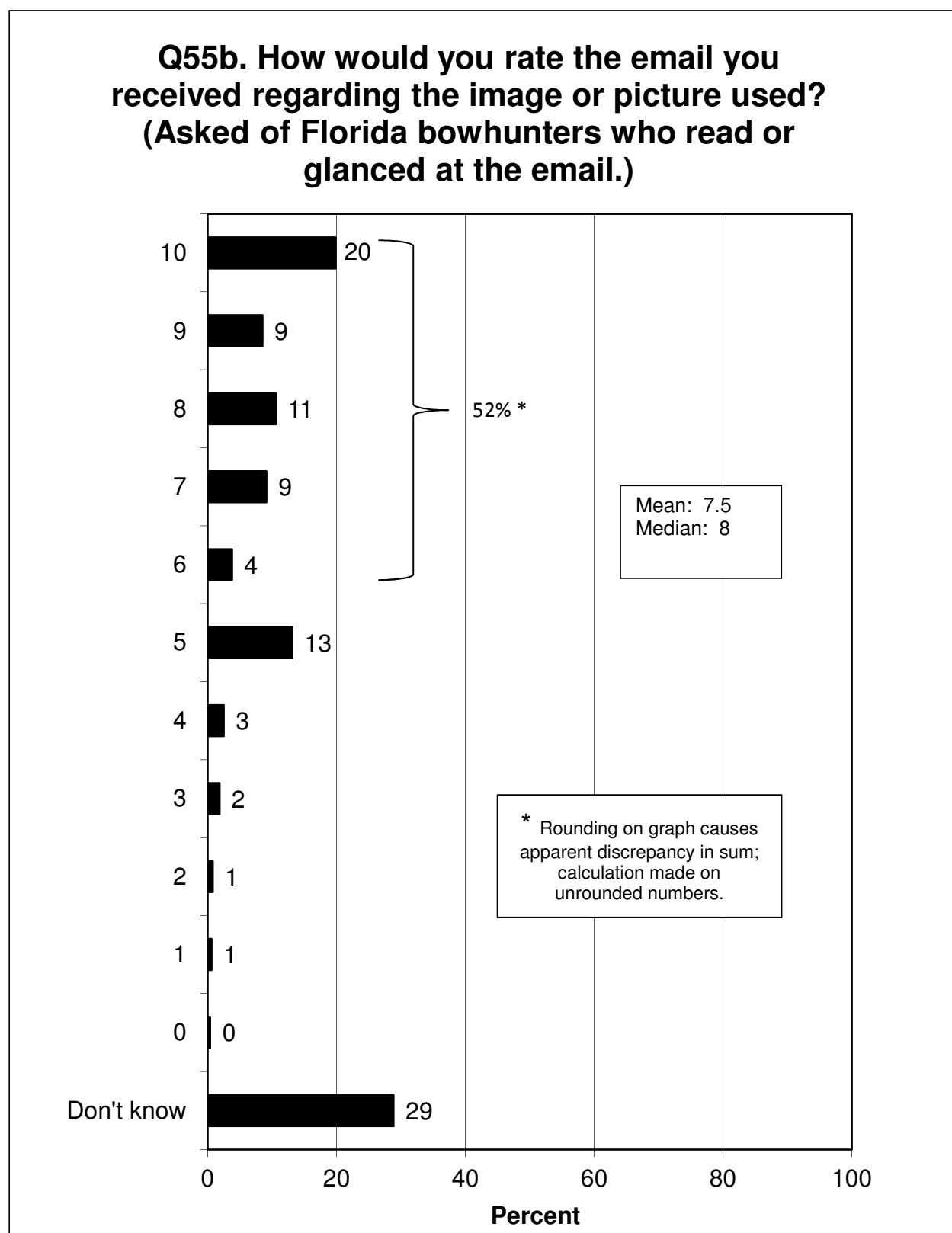


Figure 4.56. Ratings of the Email's Imagery, Florida Bowhunters

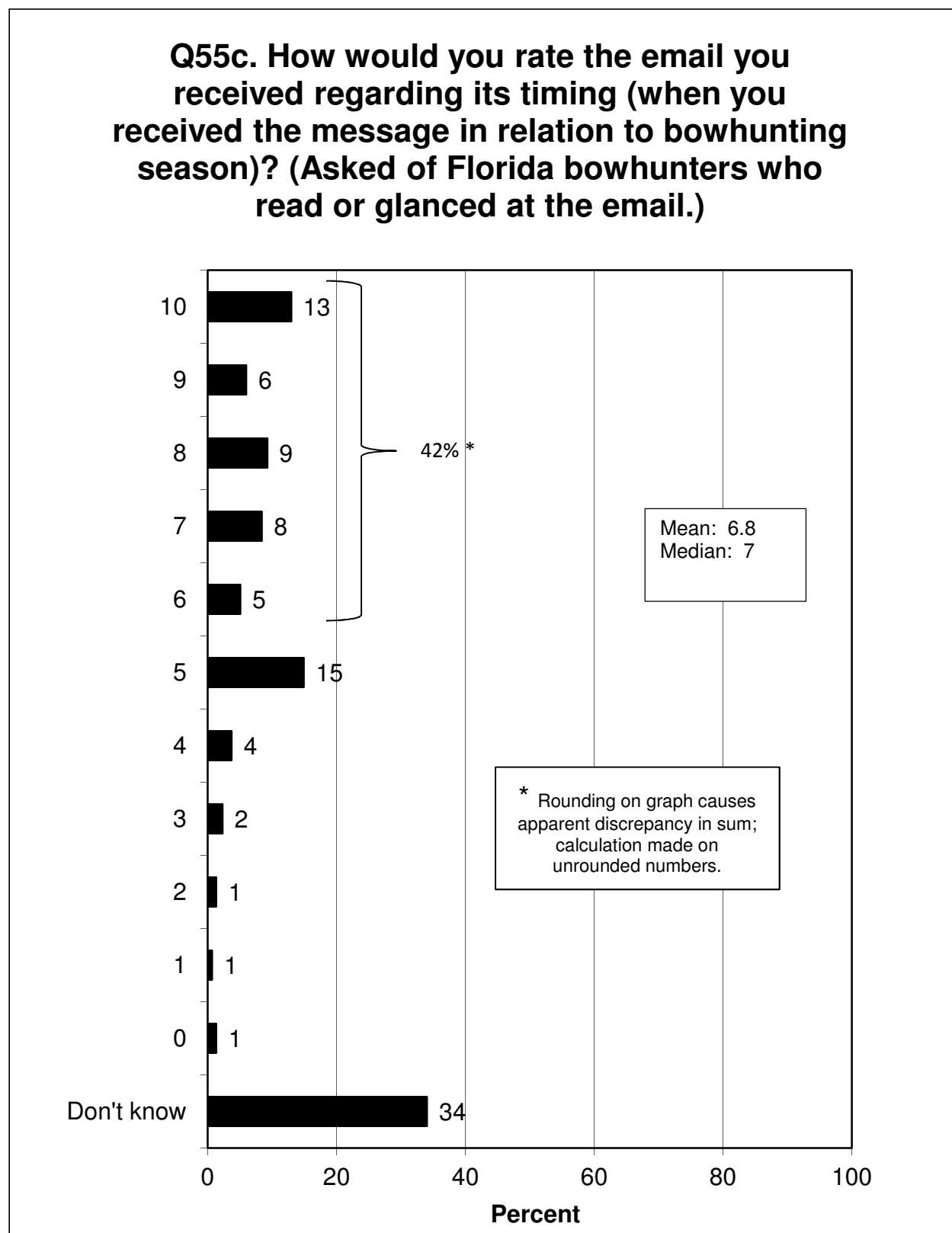


Figure 4.57. Ratings of the Email's Timing, Florida Bowhunters

Q55d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Florida bowhunters who read or glanced at the email.)

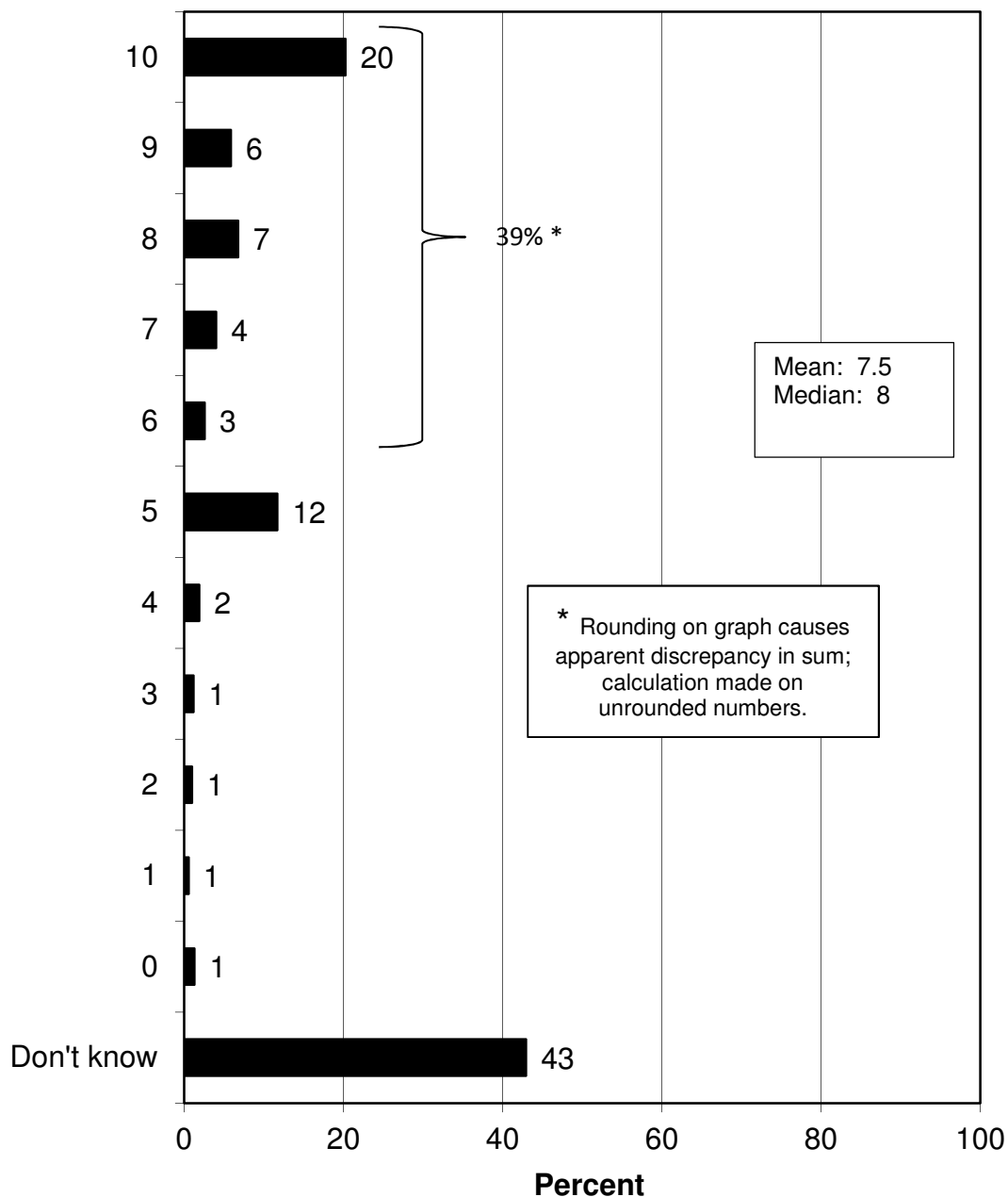


Figure 4.58. Ratings of the Email's Ease of Use, Florida Bowhunters

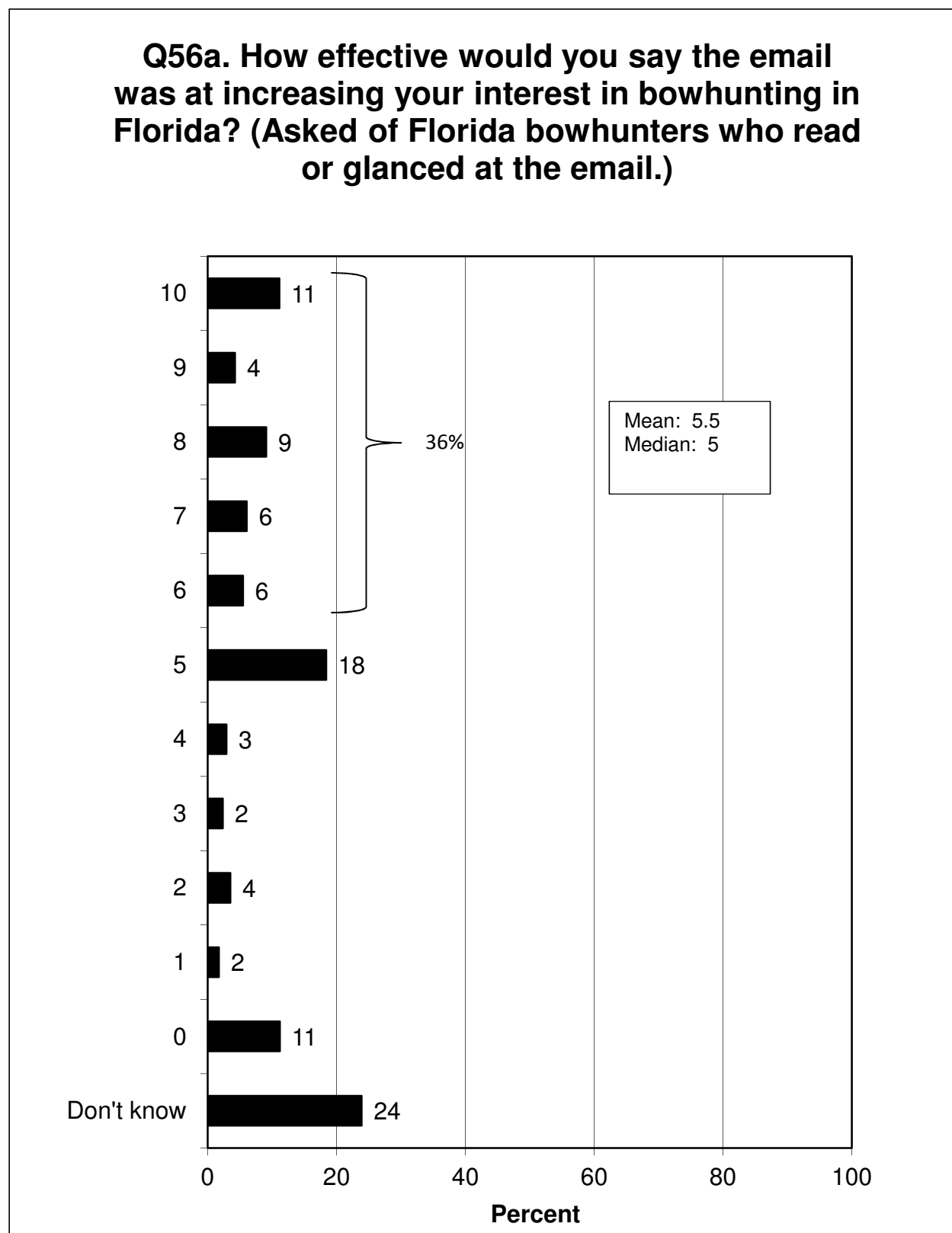


Figure 4.59. Ratings of Effectiveness of Email at Increasing Interest, Florida Bowhunters

Q56b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Florida? (Asked of Florida bowhunters who read or glanced at the email.)

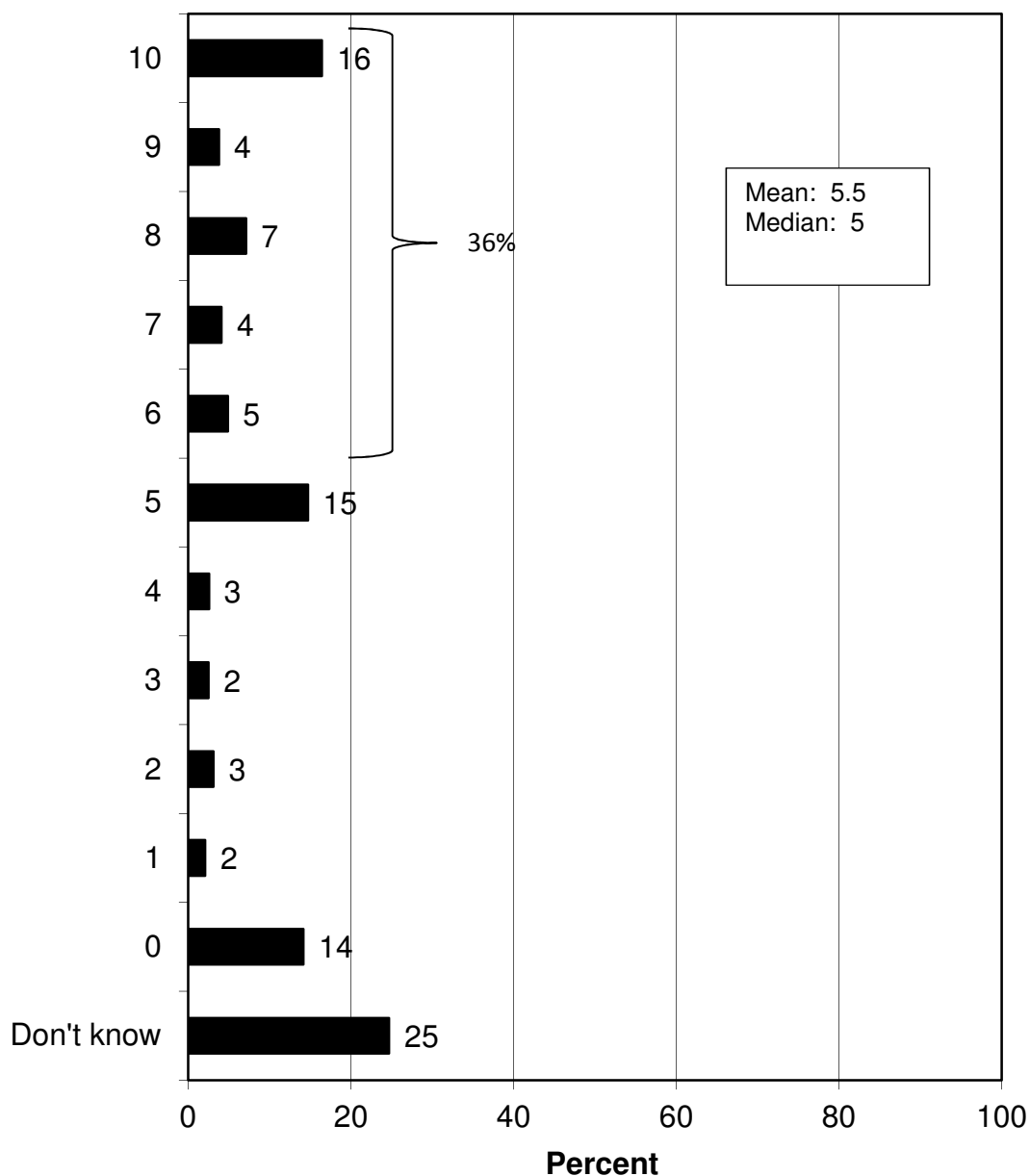


Figure 4.60. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Florida Bowhunters

Q40. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Georgia bowhunters who read or glanced at the email.)

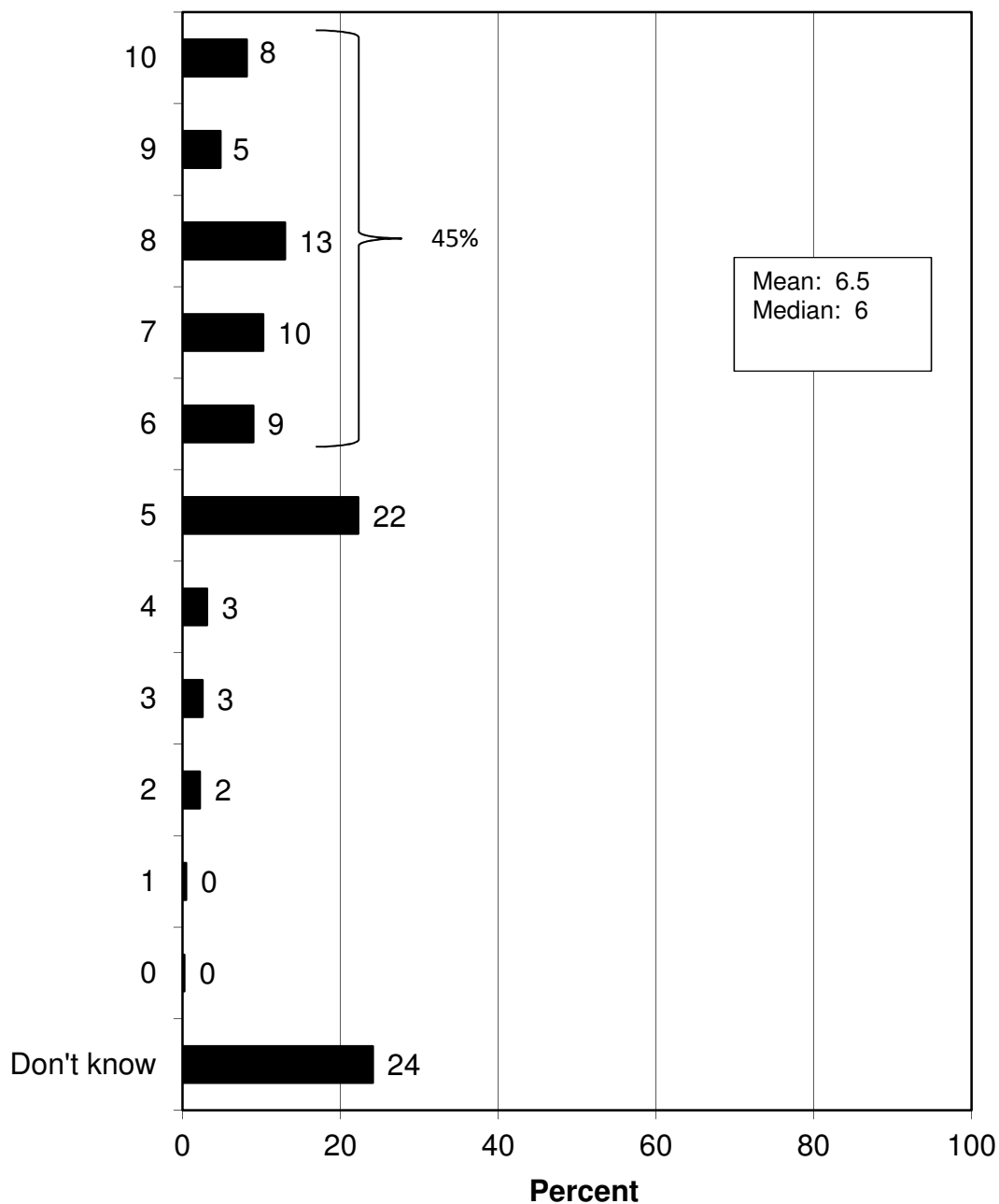


Figure 4.61. Ratings of the Email's Appeal, Georgia Bowhunters

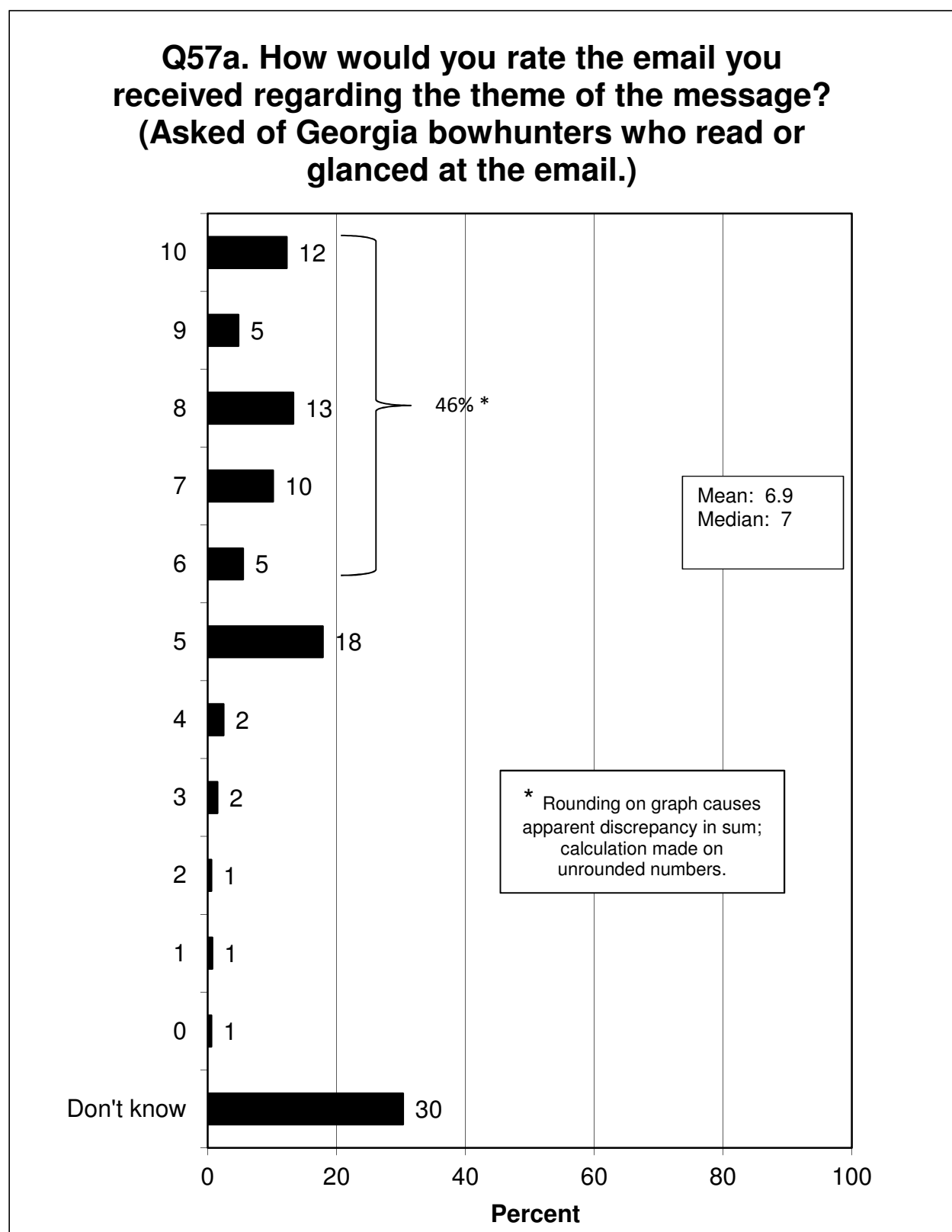


Figure 4.62. Ratings of the Email's Theme, Georgia Bowhunters

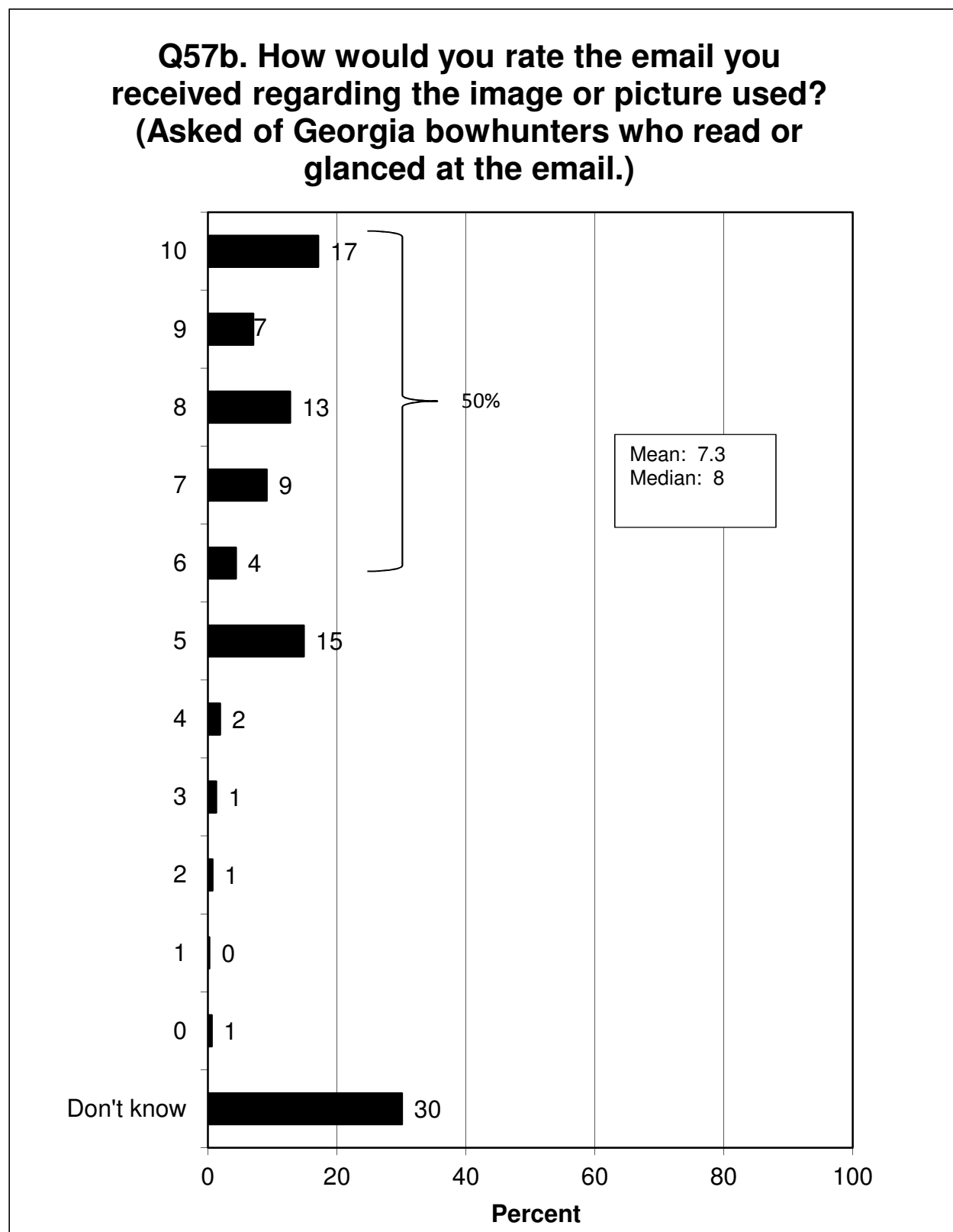


Figure 4.63. Ratings of the Email's Imagery, Georgia Bowhunters

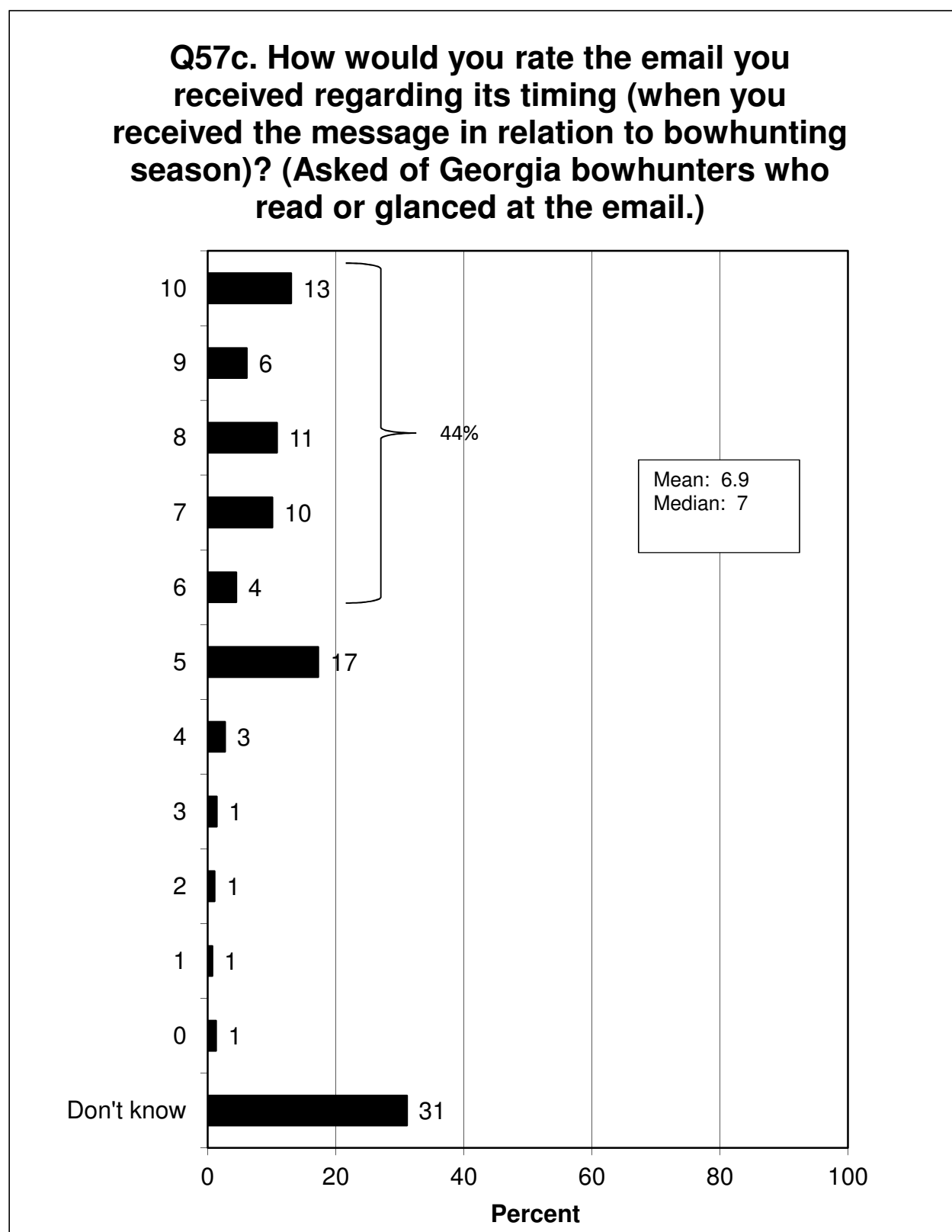


Figure 4.64. Ratings of the Email's Timing, Georgia Bowhunters

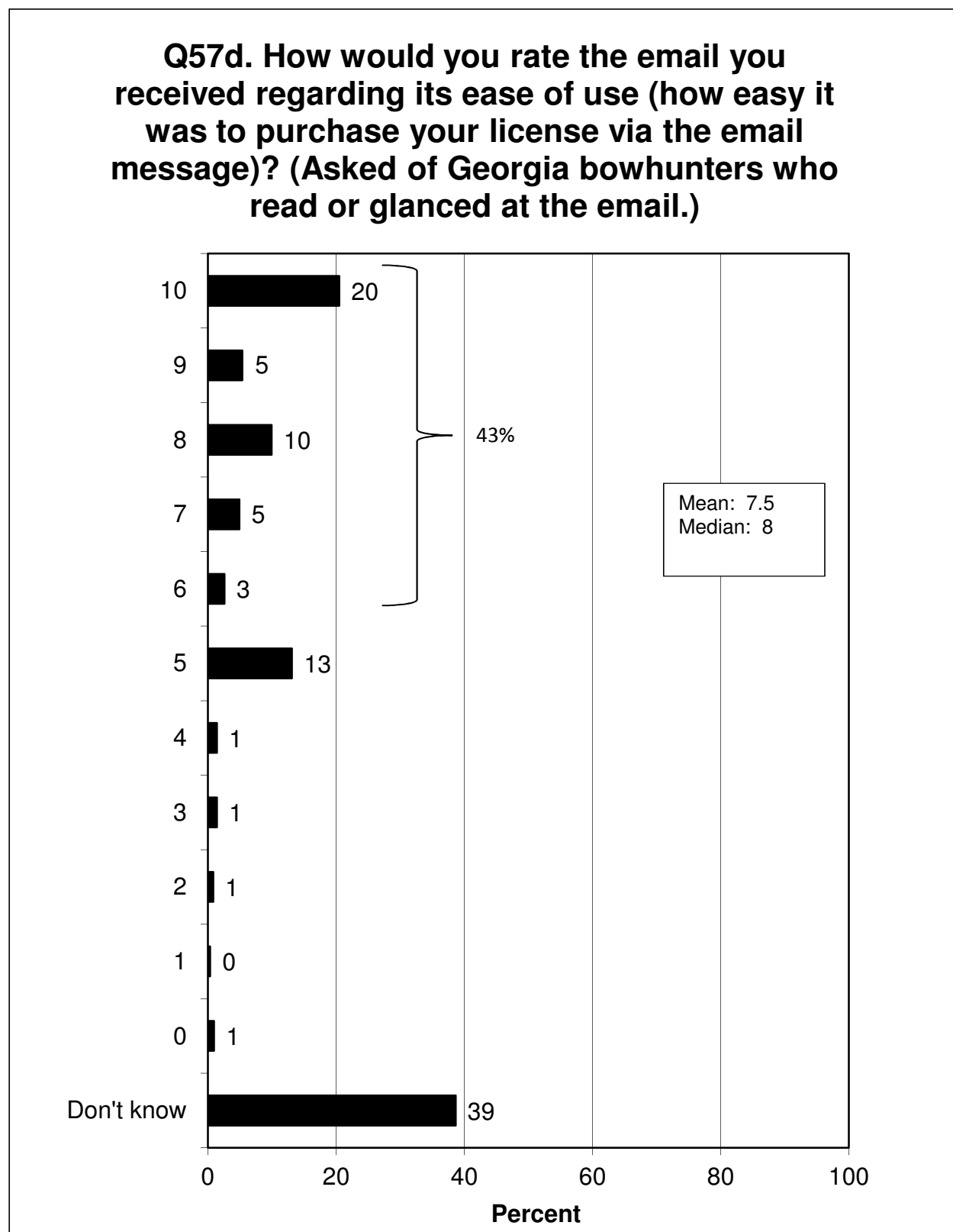


Figure 4.65. Ratings of the Email's Ease of Use, Georgia Bowhunters

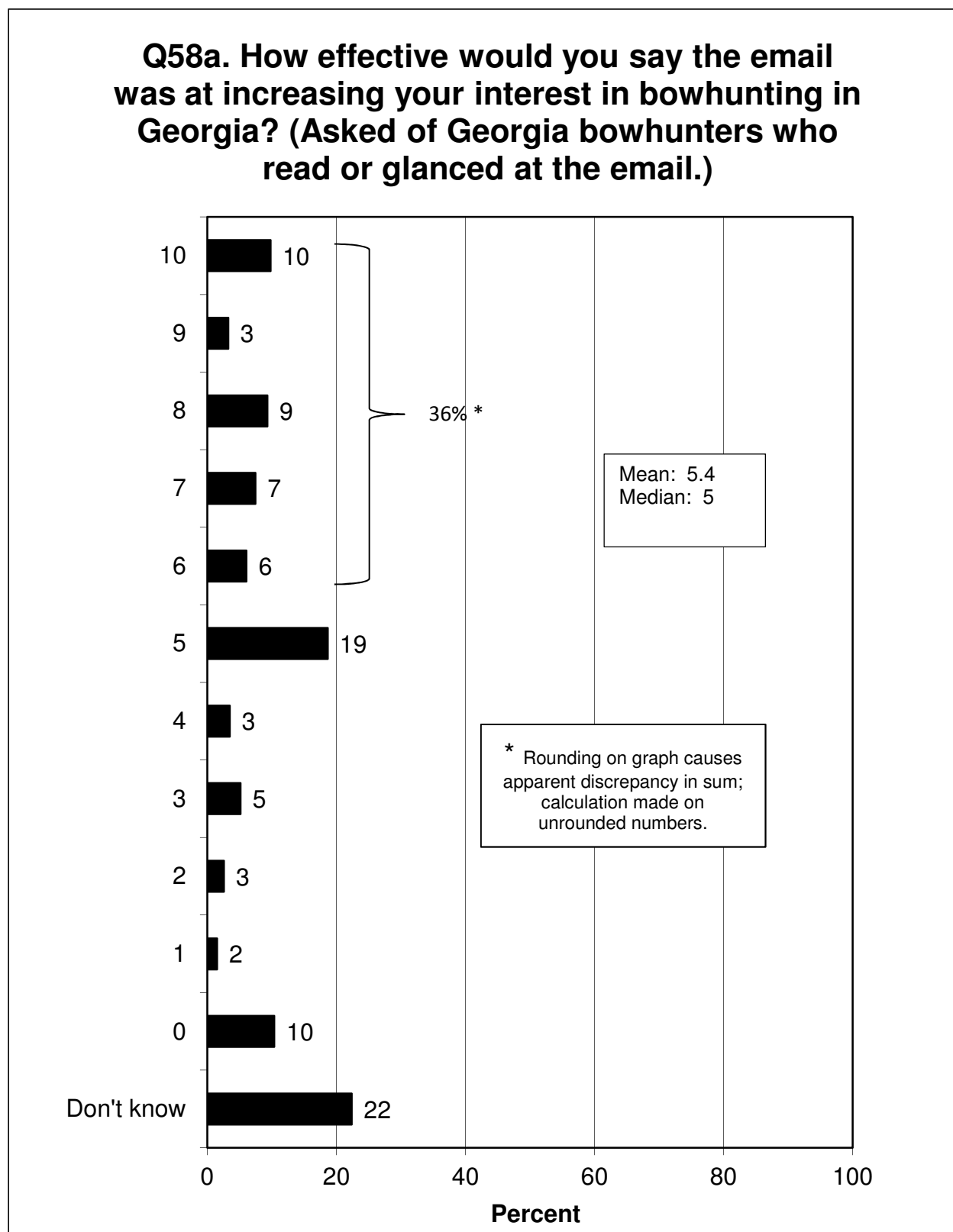


Figure 4.66. Ratings of Effectiveness of Email at Increasing Interest, Georgia Bowhunters

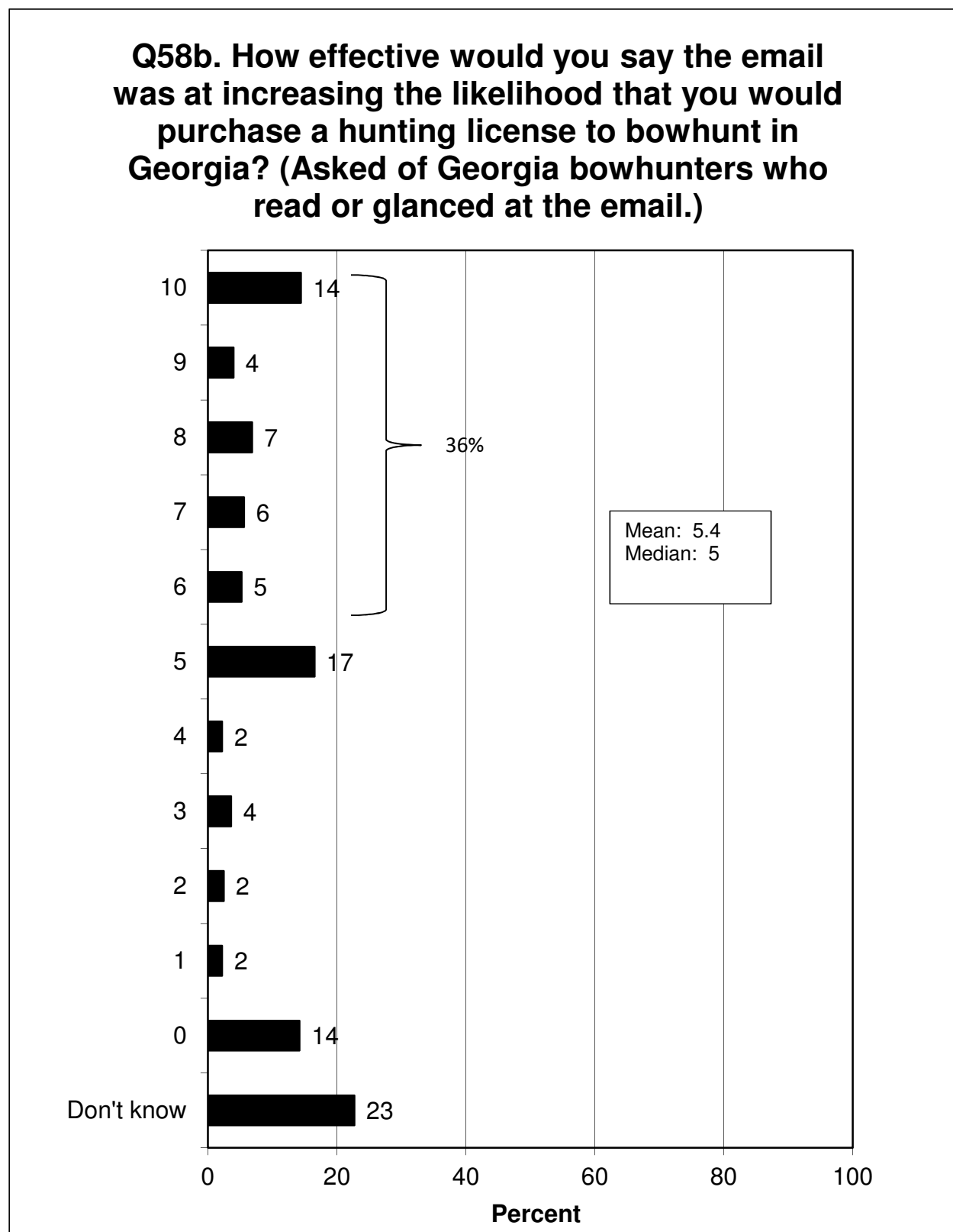


Figure 4.67. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Georgia Bowhunters

Q44. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Indiana bowhunters who read or glanced at the email.)

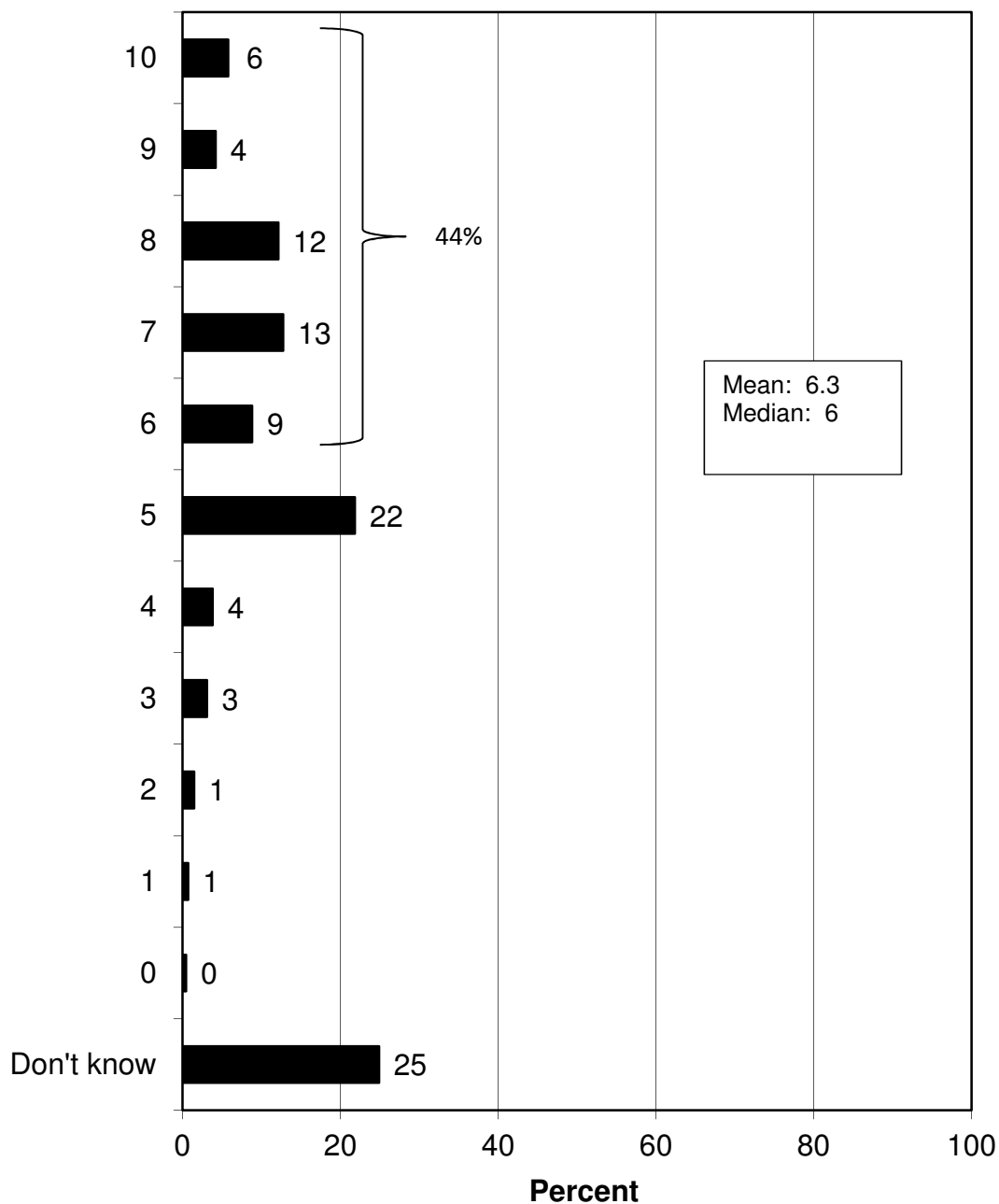


Figure 4.68. Ratings of the Email's Appeal, Indiana Bowhunters

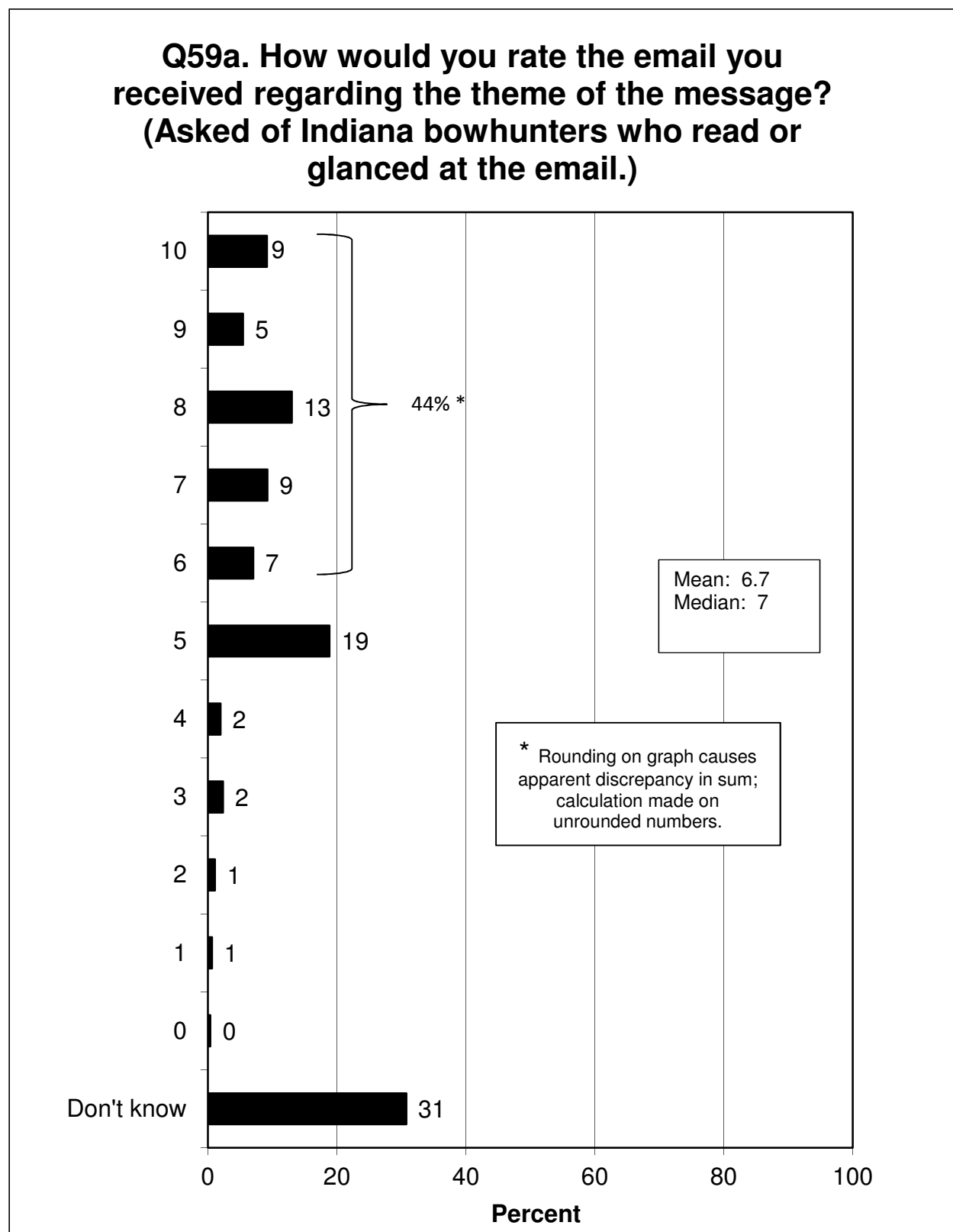


Figure 4.69. Ratings of the Email's Theme, Indiana Bowhunters

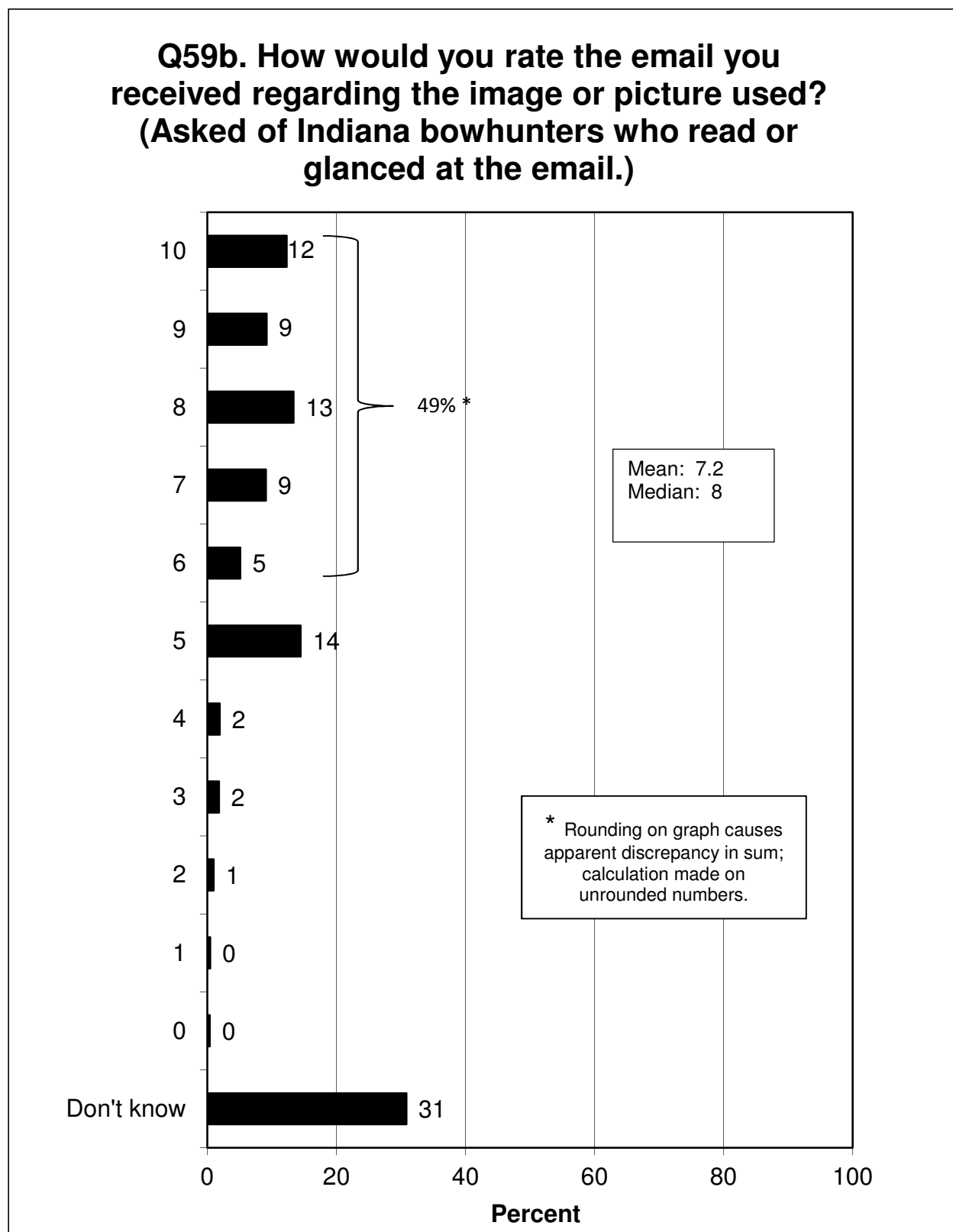


Figure 4.70. Ratings of the Email's Imagery, Indiana Bowhunters

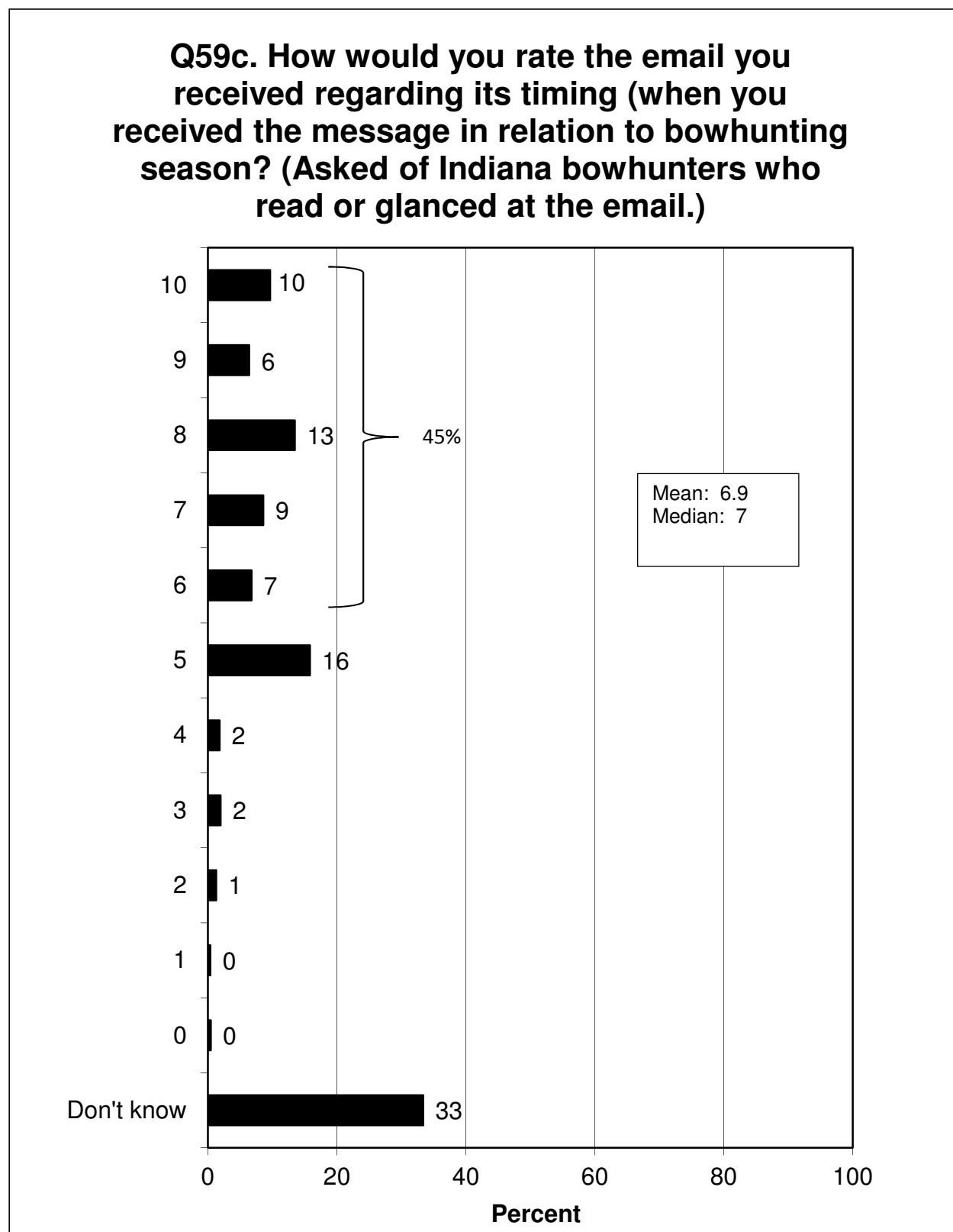


Figure 4.71. Ratings of the Email's Timing, Indiana Bowhunters

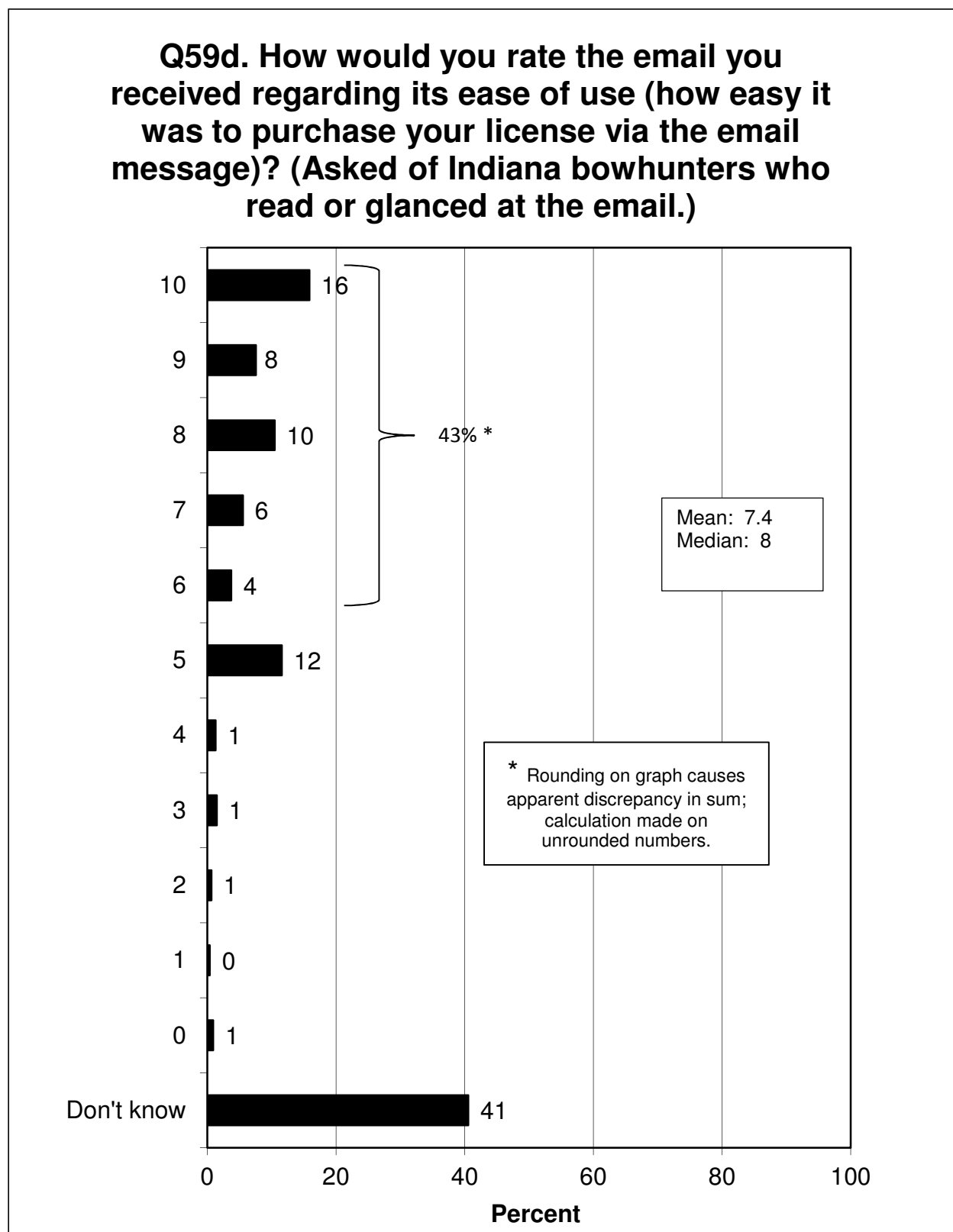


Figure 4.72. Ratings of the Email's Ease of Use, Indiana Bowhunters

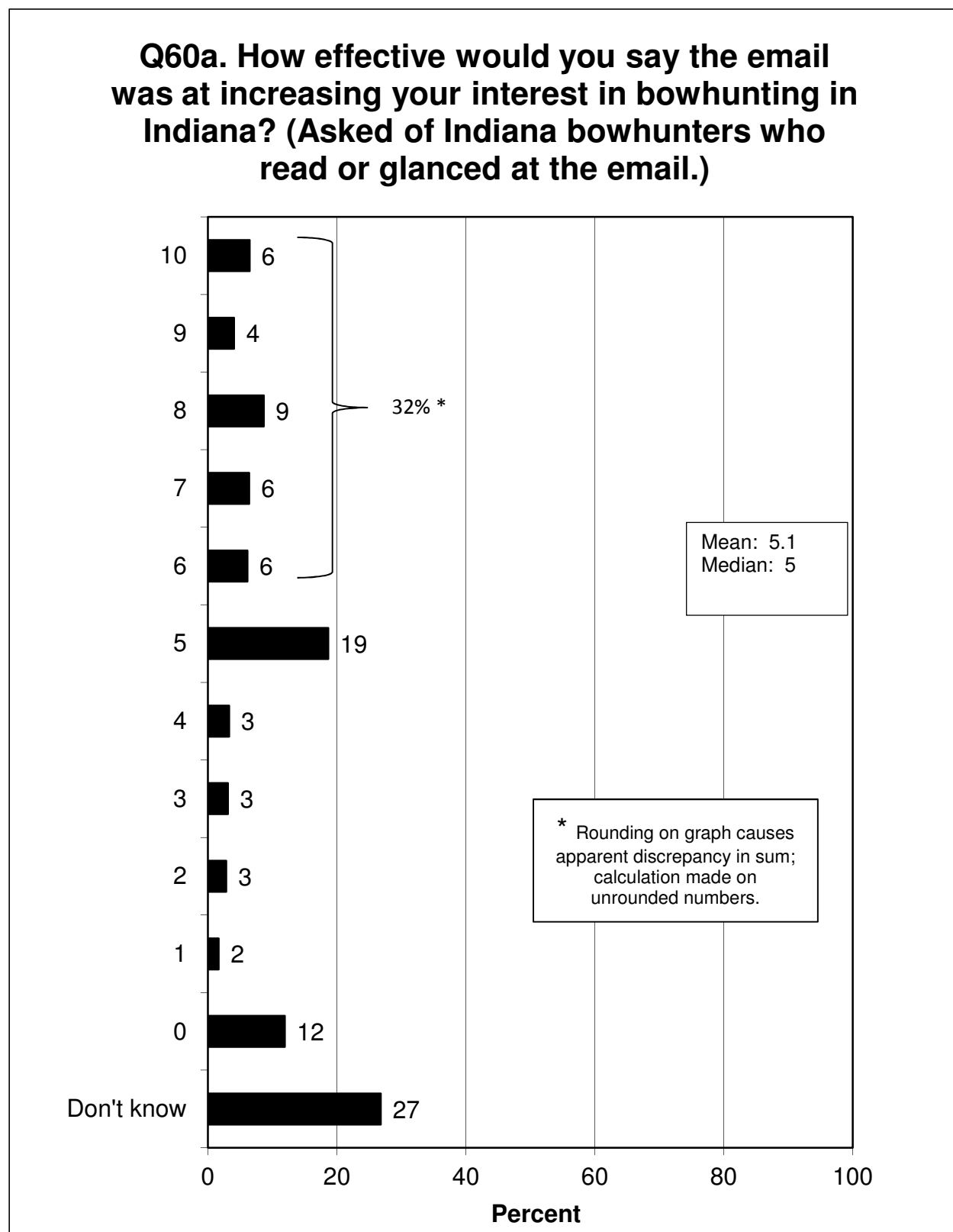


Figure 4.73. Ratings of Effectiveness of Email at Increasing Interest, Indiana Bowhunters

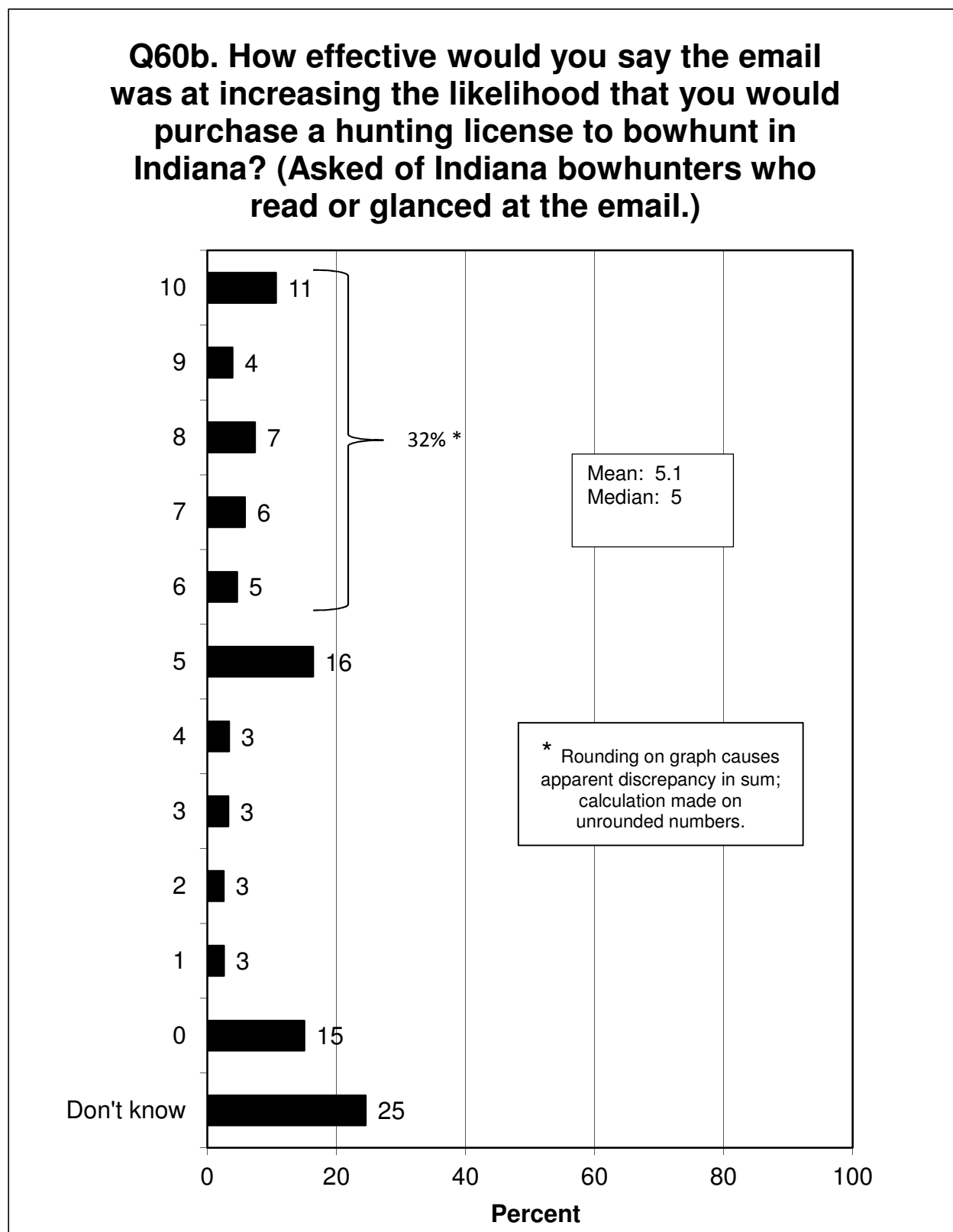


Figure 4.74. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Indiana Bowhunters

Q48. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of New Jersey bowhunters who read or glanced at the email.)

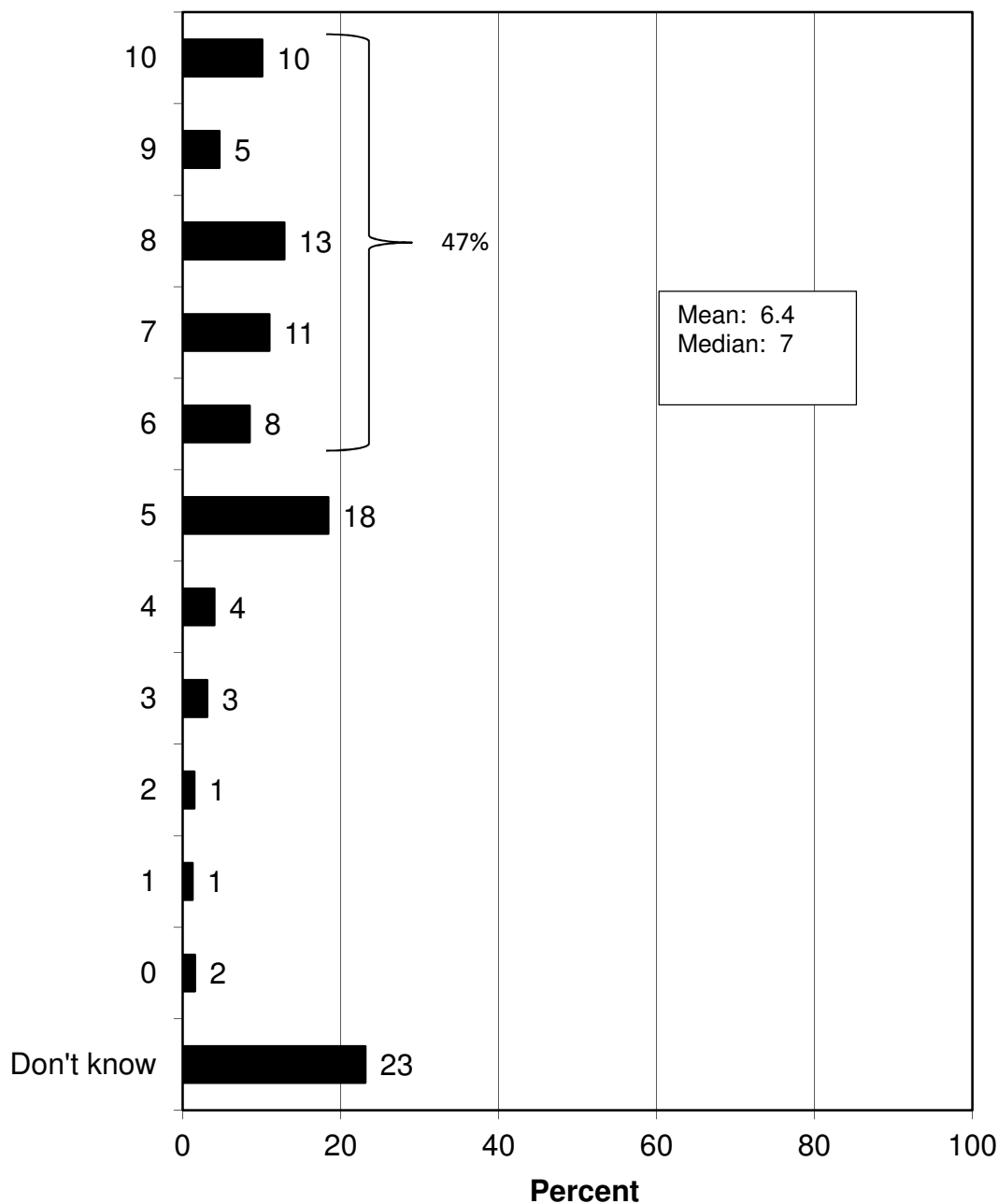


Figure 4.75. Ratings of the Email's Appeal, New Jersey Bowhunters

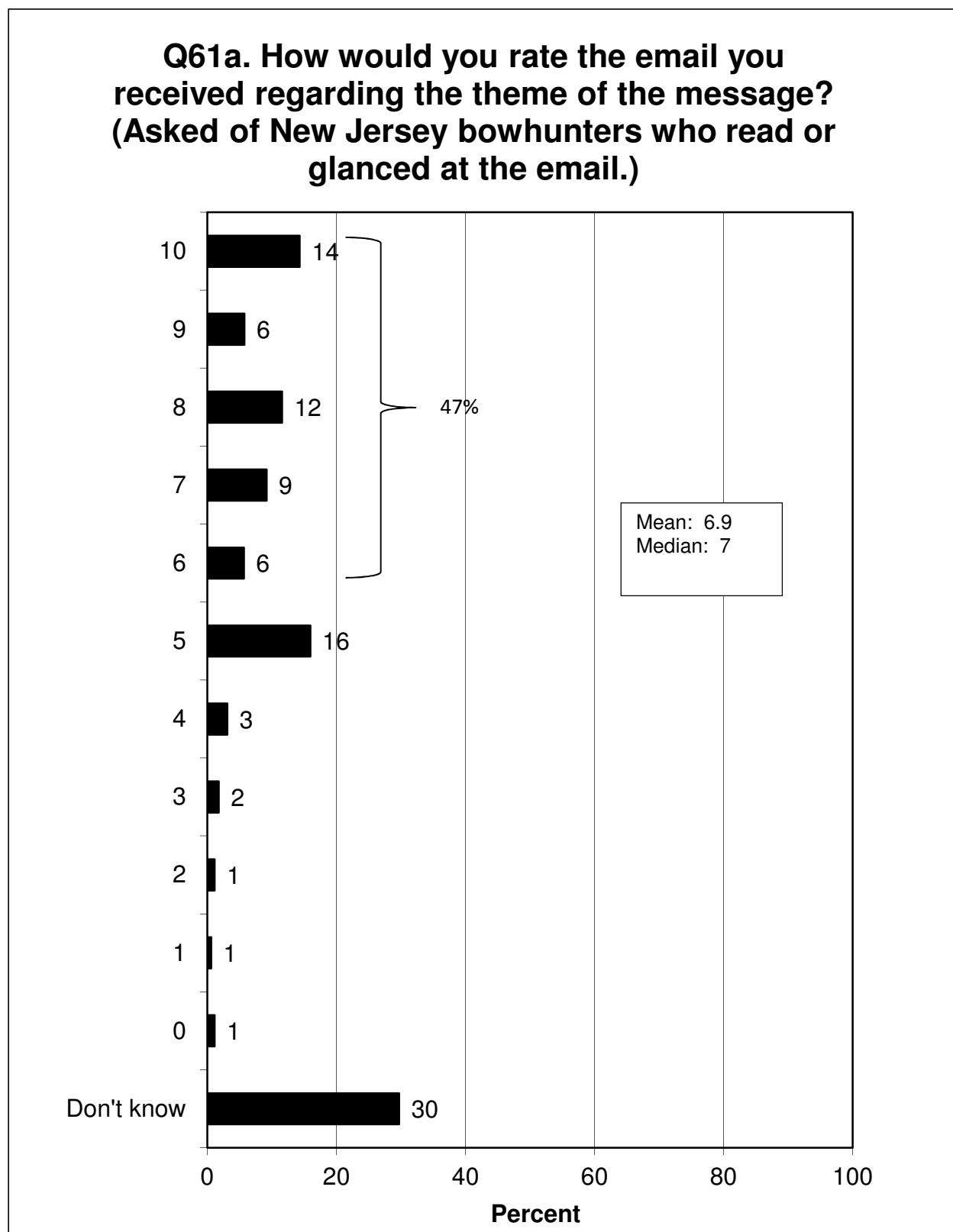


Figure 4.76. Ratings of the Email's Theme, New Jersey Bowhunters

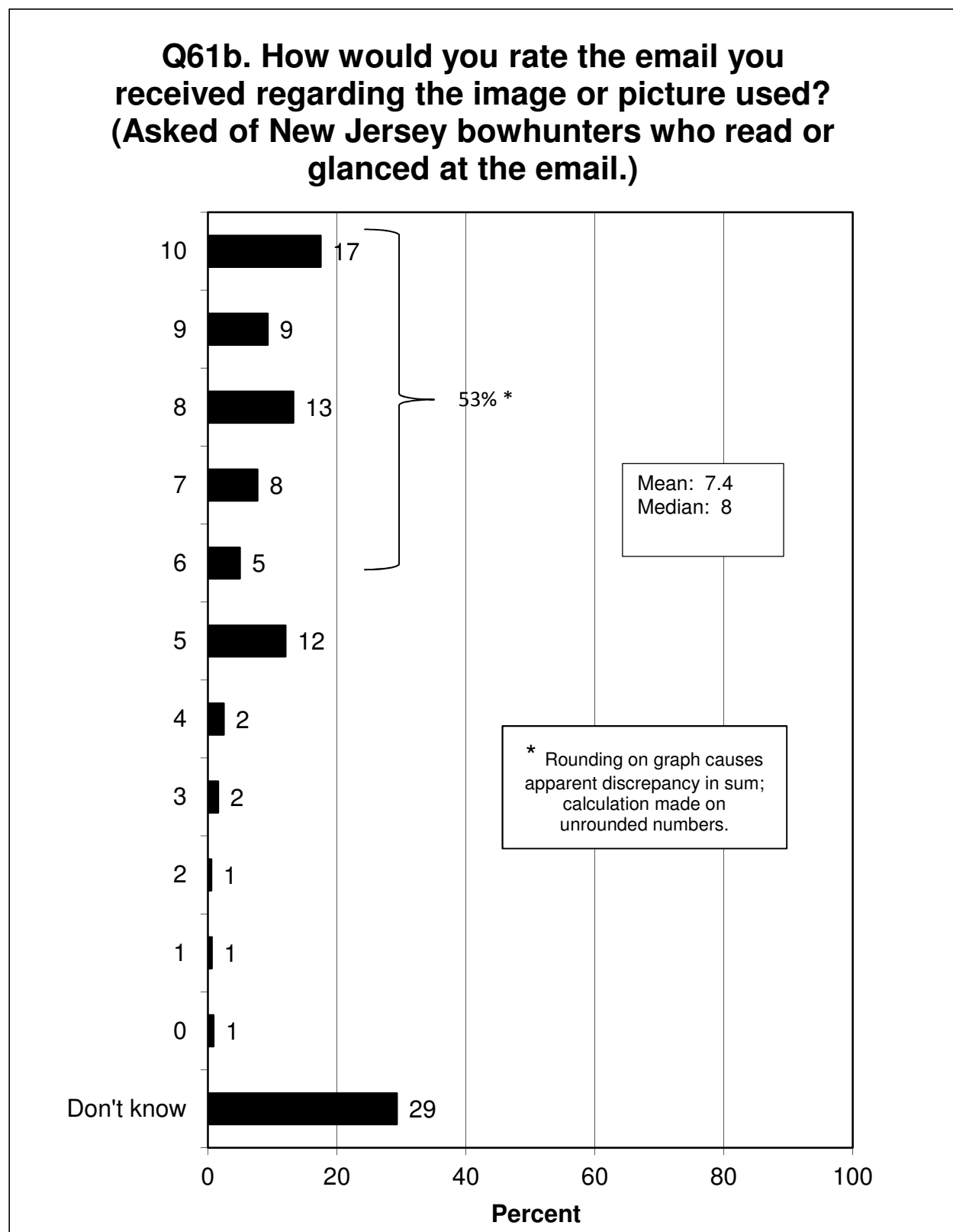


Figure 4.77. Ratings of the Email's Imagery, New Jersey Bowhunters

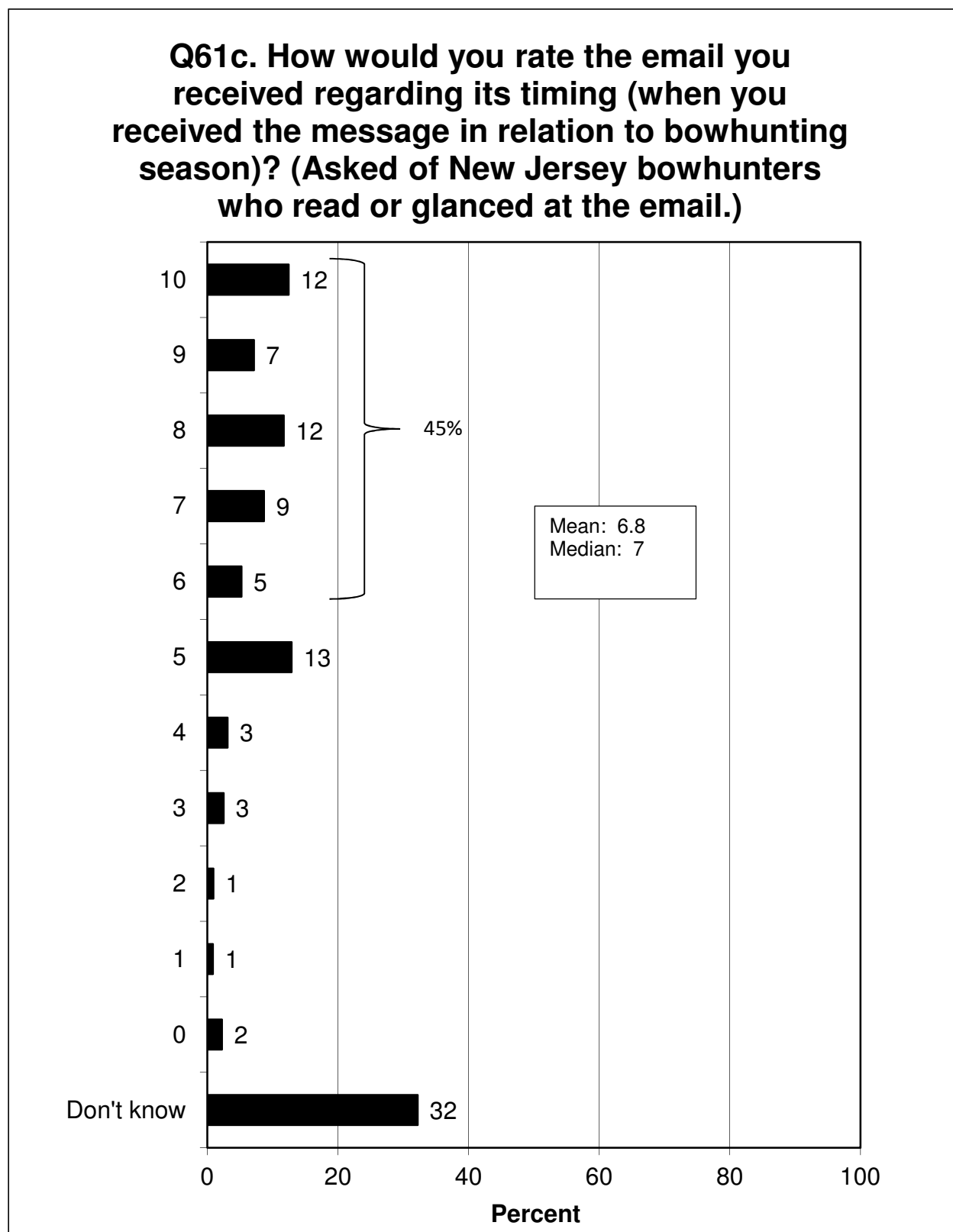


Figure 4.78. Ratings of the Email's Timing, New Jersey Bowhunters

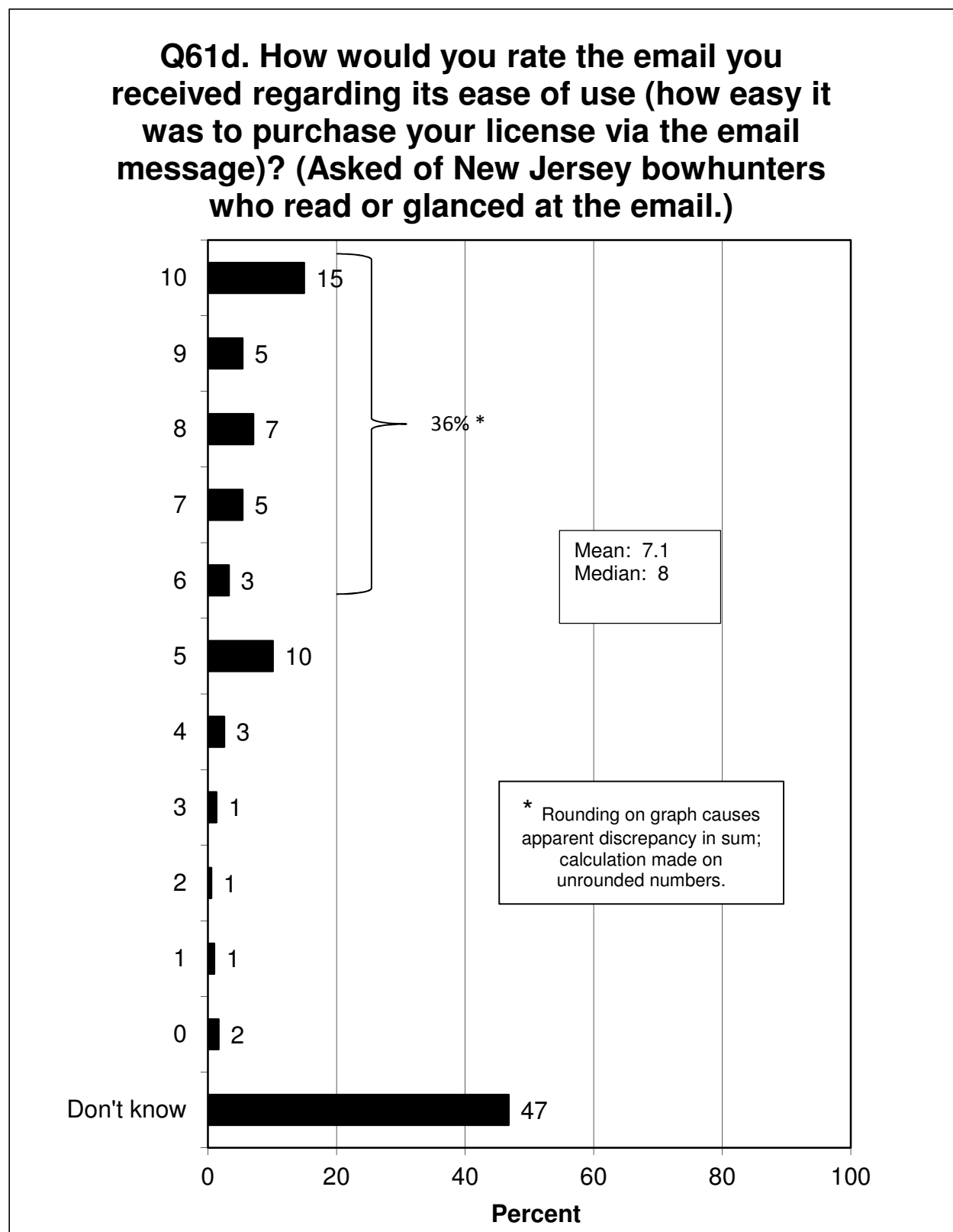


Figure 4.79. Ratings of the Email's Ease of Use, New Jersey Bowhunters

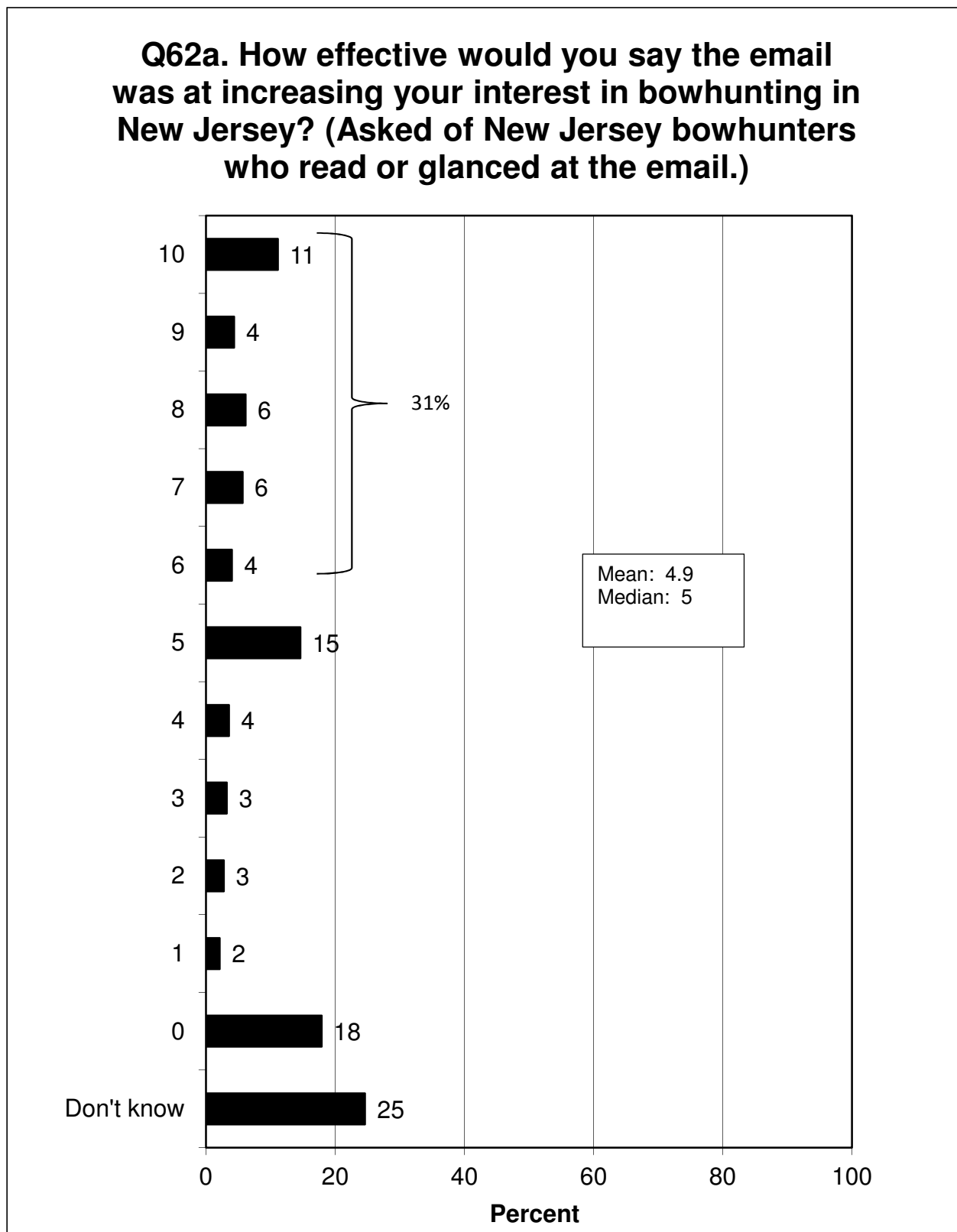


Figure 4.80. Ratings of Effectiveness of Email at Increasing Interest, New Jersey Bowhunters

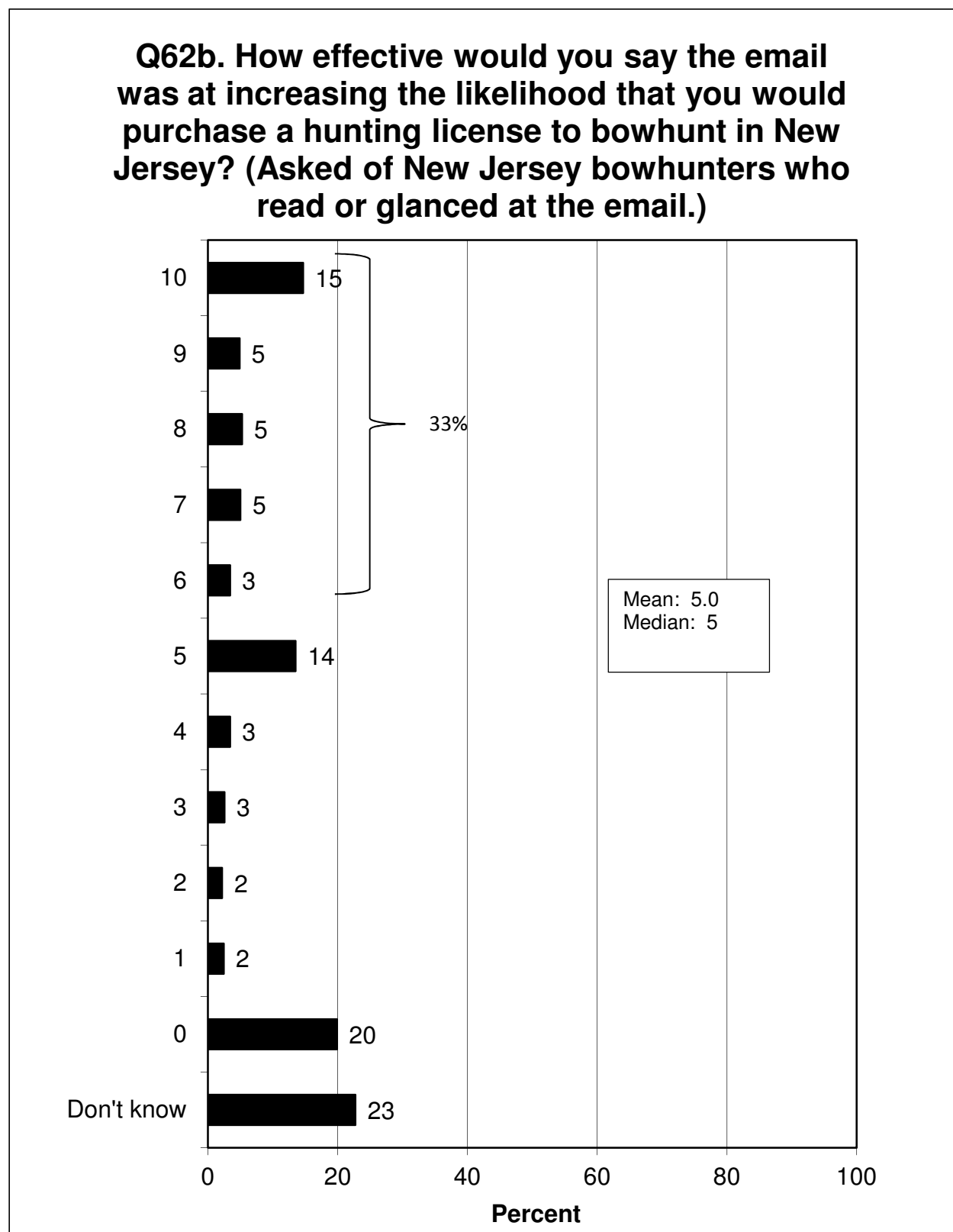


Figure 4.81. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, New Jersey Bowhunters

Q52. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Oklahoma bowhunters who read or glanced at the email.)

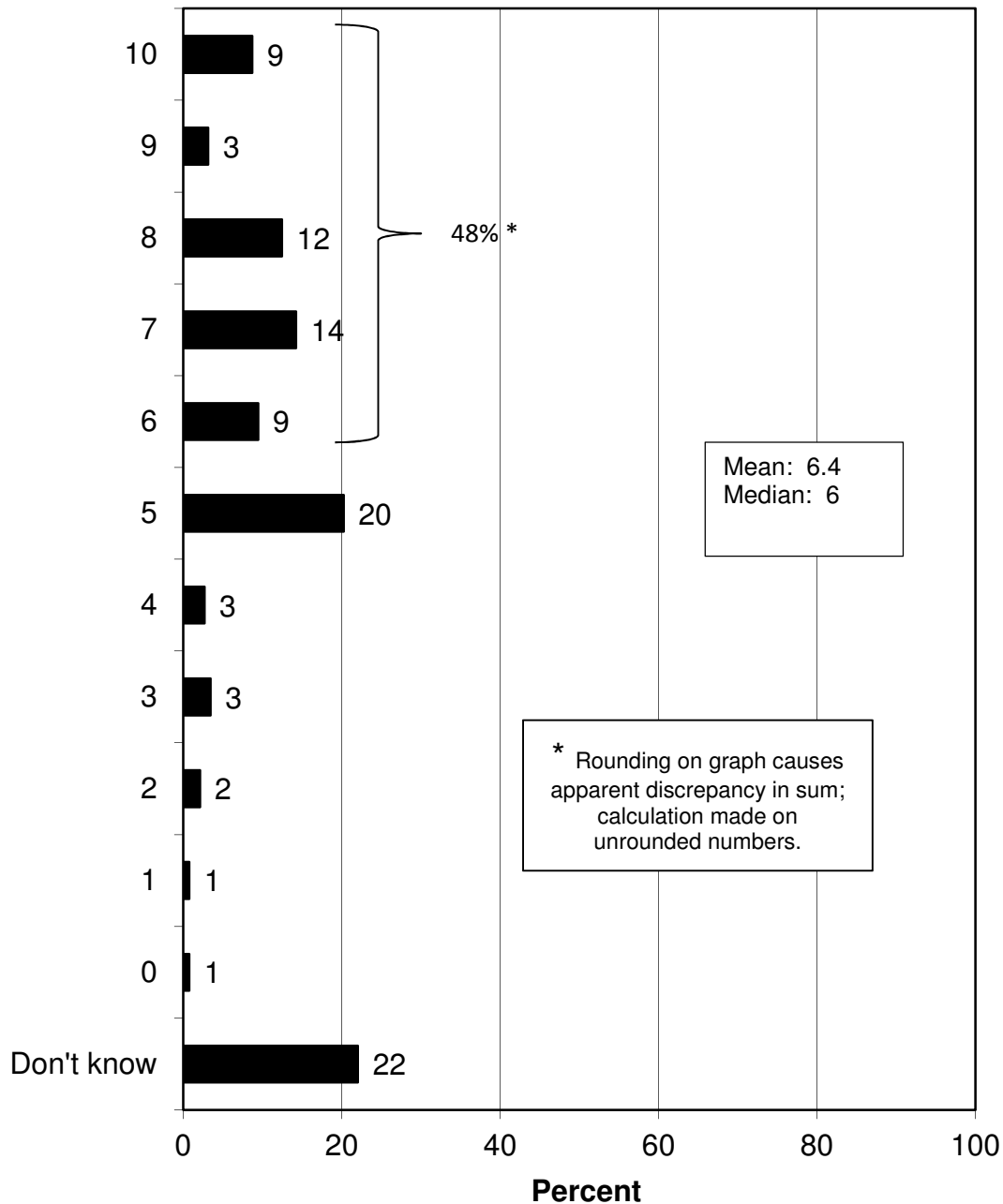
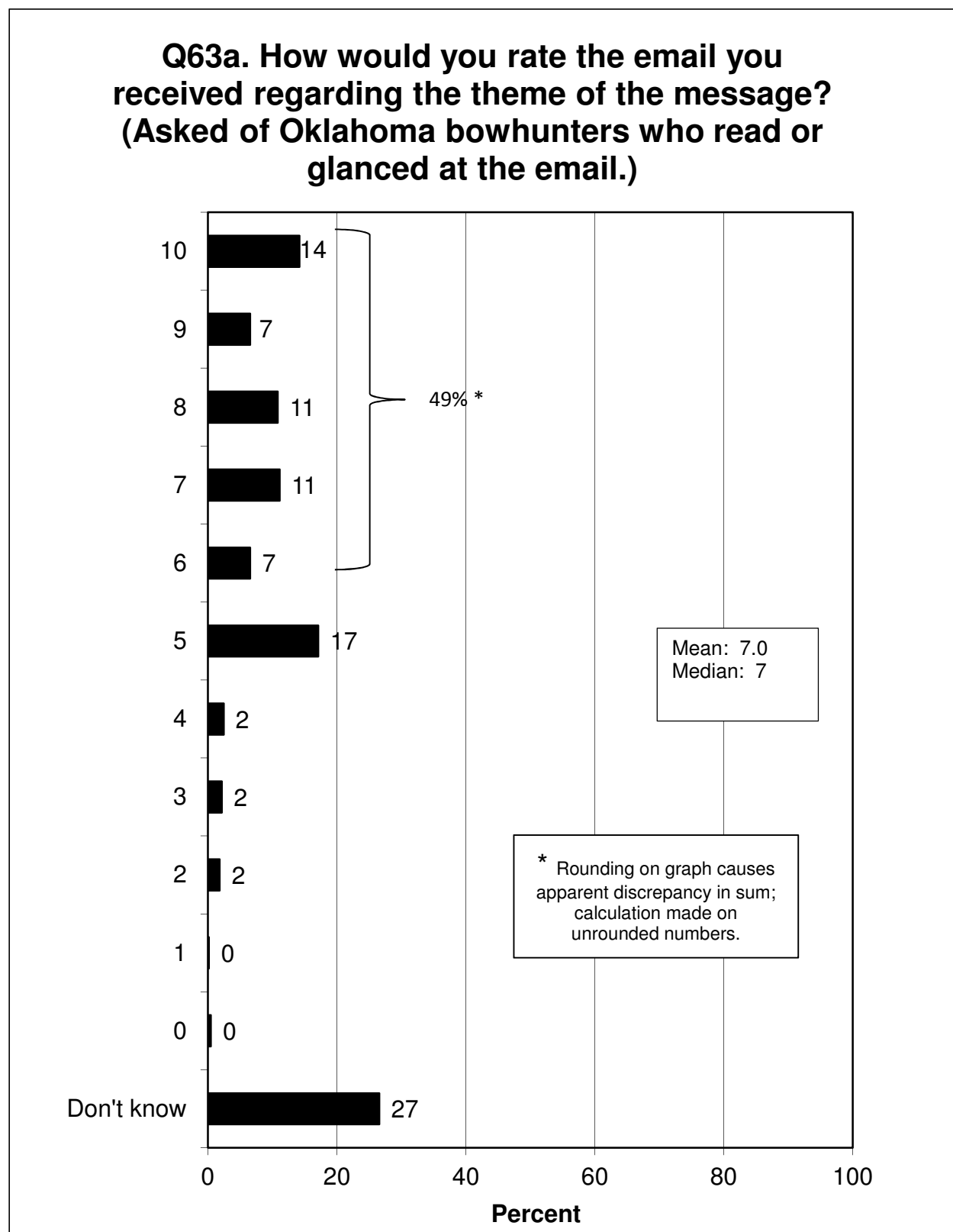


Figure 4.82. Ratings of the Email's Appeal, Oklahoma Bowhunters

**Figure 4.83. Ratings of the Email's Theme, Oklahoma Bowhunters**

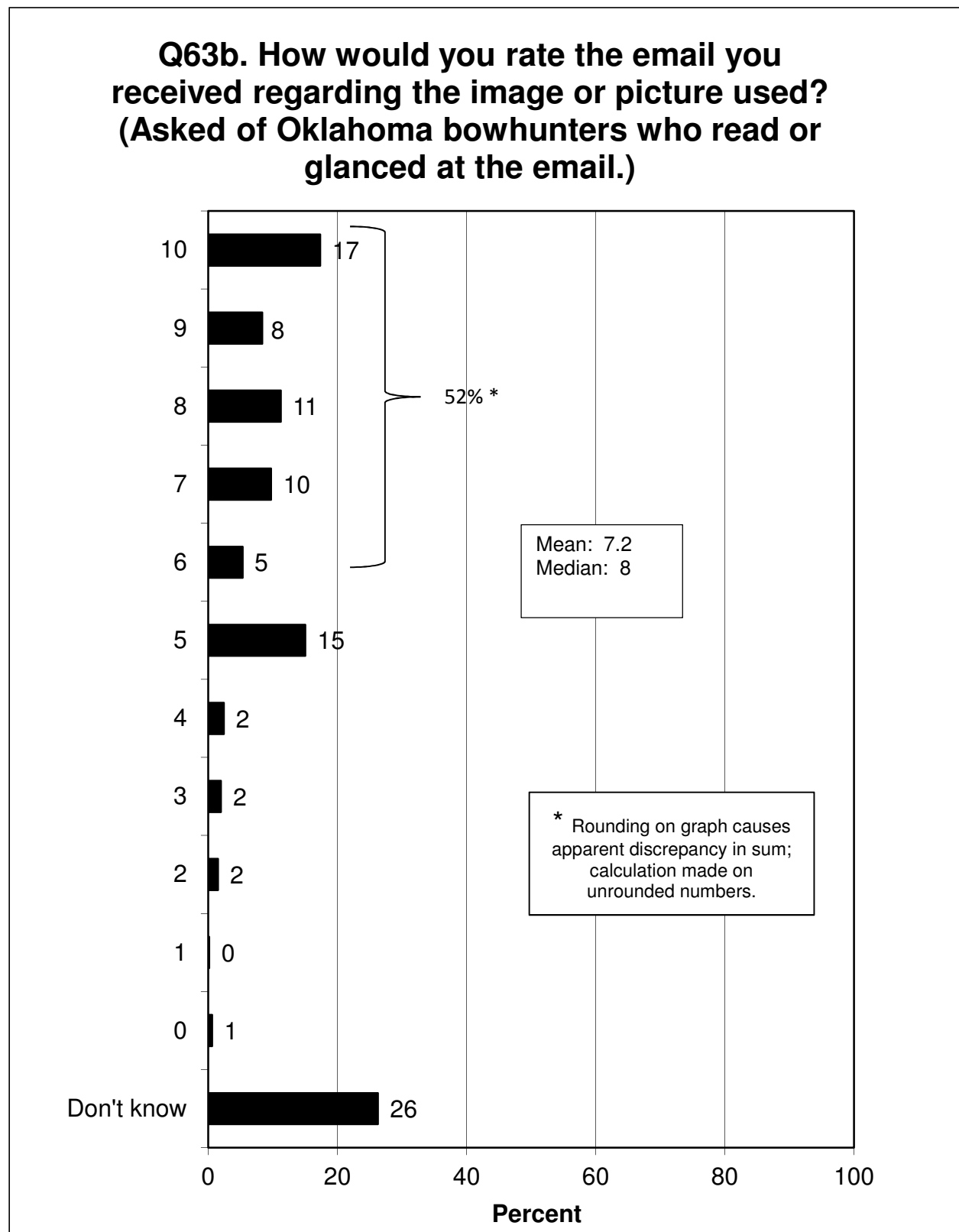


Figure 4.84. Ratings of the Email's Imagery, Oklahoma Bowhunters

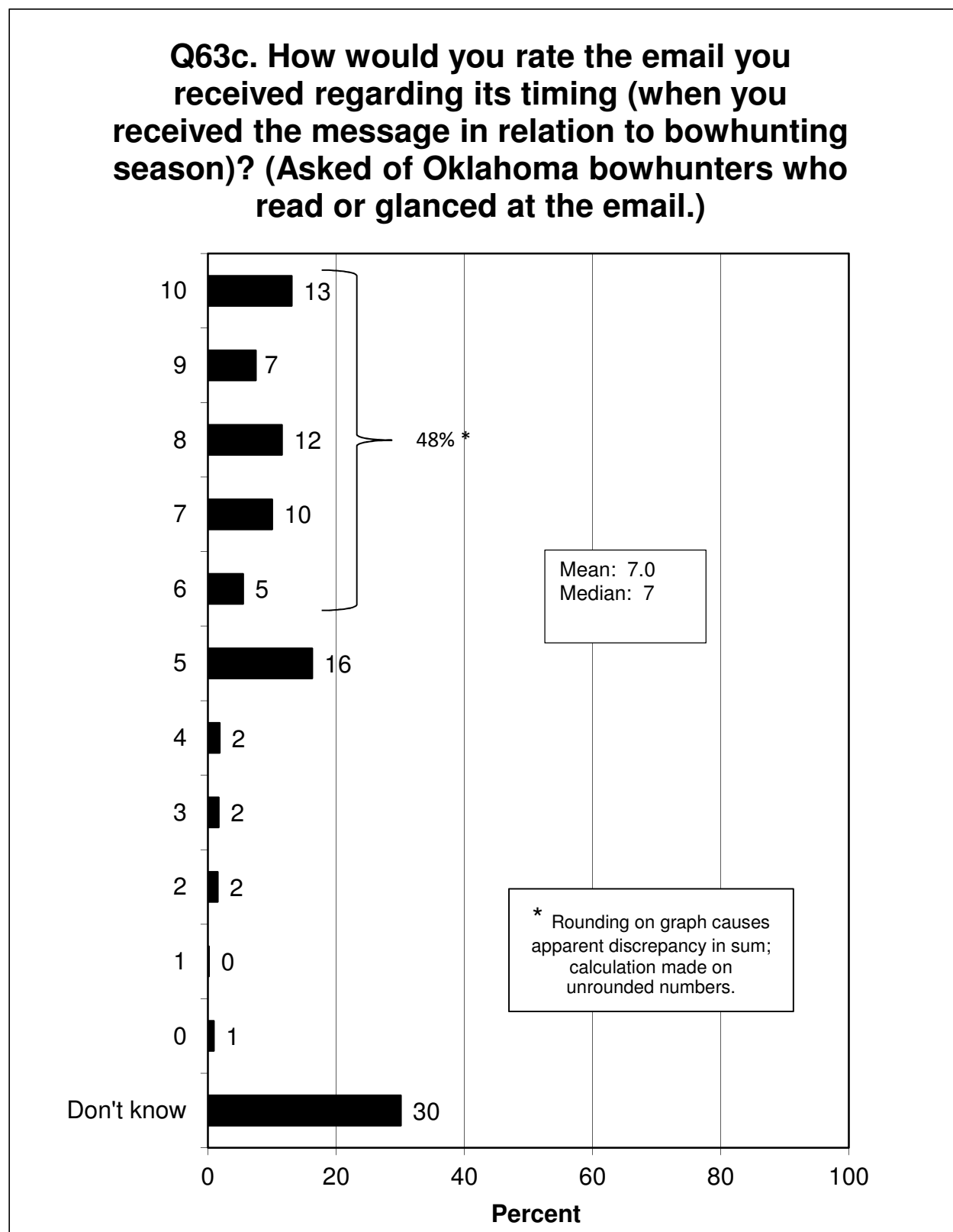


Figure 4.85. Ratings of the Email's Timing, Oklahoma Bowhunters

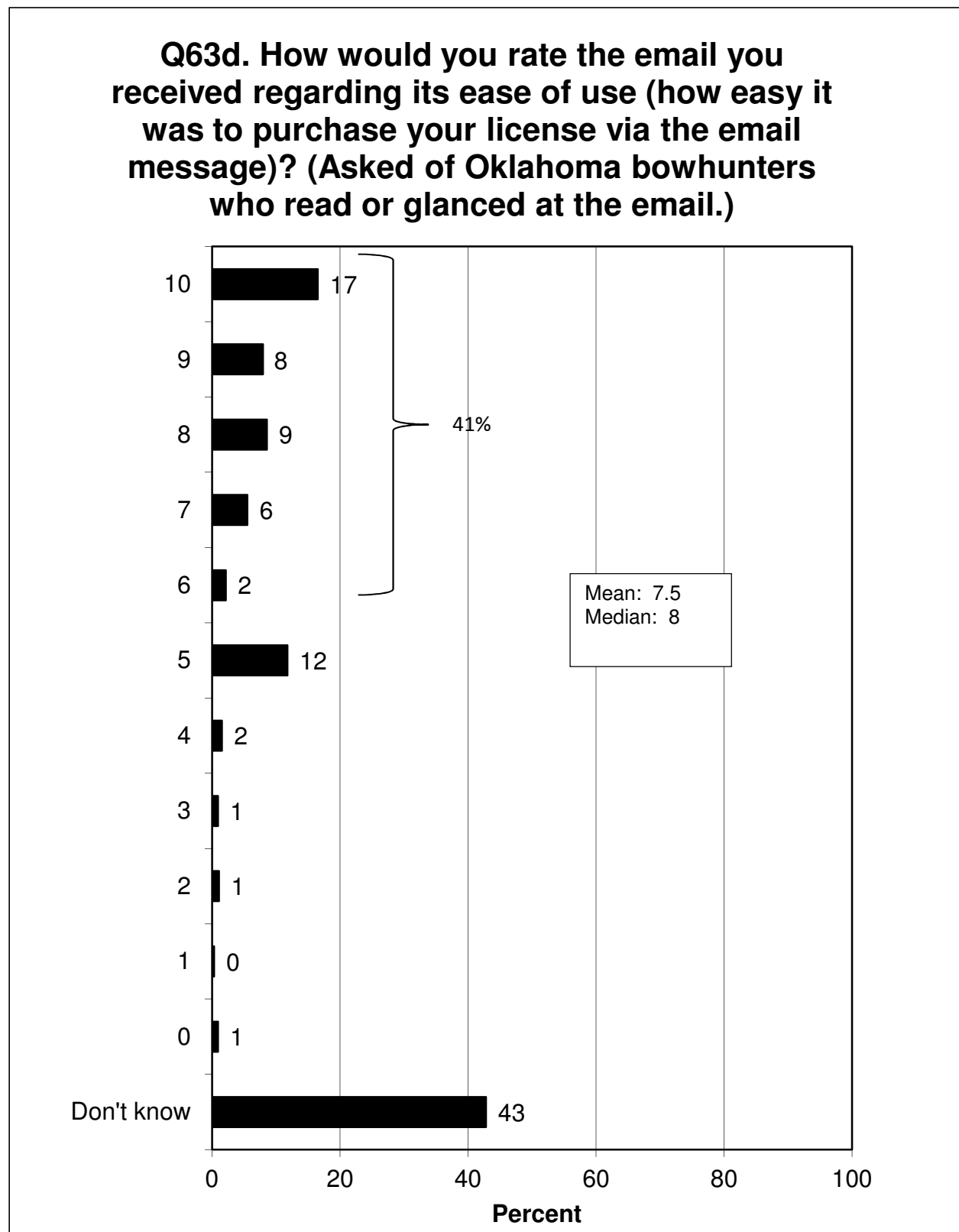


Figure 4.86. Ratings of the Email's Ease of Use, Oklahoma Bowhunters

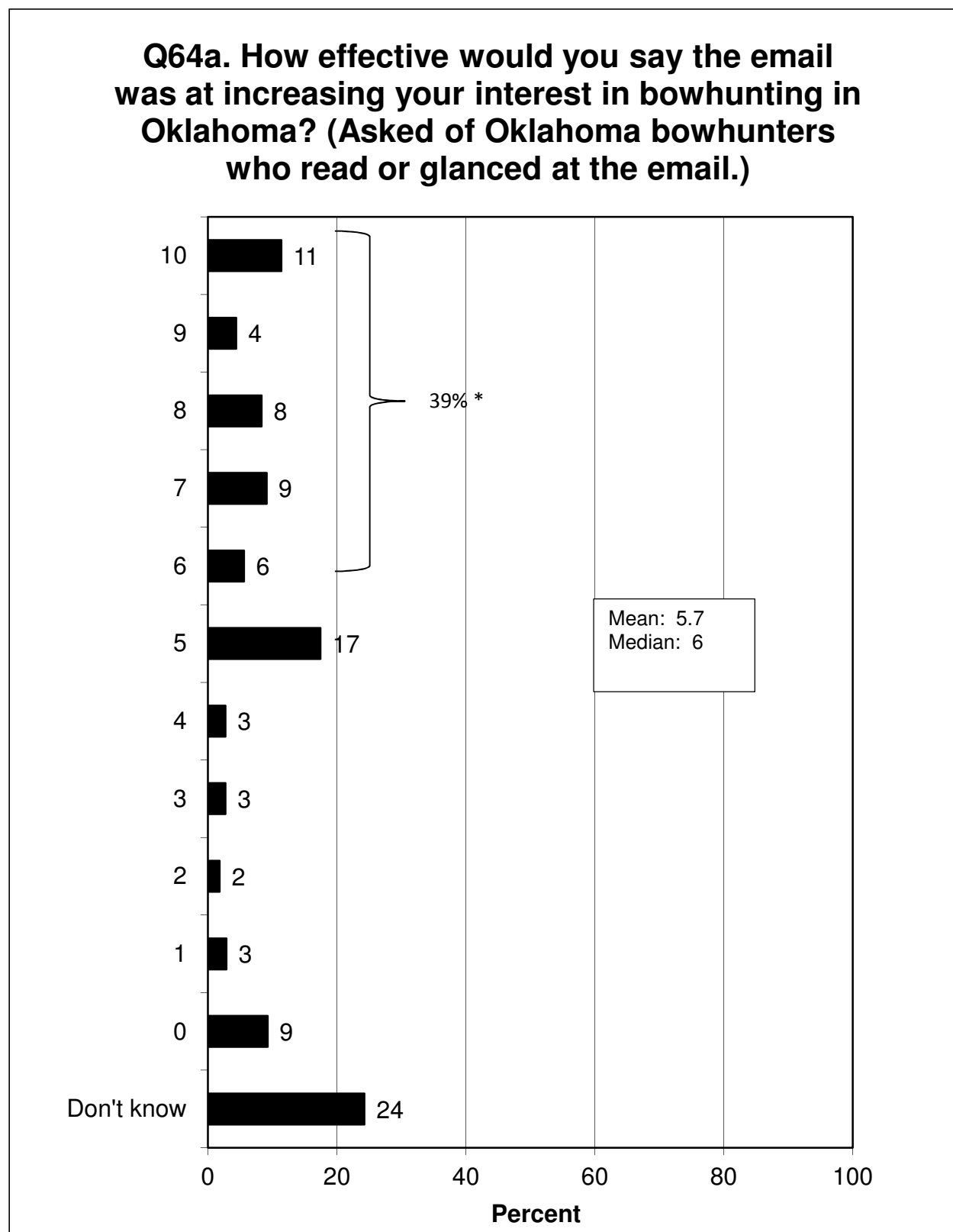


Figure 4.87. Ratings of Effectiveness of Email at Increasing Interest, Oklahoma Bowhunters

Q64b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Oklahoma? (Asked of Oklahoma bowhunters who read or glanced at the email.)

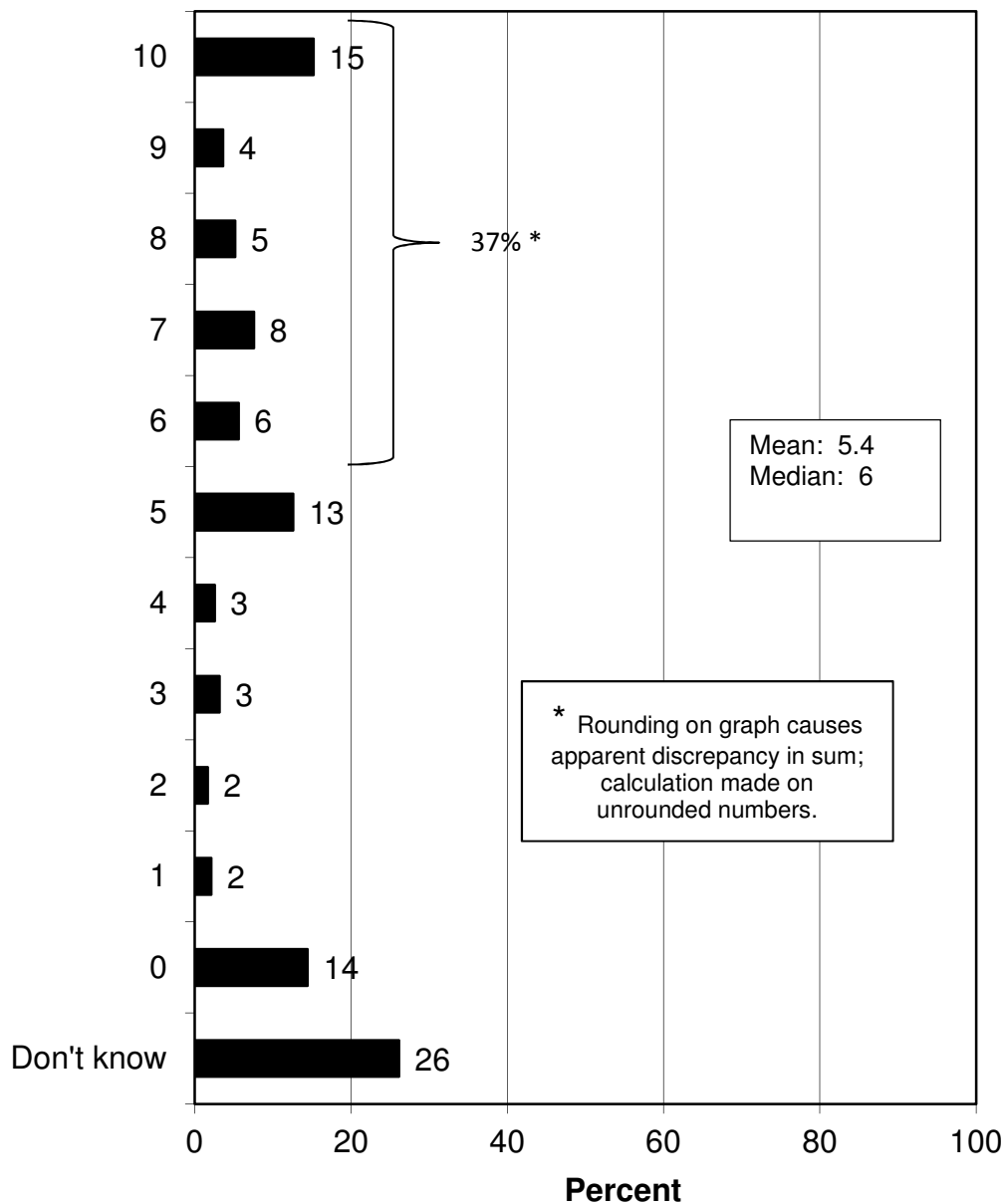


Figure 4.88. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Oklahoma Bowhunters

Avidity crosstabulations are included for all of these (Figures 4.89 through 4.123), followed by crosstabulations by theme (Figures 4.124 through 4.158). In looking at the themes, each state was quite different, so no consistent statement about the themes can be made that pertains to each state equally. For instance, in Florida, the social theme was consistently the lowest, while in Georgia, the social theme was consistently the highest. Note that, for nearly every graph, the mean ratings are close to one another.

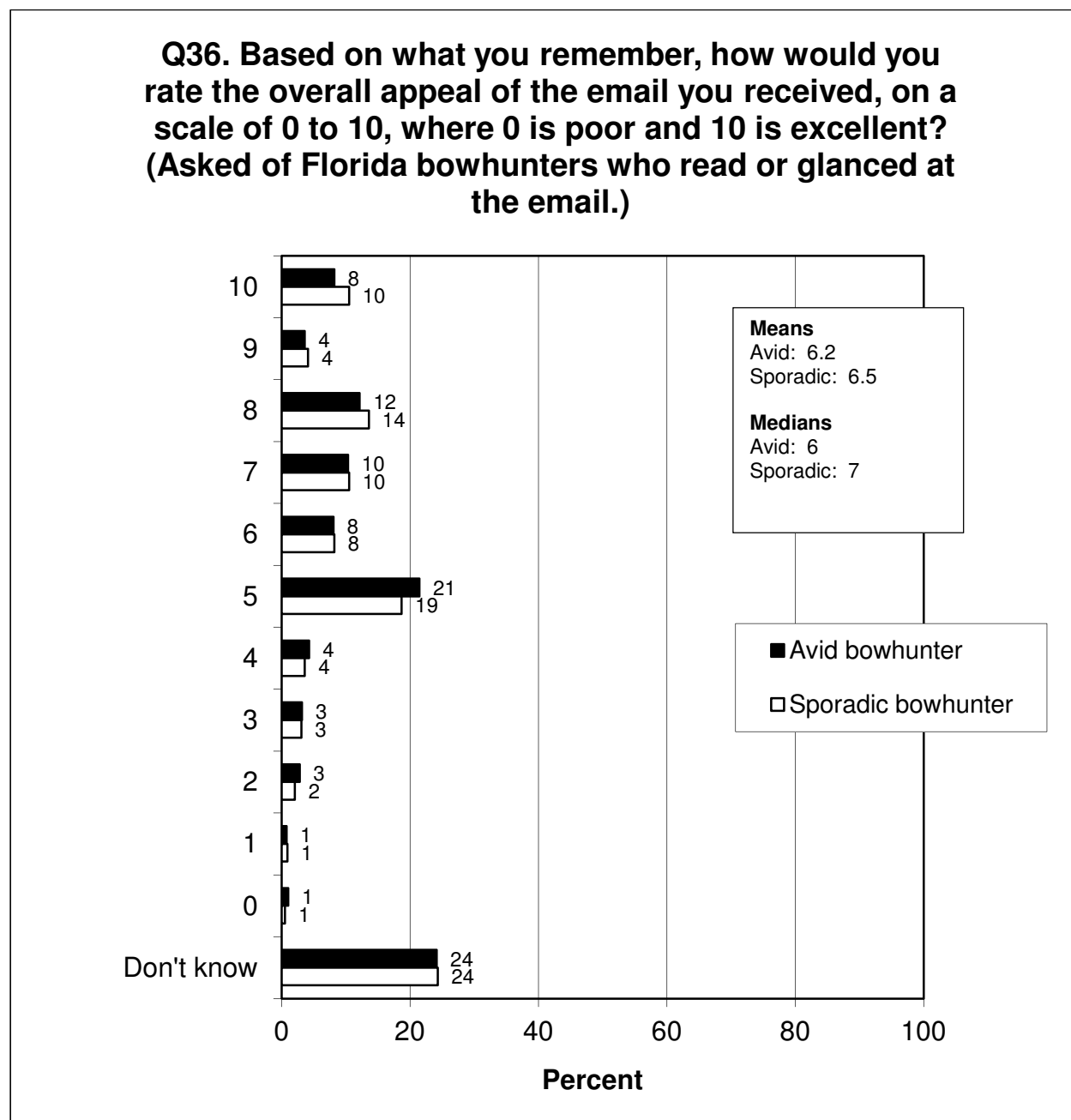


Figure 4.89. Ratings of the Email's Appeal, Florida Bowhunters, by Avidity

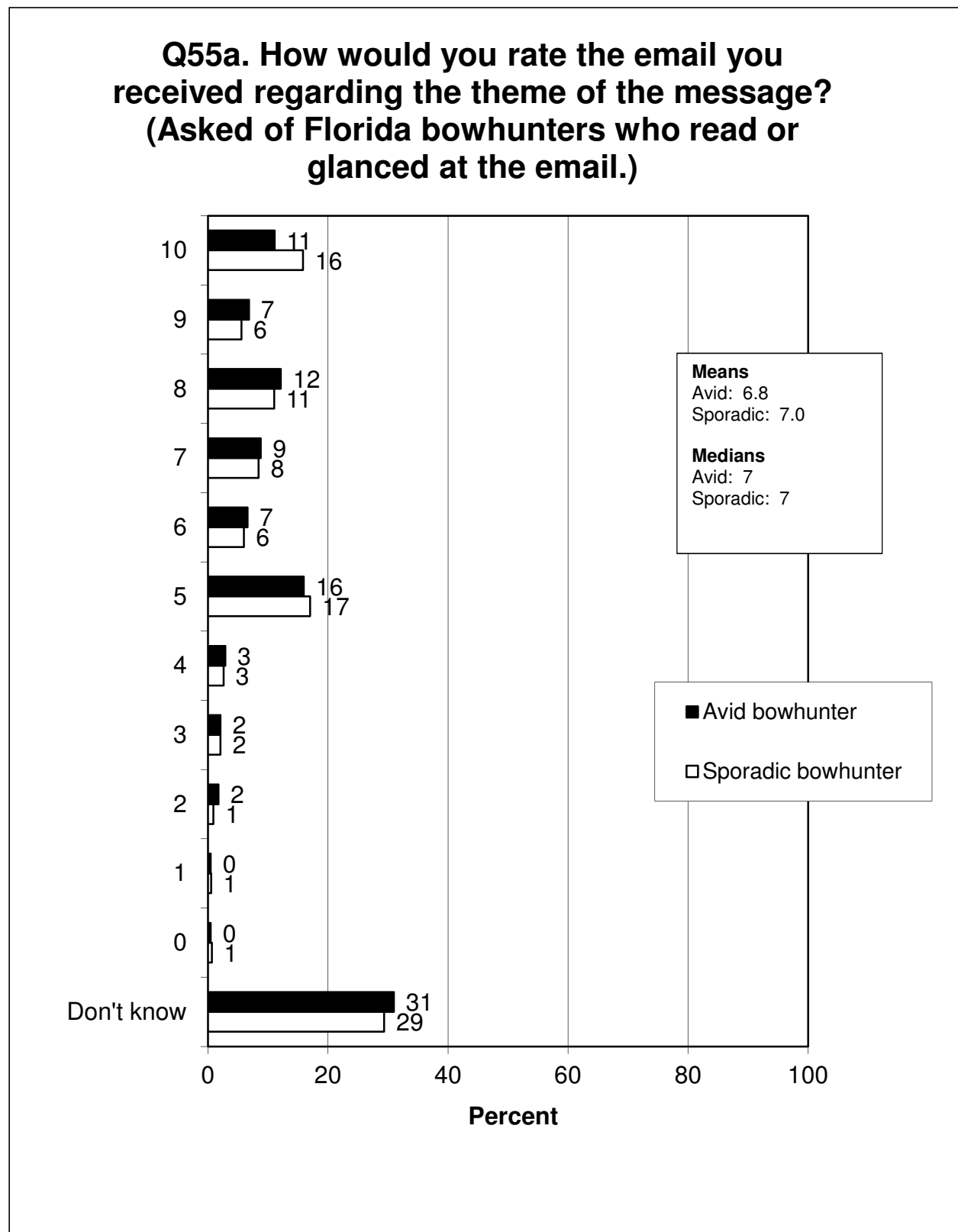


Figure 4.90. Ratings of the Email's Theme, Florida Bowhunters, by Avidity

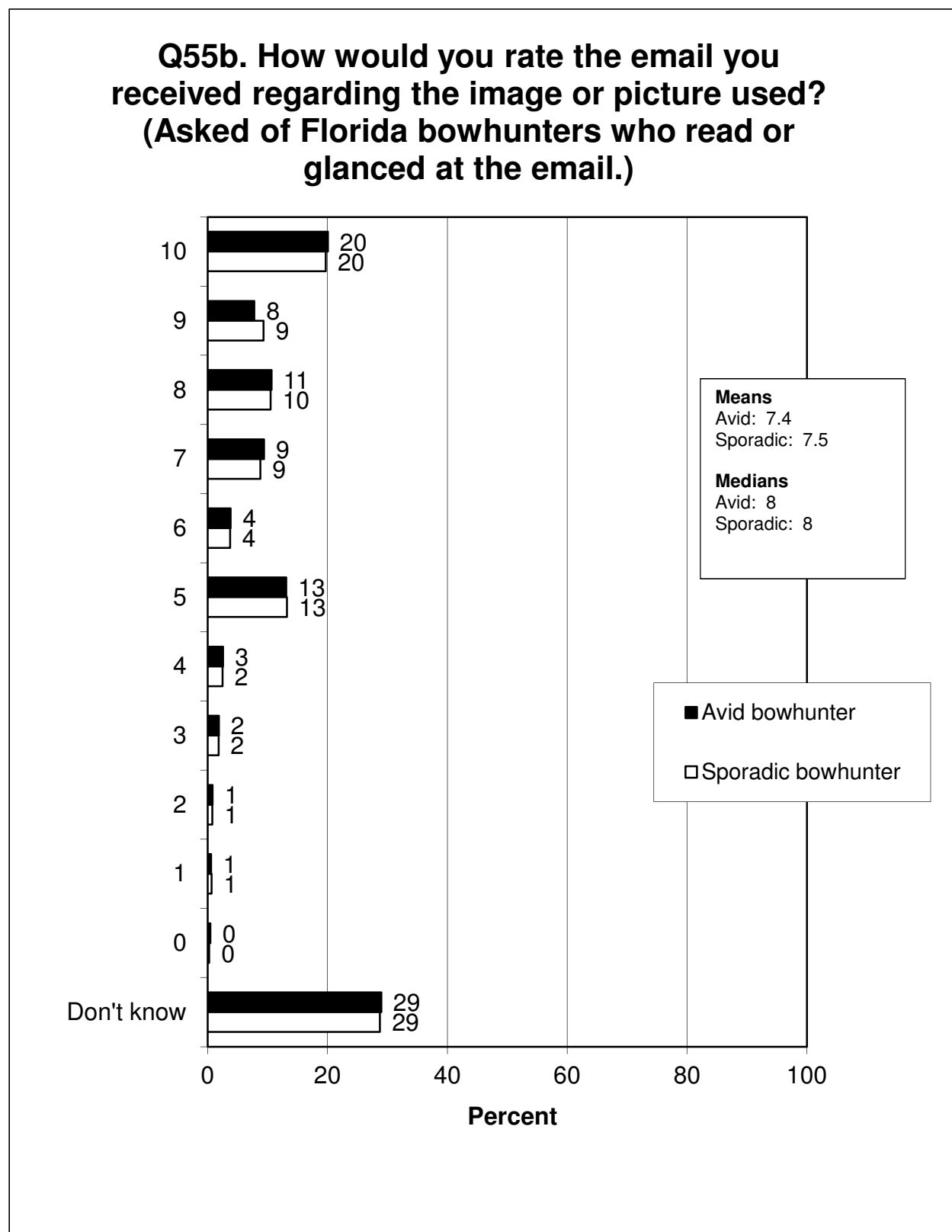


Figure 4.91. Ratings of the Email's Imagery, Florida Bowhunters, by Avidity

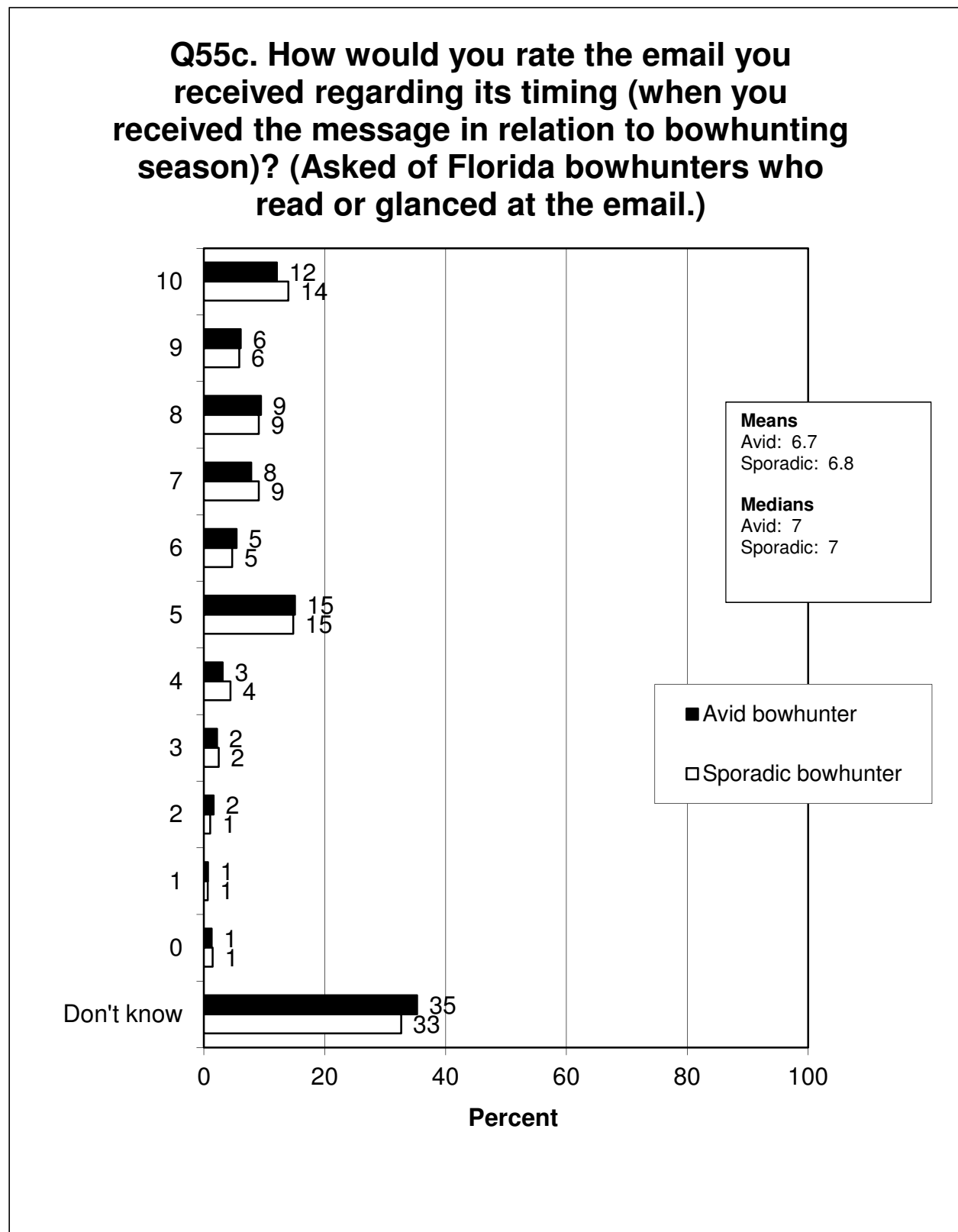


Figure 4.92. Ratings of the Email's Timing, Florida Bowhunters, by Avidity

Q55d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Florida bowhunters who read or glanced at the email.)

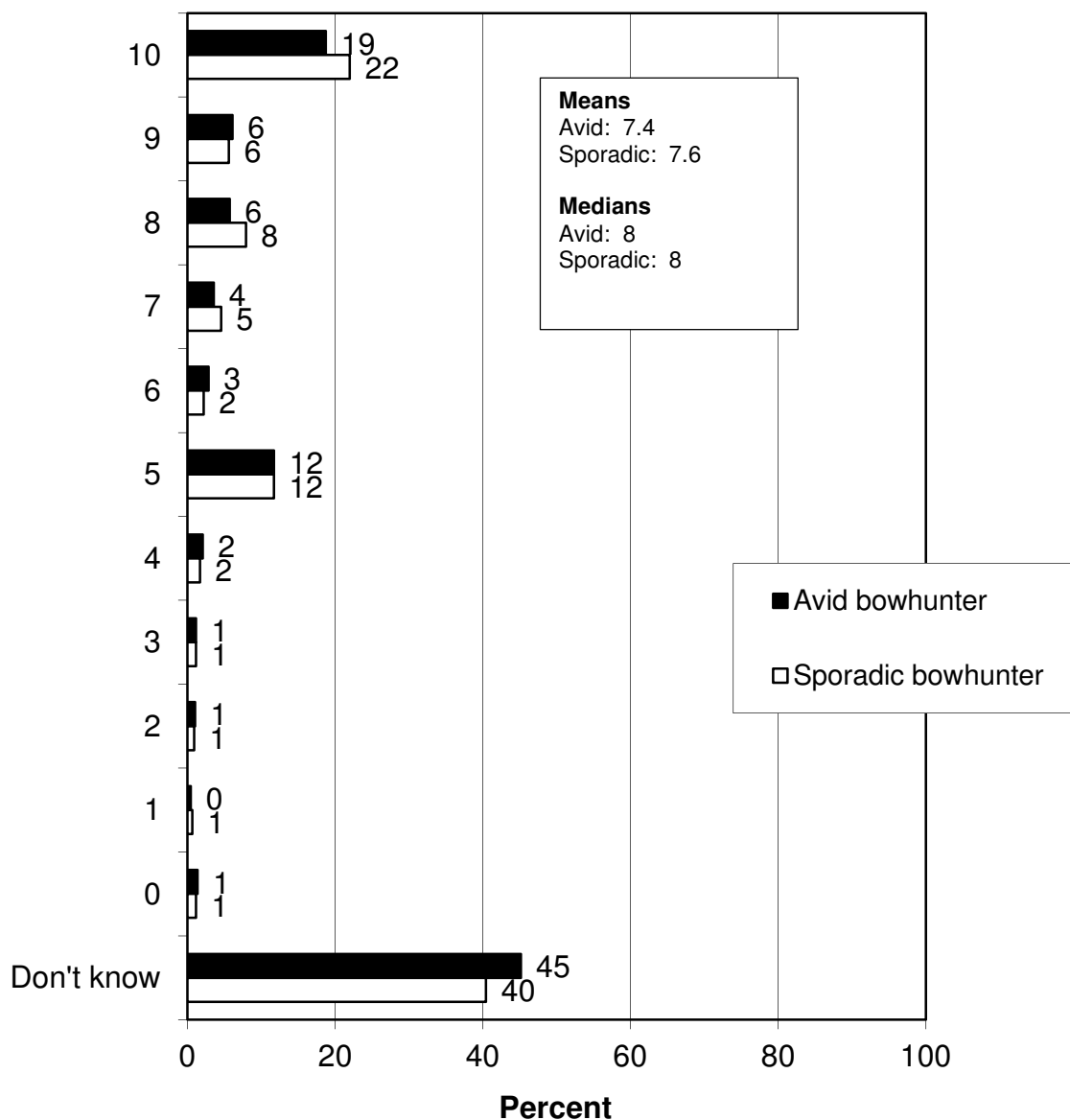


Figure 4.93. Ratings of the Email's Ease of Use, Florida Bowhunters, by Avidity

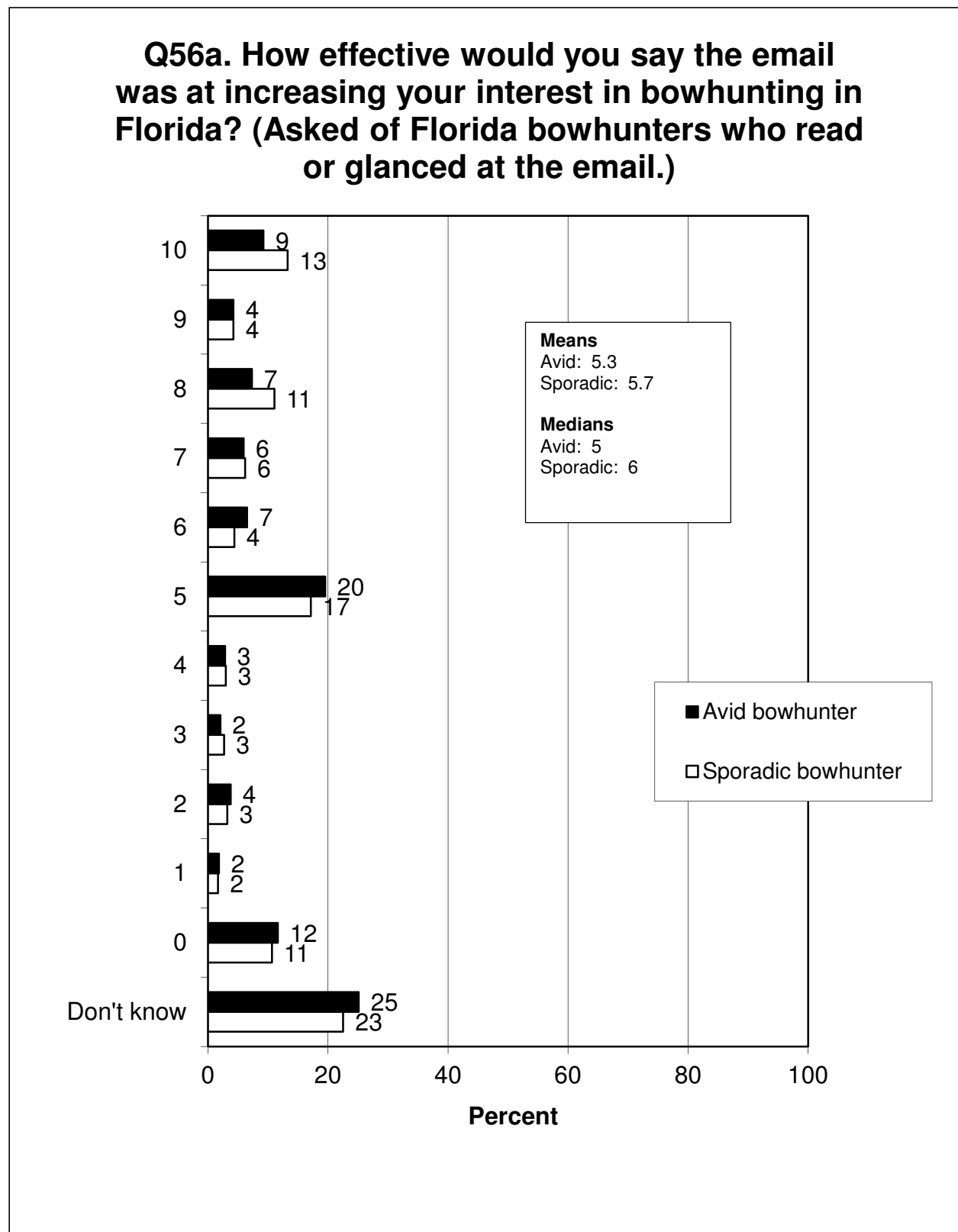


Figure 4.94. Ratings of Effectiveness of Email at Increasing Interest, Florida Bowhunters, by Avidity

Q56b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Florida? (Asked of Florida bowhunters who read or glanced at the email.)

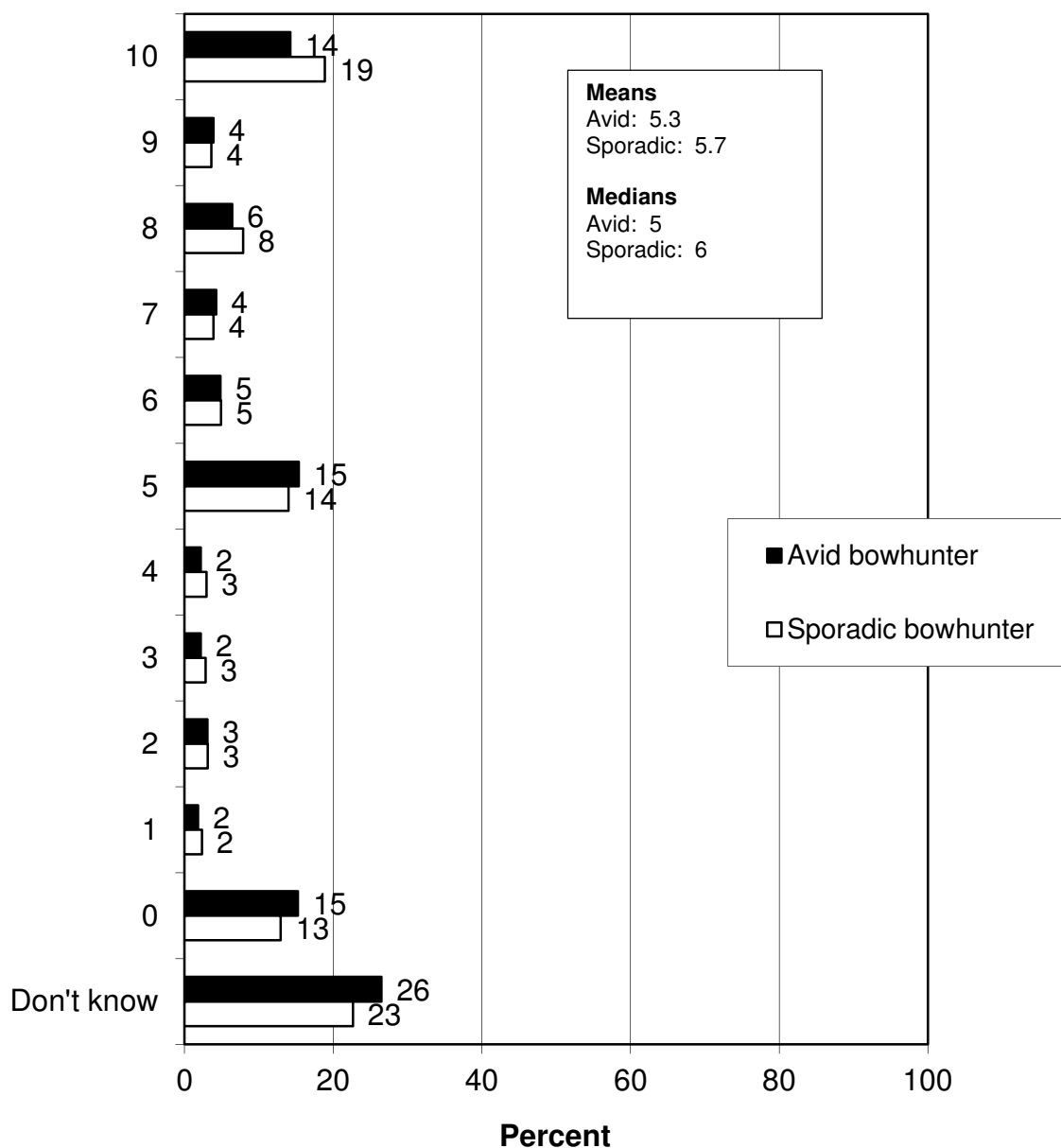


Figure 4.95. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Florida Bowhunters, by Avidity

Q40. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Georgia bowhunters who read or glanced at the email.)

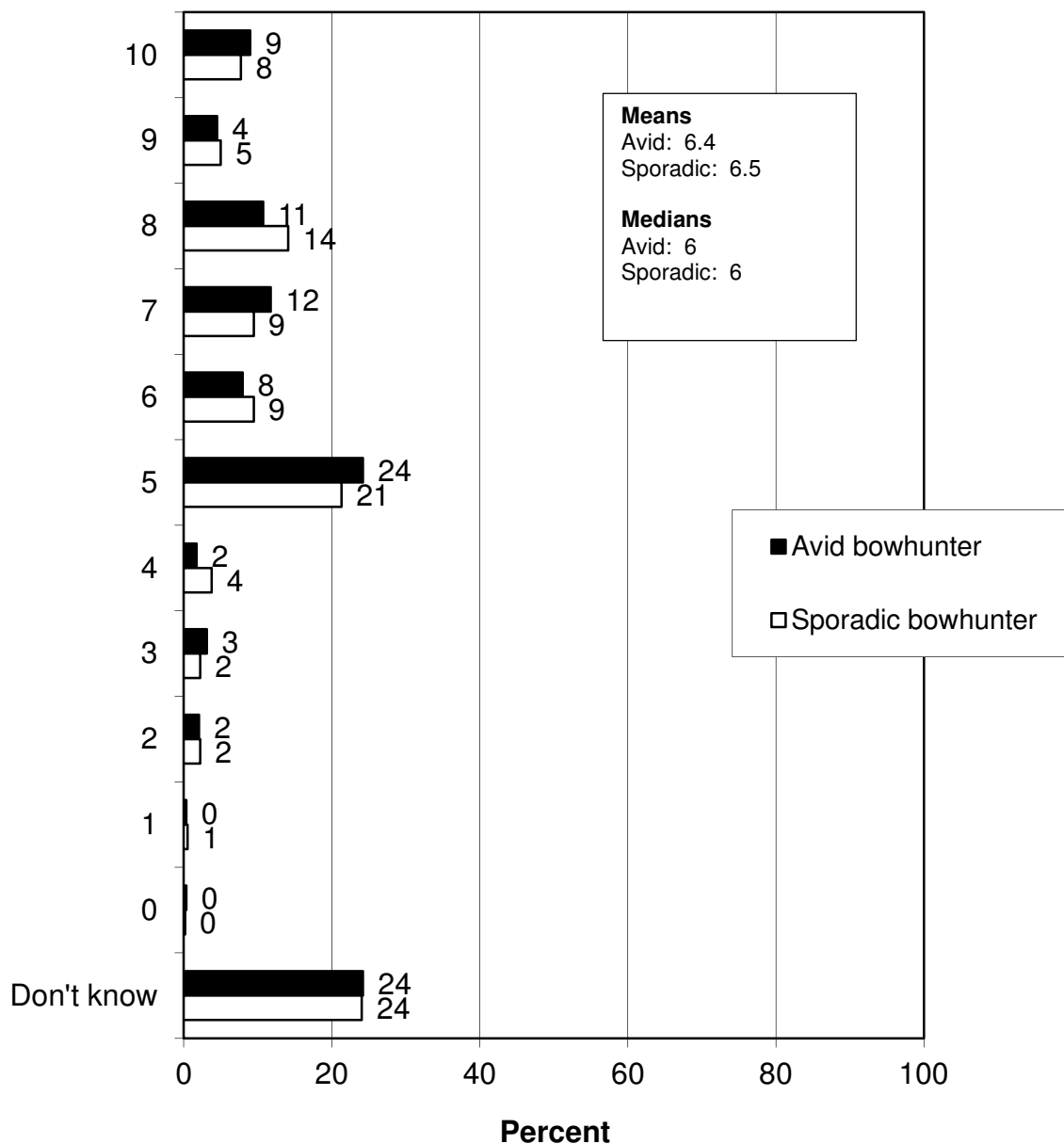


Figure 4.96. Ratings of the Email's Appeal, Georgia Bowhunters, by Avidity

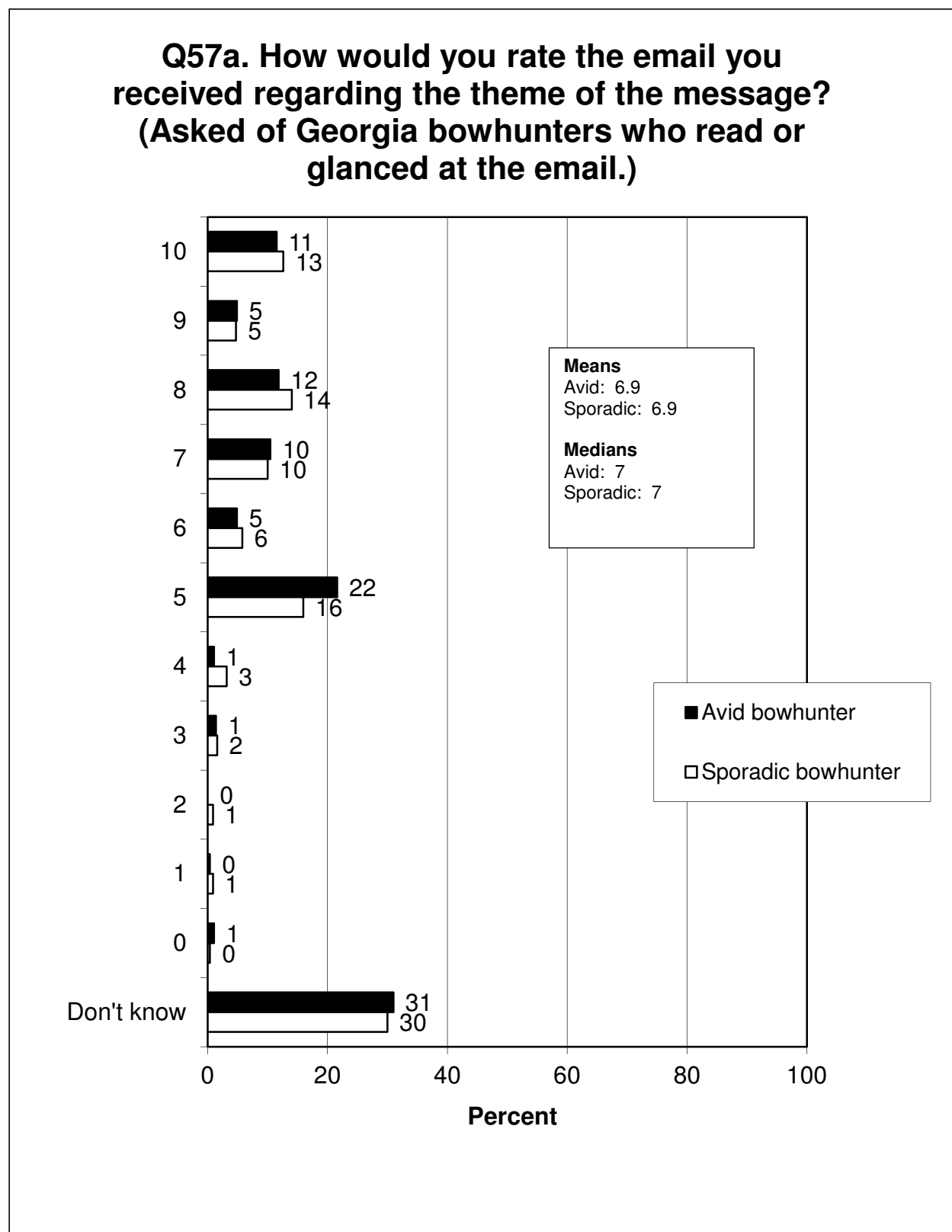


Figure 4.97. Ratings of the Email's Theme, Georgia Bowhunters, by Avidity

**Q57b. How would you rate the email you received regarding the image or picture used?
(Asked of Georgia bowhunters who read or glanced at the email.)**

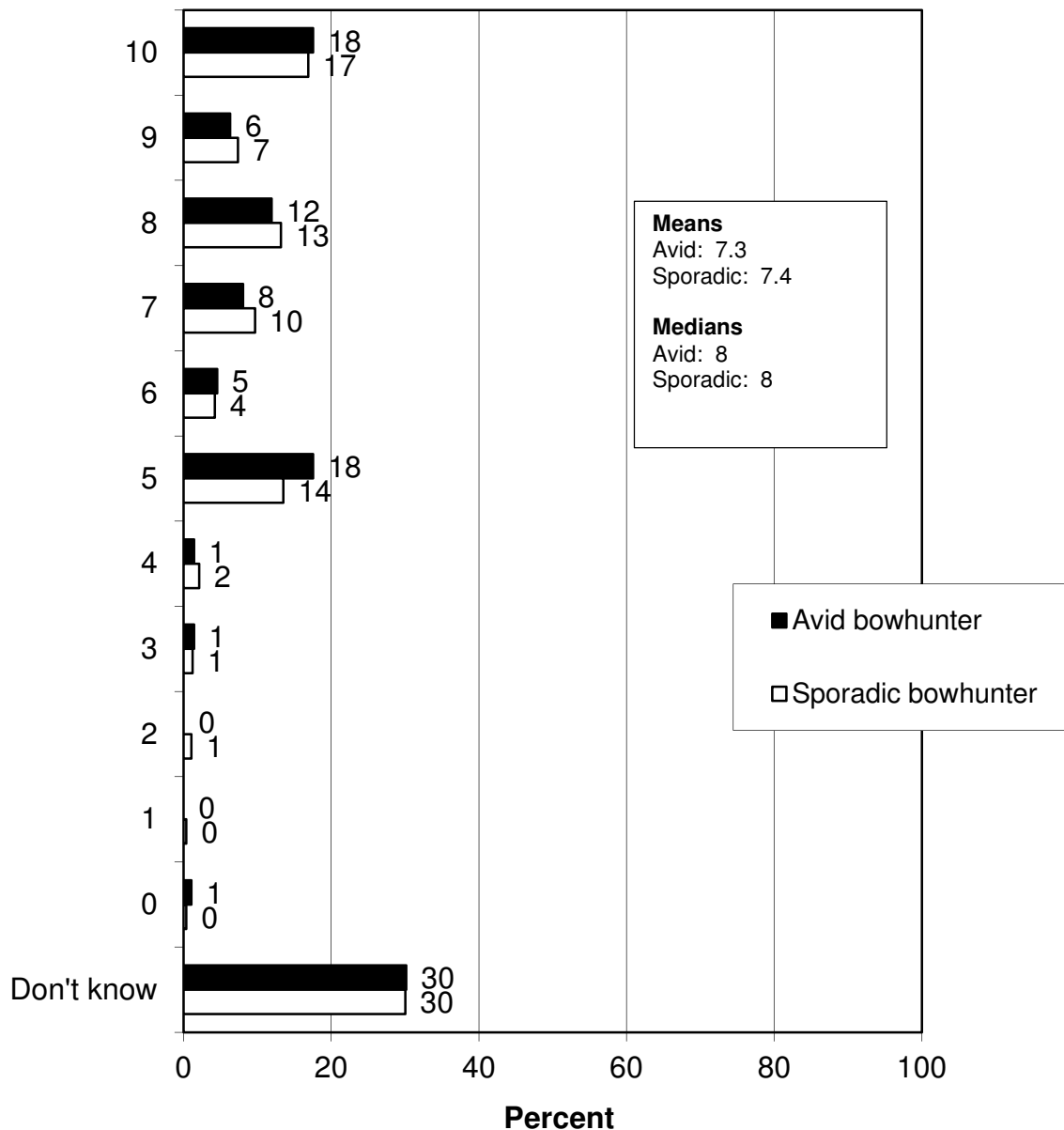


Figure 4.98. Ratings of the Email's Imagery, Georgia Bowhunters, by Avidity

Q57c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Georgia bowhunters who read or glanced at the email.)

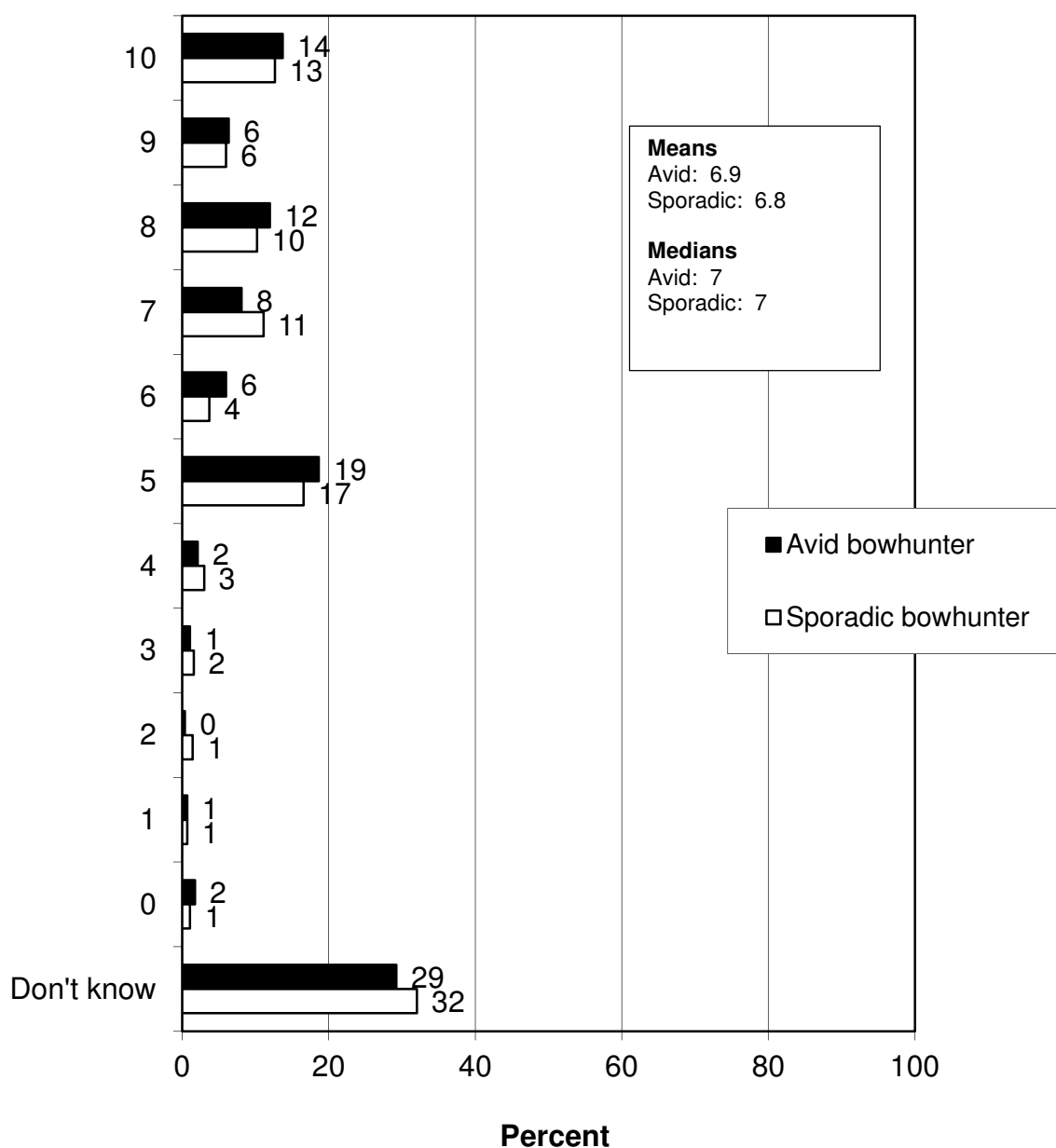


Figure 4.99. Ratings of the Email's Timing, Georgia Bowhunters, by Avidity

Q57d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Georgia bowhunters who read or glanced at the email.)

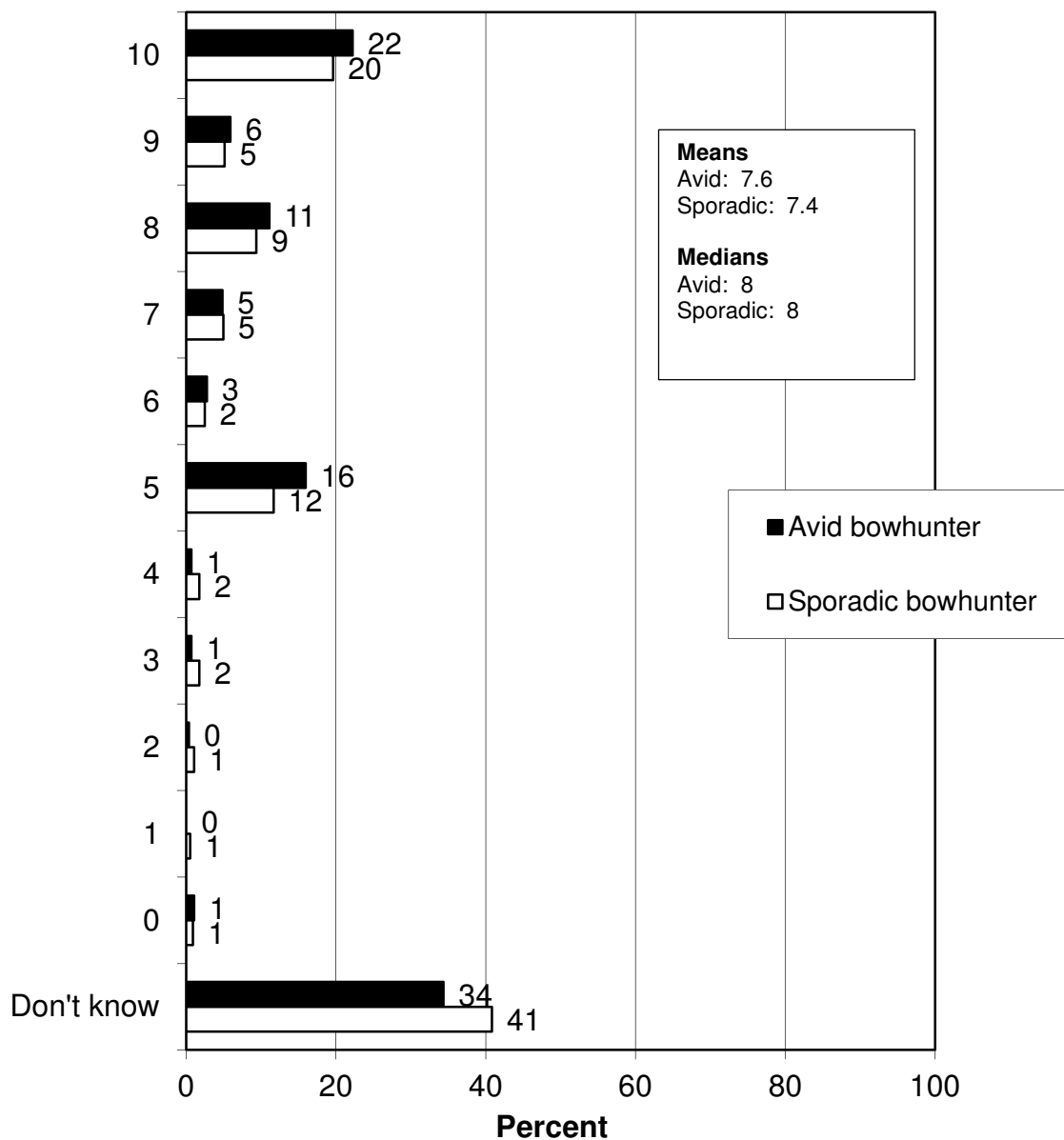


Figure 4.100. Ratings of the Email's Ease of Use, Georgia Bowhunters, by Avidity

Q58a. How effective would you say the email was at increasing your interest in bowhunting in Georgia? (Asked of Georgia bowhunters who read or glanced at the email.)

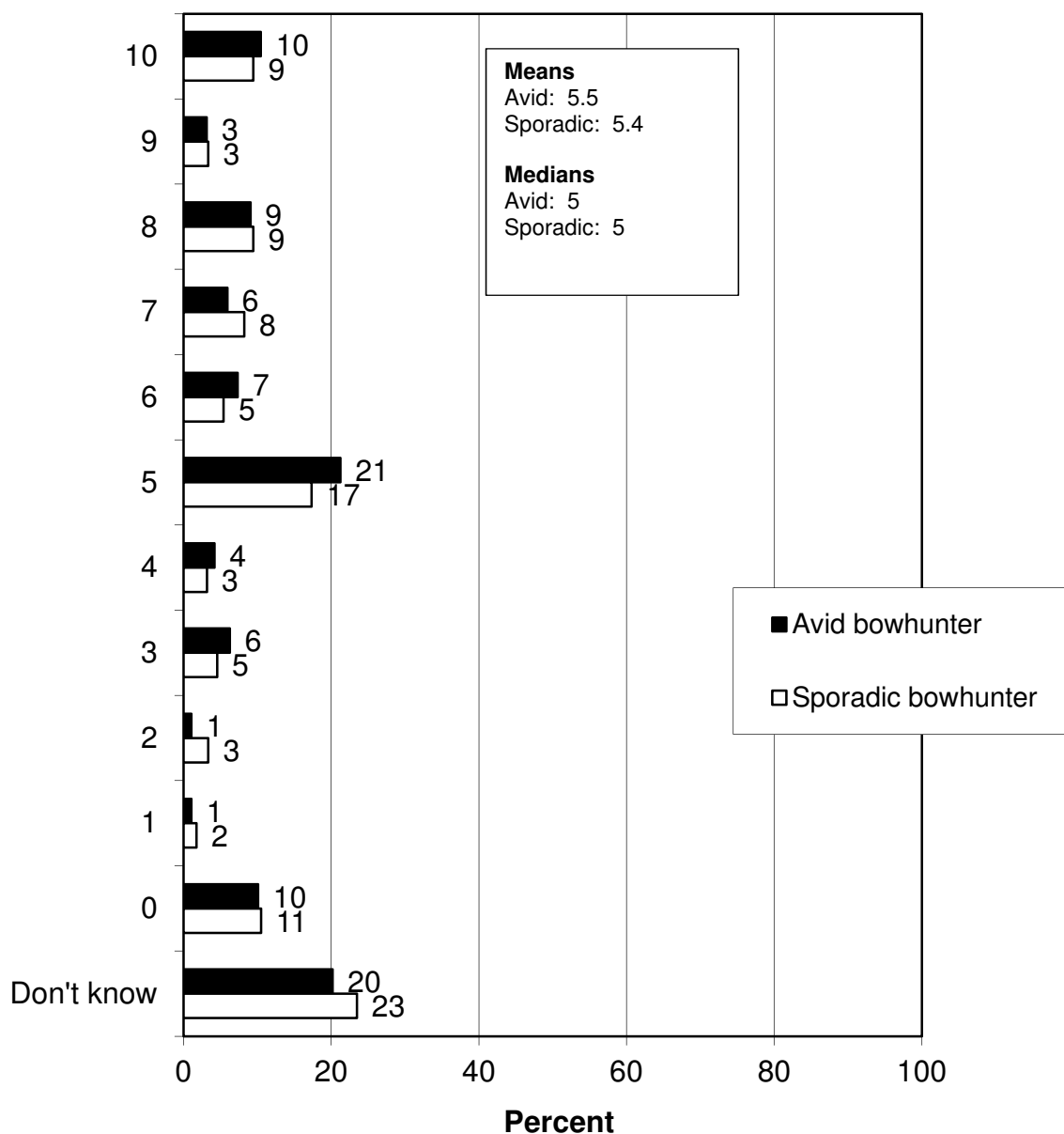


Figure 4.101. Ratings of Effectiveness of Email at Increasing Interest, Georgia Bowhunters, by Avidity

Q58b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Georgia? (Asked of Georgia bowhunters who read or glanced at the email.)

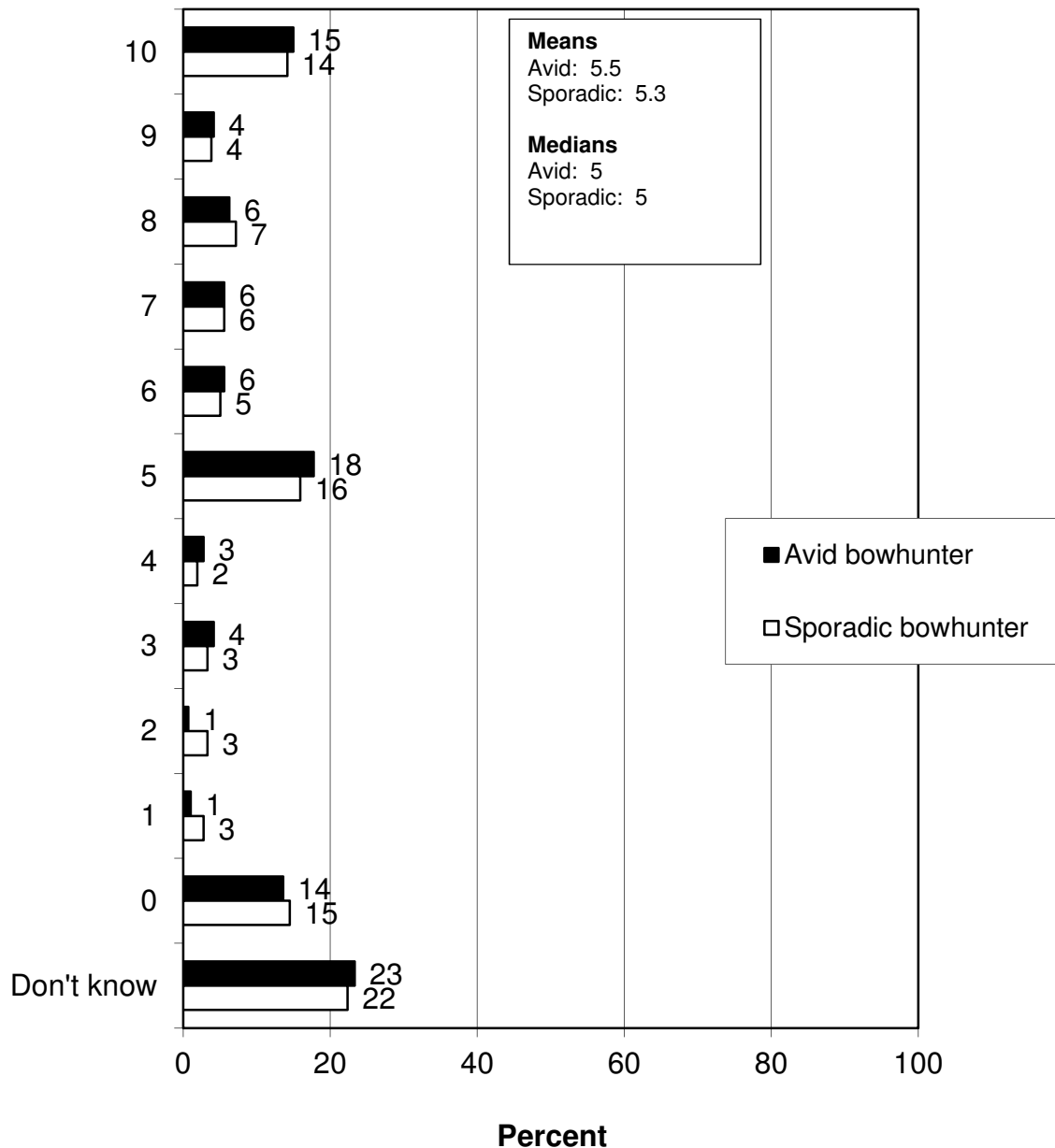


Figure 4.102. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Georgia Bowhunters, by Avidity

Q44. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Indiana bowhunters who read or glanced at the email.)

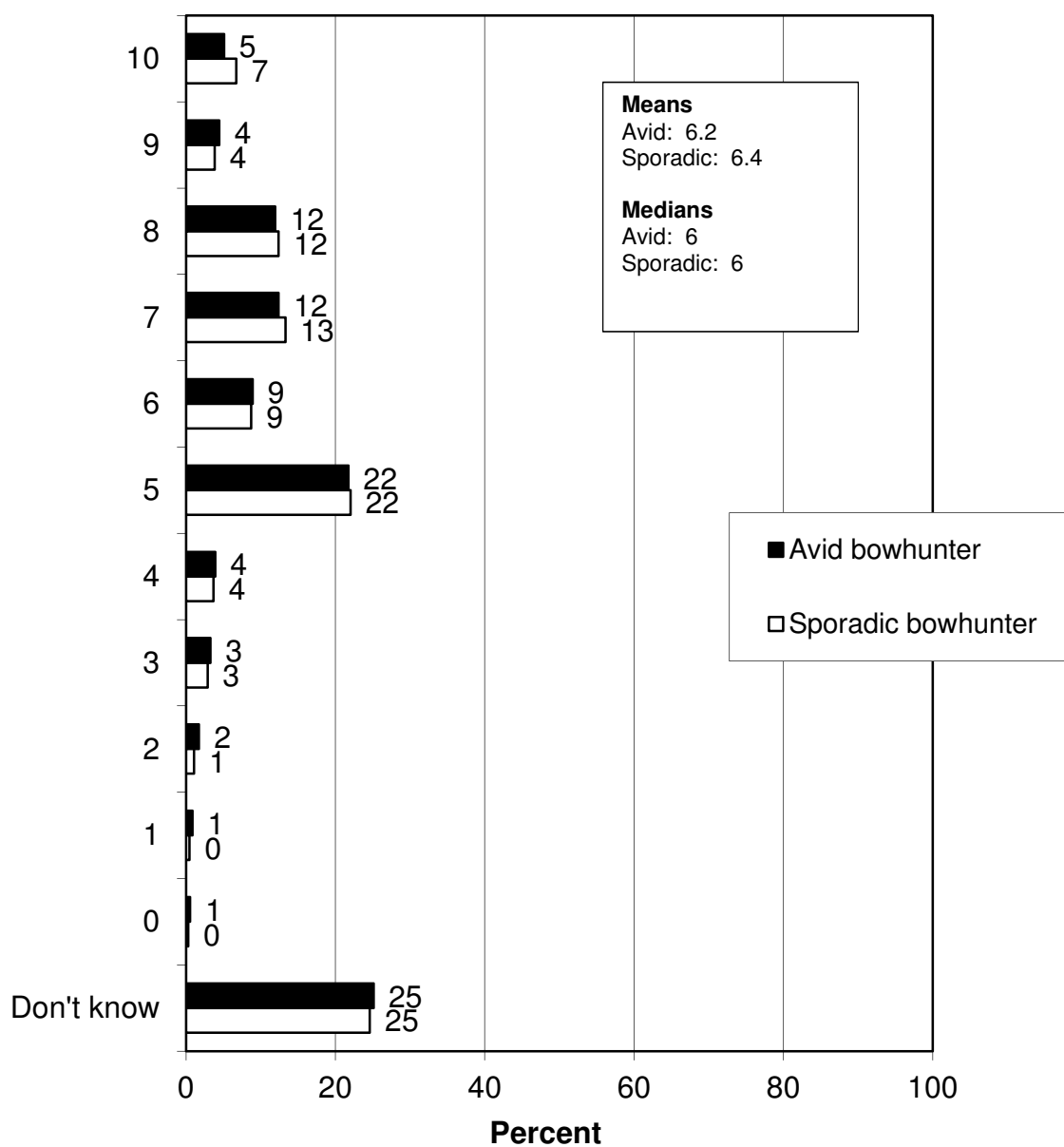


Figure 4.103. Ratings of the Email's Appeal, Indiana Bowhunters, by Avidity

**Q59a. How would you rate the email you received regarding the theme of the message?
(Asked of Indiana bowhunters who read or glanced at the email.)**

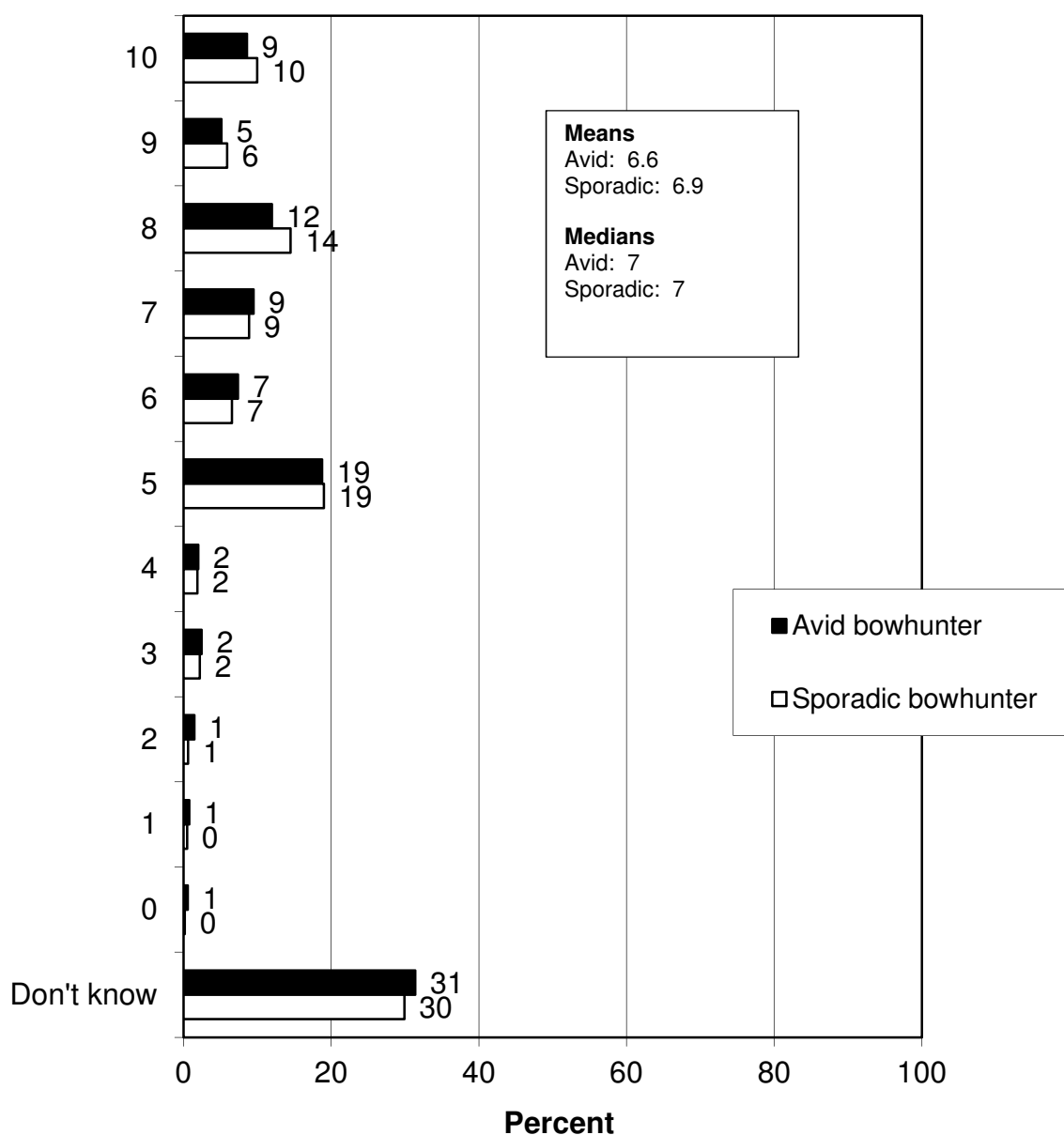


Figure 4.104. Ratings of the Email's Theme, Indiana Bowhunters, by Avidity

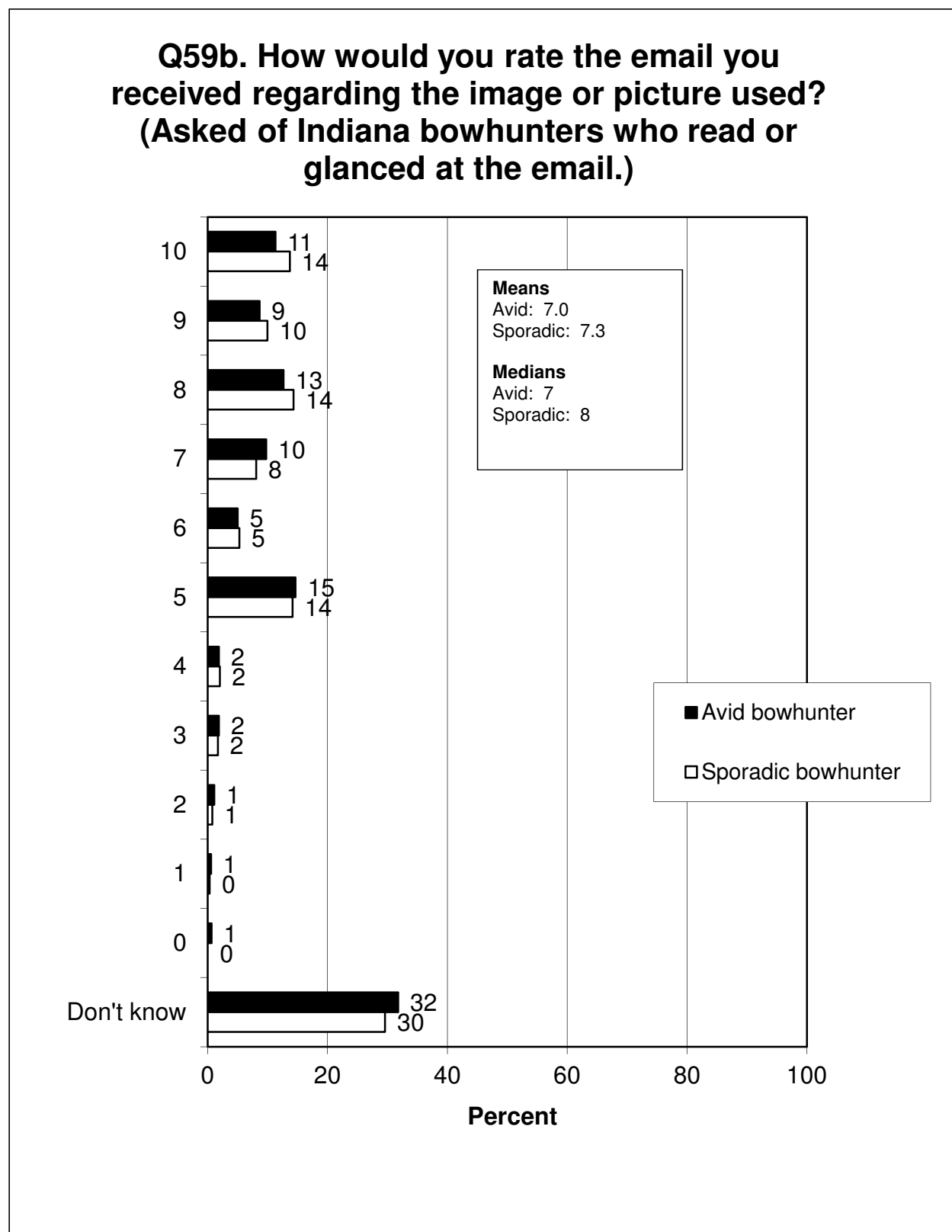


Figure 4.105. Ratings of the Email's Imagery, Indiana Bowhunters, by Avidity

Q59c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Indiana bowhunters who read or glanced at the email.)

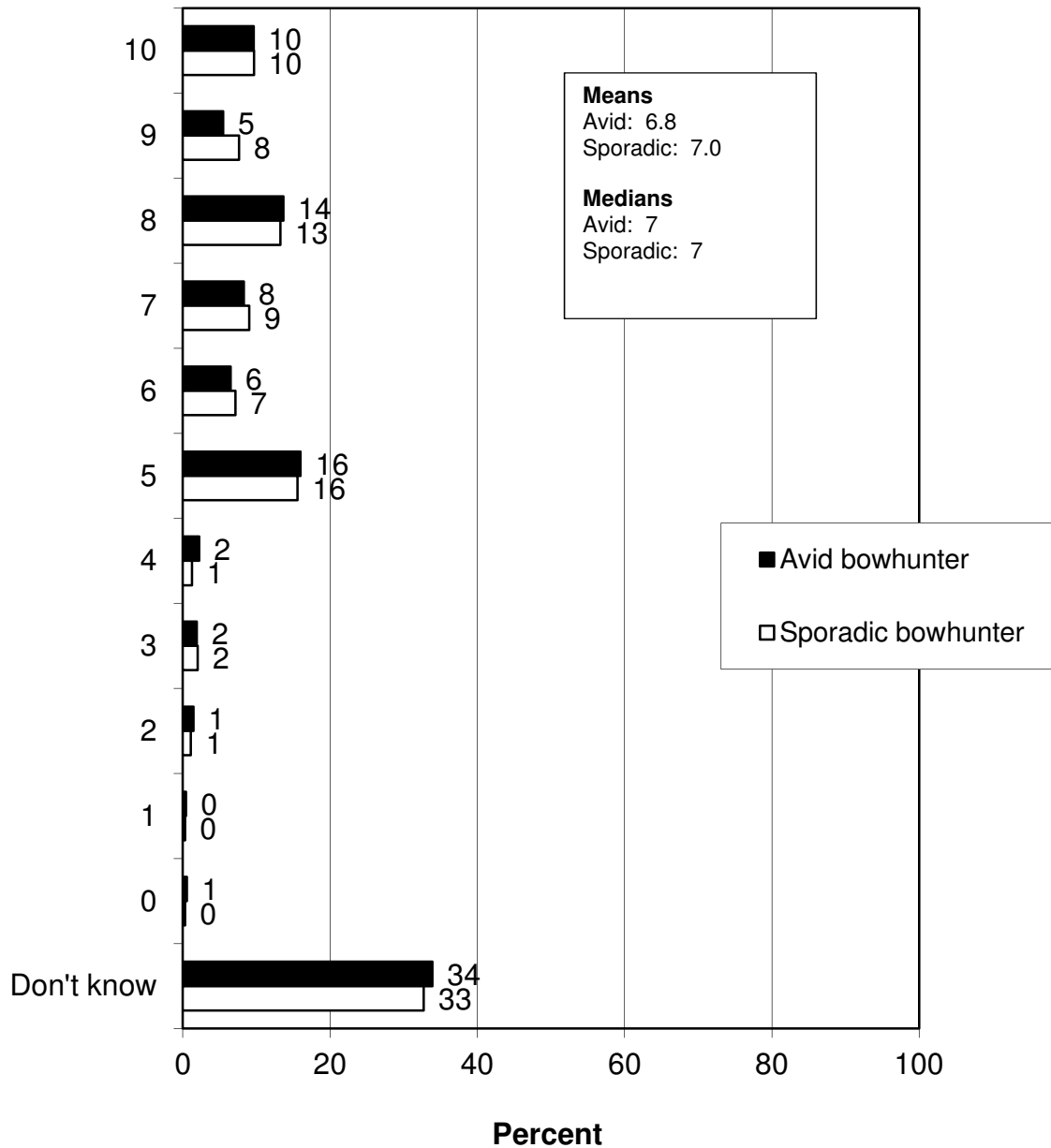


Figure 4.106. Ratings of the Email's Timing, Indiana Bowhunters, by Avidity

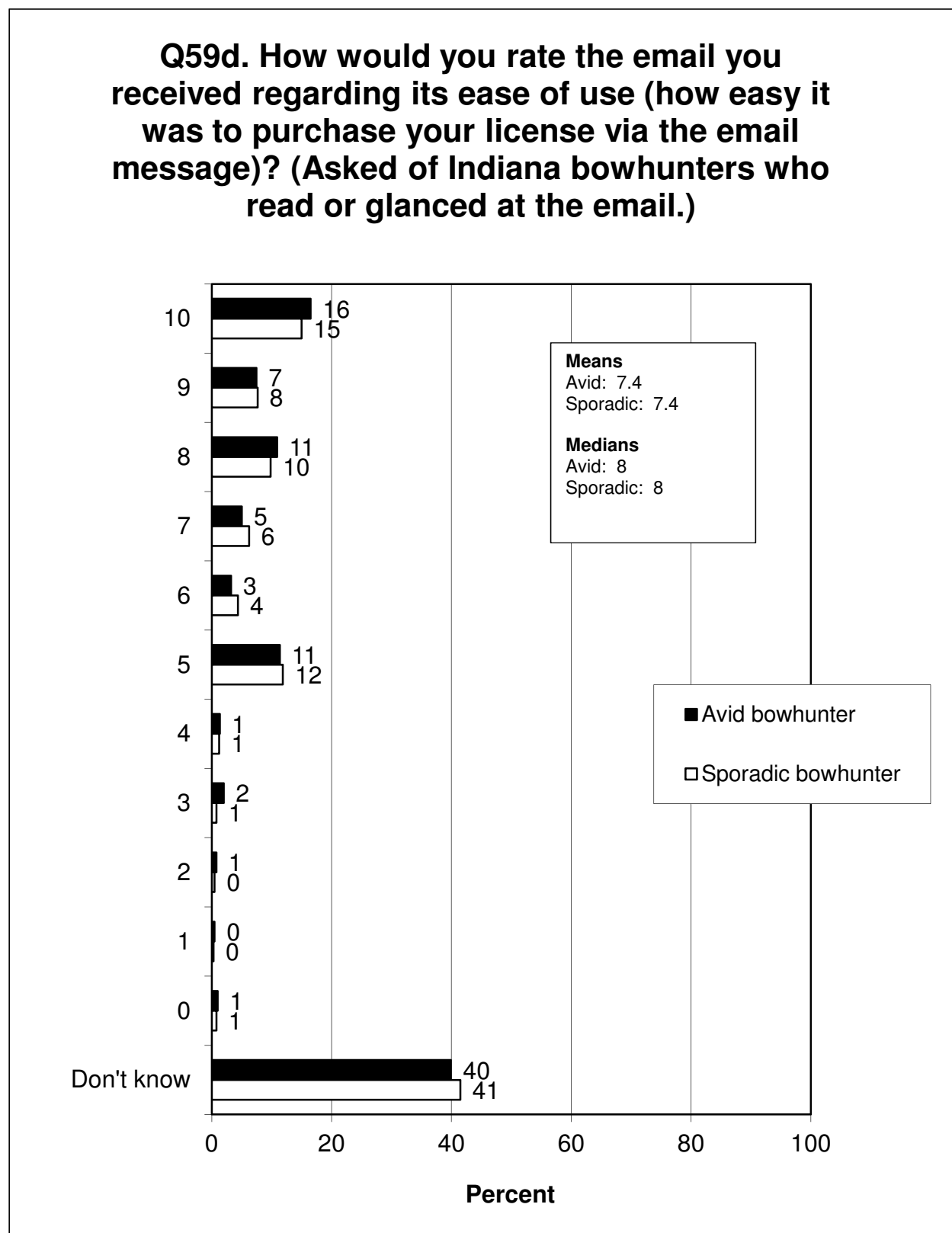


Figure 4.107. Ratings of the Email's Ease of Use, Indiana Bowhunters, by Avidity

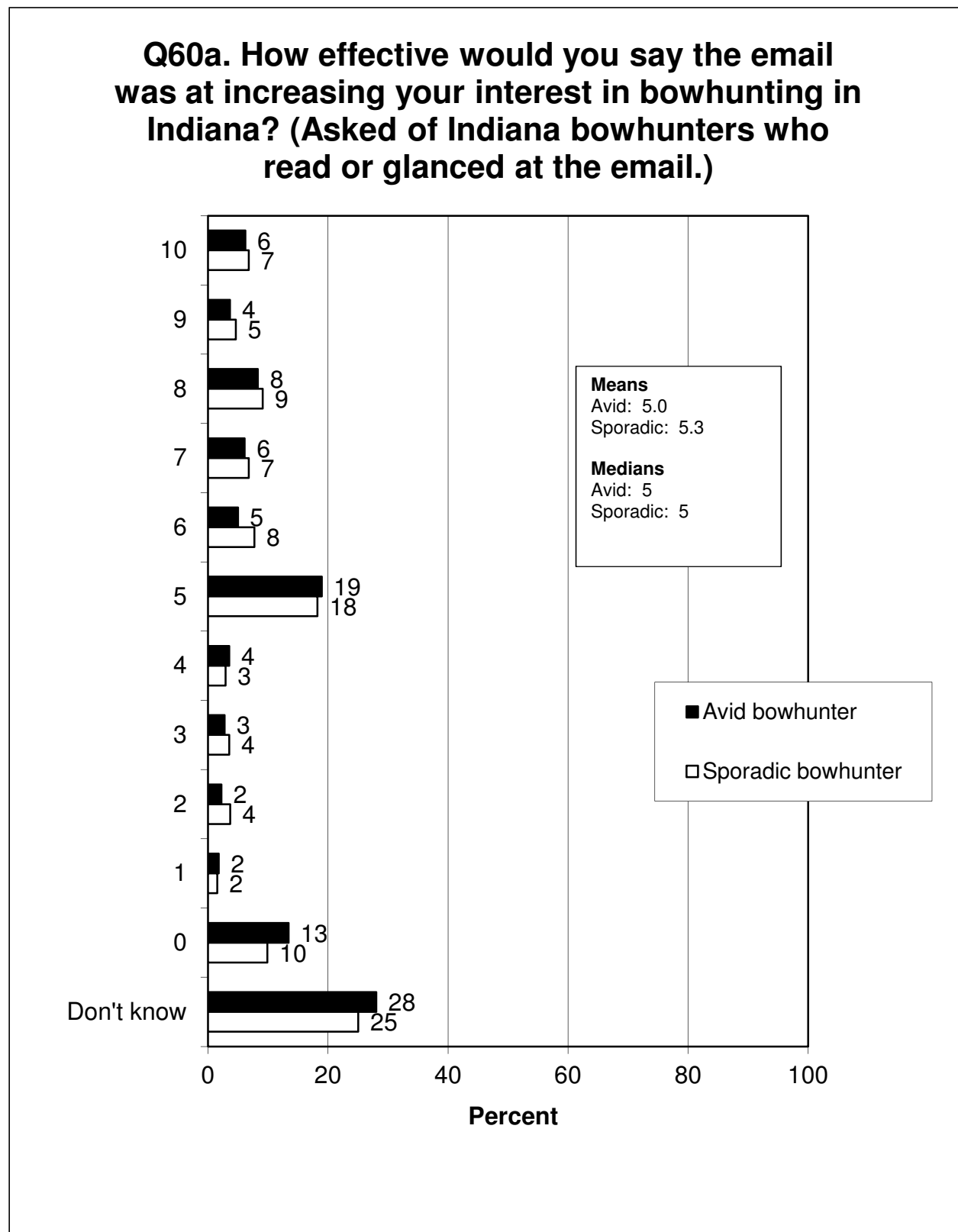


Figure 4.108. Ratings of Effectiveness of Email at Increasing Interest, Indiana Bowhunters, by Avidity

Q60b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Indiana? (Asked of Indiana bowhunters who read or glanced at the email.)

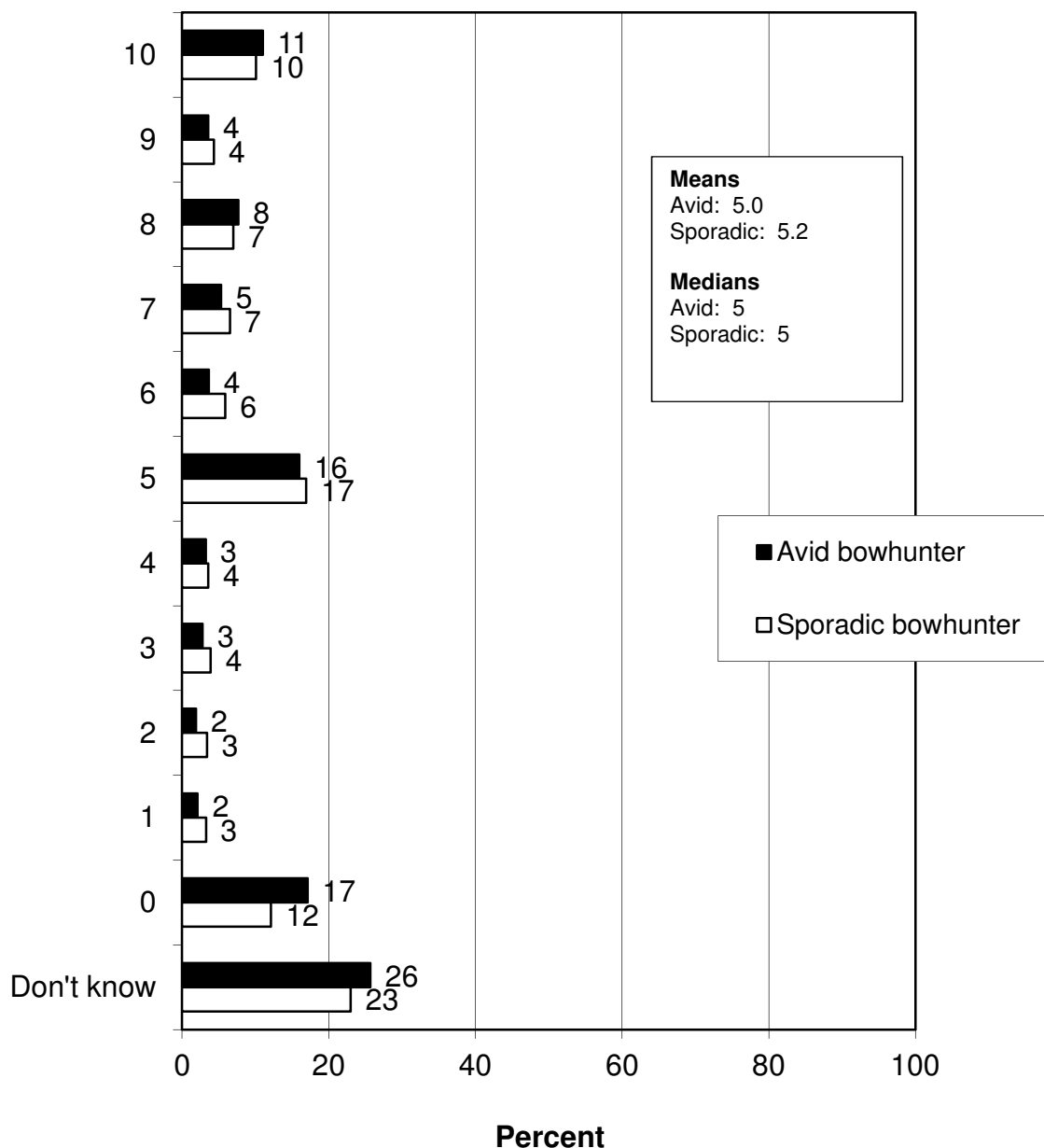


Figure 4.109. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Indiana Bowhunters, by Avidity

Q48. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of New Jersey bowhunters who read or glanced at the email.)

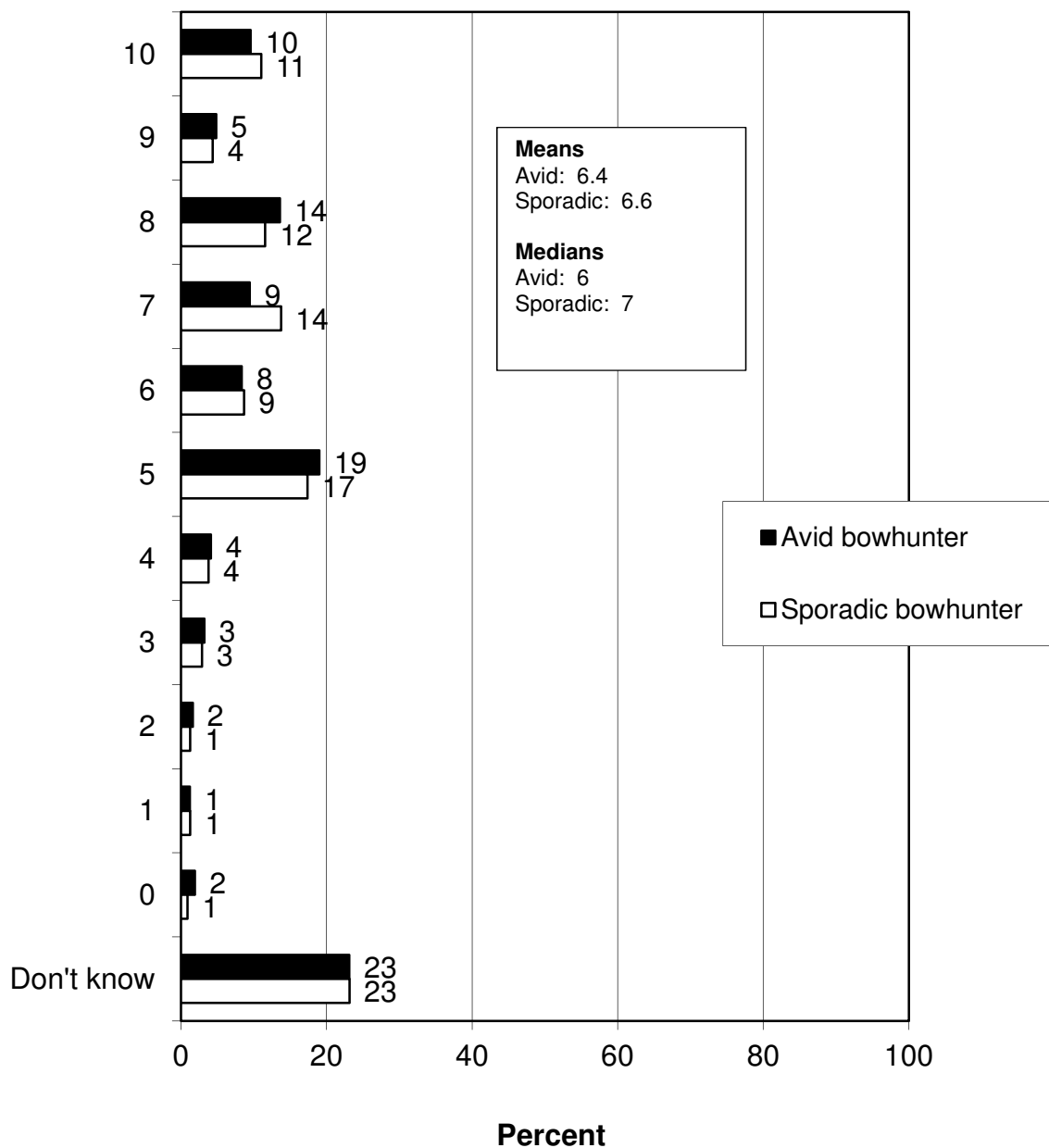


Figure 4.110. Ratings of the Email's Appeal, New Jersey Bowhunters, by Avidity

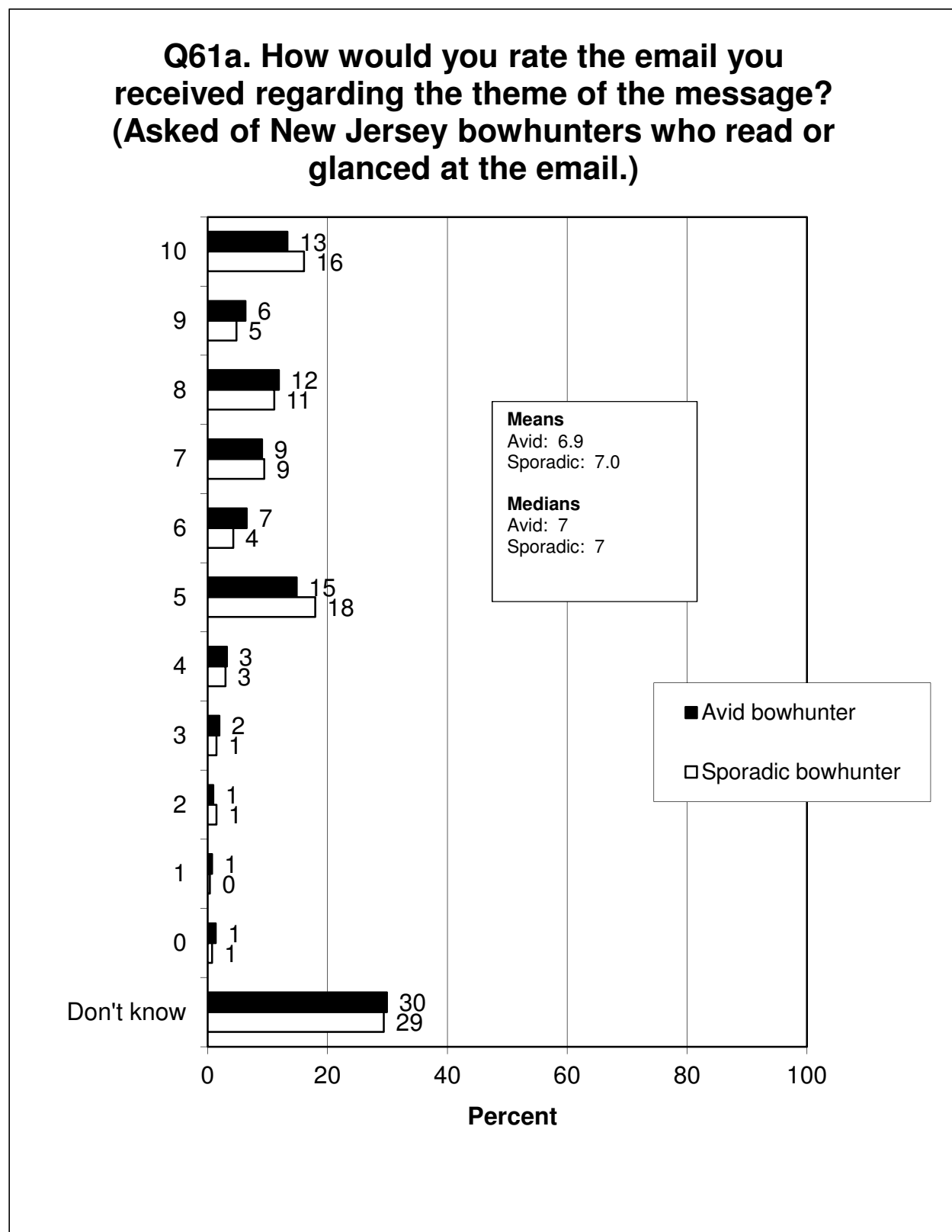


Figure 4.111. Ratings of the Email's Theme, New Jersey Bowhunters, by Avidity

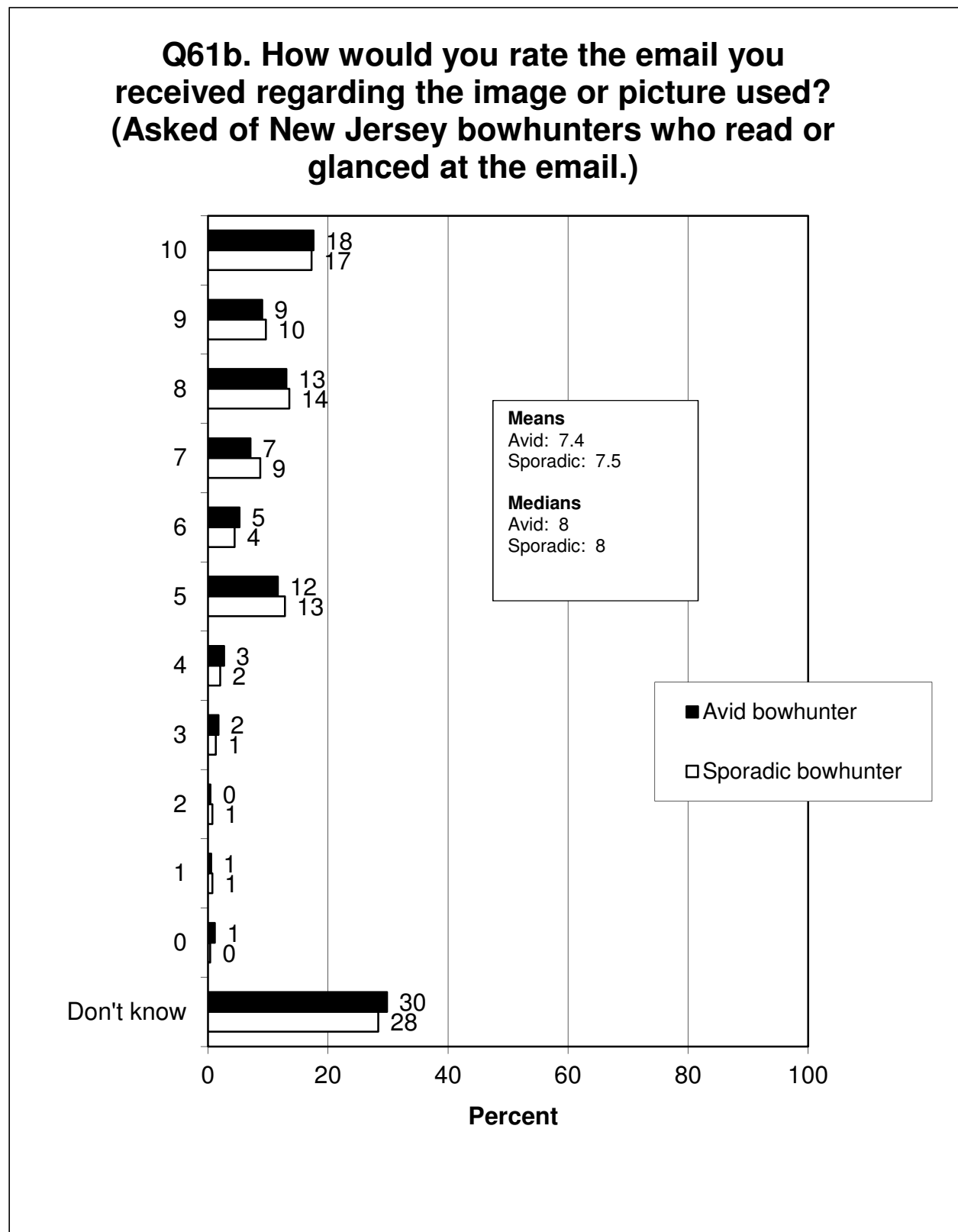


Figure 4.112. Ratings of the Email's Imagery, New Jersey Bowhunters, by Avidity

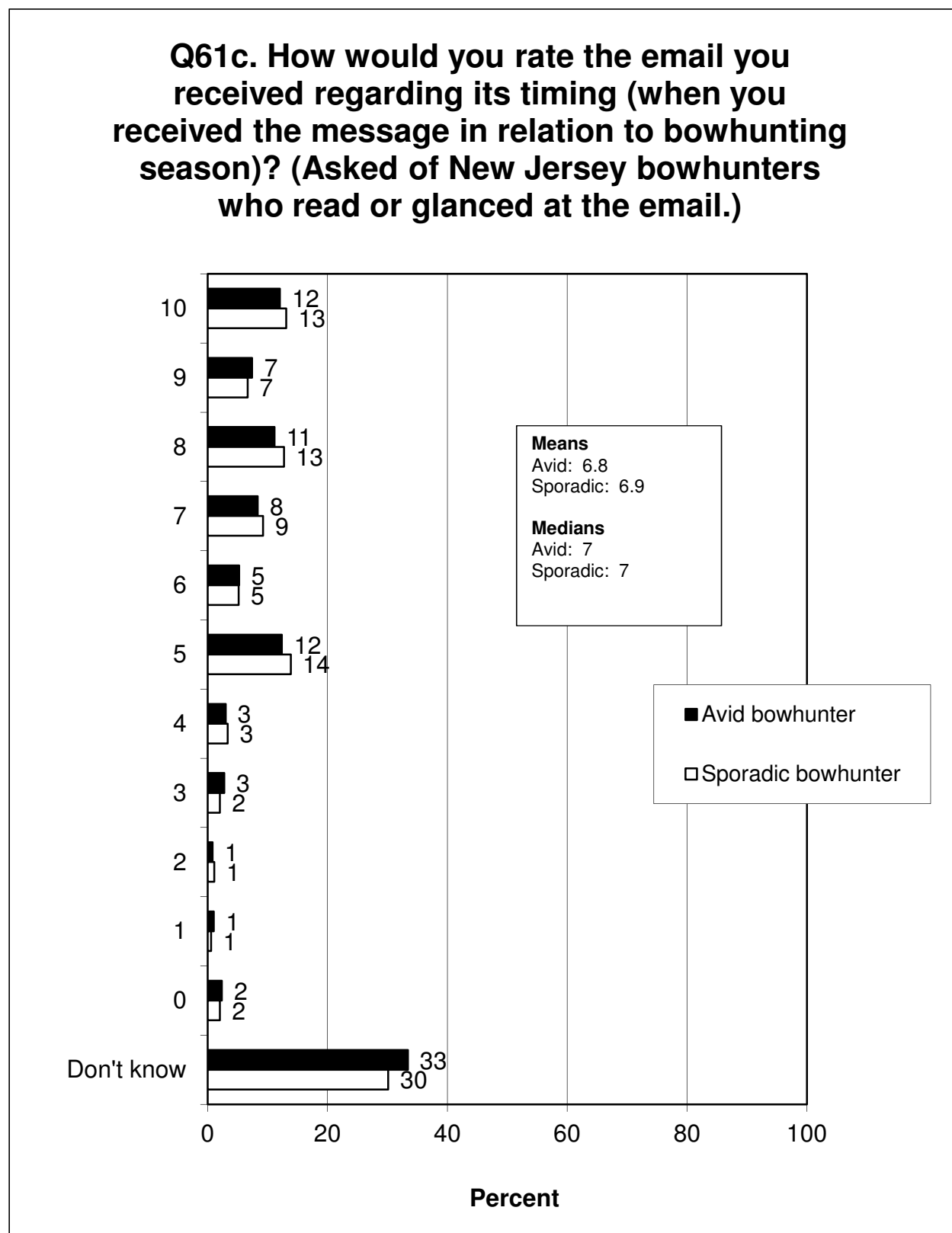


Figure 4.113. Ratings of the Email's Timing, New Jersey Bowhunters, by Avidity

Q61d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of New Jersey bowhunters who read or glanced at the email.)

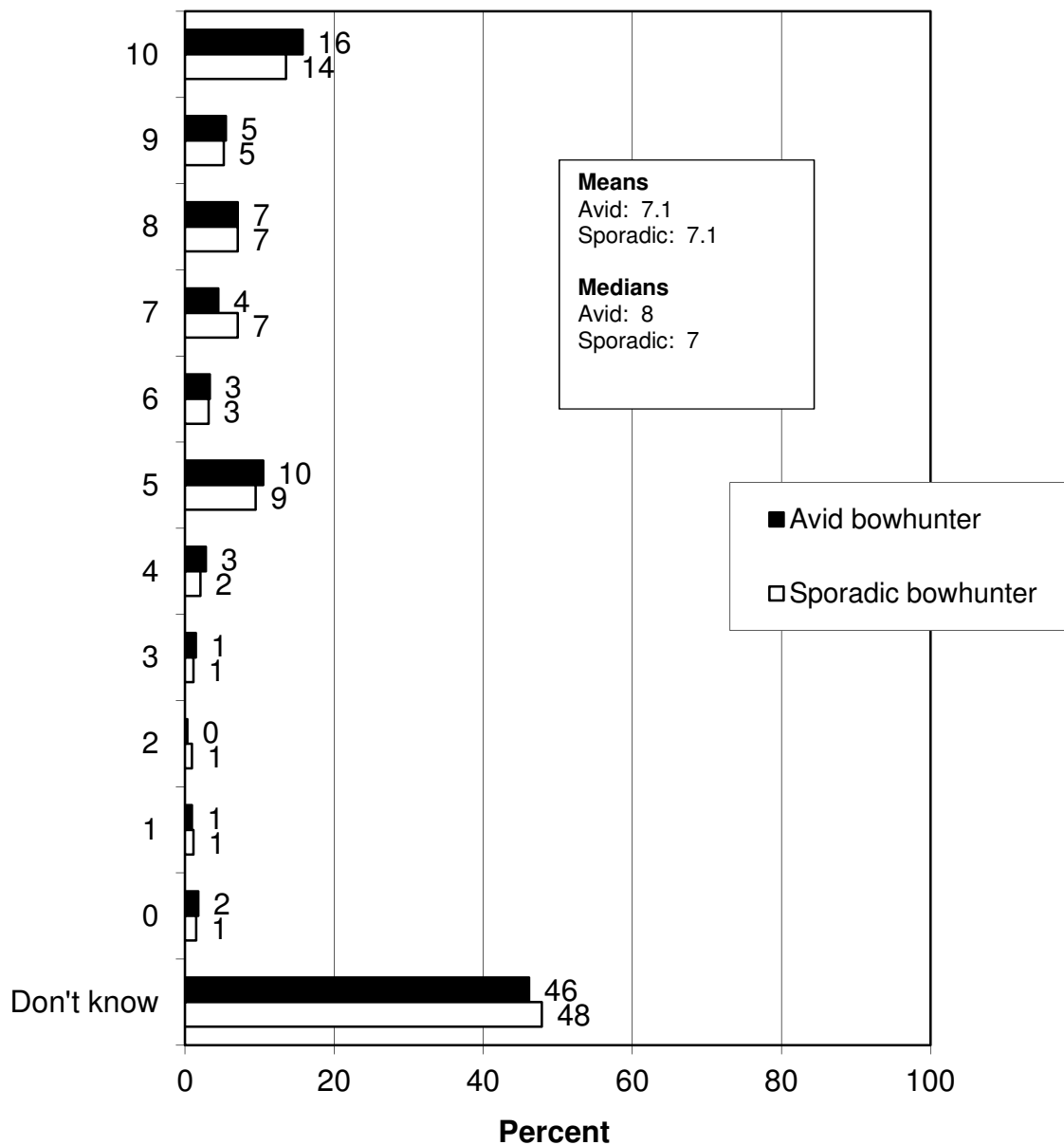


Figure 4.114. Ratings of the Email's Ease of Use, New Jersey Bowhunters, by Avidity

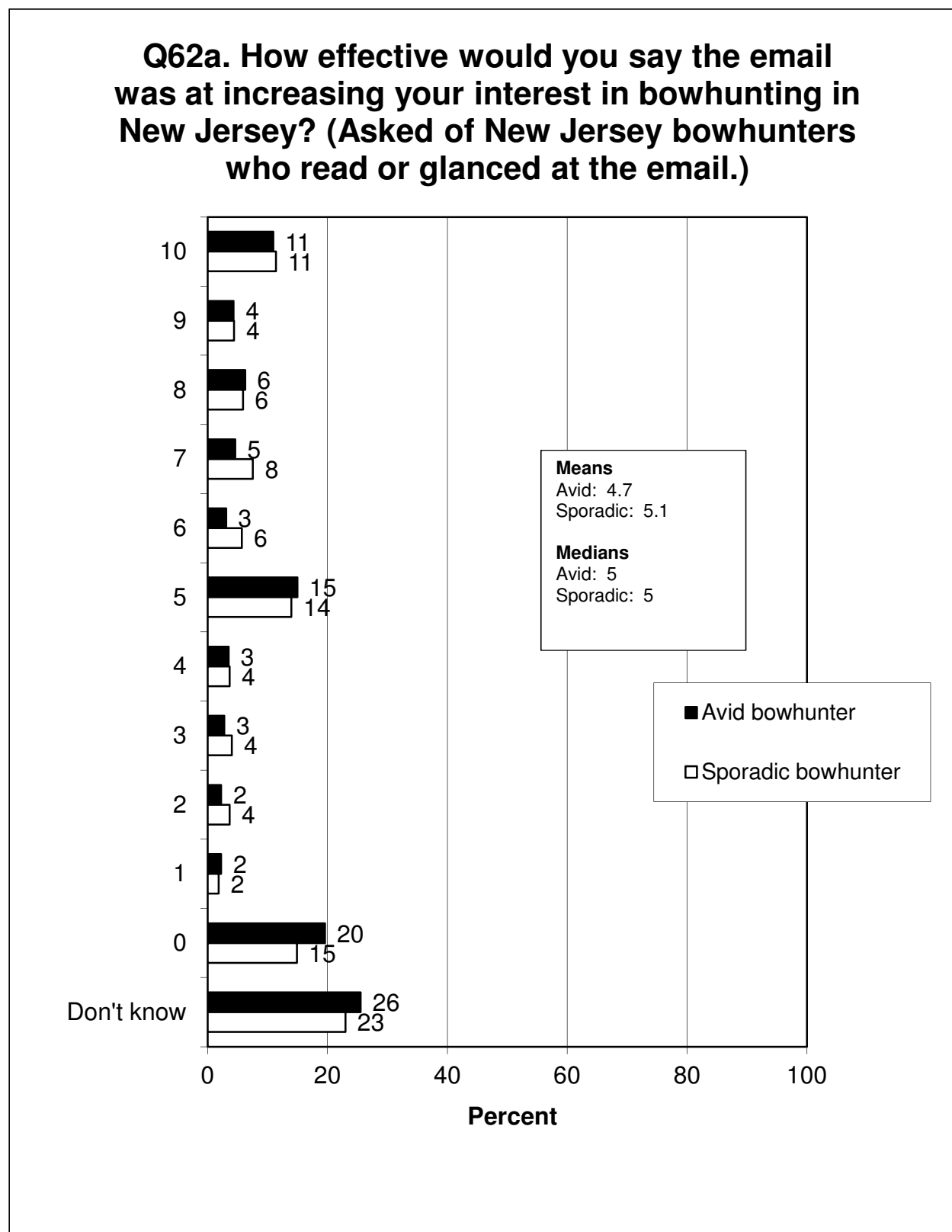


Figure 4.115. Ratings of Effectiveness of Email at Increasing Interest, New Jersey Bowhunters, by Avidity

Q62b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in New Jersey? (Asked of New Jersey bowhunters who read or glanced at the email.)

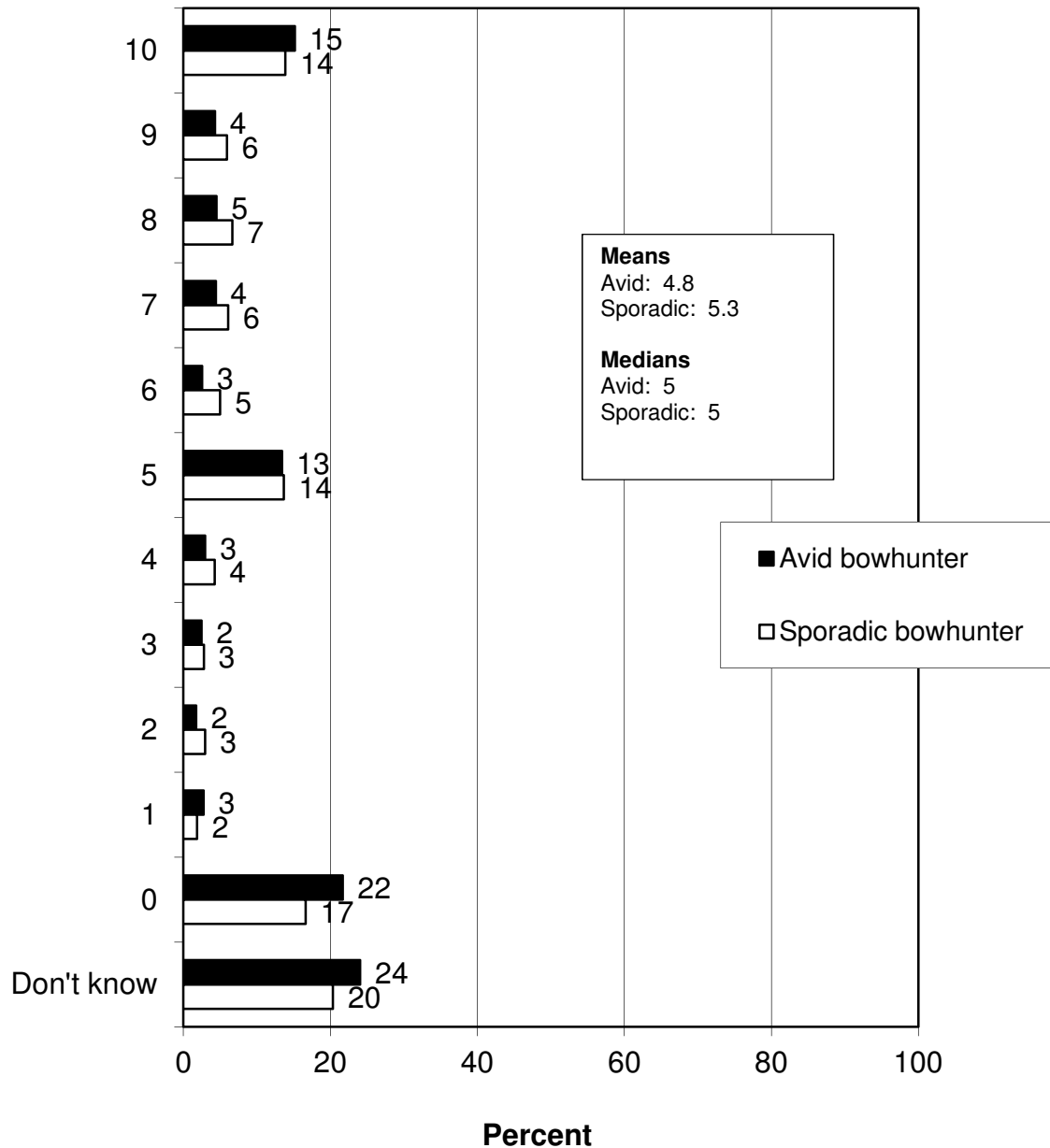


Figure 4.116. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, New Jersey Bowhunters, by Avidity

Q52. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Oklahoma bowhunters who read or glanced at the email.)

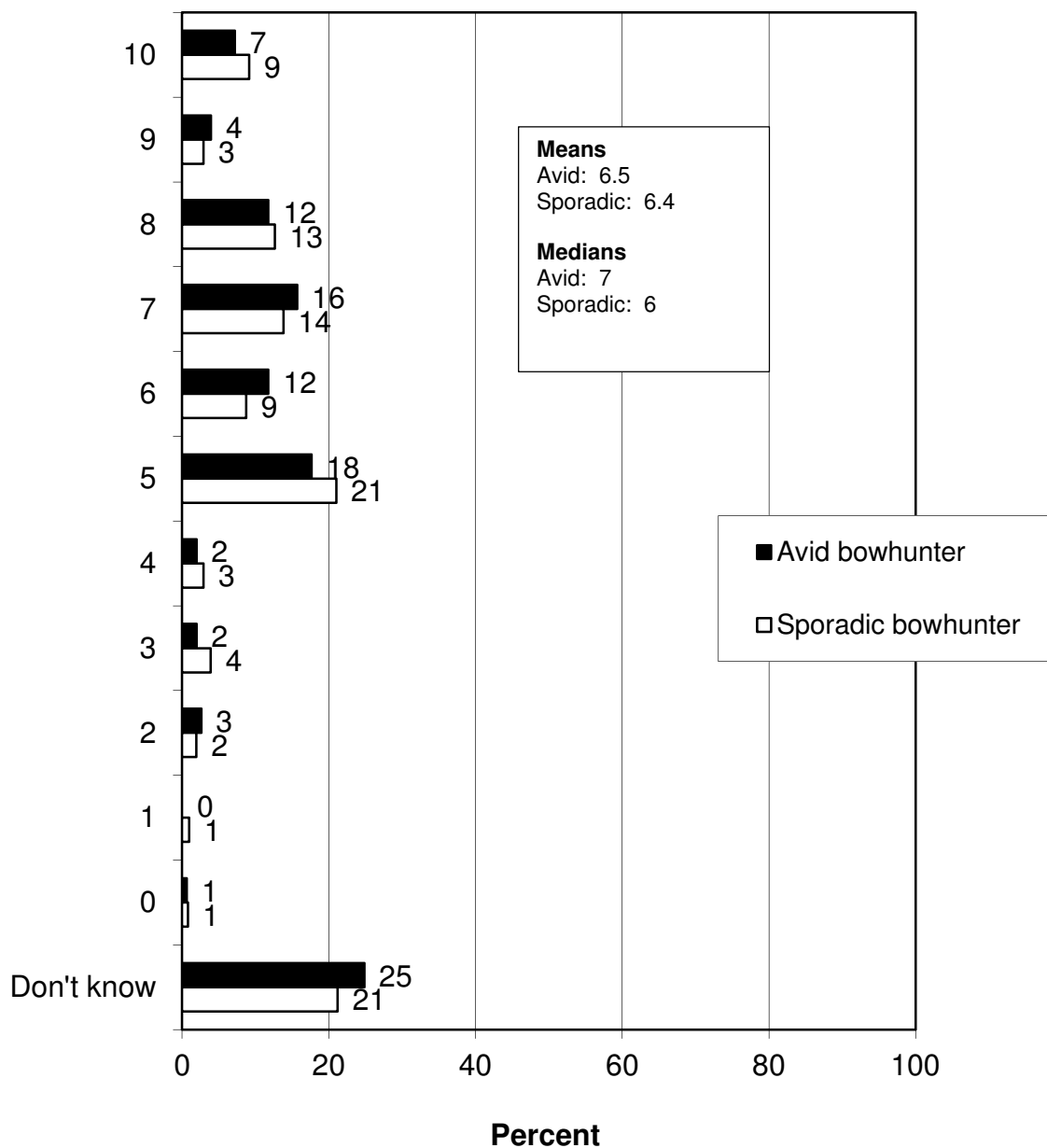


Figure 4.117. Ratings of the Email's Appeal, Oklahoma Bowhunters, by Avidity

**Q63a. How would you rate the email you received regarding the theme of the message?
(Asked of Oklahoma bowhunters who read or glanced at the email.)**

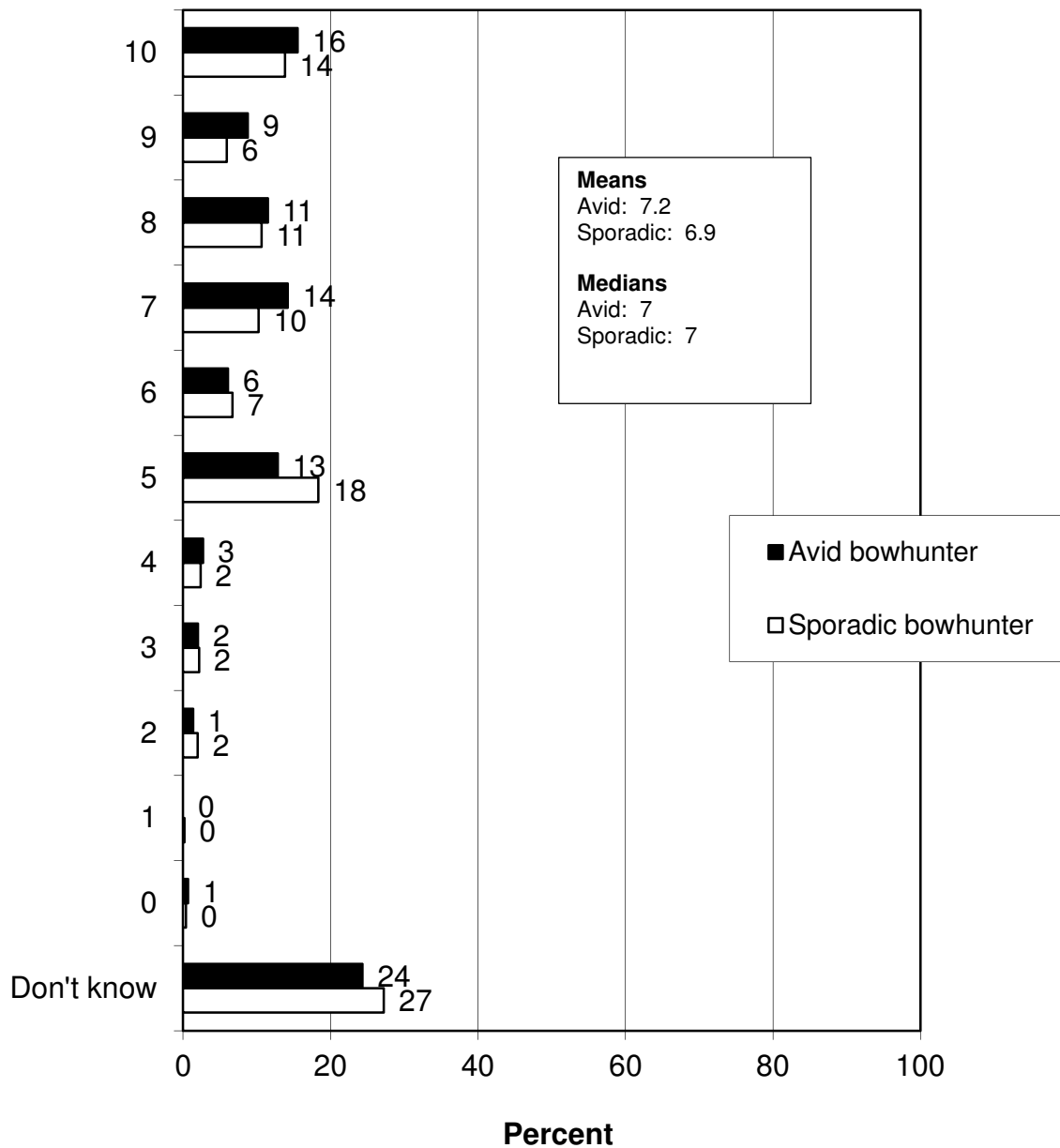


Figure 4.118. Ratings of the Email's Theme, Oklahoma Bowhunters, by Avidity

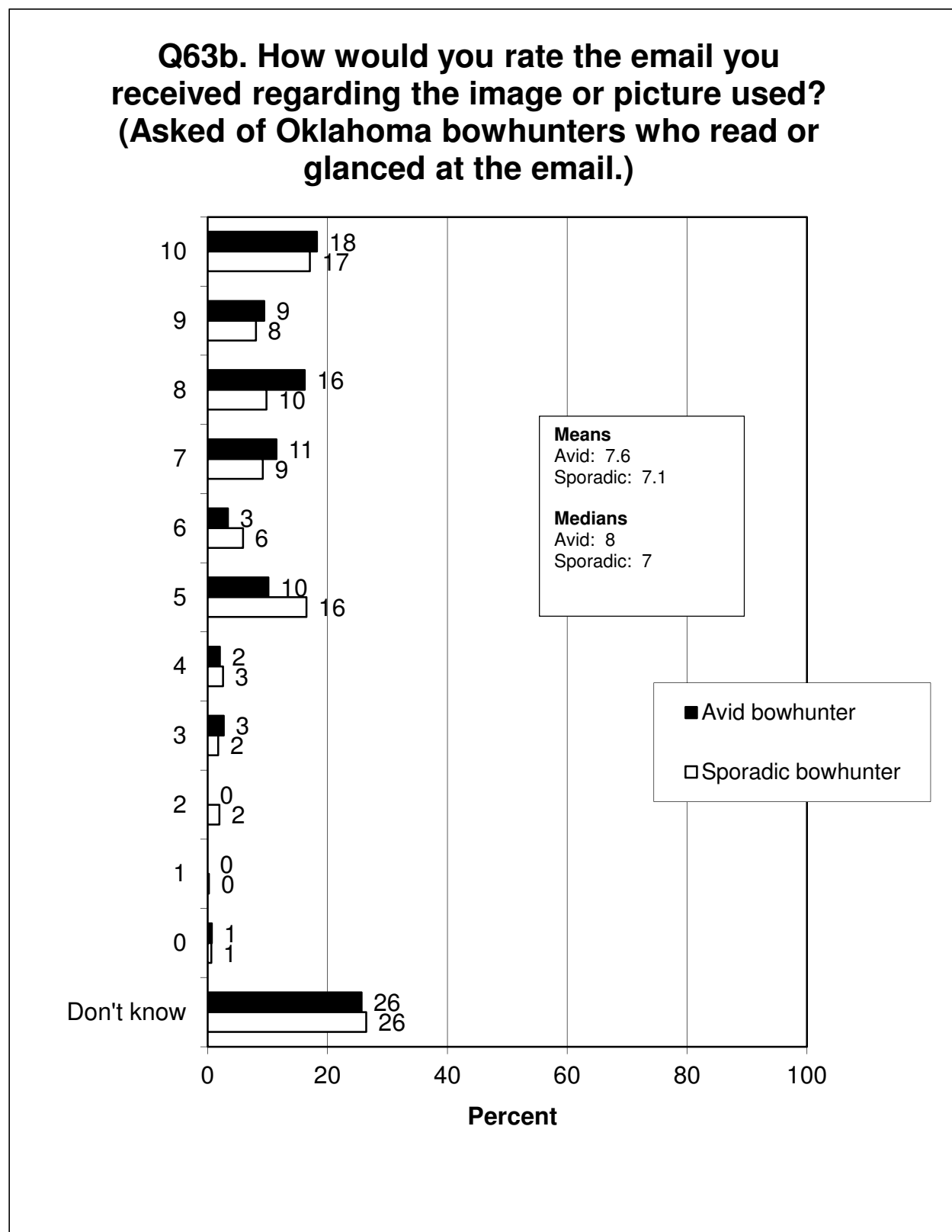


Figure 4.119. Ratings of the Email's Imagery, Oklahoma Bowhunters, by Avidity

Q63c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Oklahoma bowhunters who read or glanced at the email.)

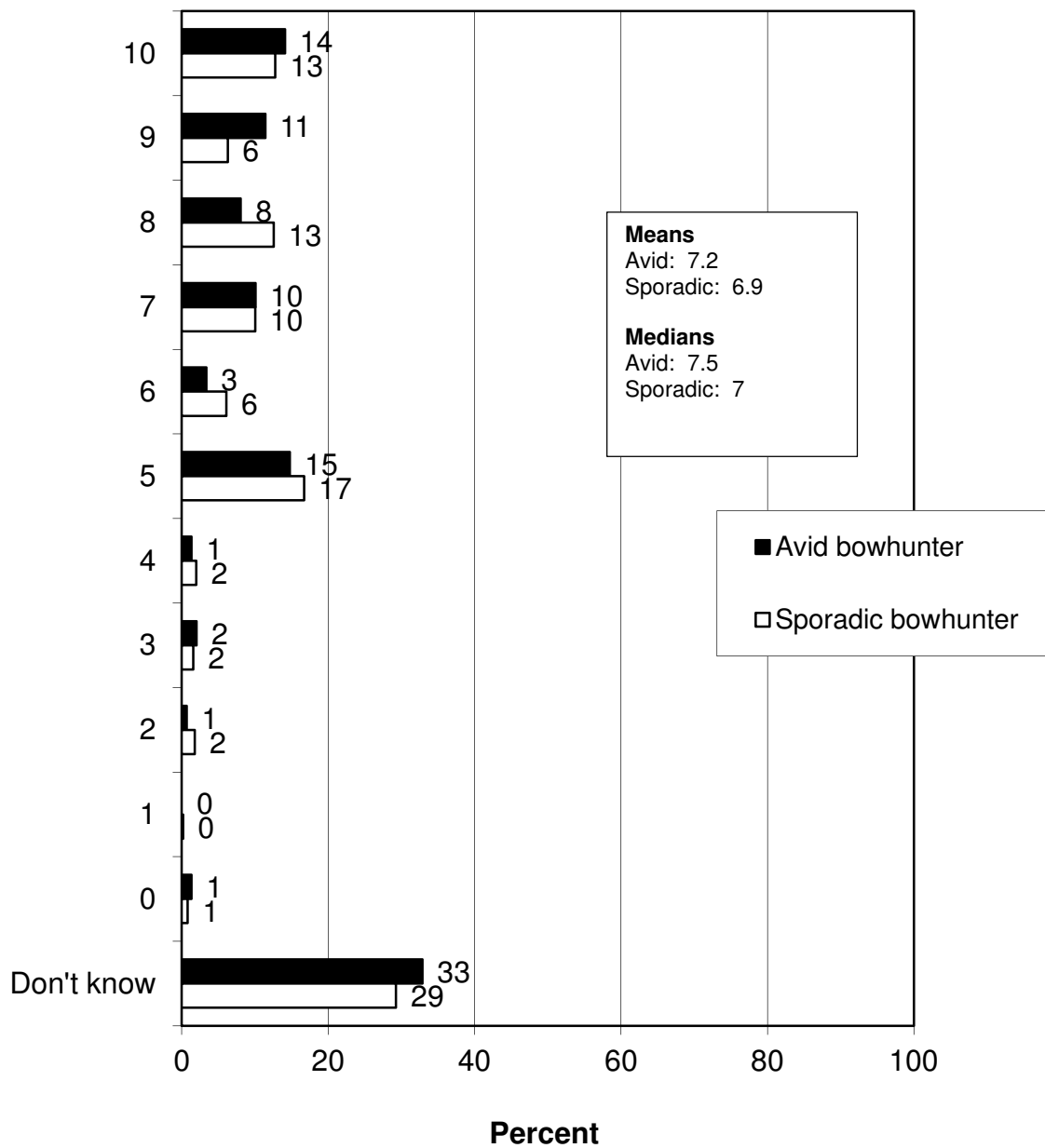


Figure 4.120. Ratings of the Email's Timing, Oklahoma Bowhunters, by Avidity

Q63d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Oklahoma bowhunters who read or glanced at the email.)

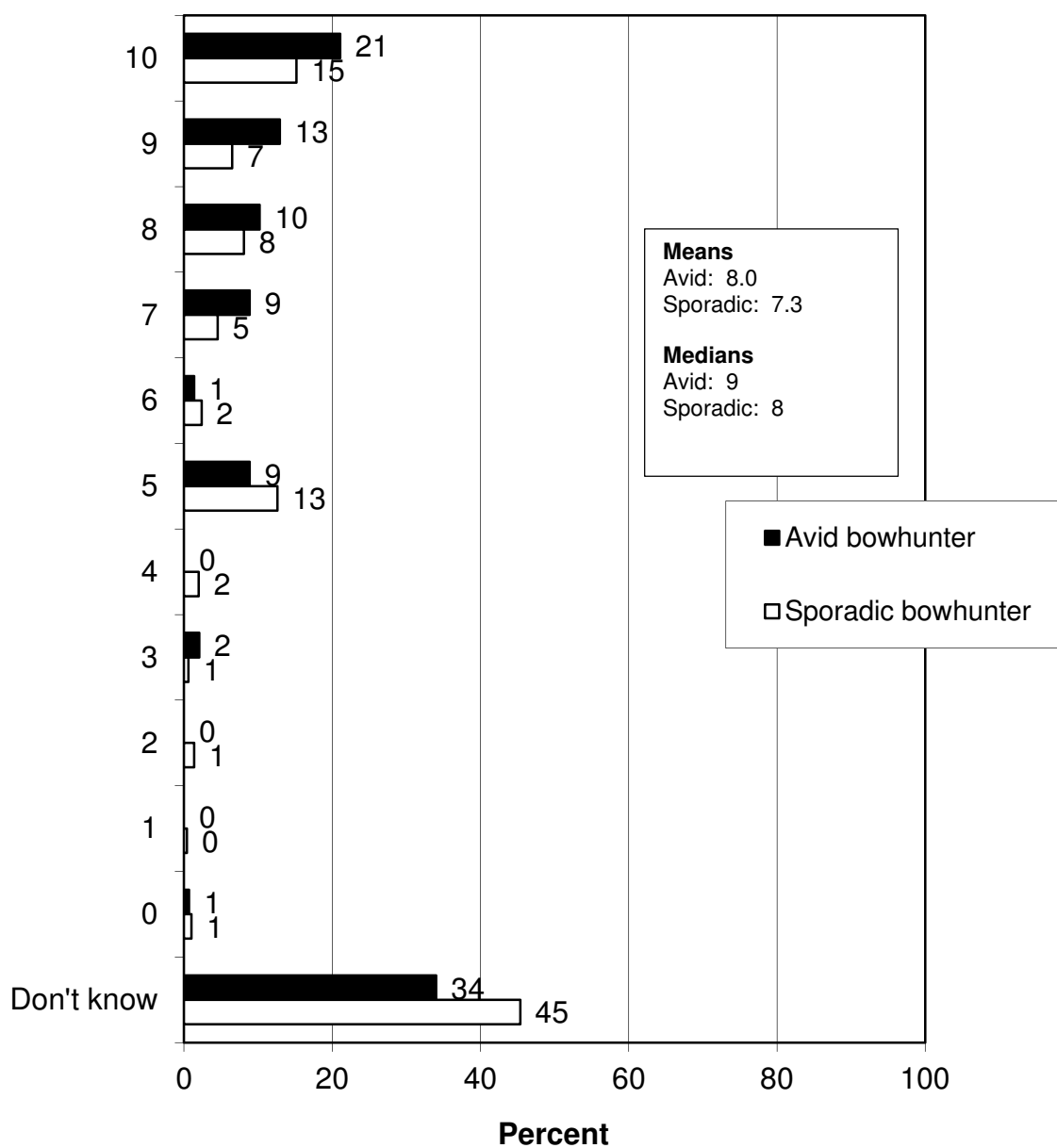


Figure 4.121. Ratings of the Email's Ease of Use, Oklahoma Bowhunters, by Avidity

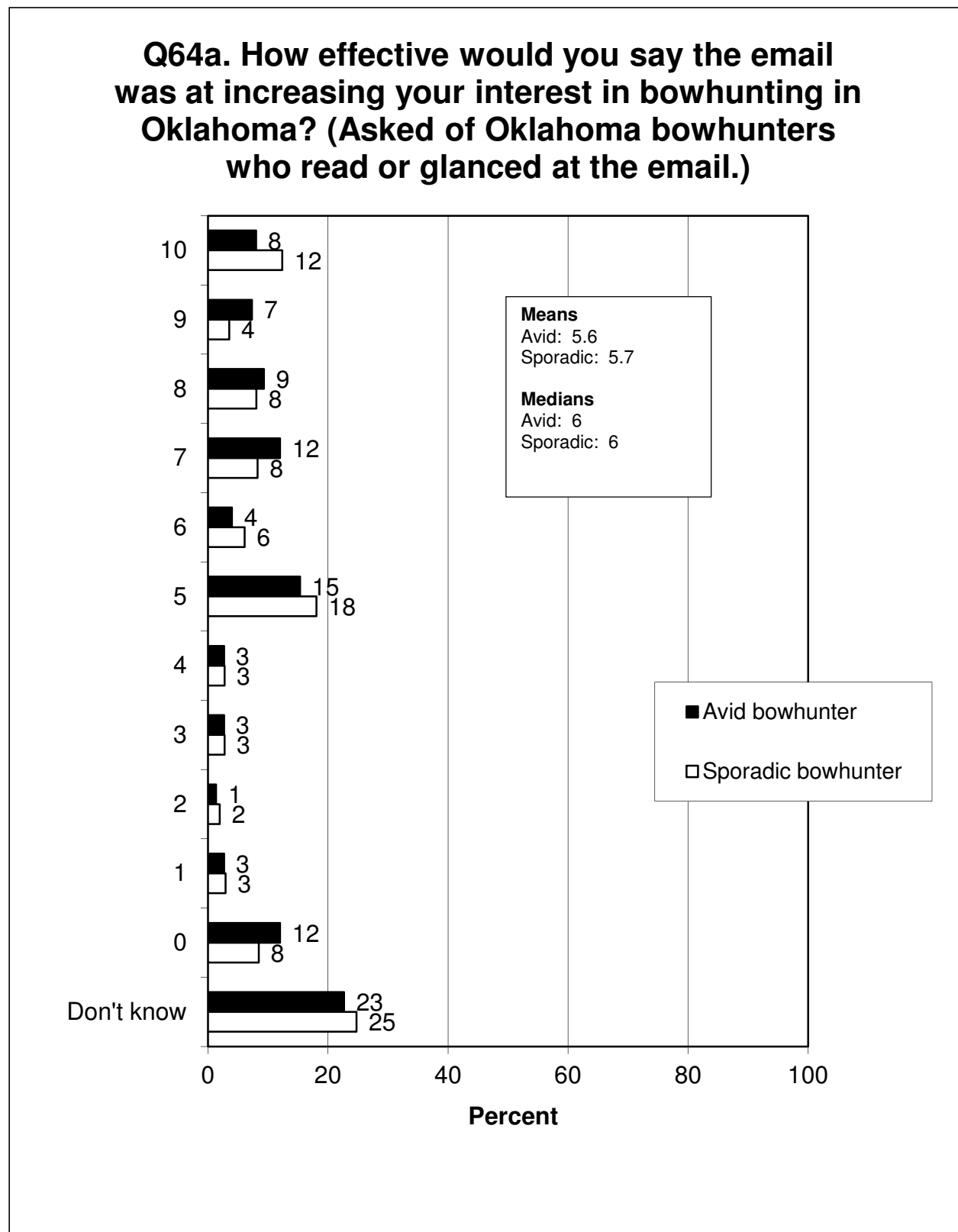


Figure 4.122. Ratings of Effectiveness of Email at Increasing Interest, Oklahoma Bowhunters, by Avidity

Q64b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Oklahoma? (Asked of Oklahoma bowhunters who read or glanced at the email.)

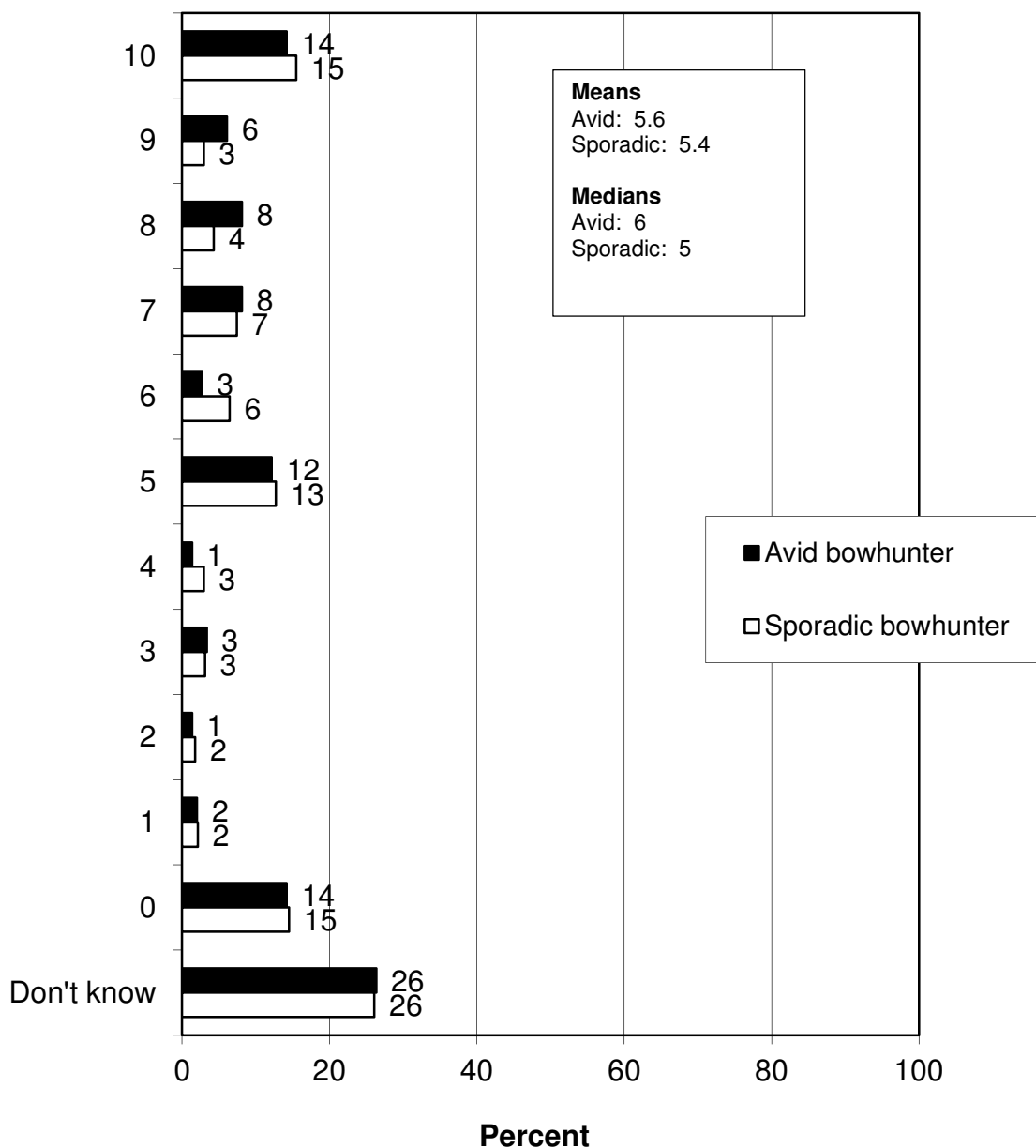


Figure 4.123. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Oklahoma Bowhunters, by Avidity

Q36. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Florida bowhunters who read or glanced at the email.)

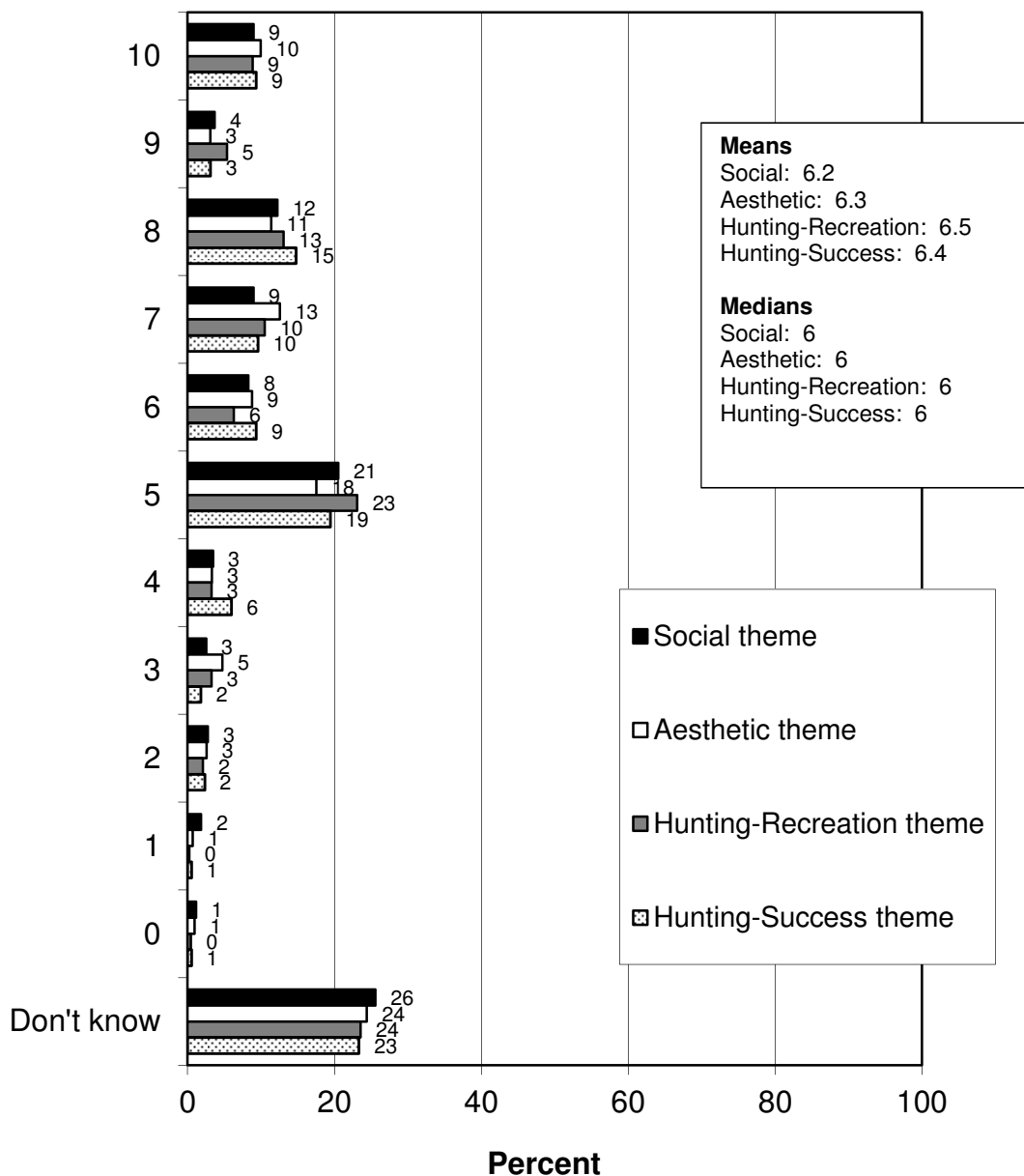


Figure 4.124. Ratings of the Email's Appeal, Florida Bowhunters, by Theme

**Q55a. How would you rate the email you received regarding the theme of the message?
(Asked of Florida bowhunters who read or glanced at the email.)**

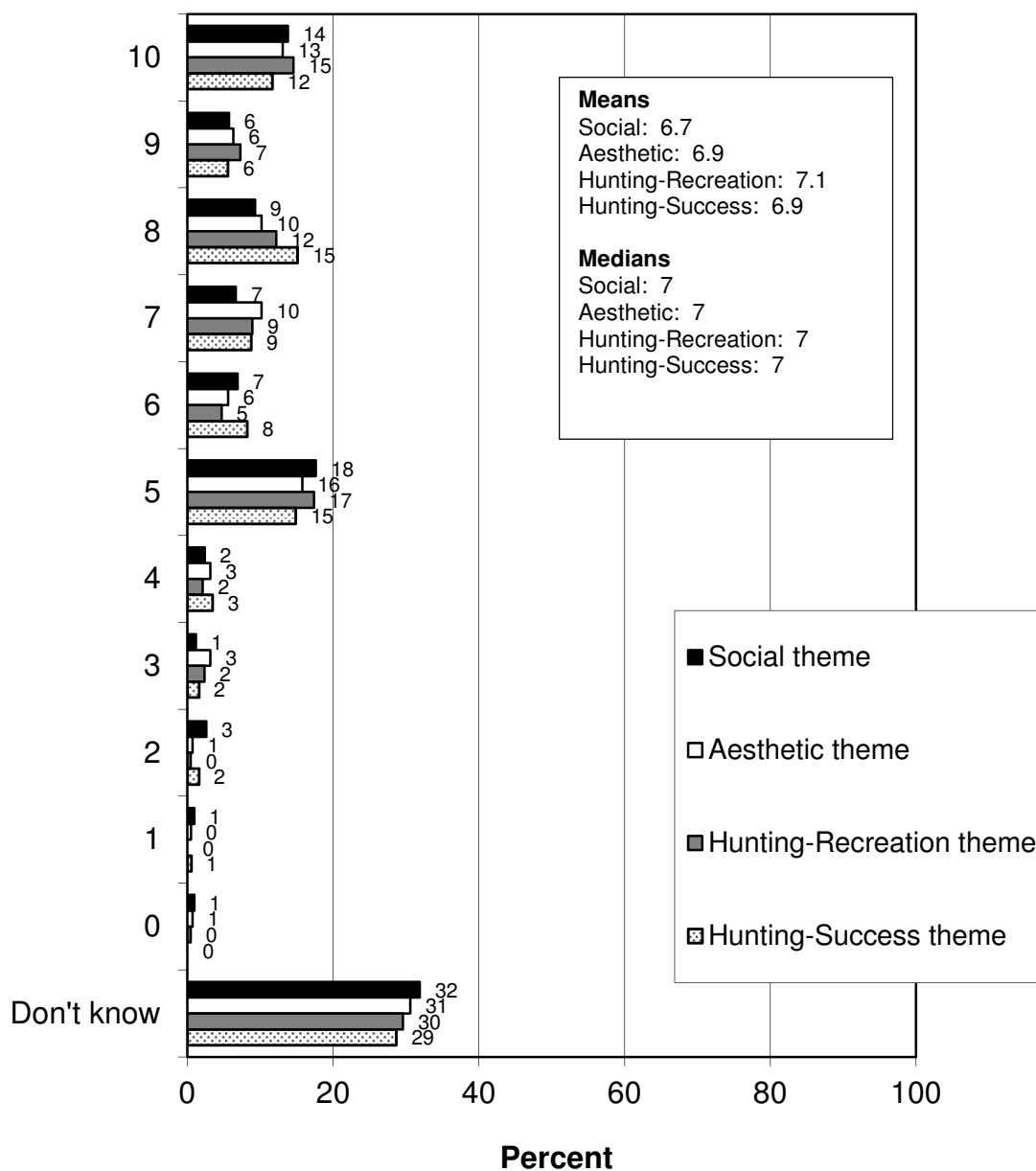


Figure 4.125. Ratings of the Email's Theme, Florida Bowhunters, by Theme

**Q55b. How would you rate the email you received regarding the image or picture used?
(Asked of Florida bowhunters who read or glanced at the email.)**

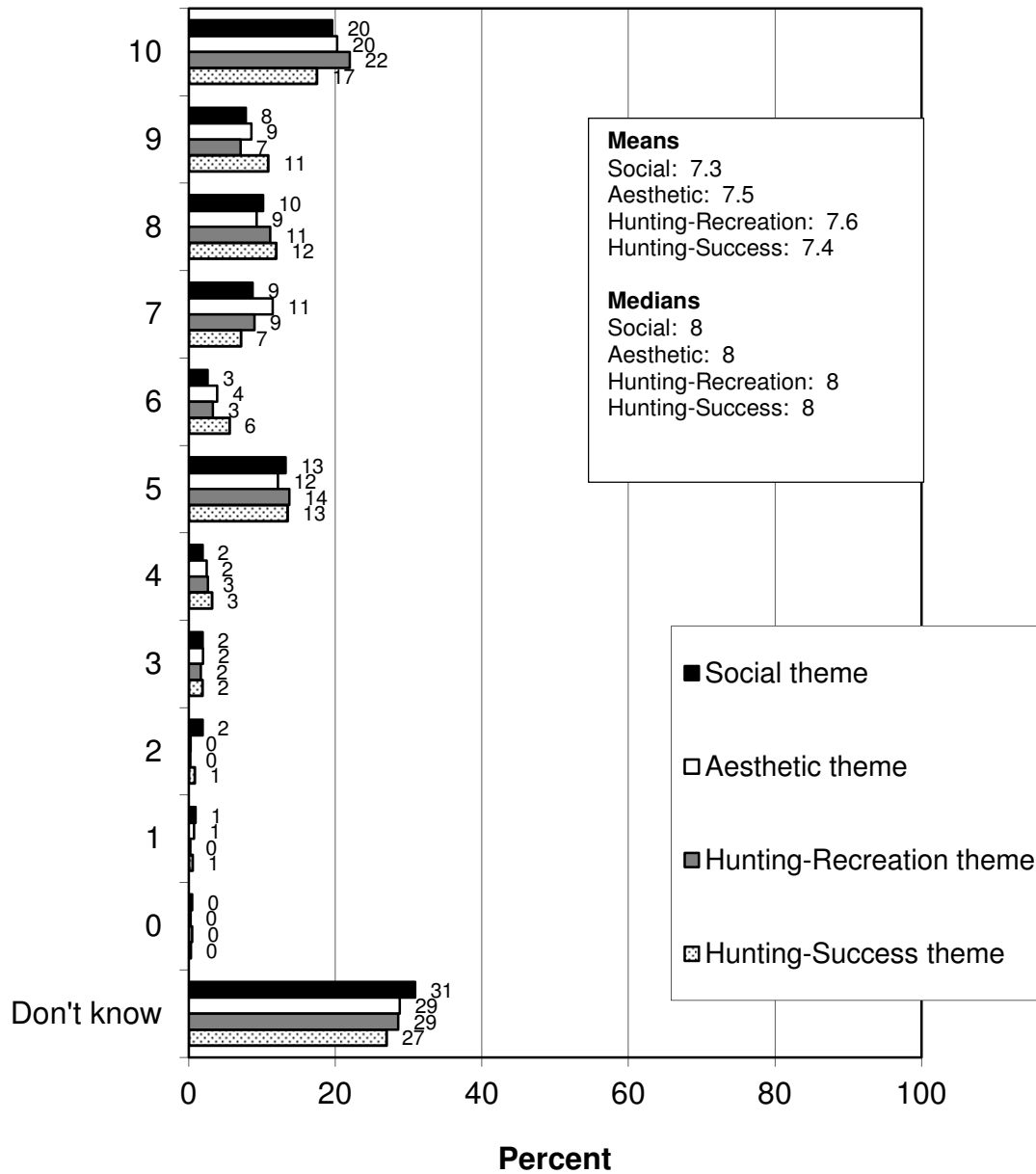


Figure 4.126. Ratings of the Email's Imagery, Florida Bowhunters, by Theme

Q55c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Florida bowhunters who read or glanced at the email.)

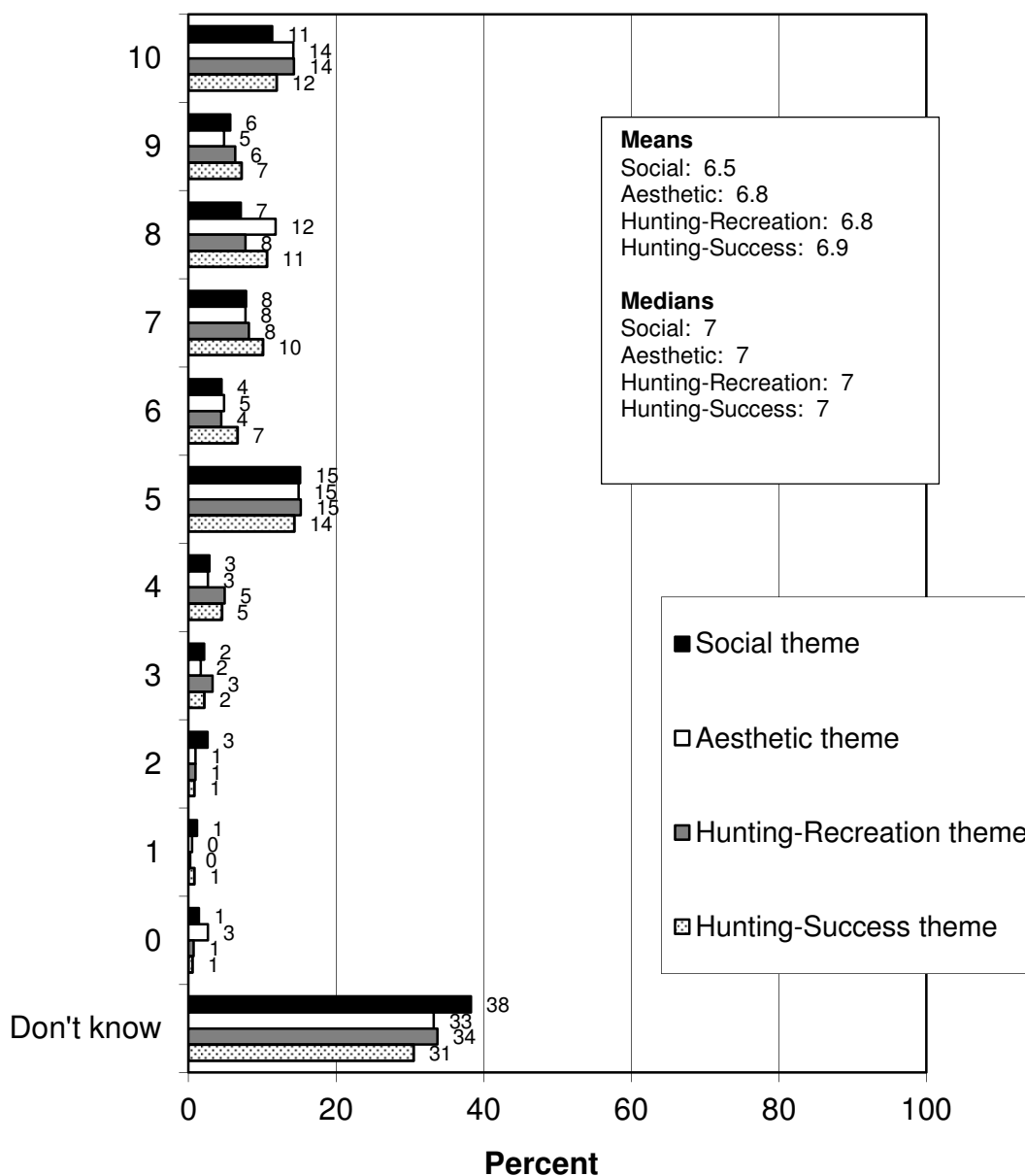


Figure 4.127. Ratings of the Email's Timing, Florida Bowhunters, by Theme

Q55d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Florida bowhunters who read or glanced at the email.)

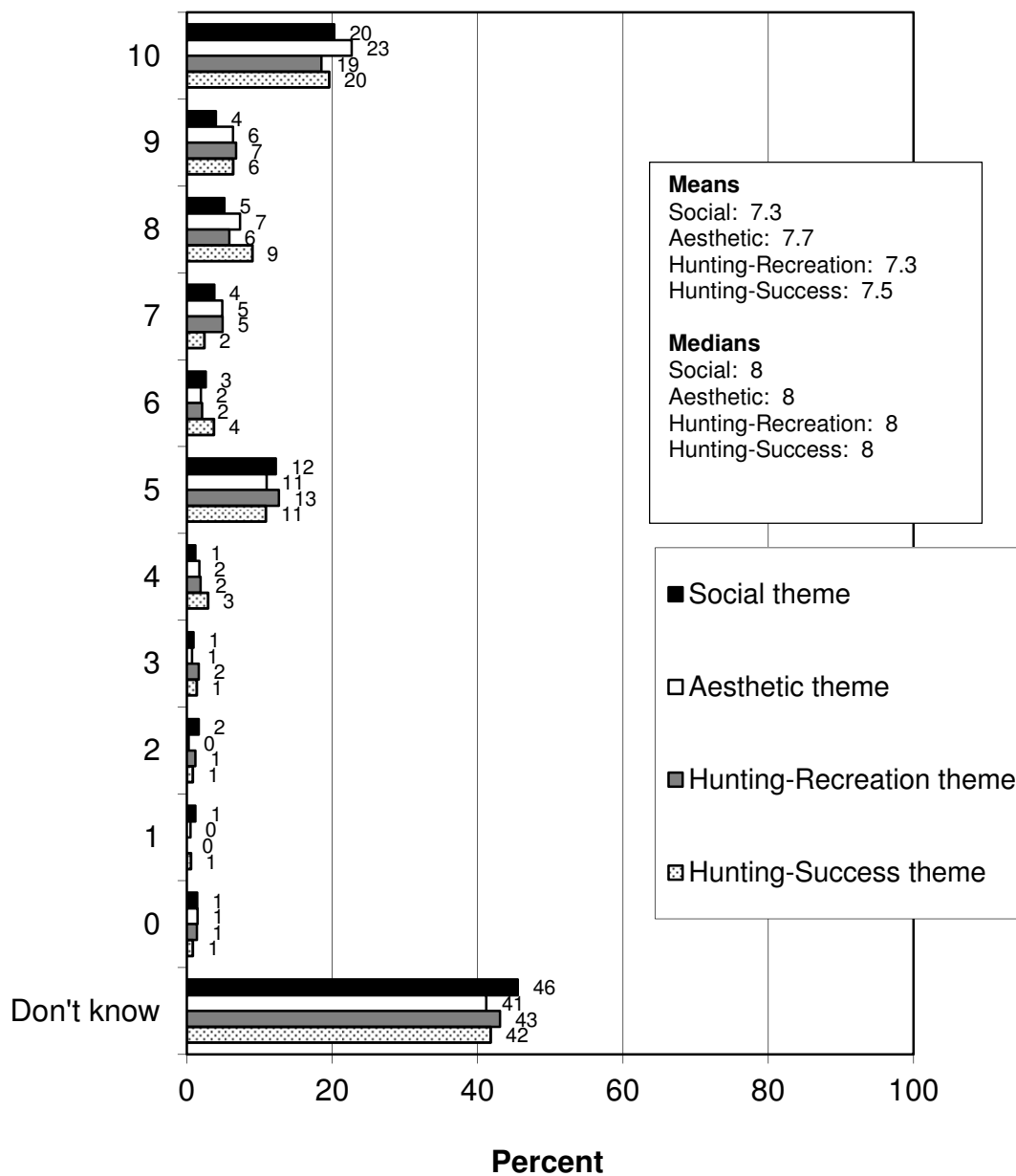


Figure 4.128. Ratings of the Email's Ease of Use, Florida Bowhunters, by Theme

Q56a. How effective would you say the email was at increasing your interest in bowhunting in Florida? (Asked of Florida bowhunters who read or glanced at the email.)

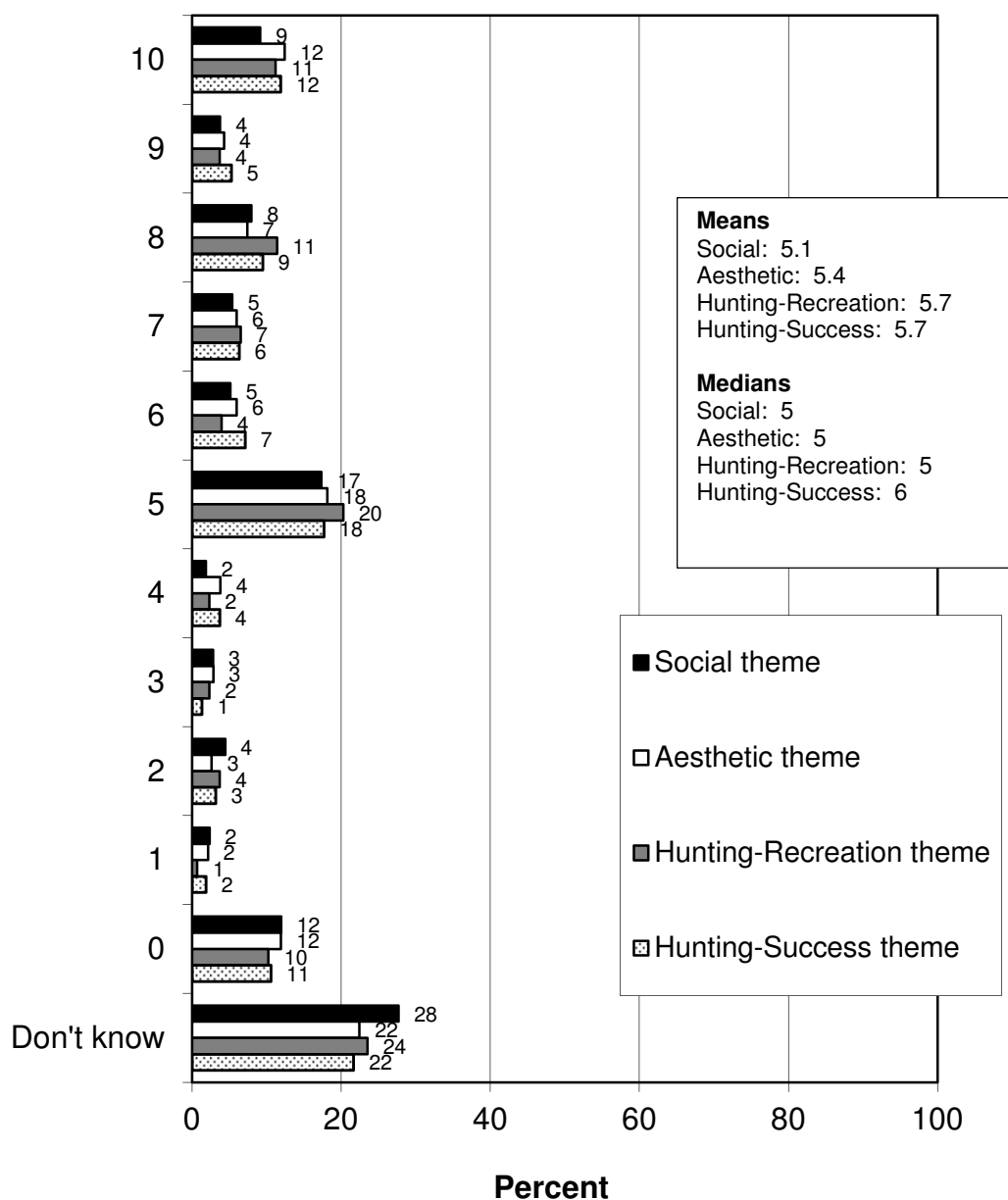


Figure 4.129. Ratings of Effectiveness of Email at Increasing Interest, Florida Bowhunters, by Theme

Q56b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Florida? (Asked of Florida bowhunters who read or glanced at the email.)

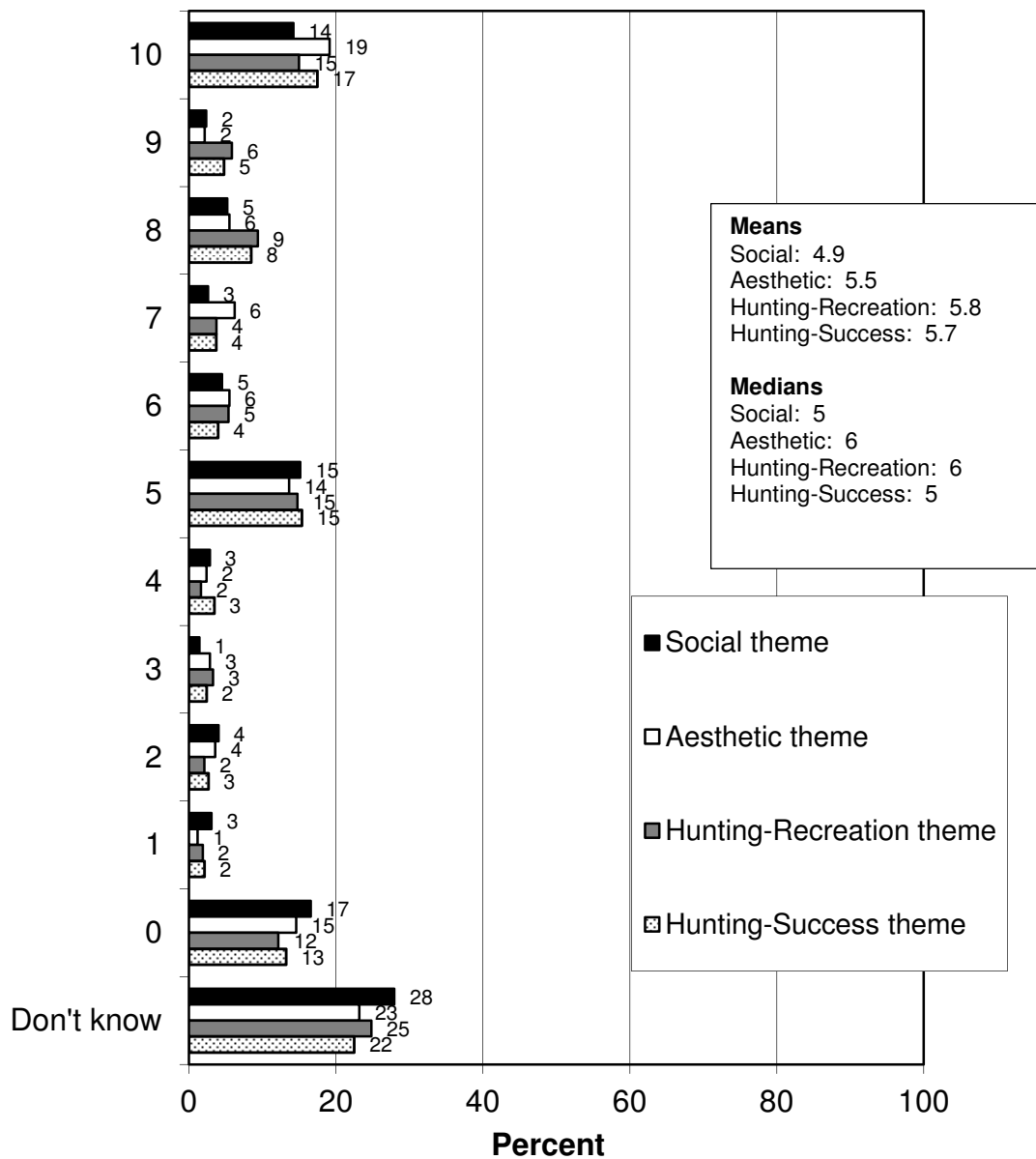


Figure 4.130. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Florida Bowhunters, by Theme

Q40. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Georgia bowhunters who read or glanced at the email.)

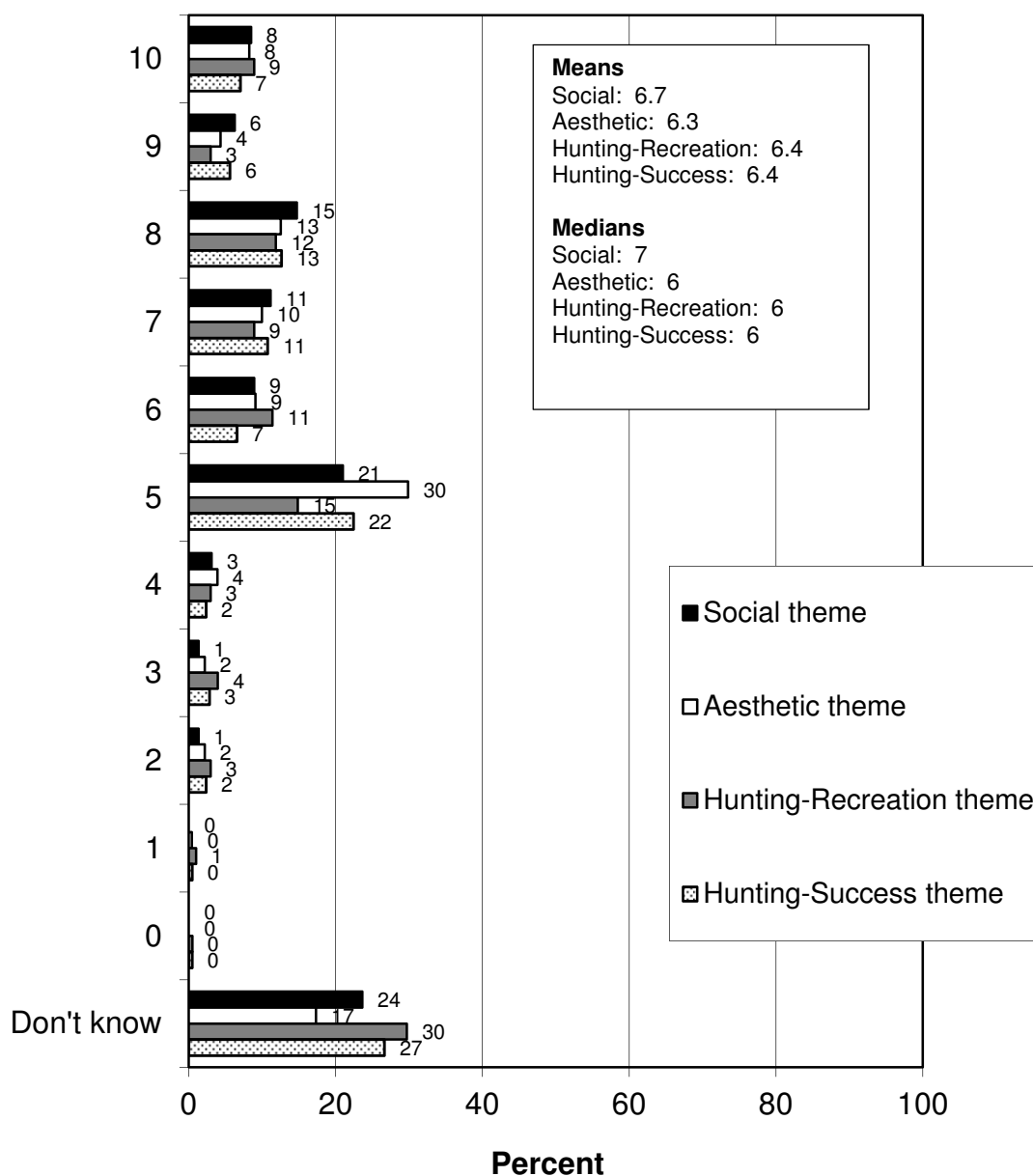


Figure 4.131. Ratings of the Email's Appeal, Georgia Bowhunters, by Theme

**Q57a. How would you rate the email you received regarding the theme of the message?
(Asked of Georgia bowhunters who read or glanced at the email.)**

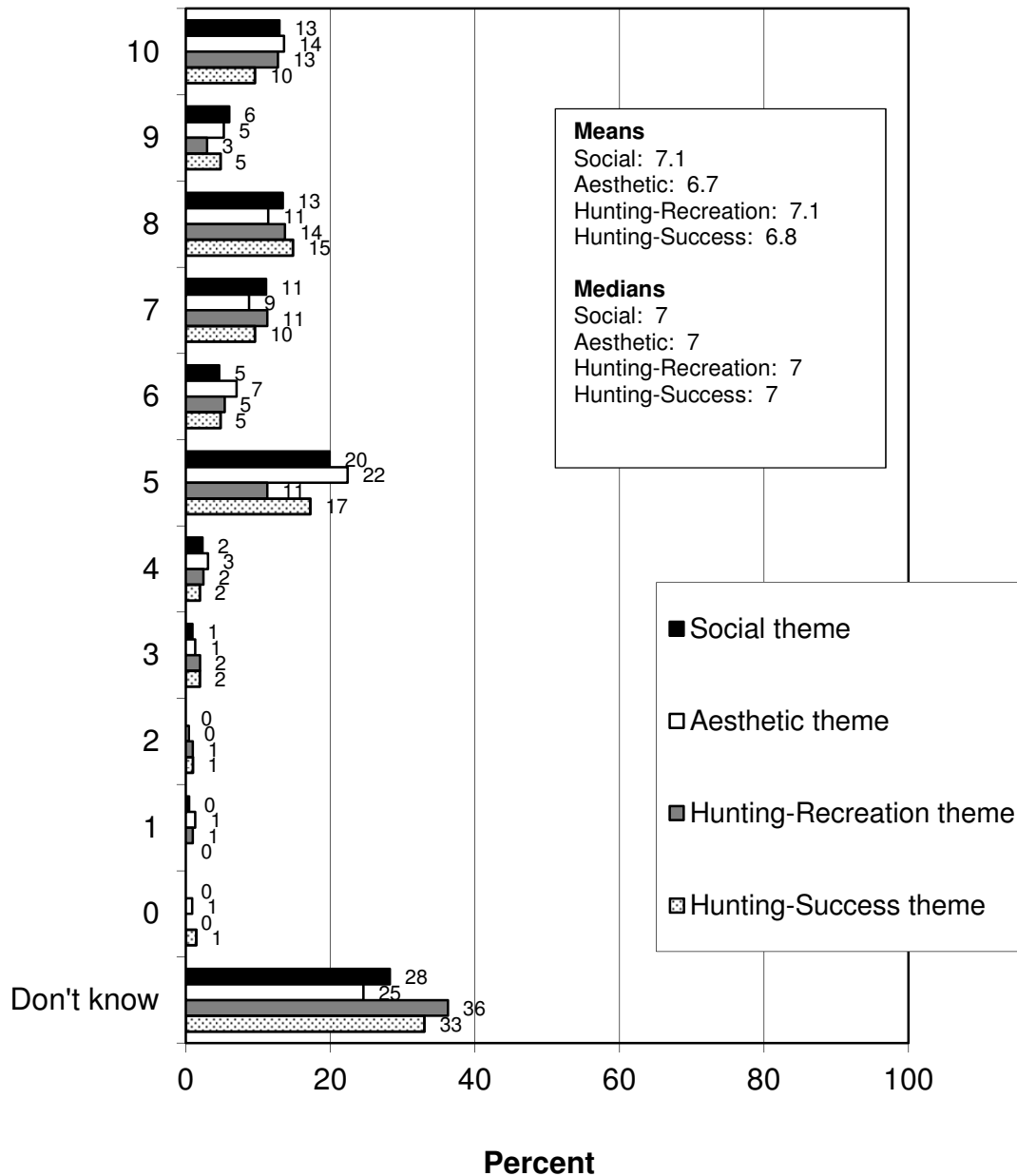


Figure 4.132. Ratings of the Email's Theme, Georgia Bowhunters, by Theme

**Q57b. How would you rate the email you received regarding the image or picture used?
(Asked of Georgia bowhunters who read or glanced at the email.)**

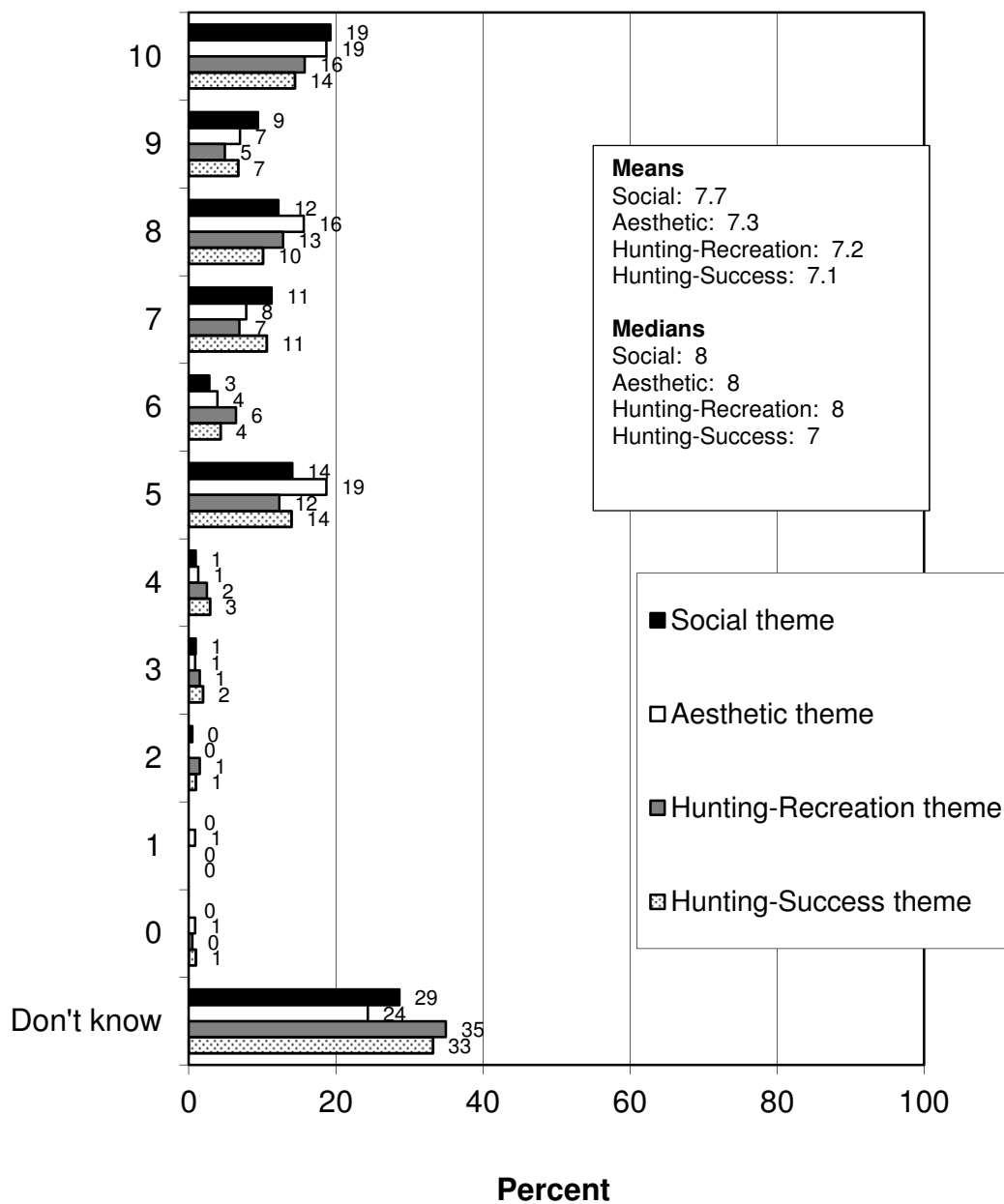


Figure 4.133. Ratings of the Email's Imagery, Georgia Bowhunters, by Theme

Q57c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Georgia bowhunters who read or glanced at the email.)

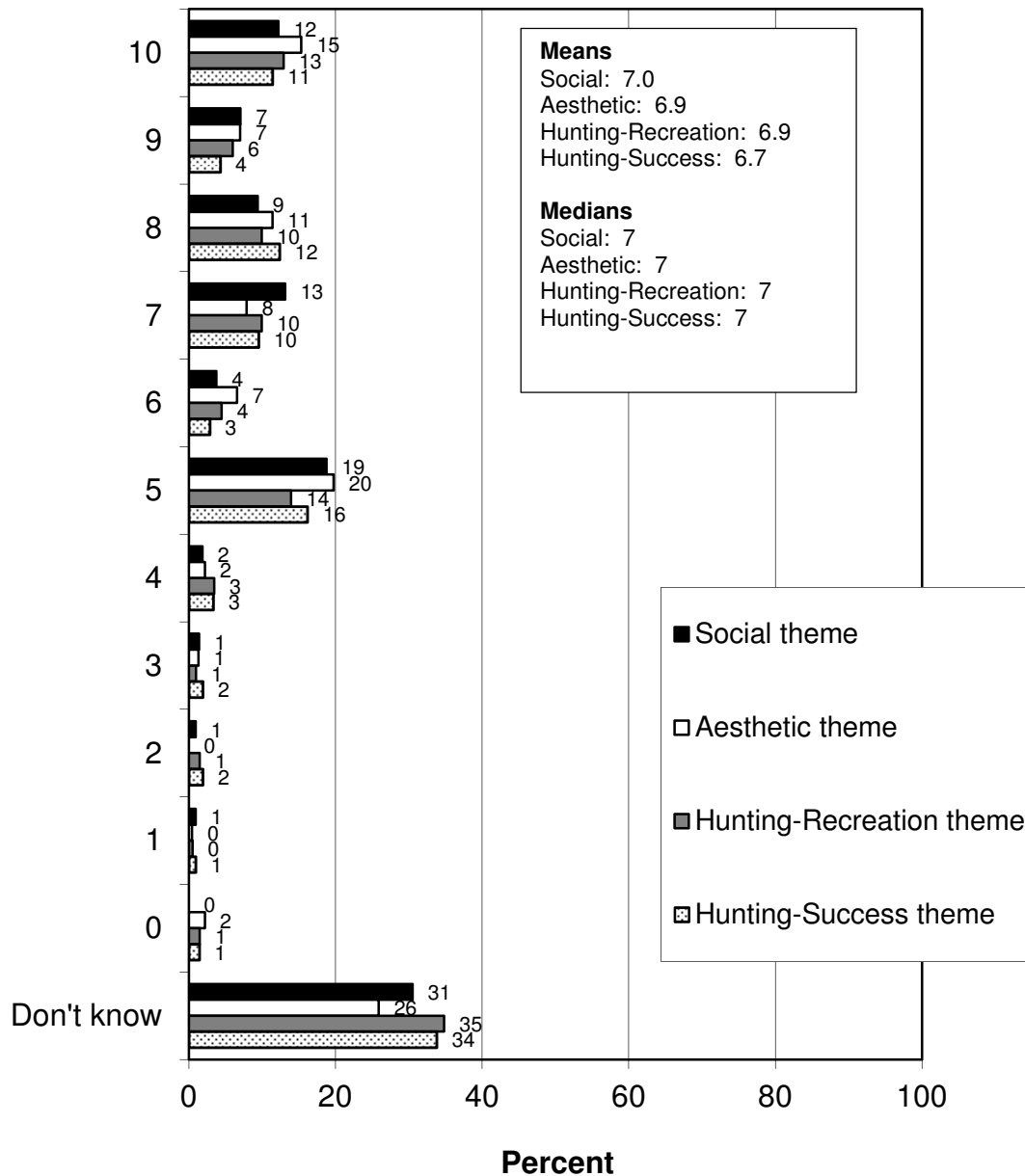


Figure 4.134. Ratings of the Email's Timing, Georgia Bowhunters, by Theme

Q57d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Georgia bowhunters who read or glanced at the email.)

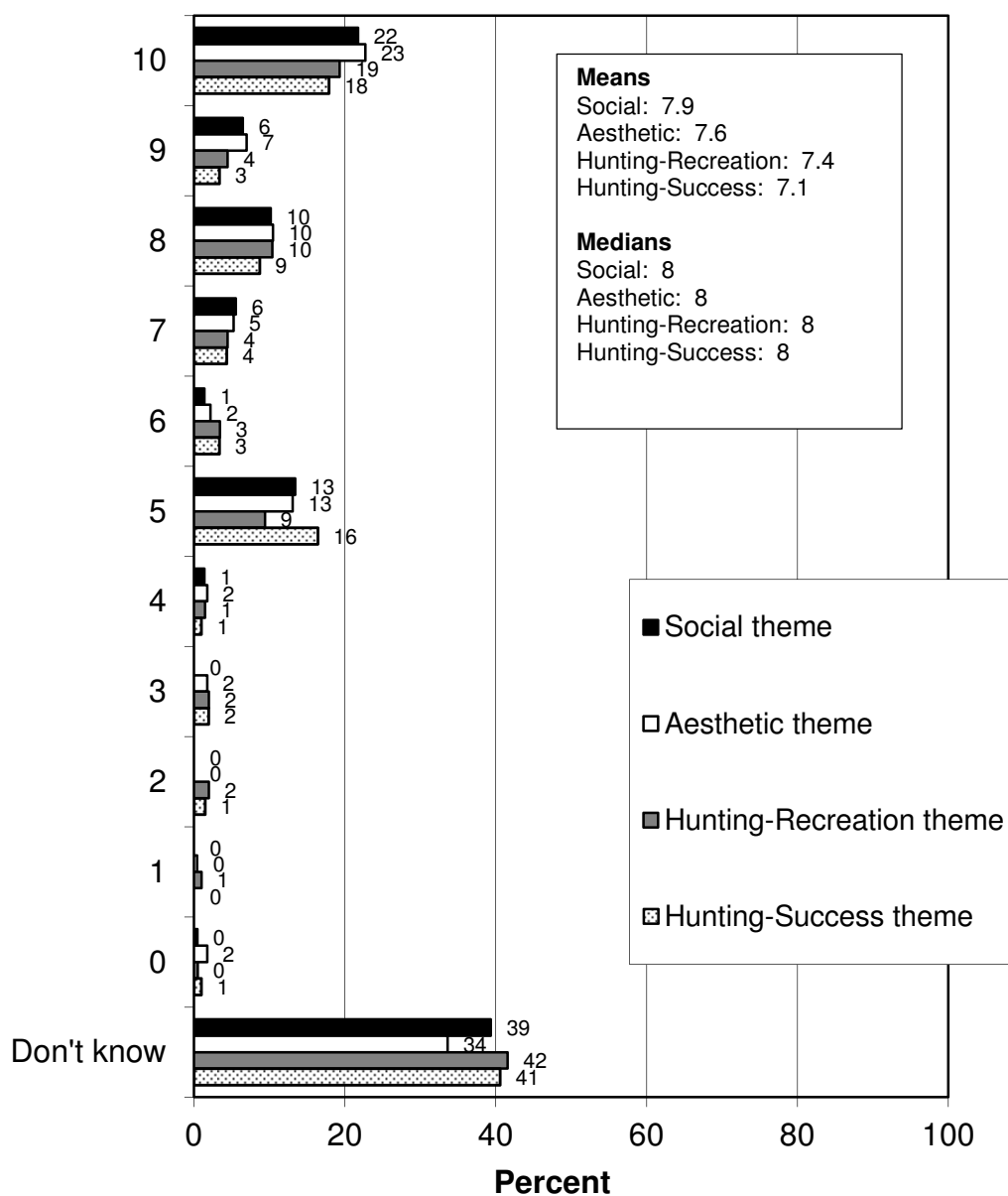


Figure 4.135. Ratings of the Email's Ease of Use, Georgia Bowhunters, by Theme

Q58a. How effective would you say the email was at increasing your interest in bowhunting in Georgia? (Asked of Georgia bowhunters who read or glanced at the email.)

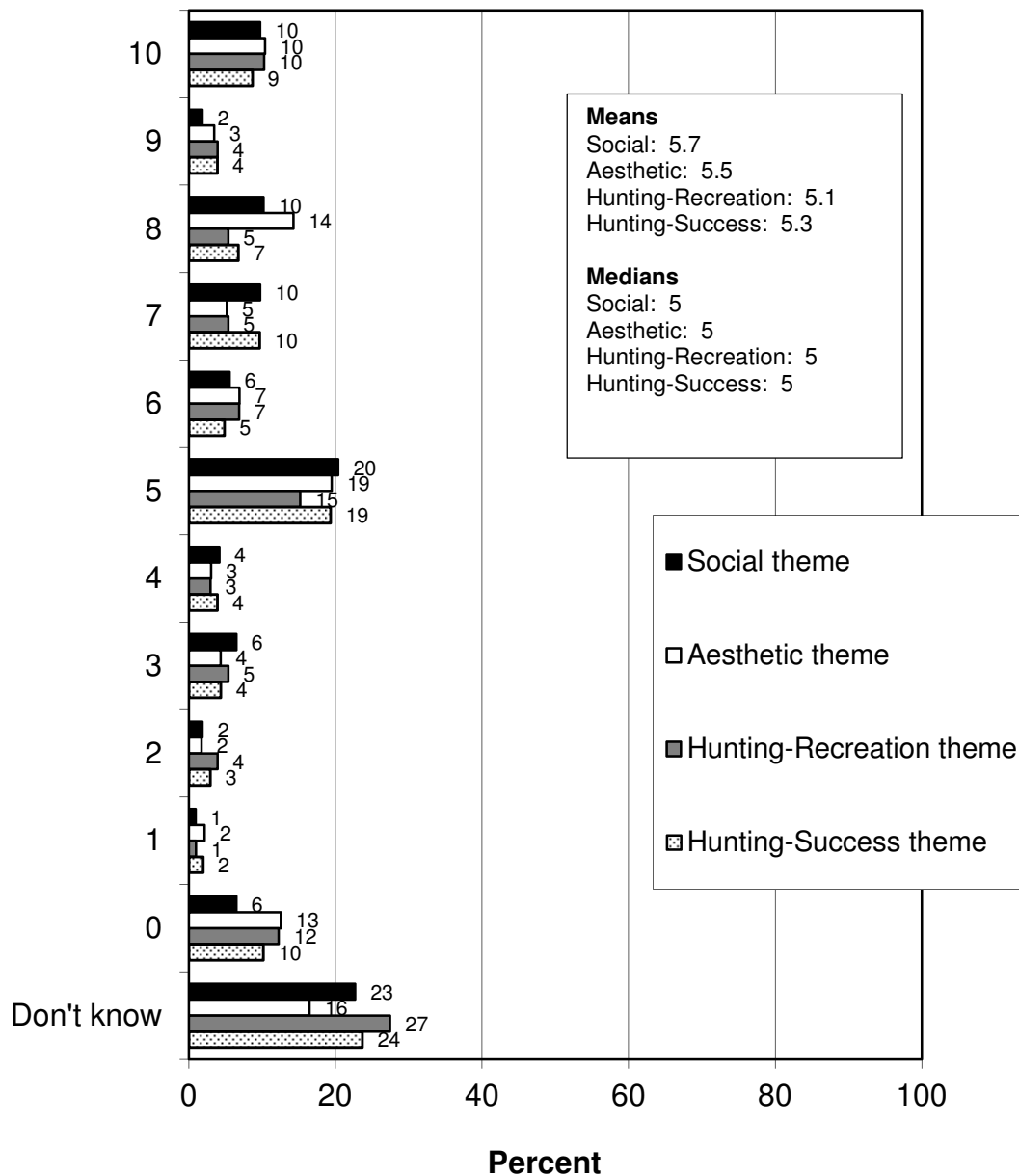


Figure 4.136. Ratings of Effectiveness of Email at Increasing Interest, Georgia Bowhunters, by Theme

Q58b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Georgia? (Asked of Georgia bowhunters who read or glanced at the email.)

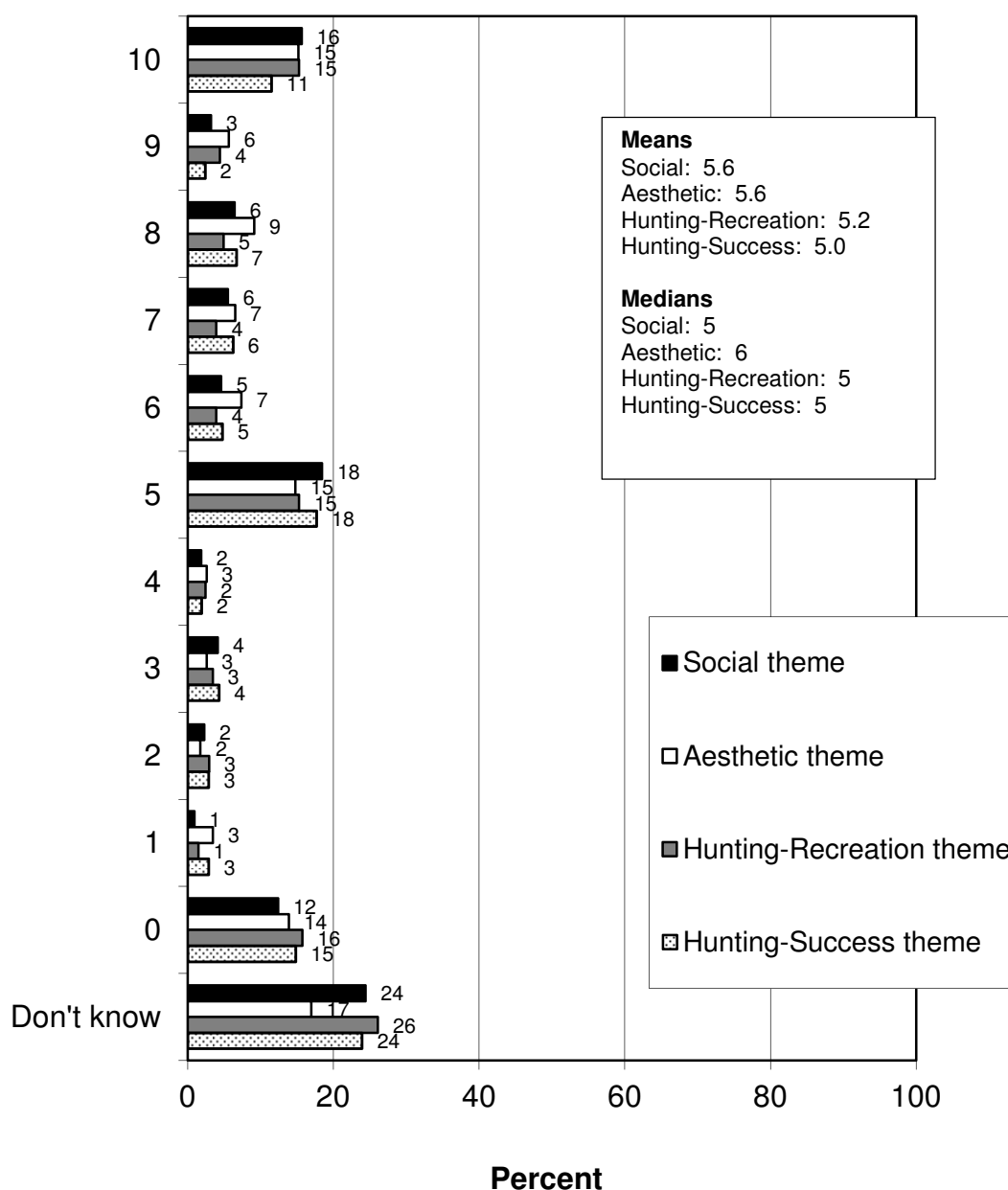


Figure 4.137. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Georgia Bowhunters, by Theme

Q44. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Indiana bowhunters who read or glanced at the email.)

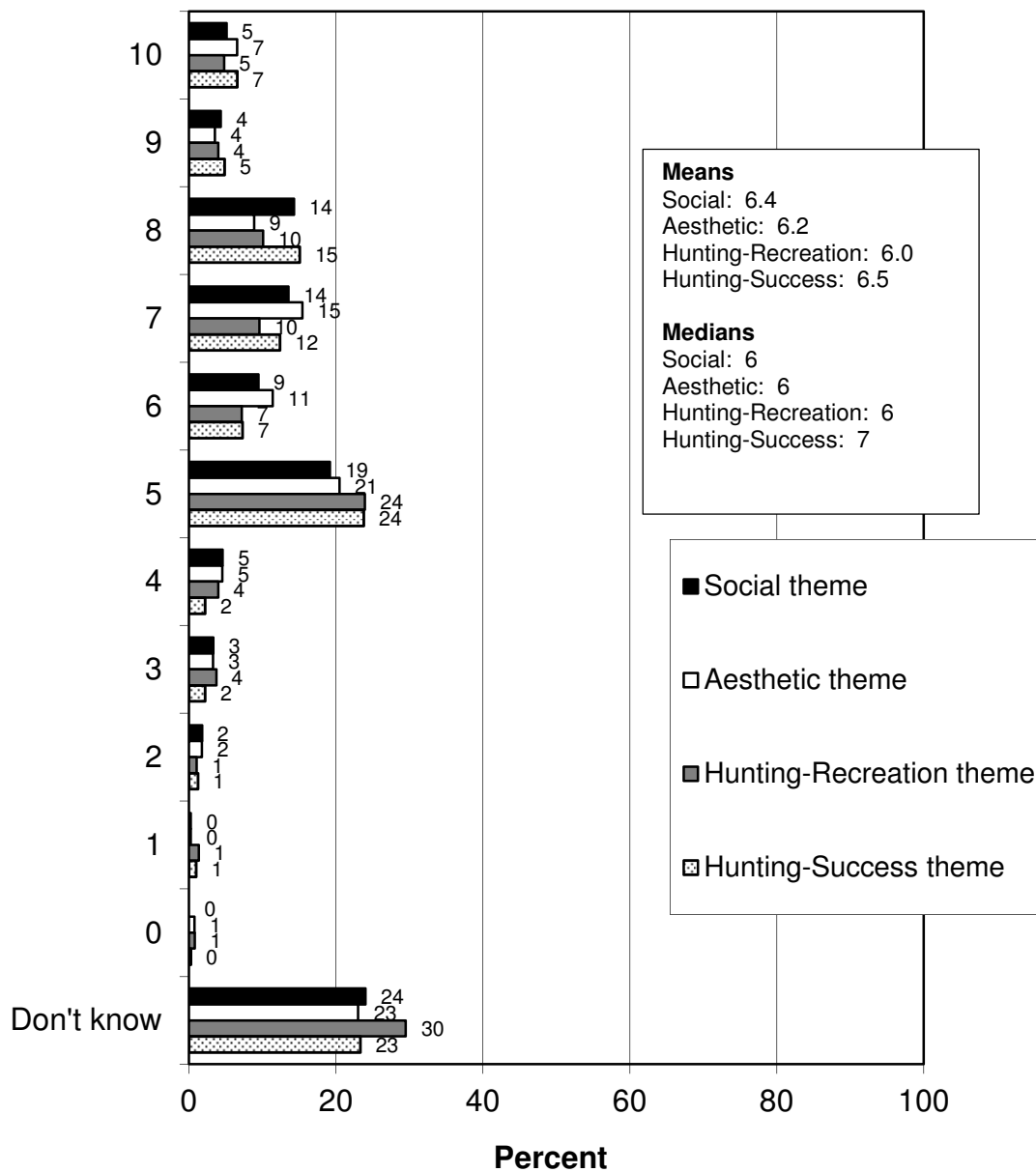


Figure 4.138. Ratings of the Email's Appeal, Indiana Bowhunters, by Theme

**Q59a. How would you rate the email you received regarding the theme of the message?
(Asked of Indiana bowhunters who read or glanced at the email.)**

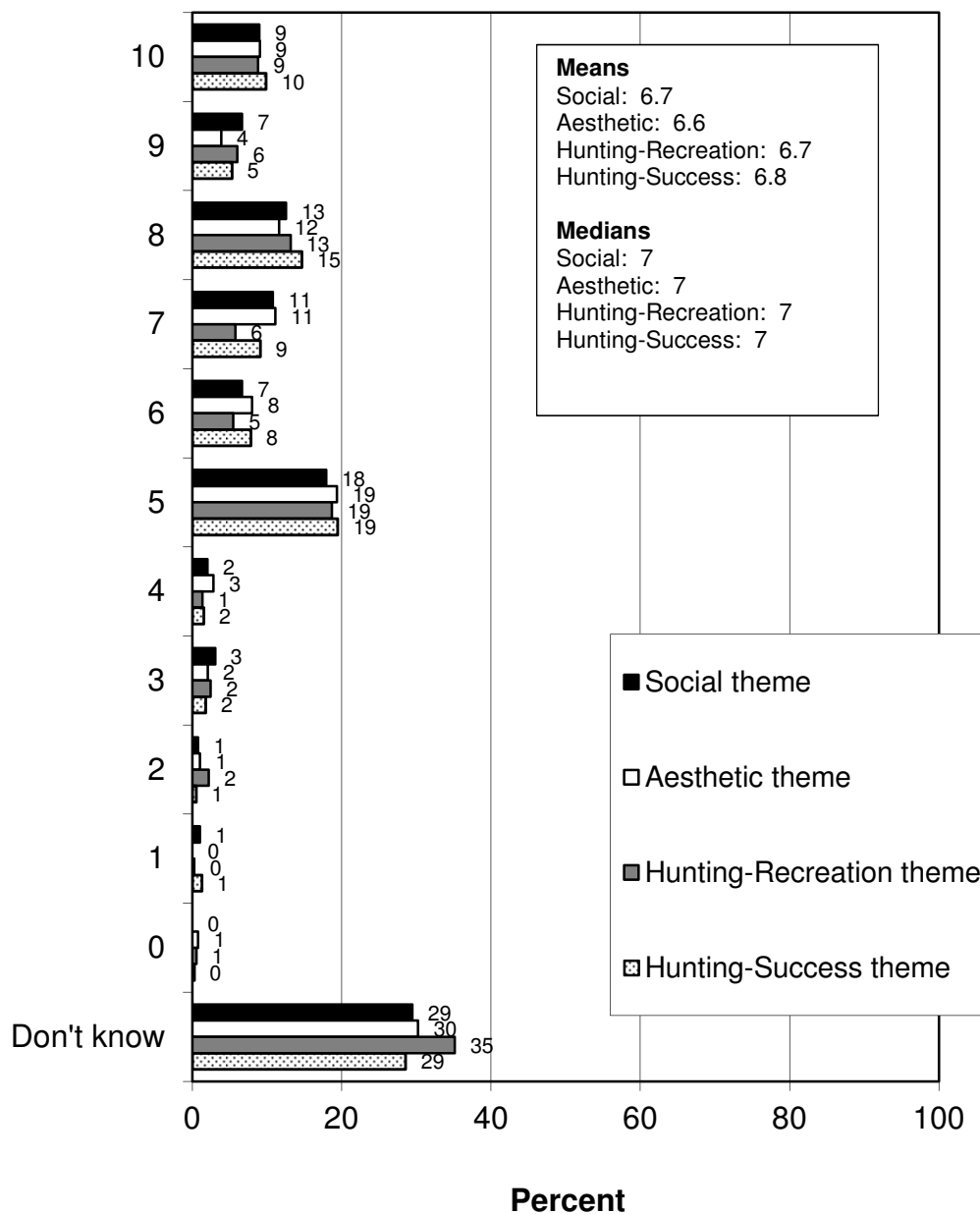


Figure 4.139. Ratings of the Email's Theme, Indiana Bowhunters, by Theme

**Q59b. How would you rate the email you received regarding the image or picture used?
(Asked of Indiana bowhunters who read or glanced at the email.)**

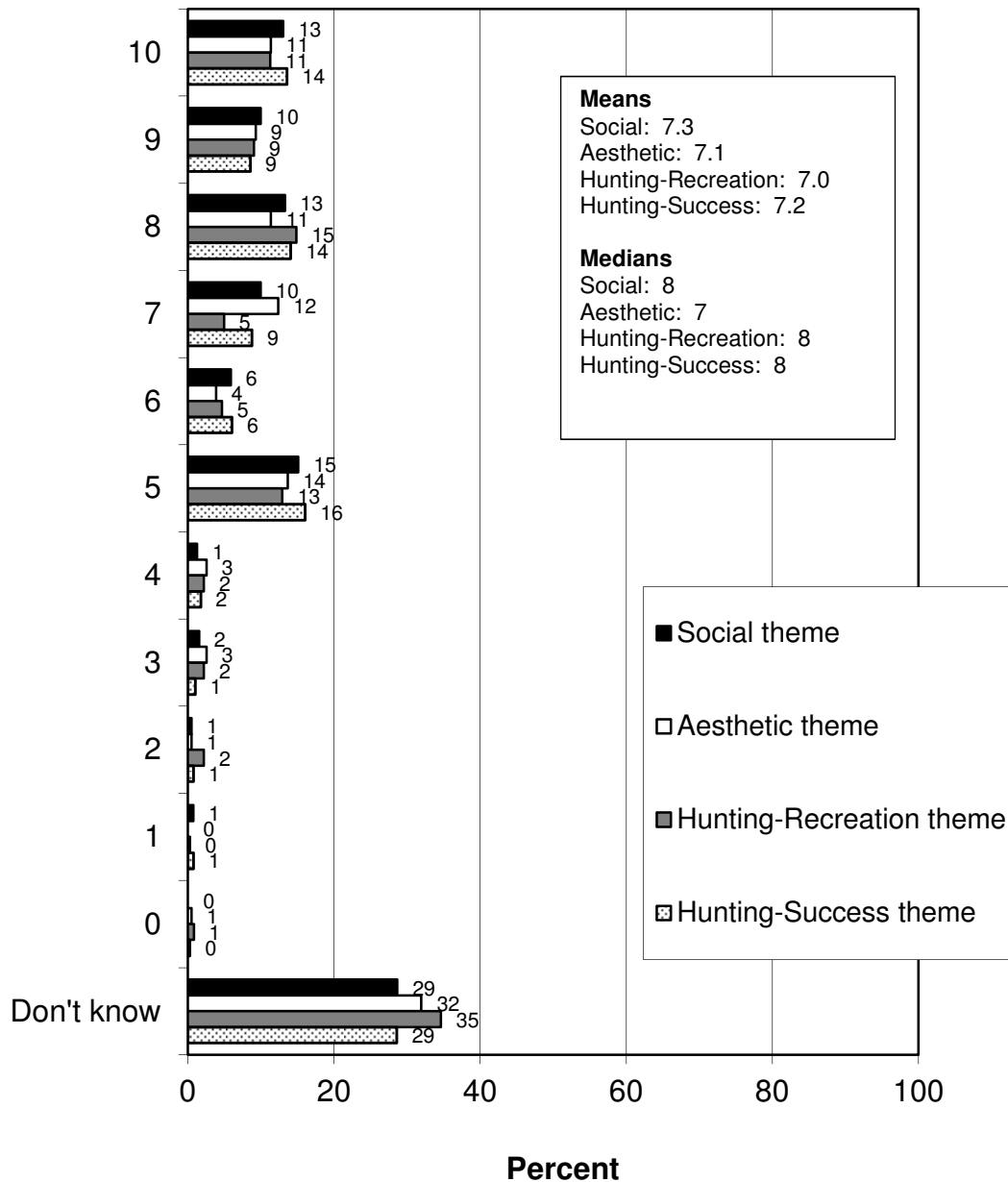


Figure 4.140. Ratings of the Email's Imagery, Indiana Bowhunters, by Theme

Q59c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Indiana bowhunters who read or glanced at the email.)

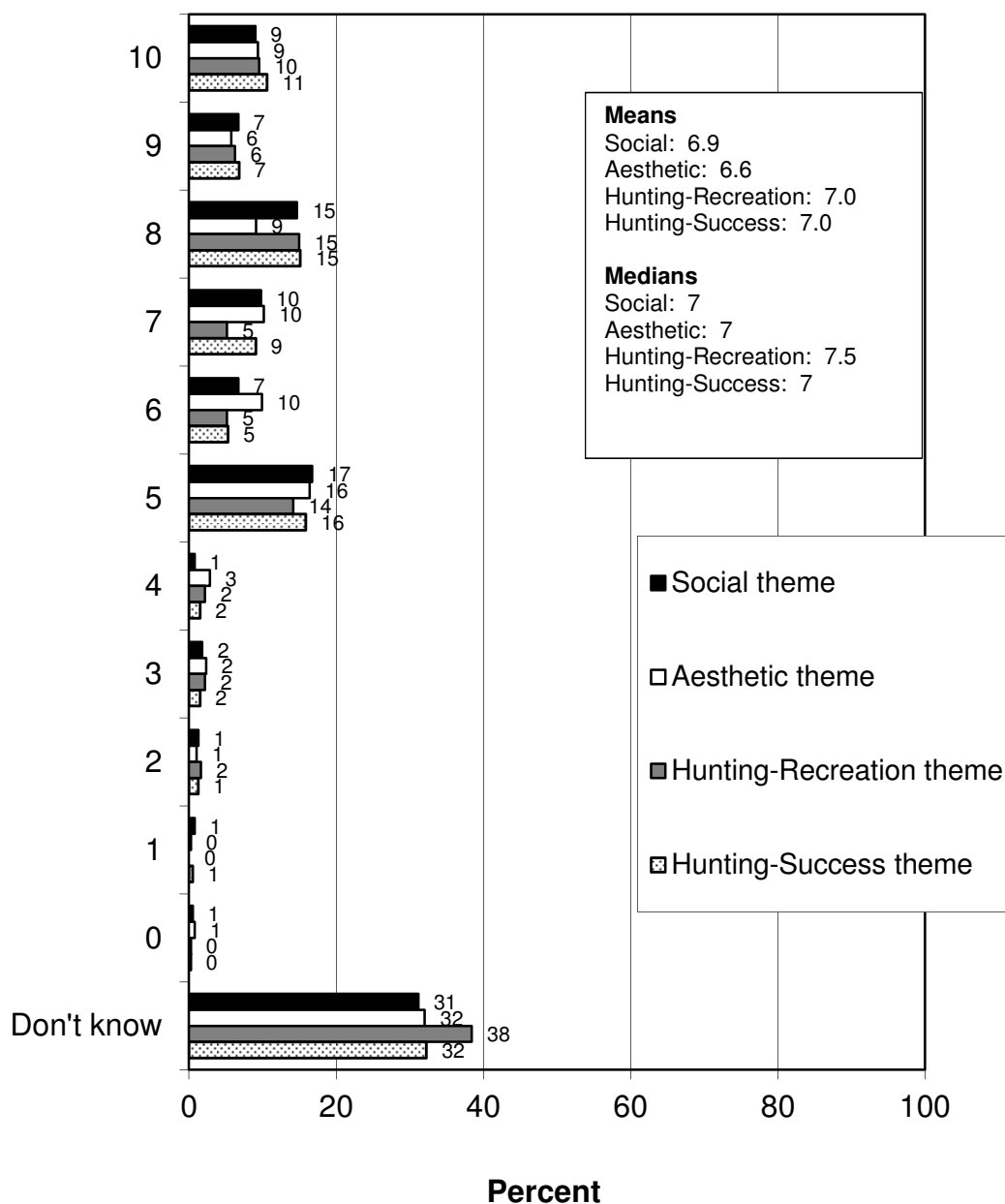


Figure 4.141. Ratings of the Email's Timing, Indiana Bowhunters, by Theme

Q59d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Indiana bowhunters who read or glanced at the email.)

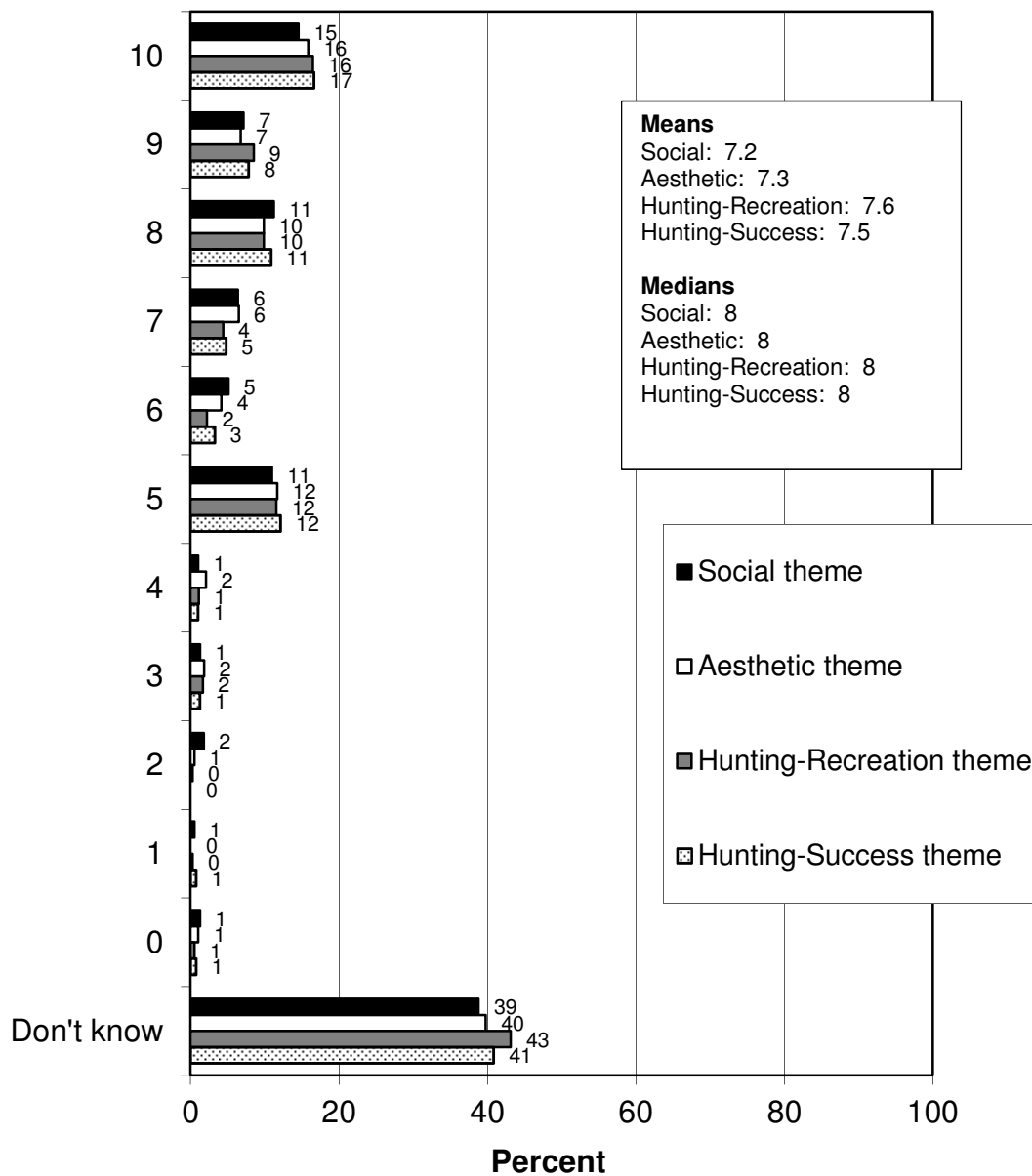


Figure 4.142. Ratings of the Email's Ease of Use, Indiana Bowhunters, by Theme

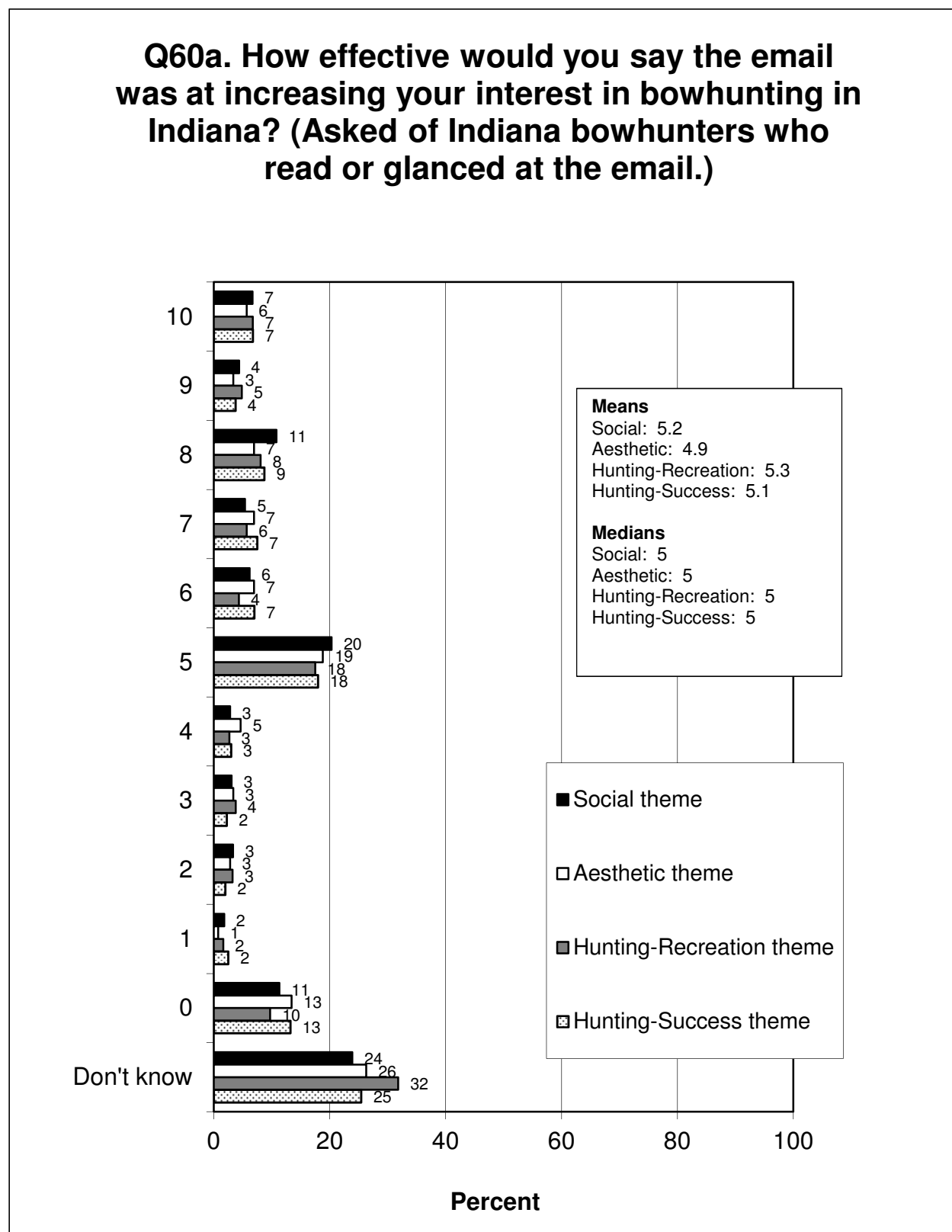


Figure 4.143. Ratings of Effectiveness of Email at Increasing Interest, Indiana Bowhunters, by Theme

Q60b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Indiana? (Asked of Indiana bowhunters who read or glanced at the email.)

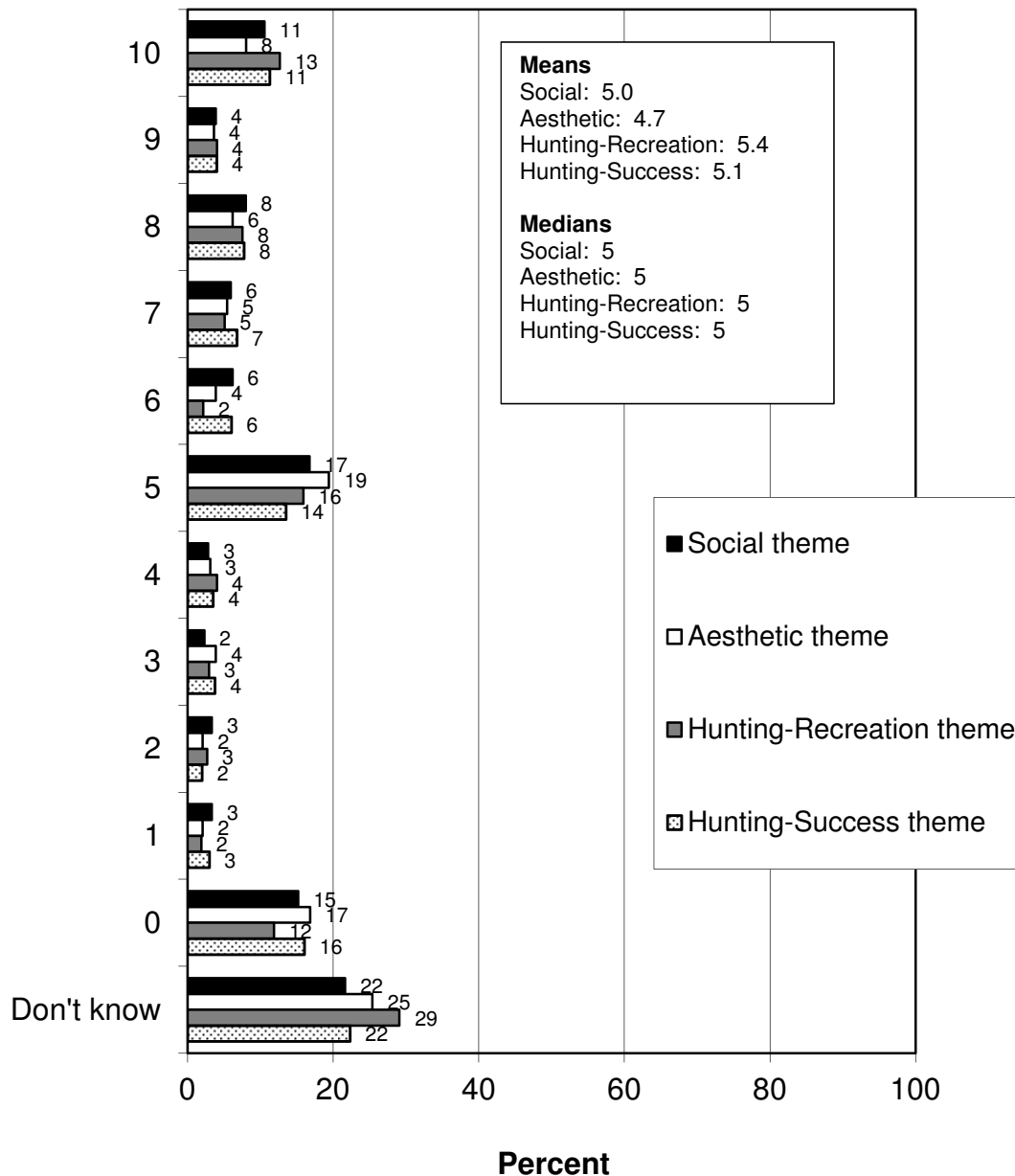


Figure 4.144. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Indiana Bowhunters, by Theme

Q48. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of New Jersey bowhunters who read or glanced at the email.)

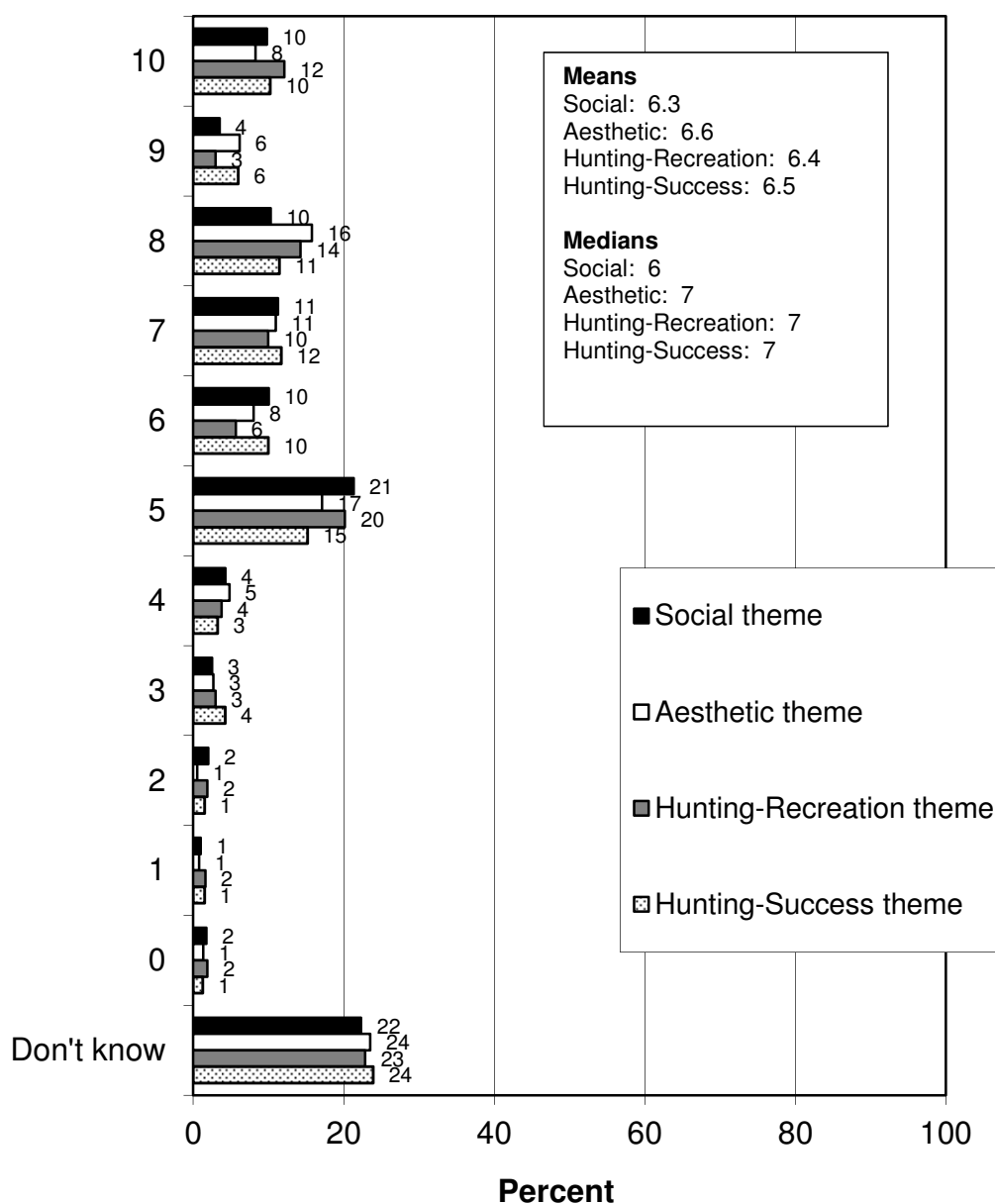


Figure 4.145. Ratings of the Email's Appeal, New Jersey Bowhunters, by Theme

**Q61a. How would you rate the email you received regarding the theme of the message?
(Asked of New Jersey bowhunters who read or glanced at the email.)**

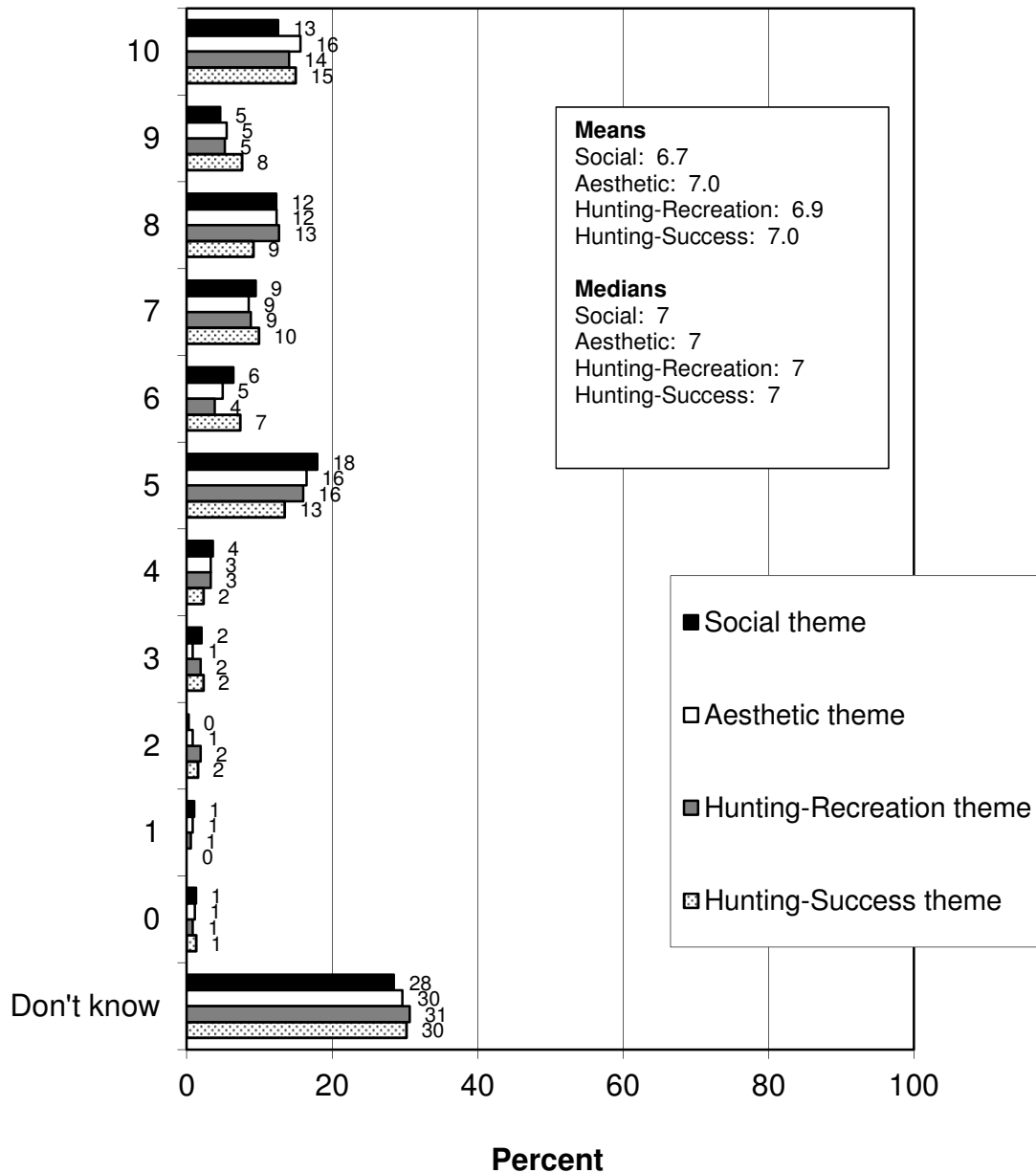


Figure 4.146. Ratings of the Email's Theme, New Jersey Bowhunters, by Theme

**Q61b. How would you rate the email you received regarding the image or picture used?
(Asked of New Jersey bowhunters who read or glanced at the email.)**

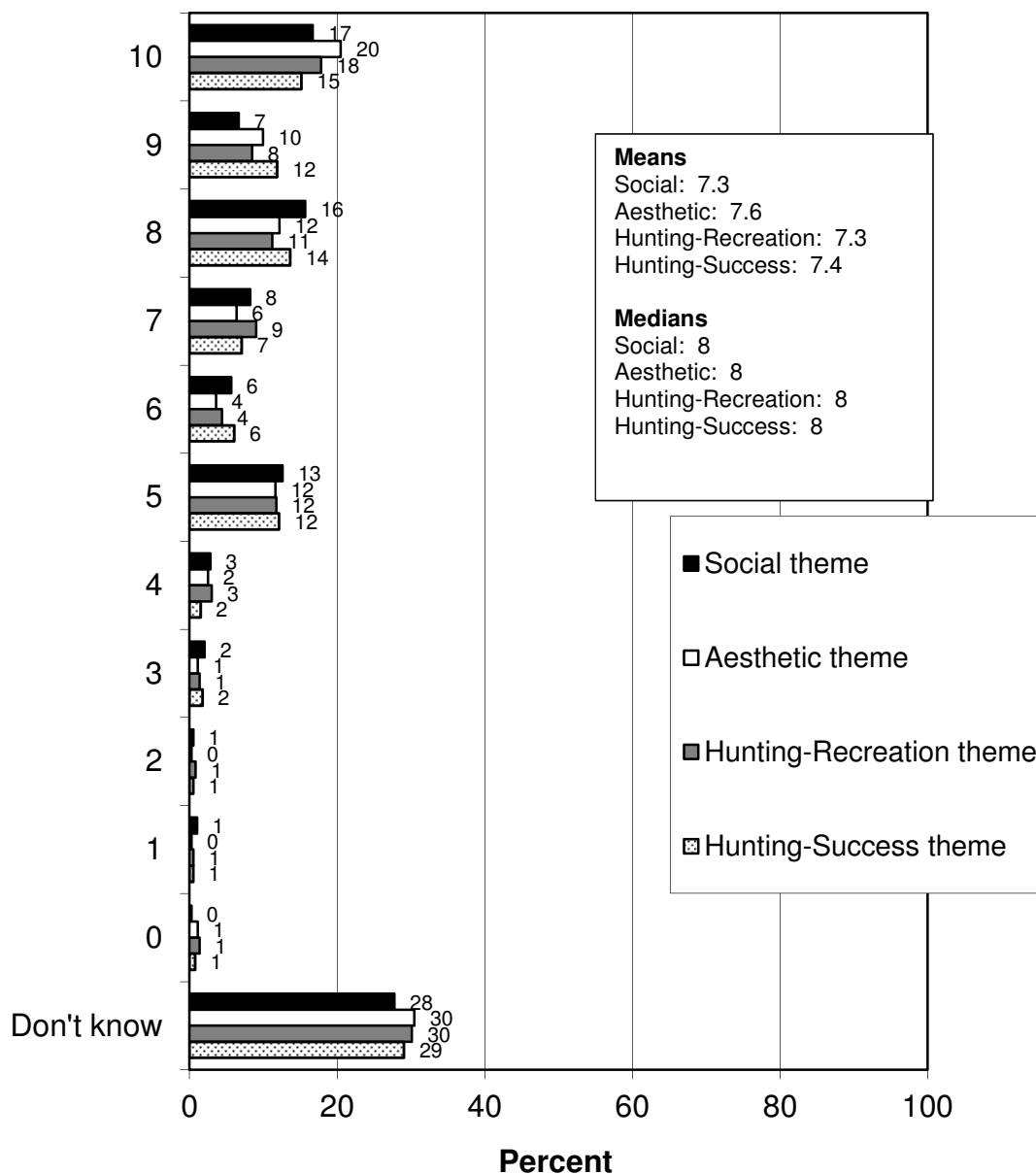


Figure 4.147. Ratings of the Email's Imagery, New Jersey Bowhunters, by Theme

Q61c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of New Jersey bowhunters who read or glanced at the email.)

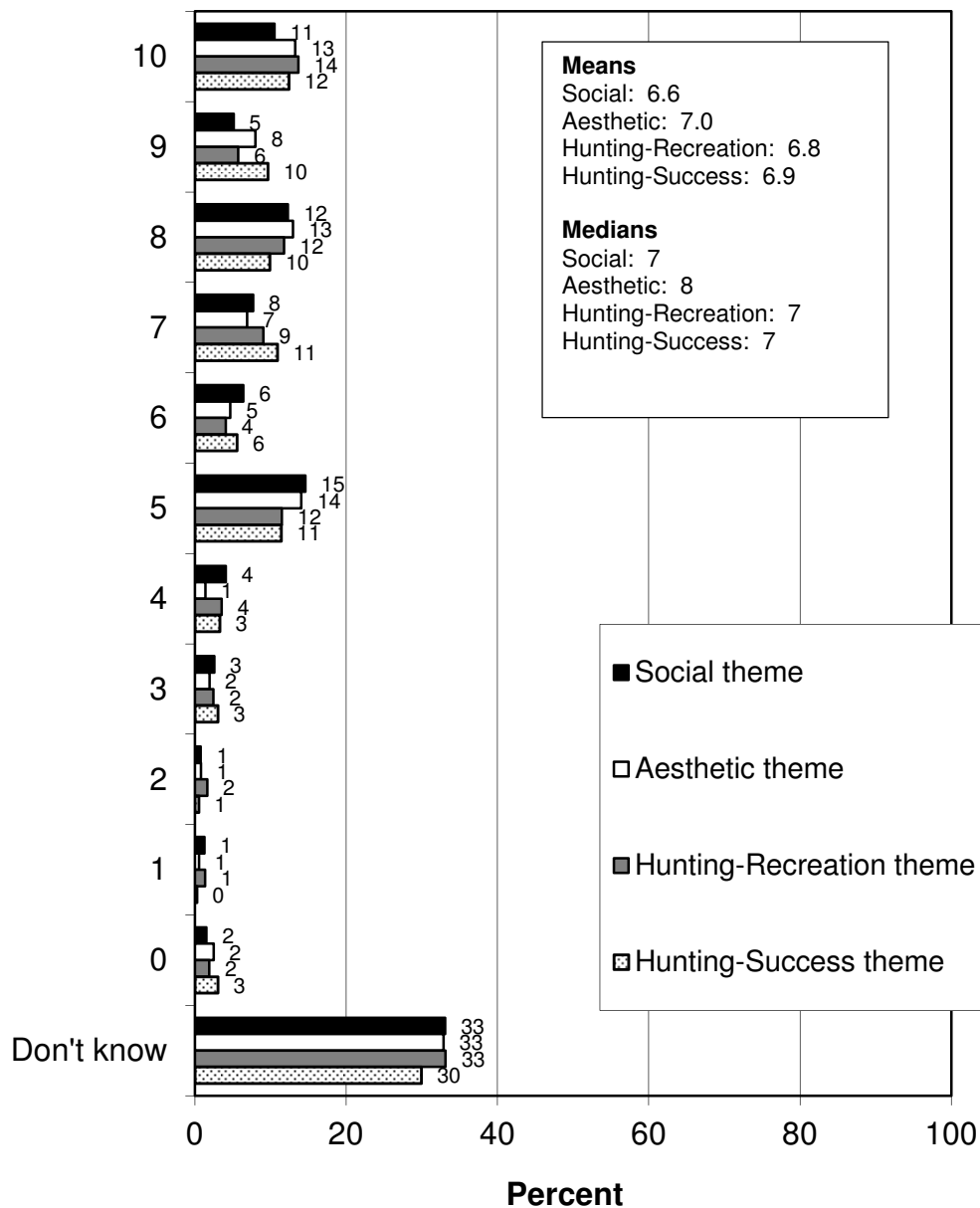


Figure 4.148. Ratings of the Email's Timing, New Jersey Bowhunters, by Theme

Q61d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of New Jersey bowhunters who read or glanced at the email.)

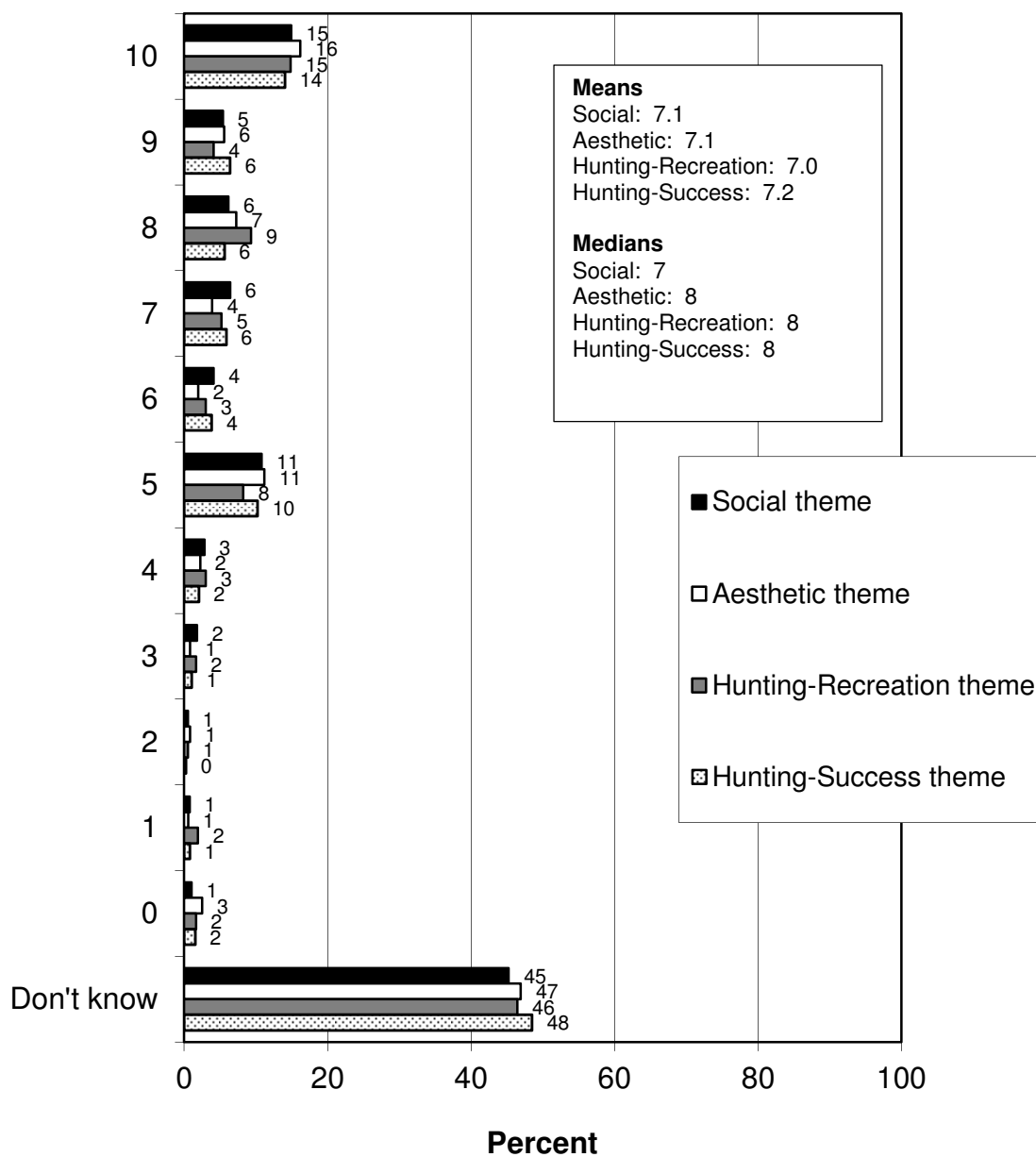


Figure 4.149. Ratings of the Email's Ease of Use, New Jersey Bowhunters, by Theme

Q62a. How effective would you say the email was at increasing your interest in bowhunting in New Jersey? (Asked of New Jersey bowhunters who read or glanced at the email.)

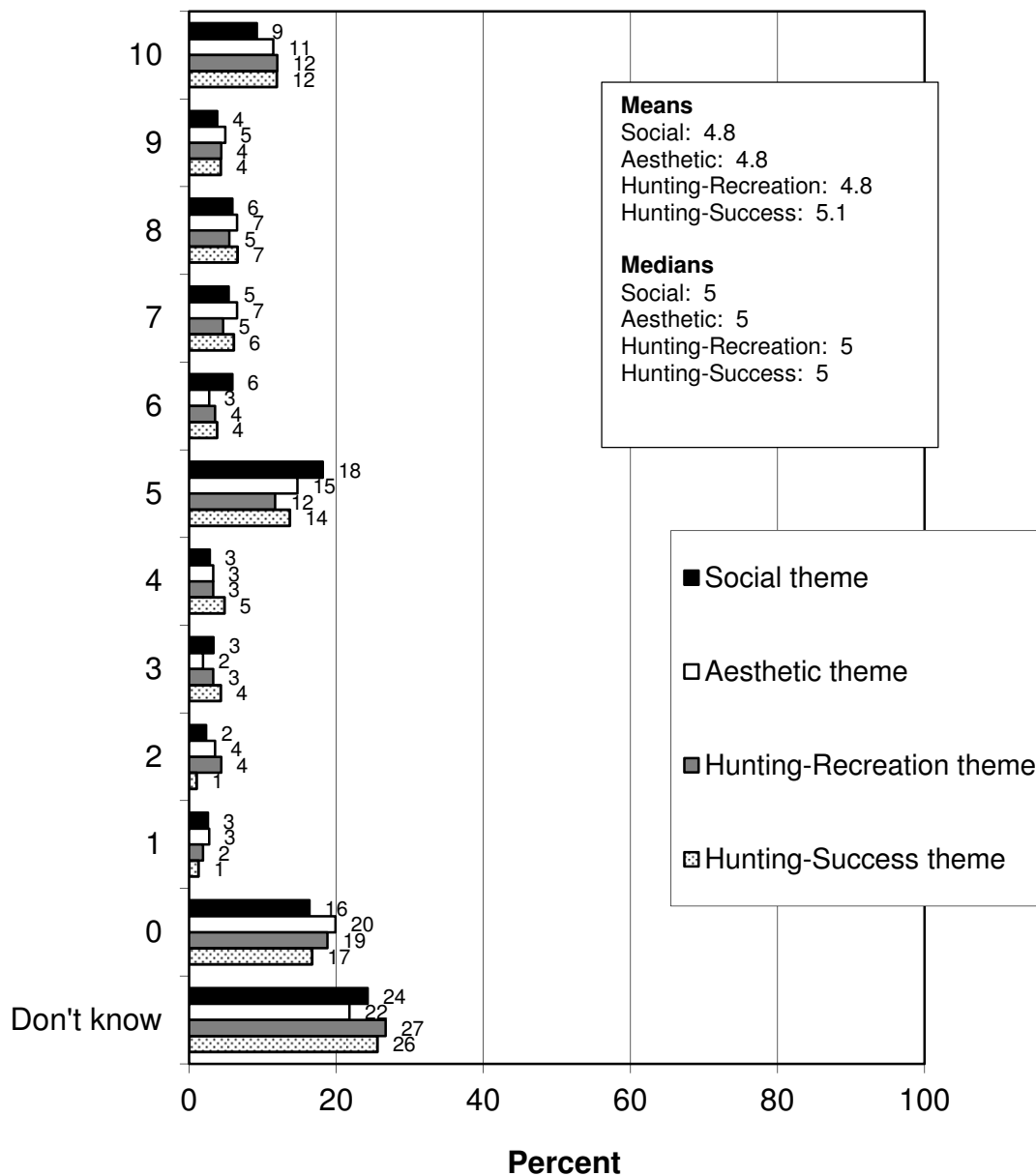


Figure 4.150. Ratings of Effectiveness of Email at Increasing Interest, New Jersey Bowhunters, by Theme

Q62b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in New Jersey? (Asked of New Jersey bowhunters who read or glanced at the email.)

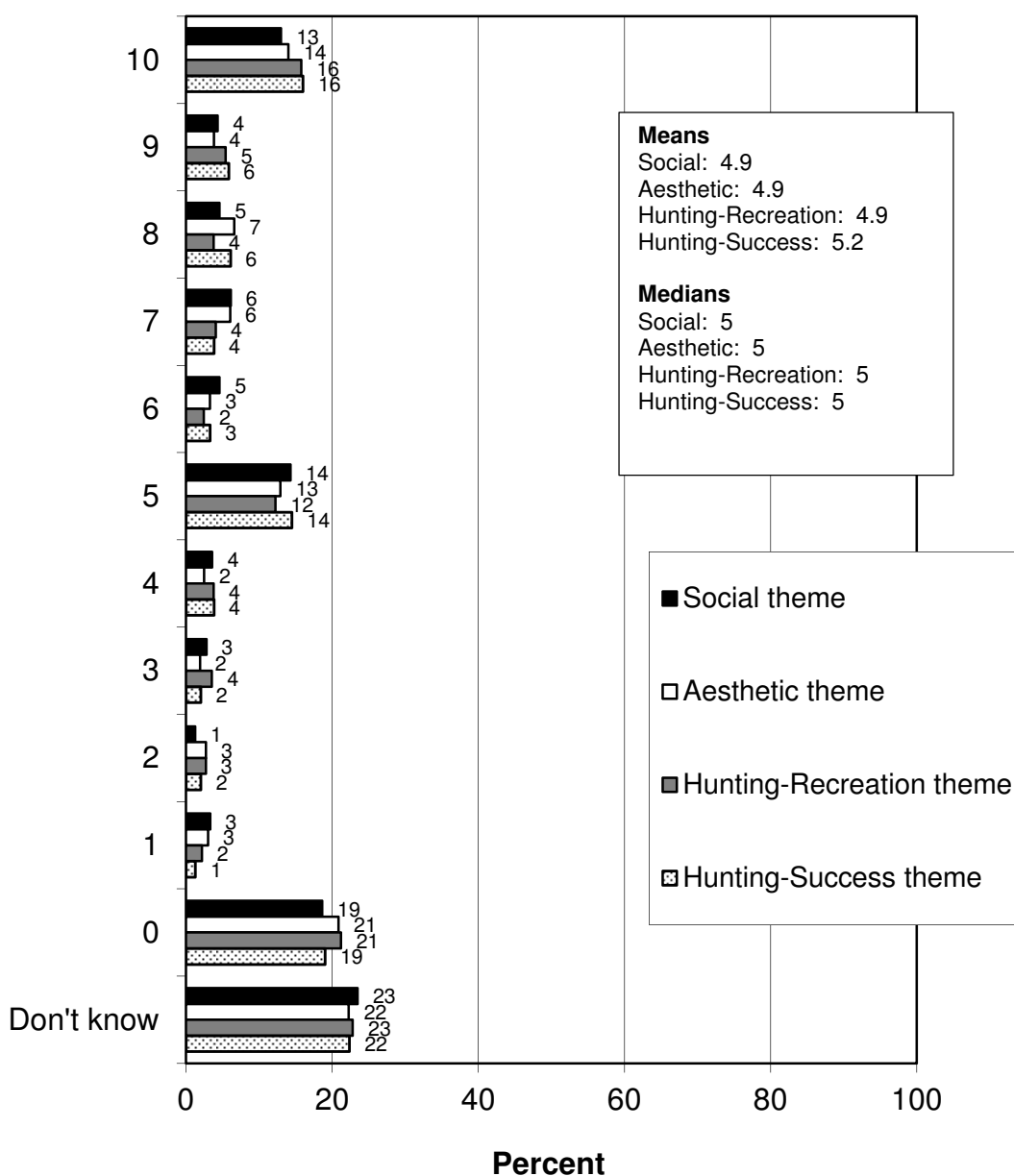


Figure 4.151. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, New Jersey Bowhunters, by Theme

Q52. Based on what you remember, how would you rate the overall appeal of the email you received, on a scale of 0 to 10, where 0 is poor and 10 is excellent? (Asked of Oklahoma bowhunters who read or glanced at the email.)

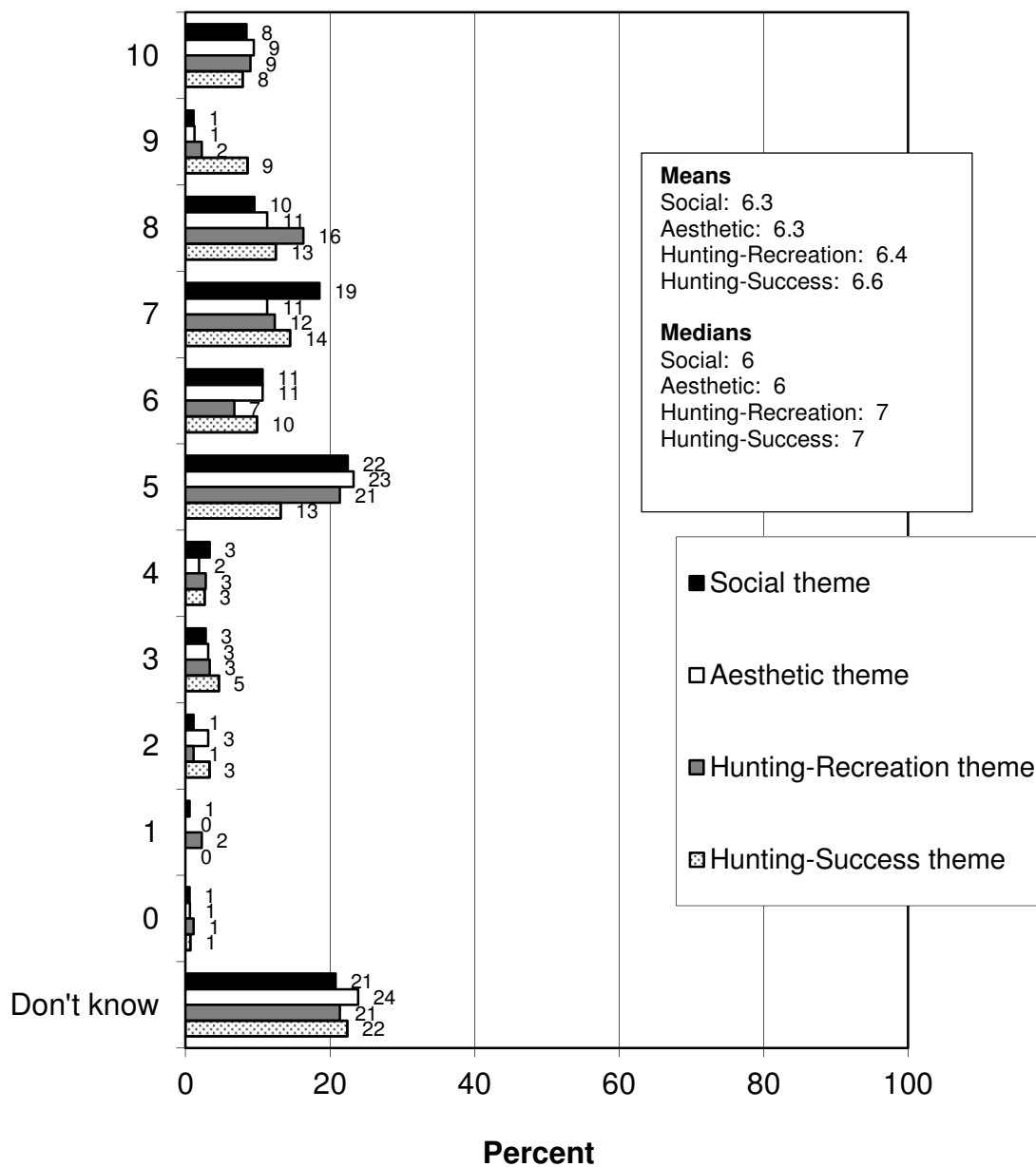


Figure 4.152. Ratings of the Email's Appeal, Oklahoma Bowhunters, by Theme

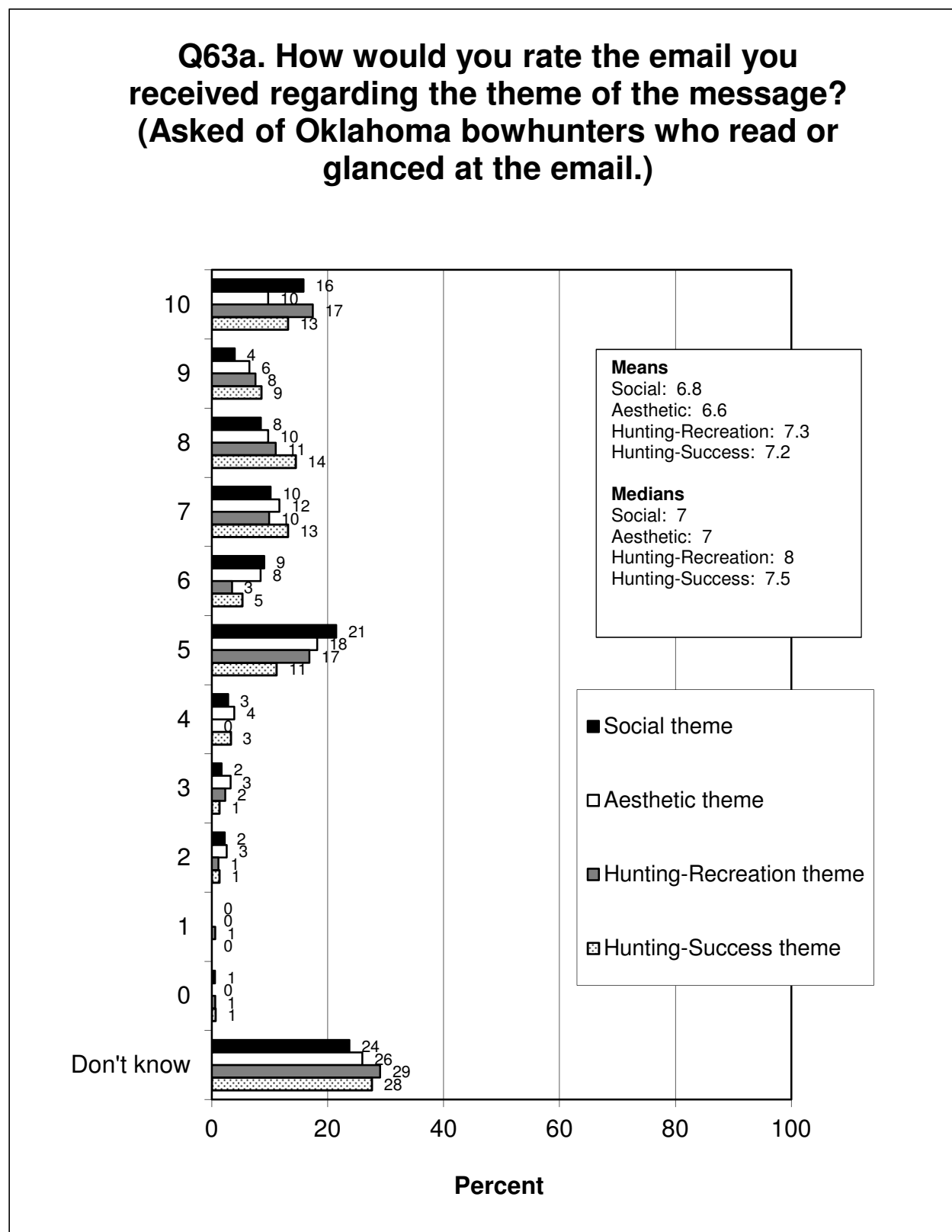


Figure 4.153. Ratings of the Email's Theme, Oklahoma Bowhunters, by Theme

**Q63b. How would you rate the email you received regarding the image or picture used?
(Asked of Oklahoma bowhunters who read or glanced at the email.)**

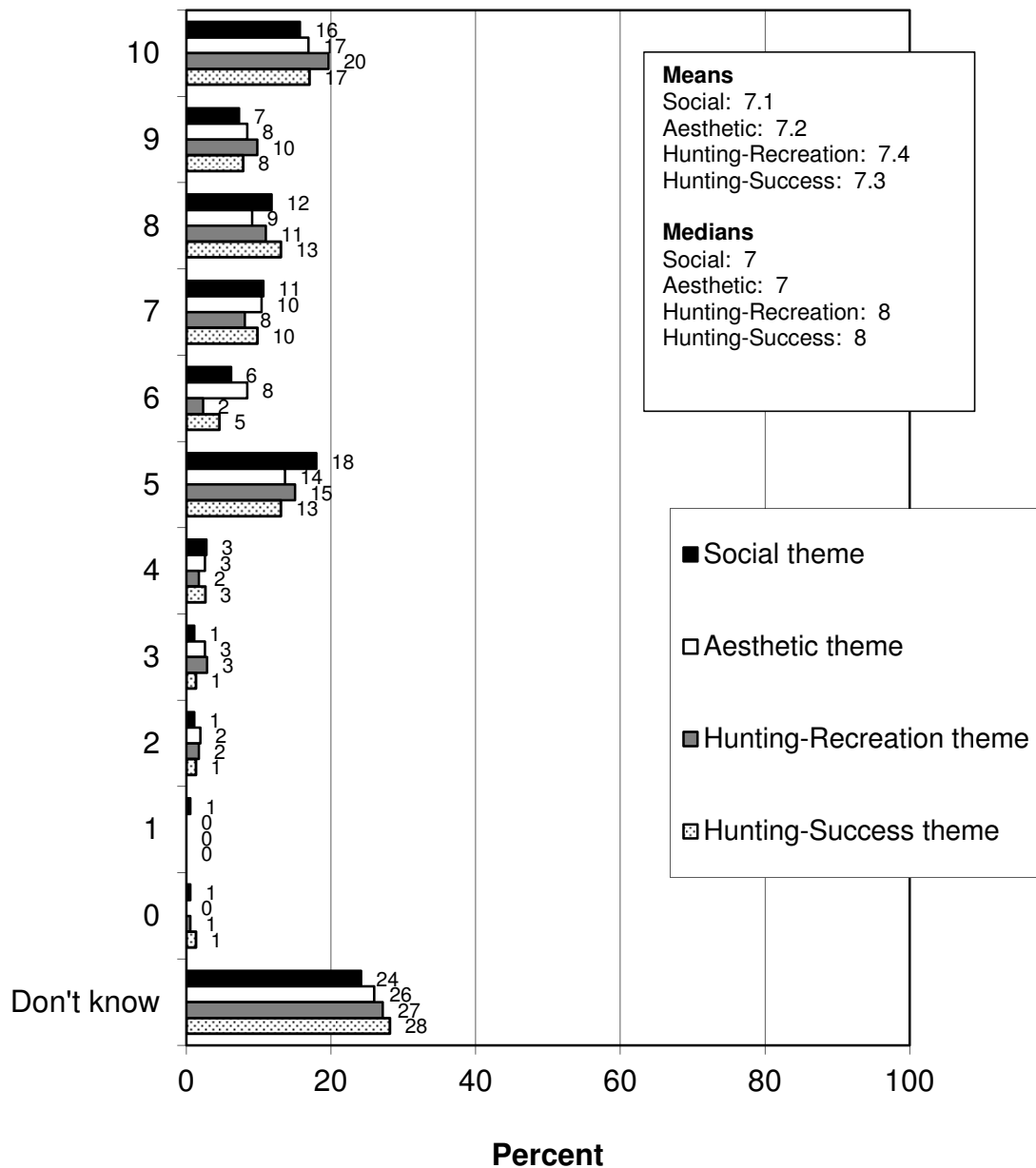


Figure 4.154. Ratings of the Email's Imagery, Oklahoma Bowhunters, by Theme

Q63c. How would you rate the email you received regarding its timing (when you received the message in relation to bowhunting season)? (Asked of Oklahoma bowhunters who read or glanced at the email.)

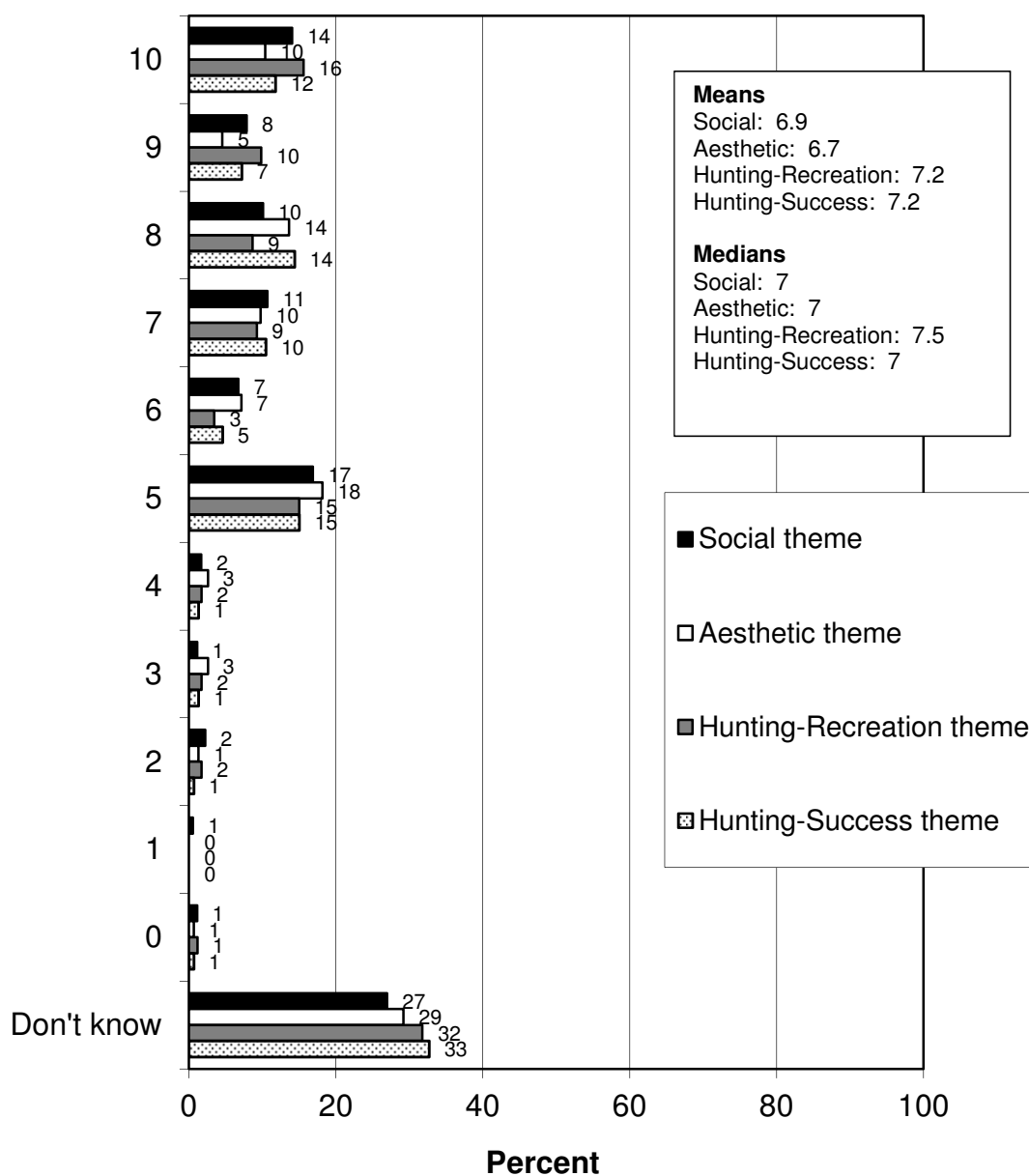


Figure 4.155. Ratings of the Email's Timing, Oklahoma Bowhunters, by Theme

Q63d. How would you rate the email you received regarding its ease of use (how easy it was to purchase your license via the email message)? (Asked of Oklahoma bowhunters who read or glanced at the email.)

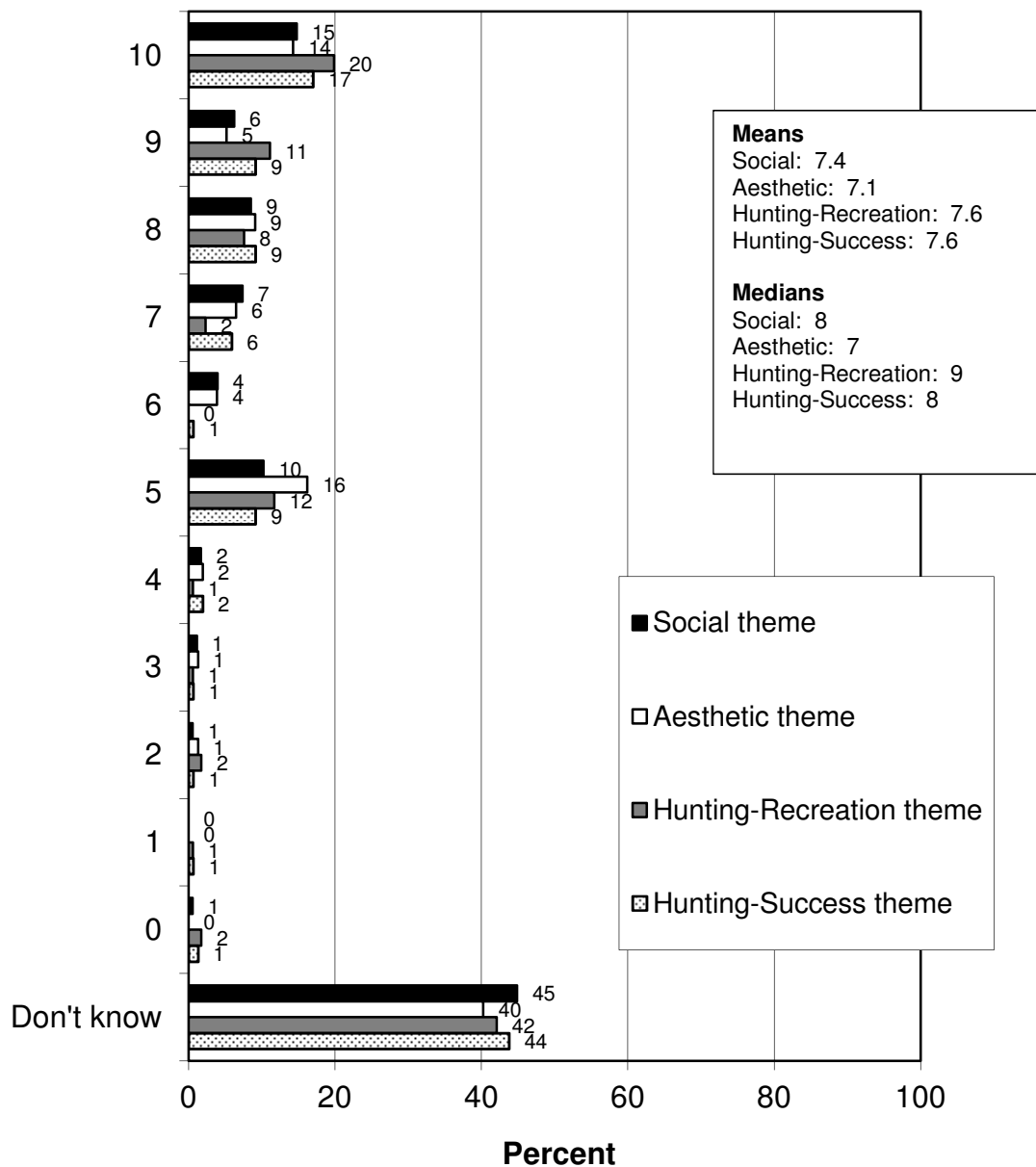


Figure 4.156. Ratings of the Email's Ease of Use, Oklahoma Bowhunters, by Theme

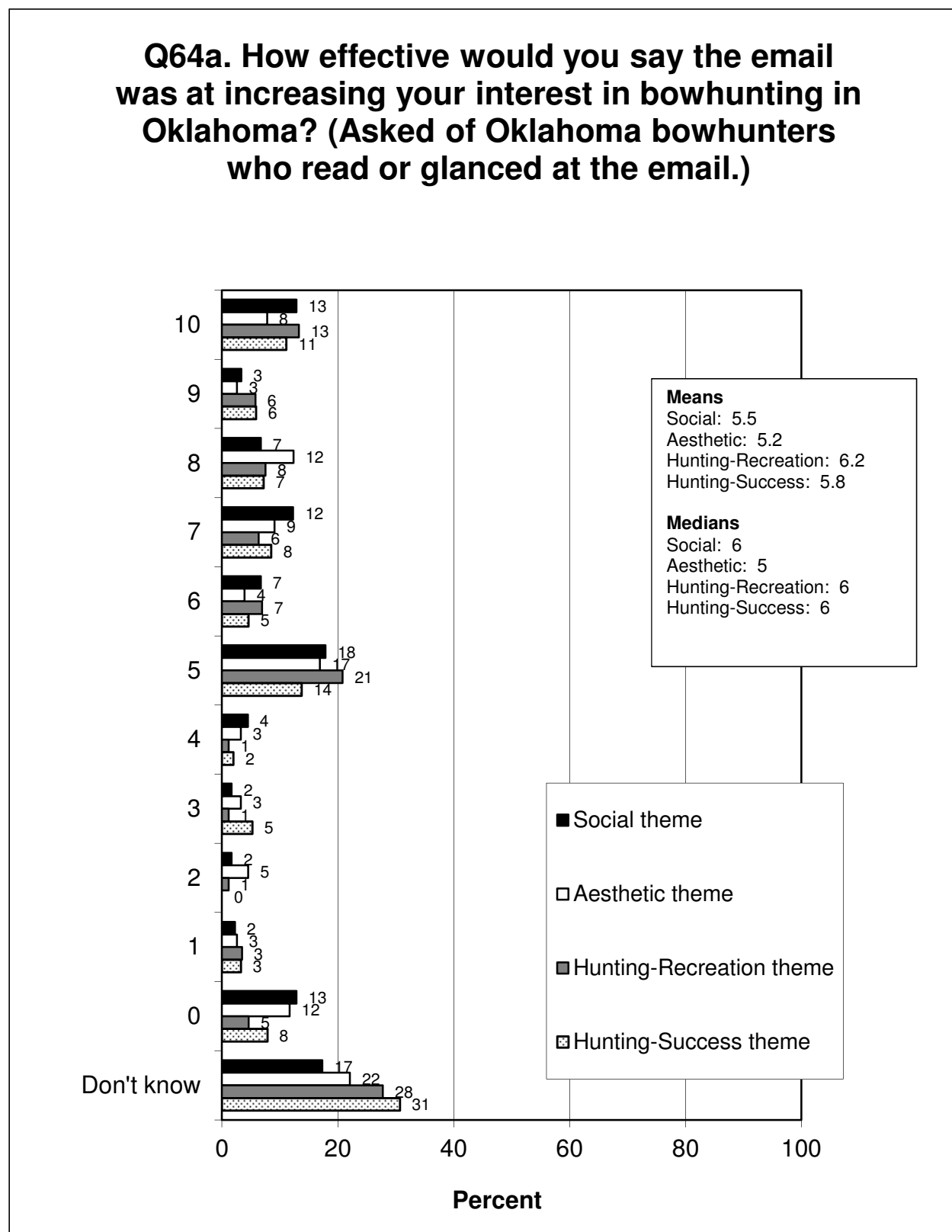


Figure 4.157. Ratings of Effectiveness of Email at Increasing Interest, Oklahoma Bowhunters, by Theme

Q64b. How effective would you say the email was at increasing the likelihood that you would purchase a hunting license to bowhunt in Oklahoma? (Asked of Oklahoma bowhunters who read or glanced at the email.)

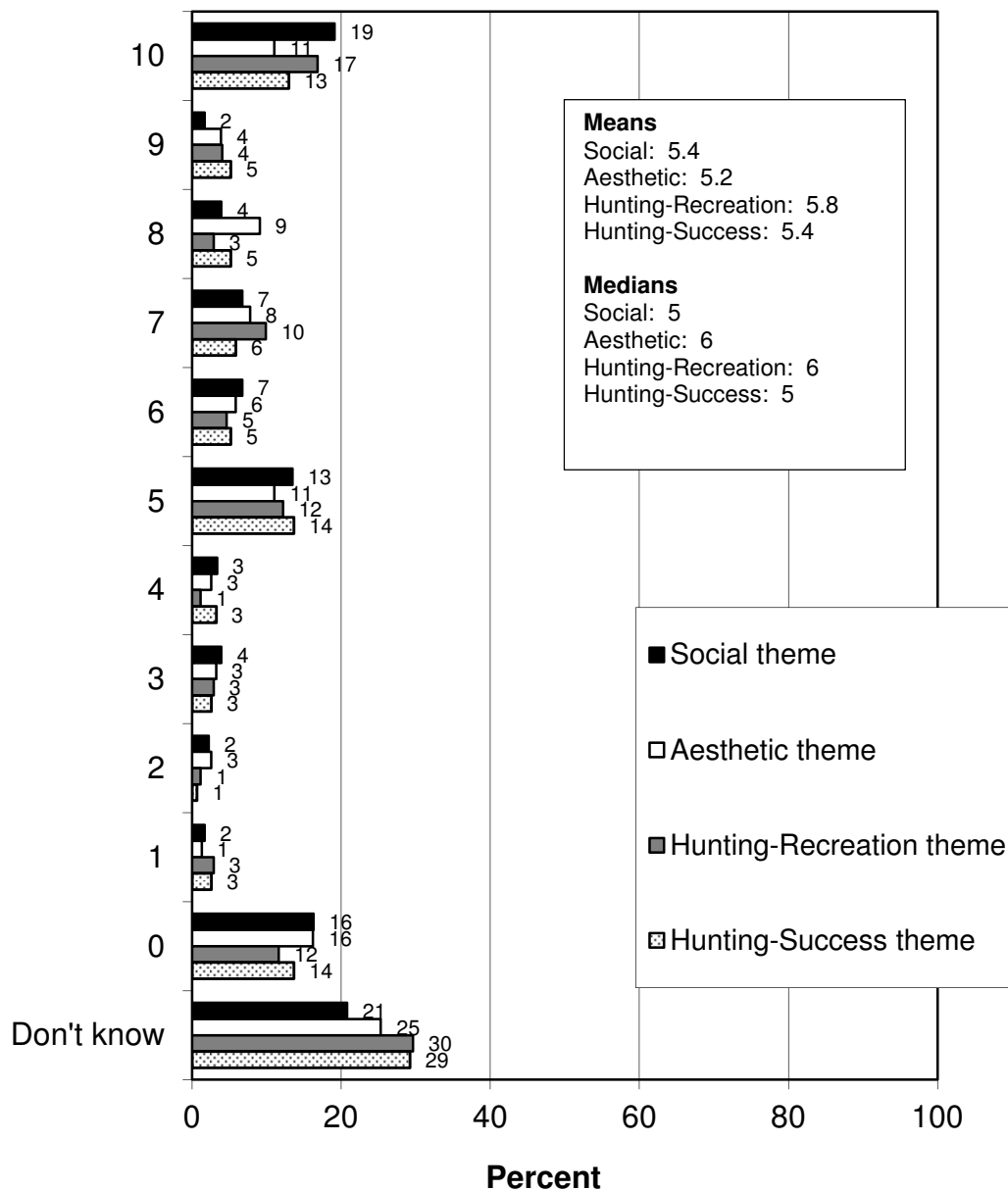


Figure 4.158. Ratings of Effectiveness of Email at Increasing Likelihood to Purchase, Oklahoma Bowhunters, by Theme

The survey then presented the four emails to respondents and asked them to indicate the one that they thought would be the most effective. Across all states, the hunting-success theme with the imagery of meat did not do well, while the aesthetic theme and the social theme were in the top two spots for the most part (Figures 4.159 through 4.163). Figure 4.164 then shows all the states together, with the social and aesthetic themes at the top, and Table 4.1 shows a summary of all the results from all the states.

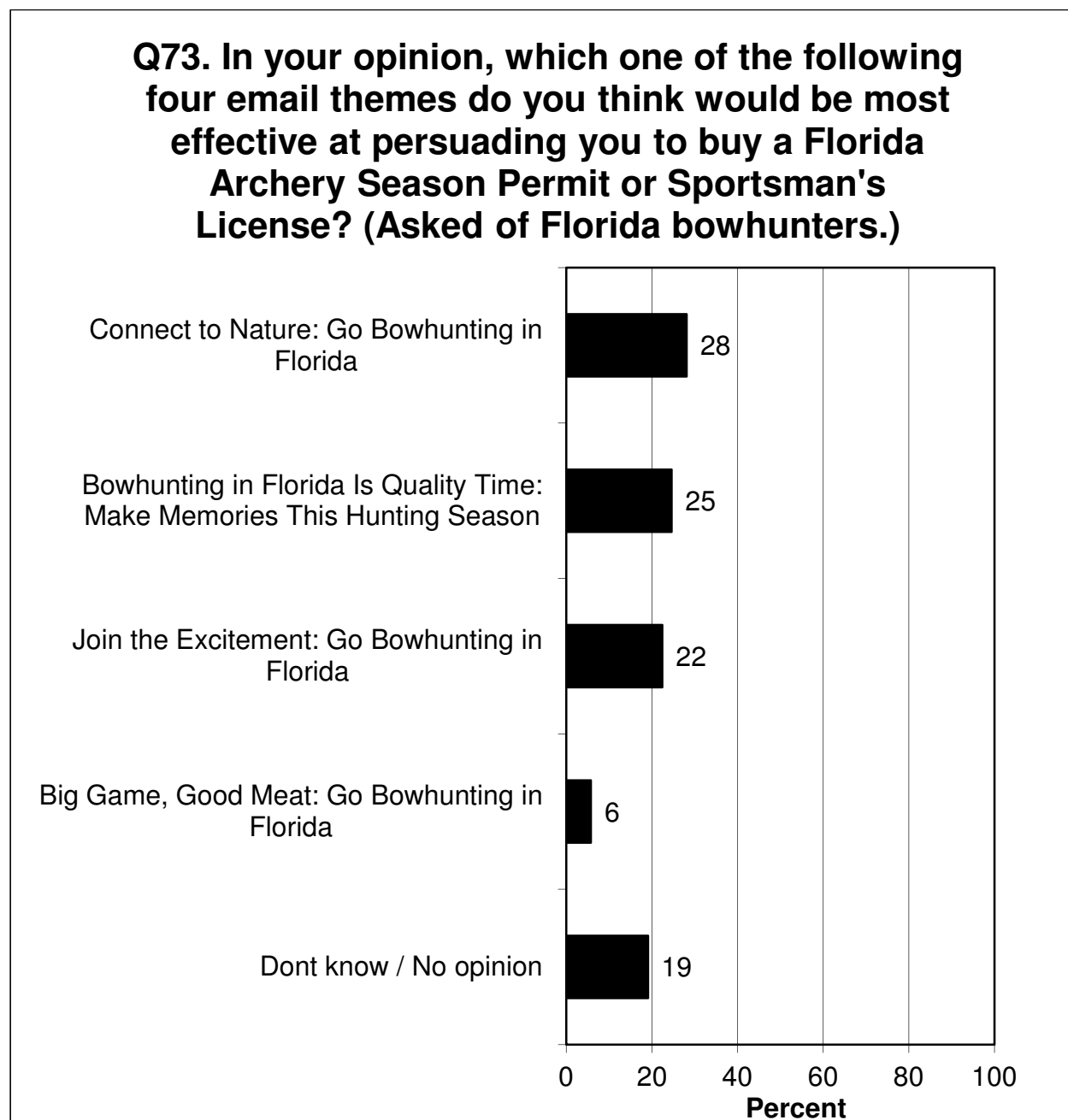


Figure 4.159. Theme Preference, Florida Bowhunters

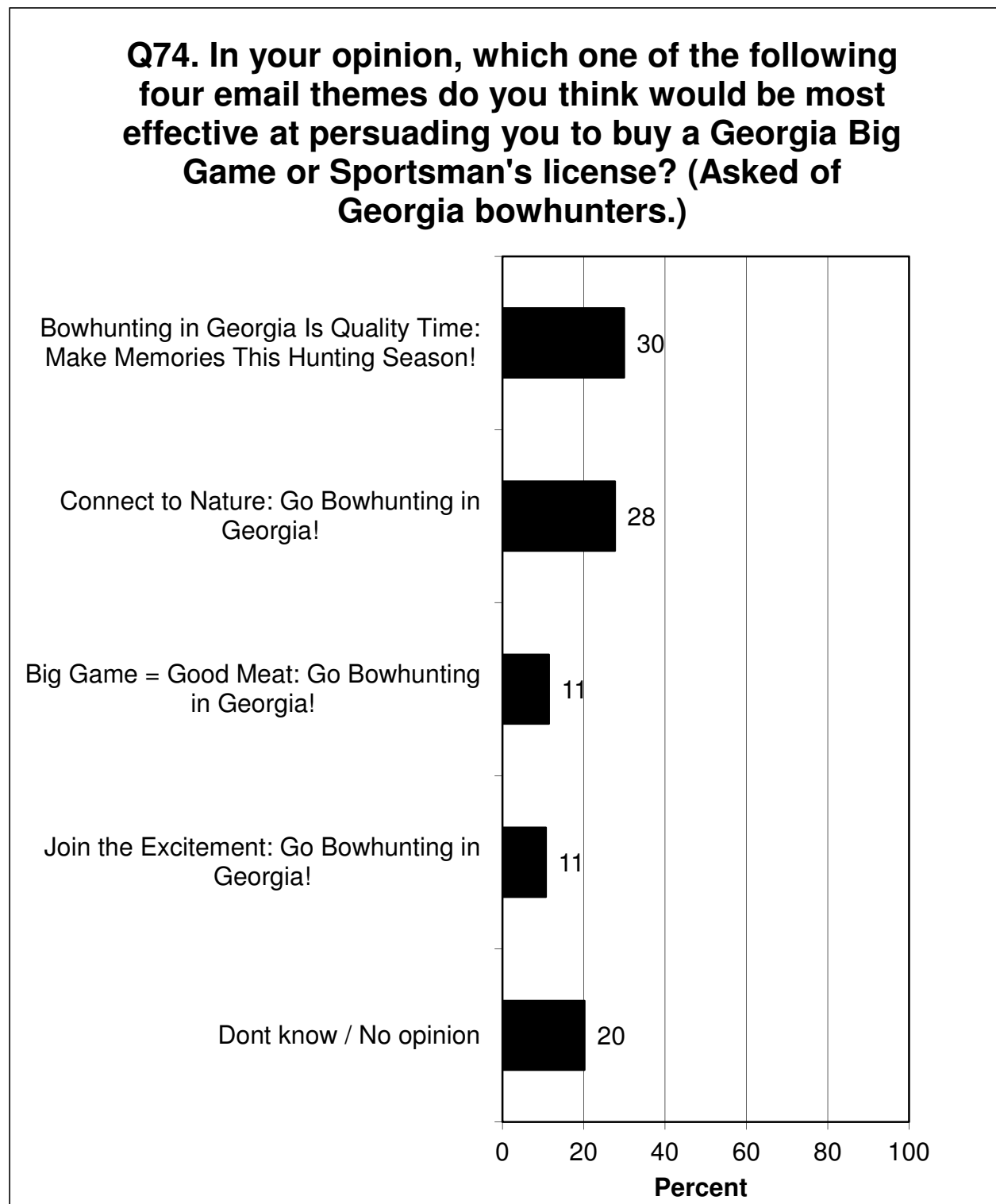


Figure 4.160. Theme Preference, Georgia Bowhunters

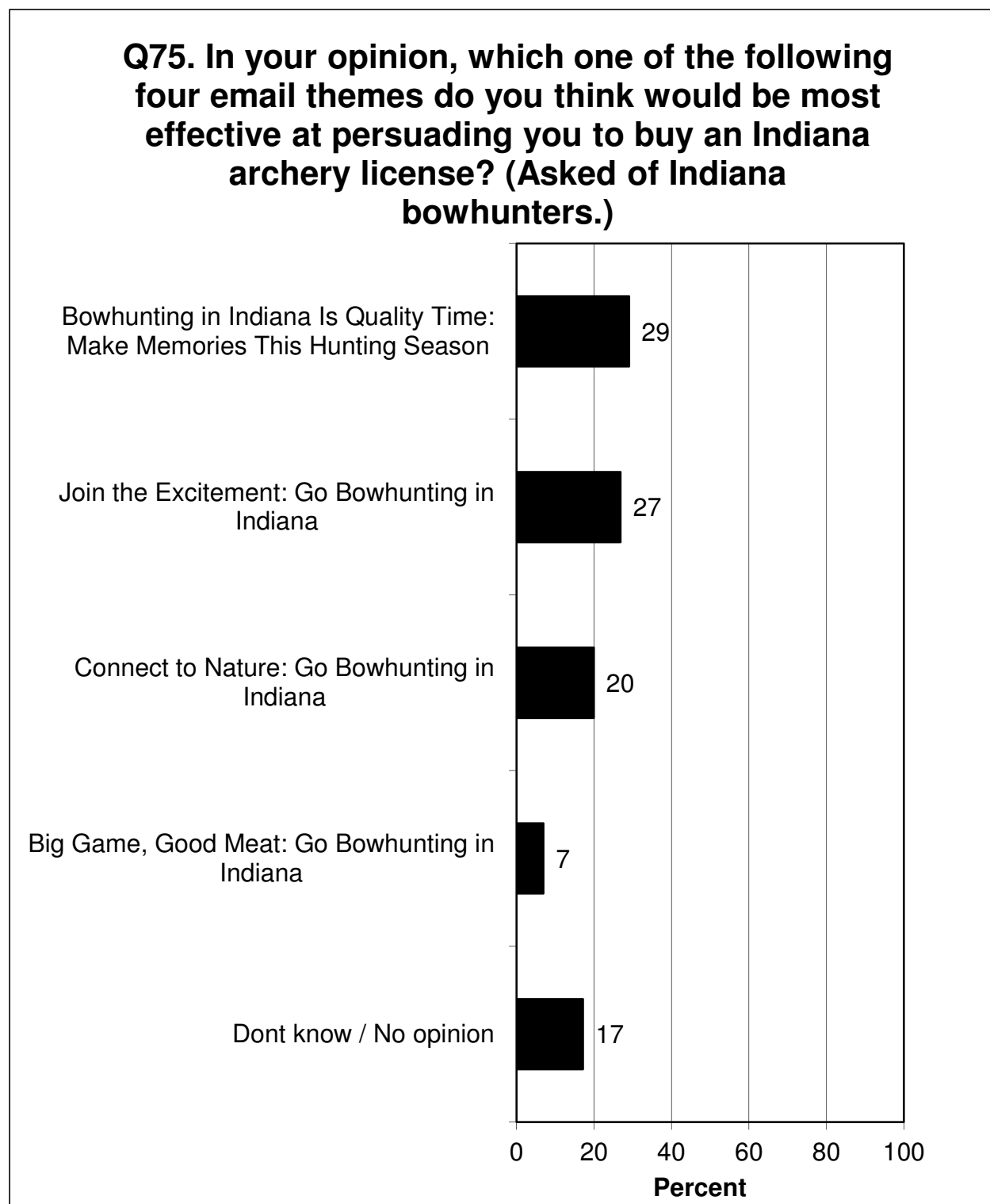


Figure 4.161. Theme Preference, Indiana Bowhunters

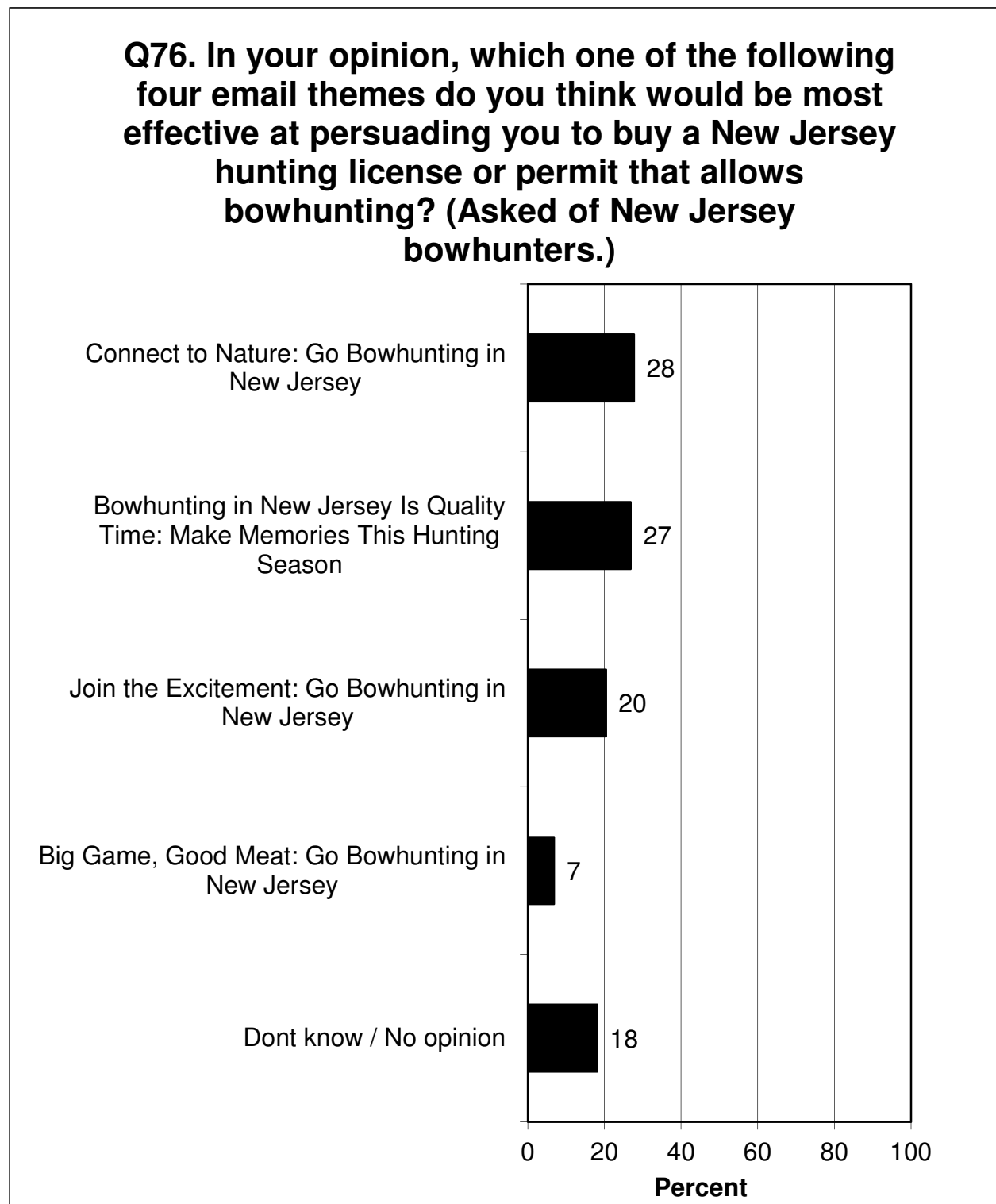


Figure 4.162. Theme Preference, New Jersey Bowhunters

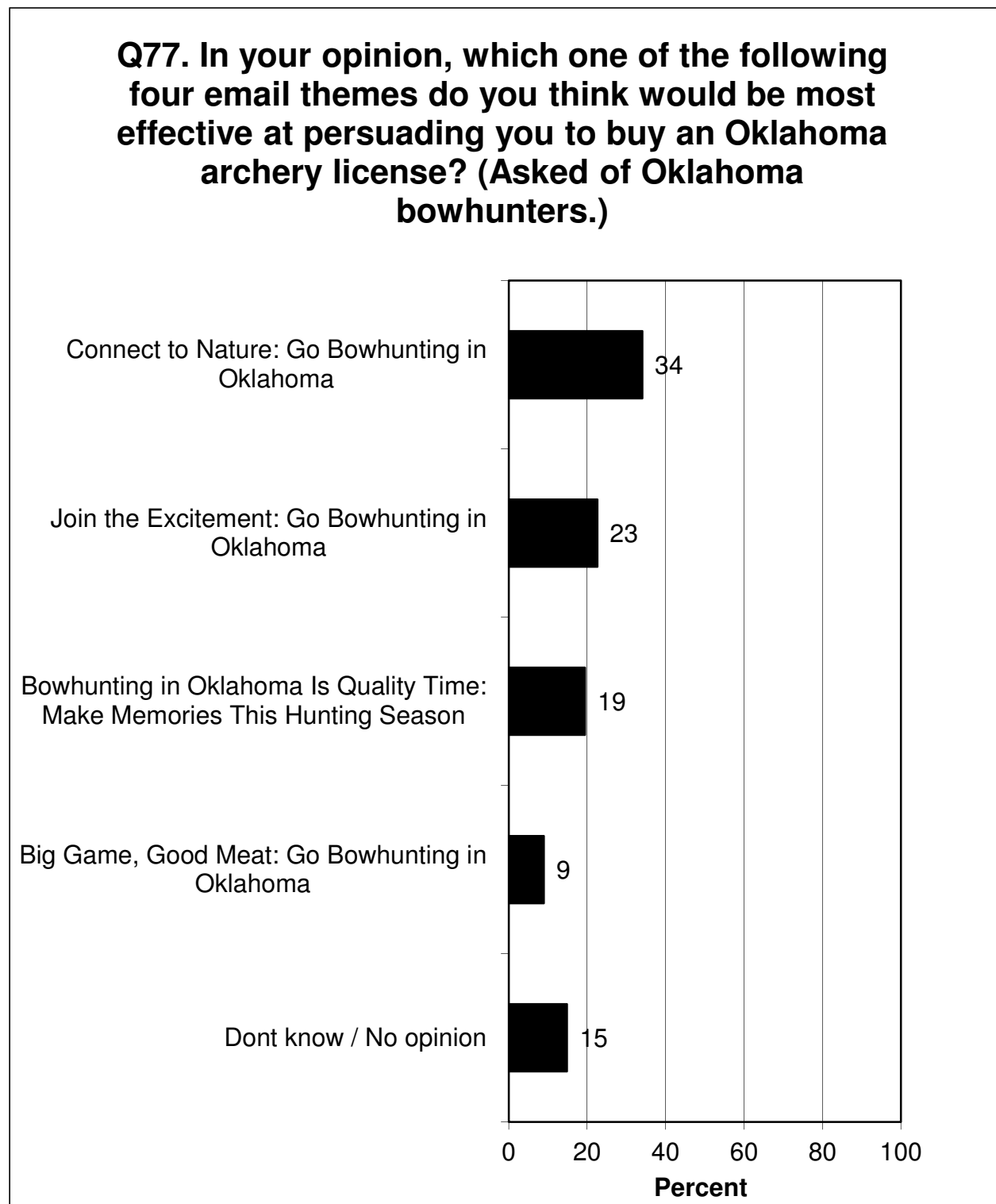


Figure 4.163. Theme Preference, Oklahoma Bowhunters

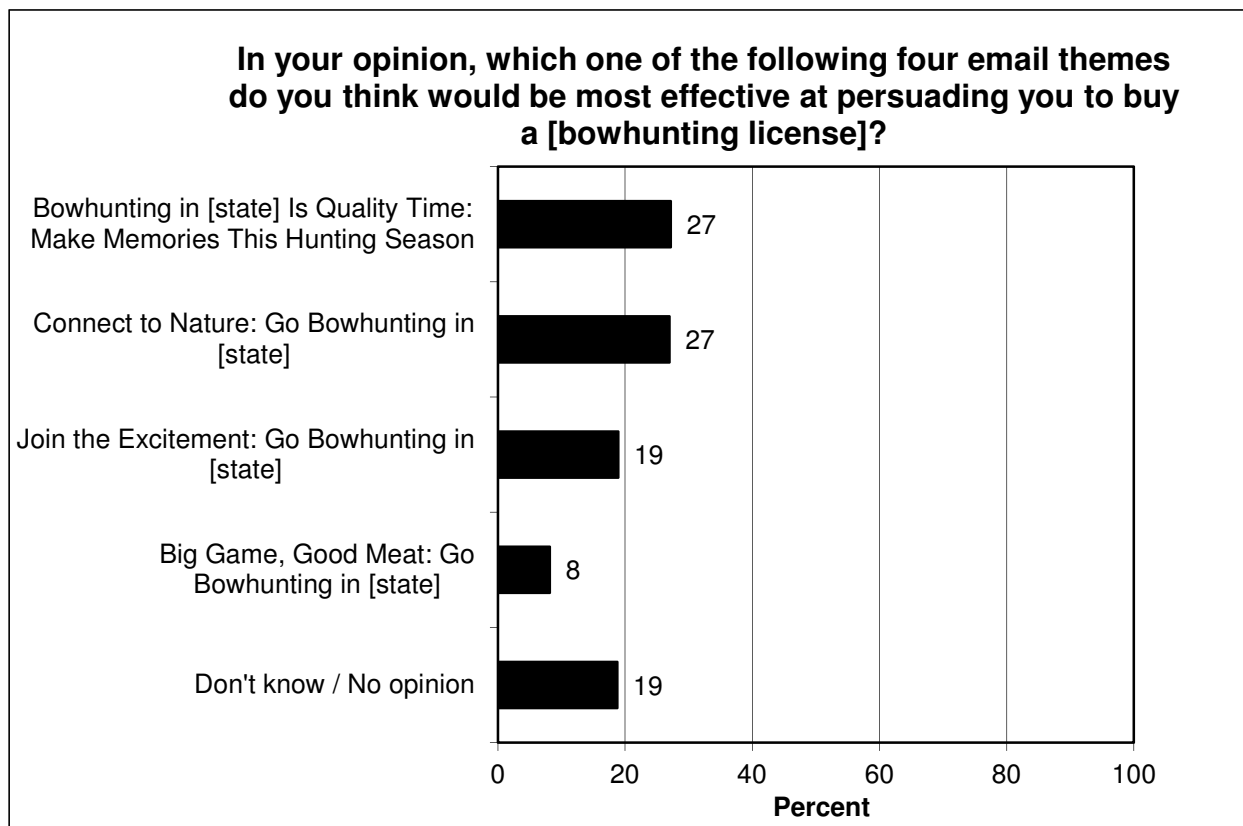


Figure 4.164. Theme Preference, All States Together

Table 4.1. Percent in Each State Selecting Each Message Theme as Most Effective, Ranked by Percent

| State | Theme | Percent Who Selected Theme as Most Effective |
|-------|--------------------|--|
| OK | Aesthetic | 34.05 |
| GA | Social | 29.96 |
| IN | Social | 29.06 |
| FL | Aesthetic | 28.11 |
| NJ | Aesthetic | 27.73 |
| GA | Aesthetic | 27.68 |
| NJ | Social | 26.87 |
| IN | Hunting-recreation | 26.87 |
| FL | Social | 24.62 |
| OK | Hunting-recreation | 22.61 |
| FL | Hunting-recreation | 22.45 |
| NJ | Hunting-recreation | 20.42 |
| IN | Aesthetic | 19.95 |
| OK | Social | 19.48 |
| GA | Success | 11.46 |
| GA | Hunting-recreation | 10.70 |
| OK | Hunting-success | 8.99 |
| IN | Hunting-success | 6.94 |
| NJ | Hunting-success | 6.87 |
| FL | Hunting-success | 5.75 |

Message Themes

5. **Social: Bowhunting in [STATE] Is Quality Time—Make Memories This Hunting Season** (image of two adults walking with or using archery/bowhunting equipment)
6. **Aesthetic: Connect to Nature—Go Bowhunting in [STATE]** (image of one or several bucks)
7. **Hunting-Recreation: Join the Excitement, Go Bowhunting in [STATE]** (image of a bowhunter with bow drawn and aimed)
8. **Hunting-Success: Big Game, Good Meat—Go Bowhunting in [STATE]** (image of game meat served as a meal)

Note that each state used an image consistent with the descriptions above, but the actual image used varied across the states.

The avidity crosstabulations are presented in Figures 4.165 through 4.169. Each is sorted by the total (which is not shown). Although most differences were slight, one finding of note is that avid bowhunters gave lower ratings for the hunting-recreation theme than did the sporadic bowhunters.

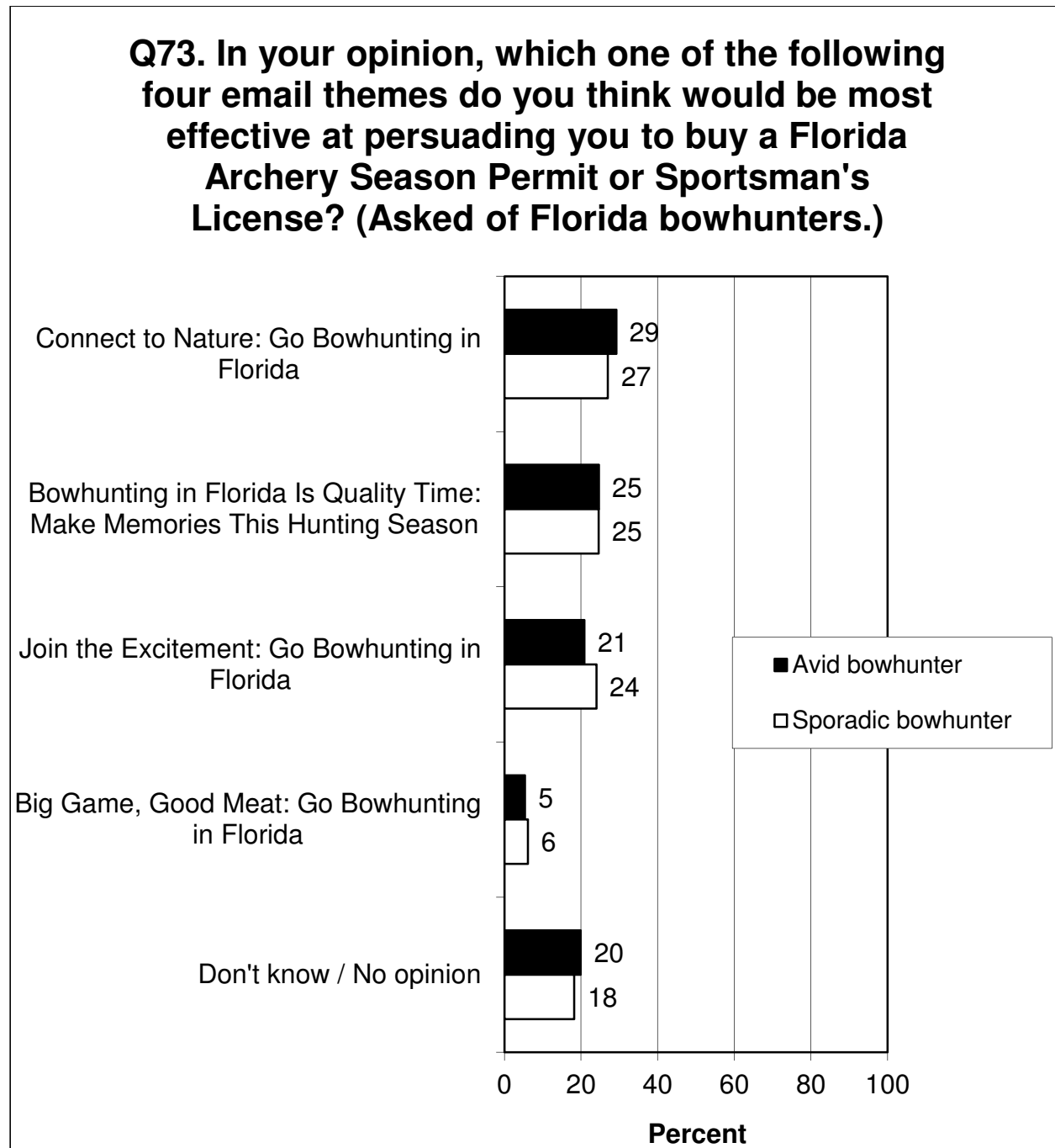


Figure 4.165. Theme Preference, Florida Bowhunters, by Avidity

Q74. In your opinion, which one of the following four email themes do you think would be most effective at persuading you to buy a Georgia Big Game or Sportsman's license? (Asked of Georgia bowhunters.)

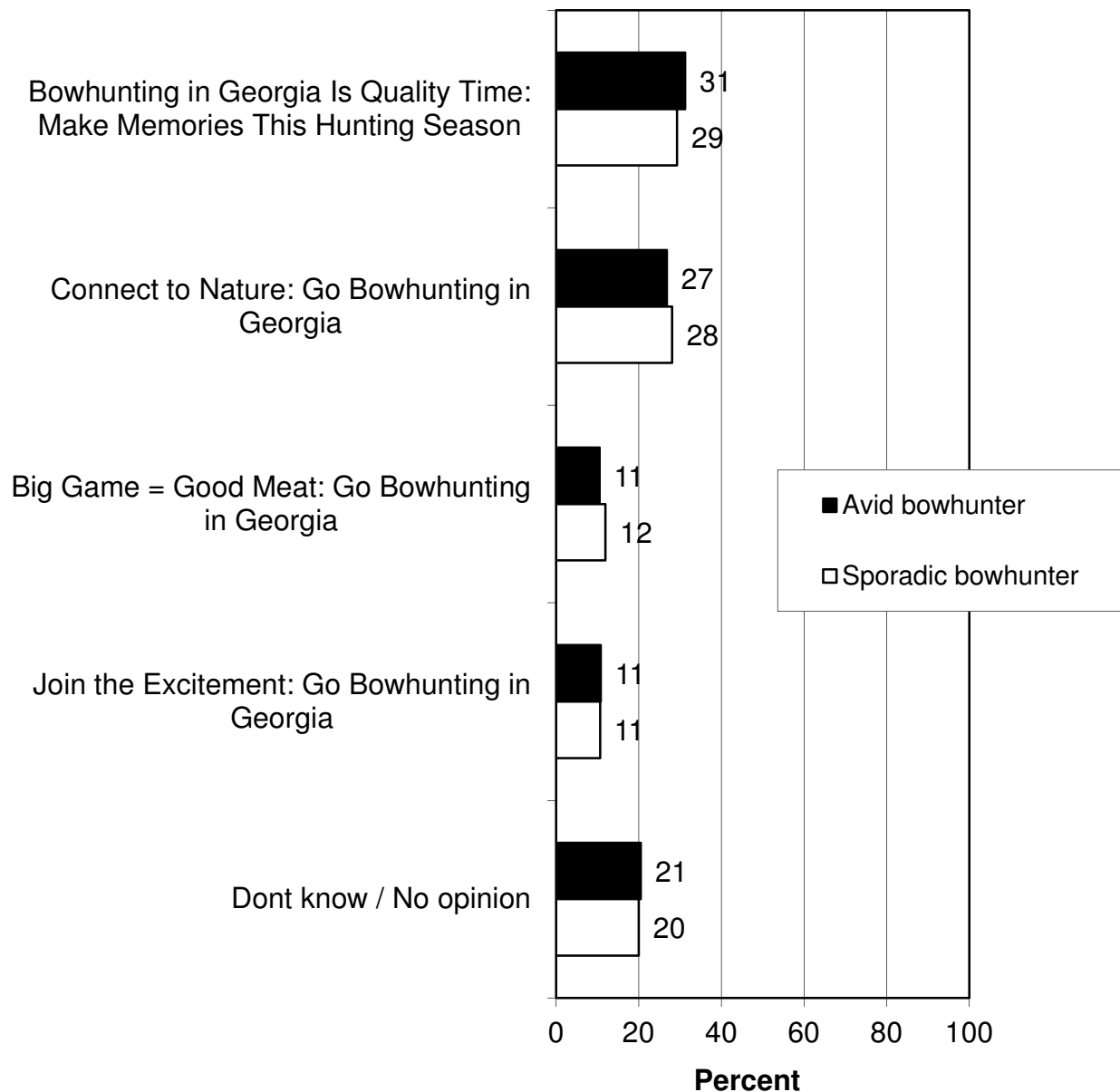


Figure 4.166. Theme Preference, Georgia Bowhunters, by Avidity

Q75. In your opinion, which one of the following four email themes do you think would be most effective at persuading you to buy an Indiana archery license? (Asked of Indiana bowhunters.)

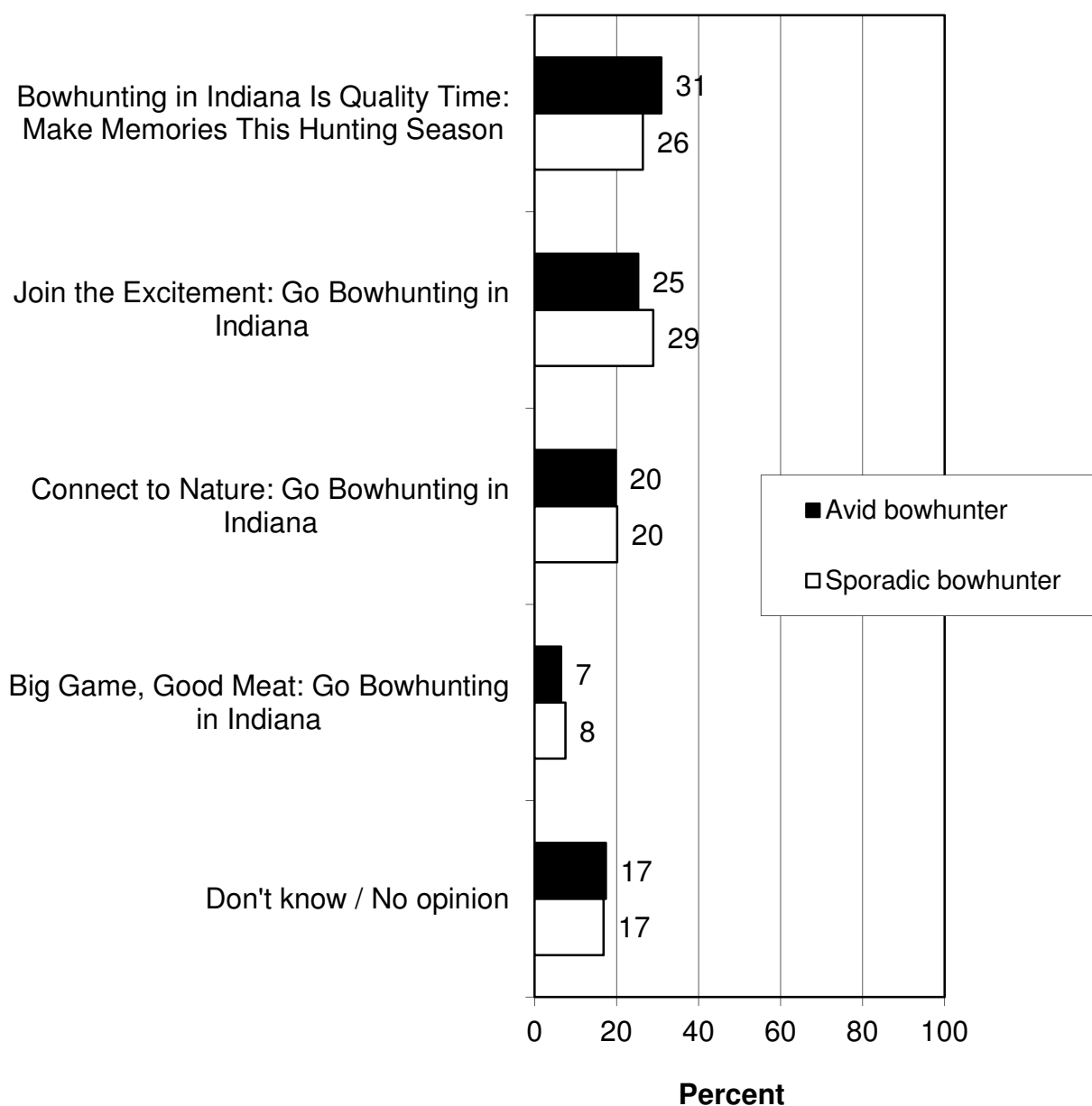


Figure 4.167. Theme Preference, Indiana Bowhunters, by Avidity

Q76. In your opinion, which one of the following four email themes do you think would be most effective at persuading you to buy a New Jersey hunting license or permit that allows bowhunting? (Asked of New Jersey bowhunters.)

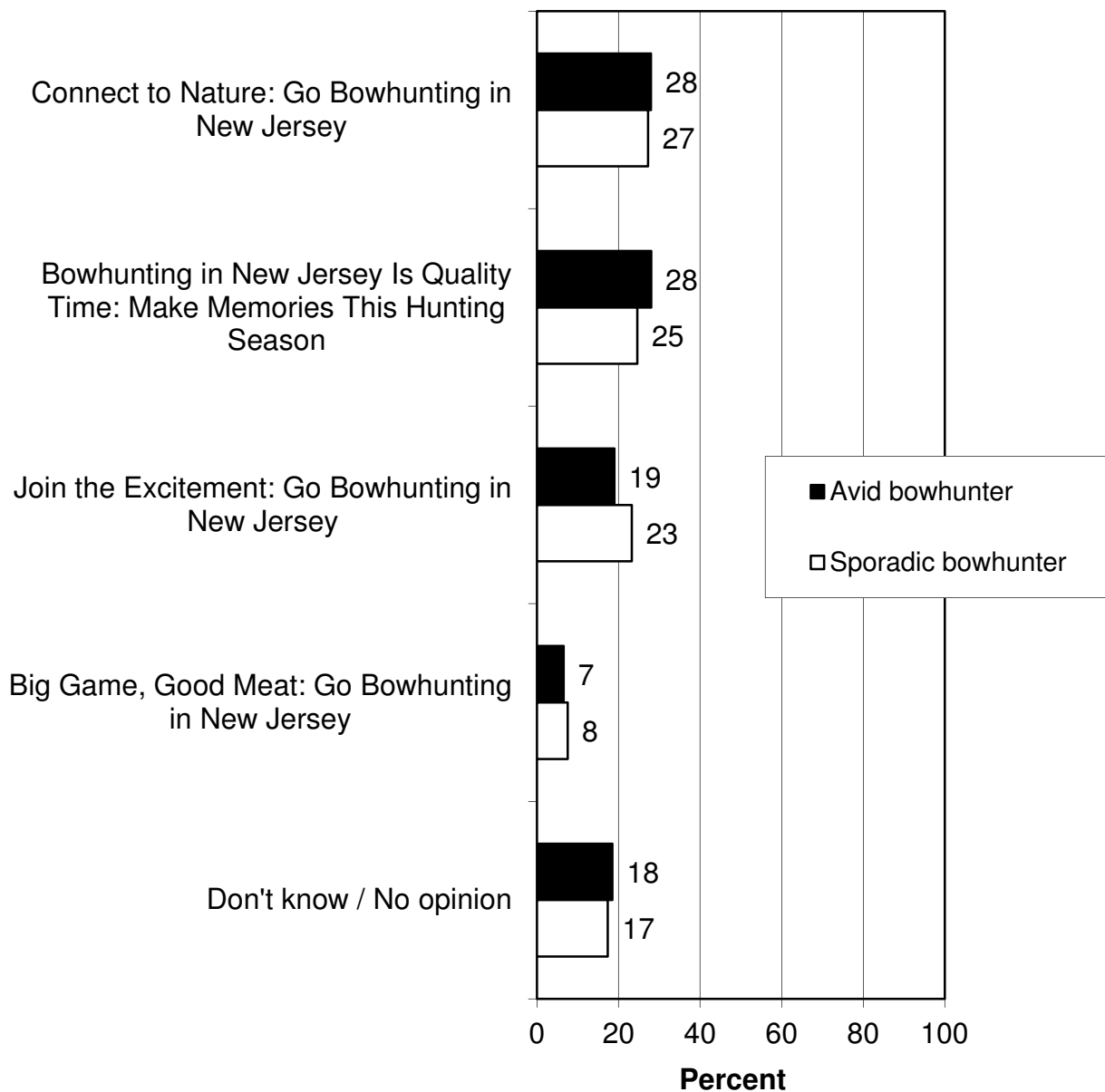


Figure 4.168. Theme Preference, New Jersey Bowhunters, by Avidity

Q77. In your opinion, which one of the following four email themes do you think would be most effective at persuading you to buy an Oklahoma archery license? (Asked of Oklahoma bowhunters.)

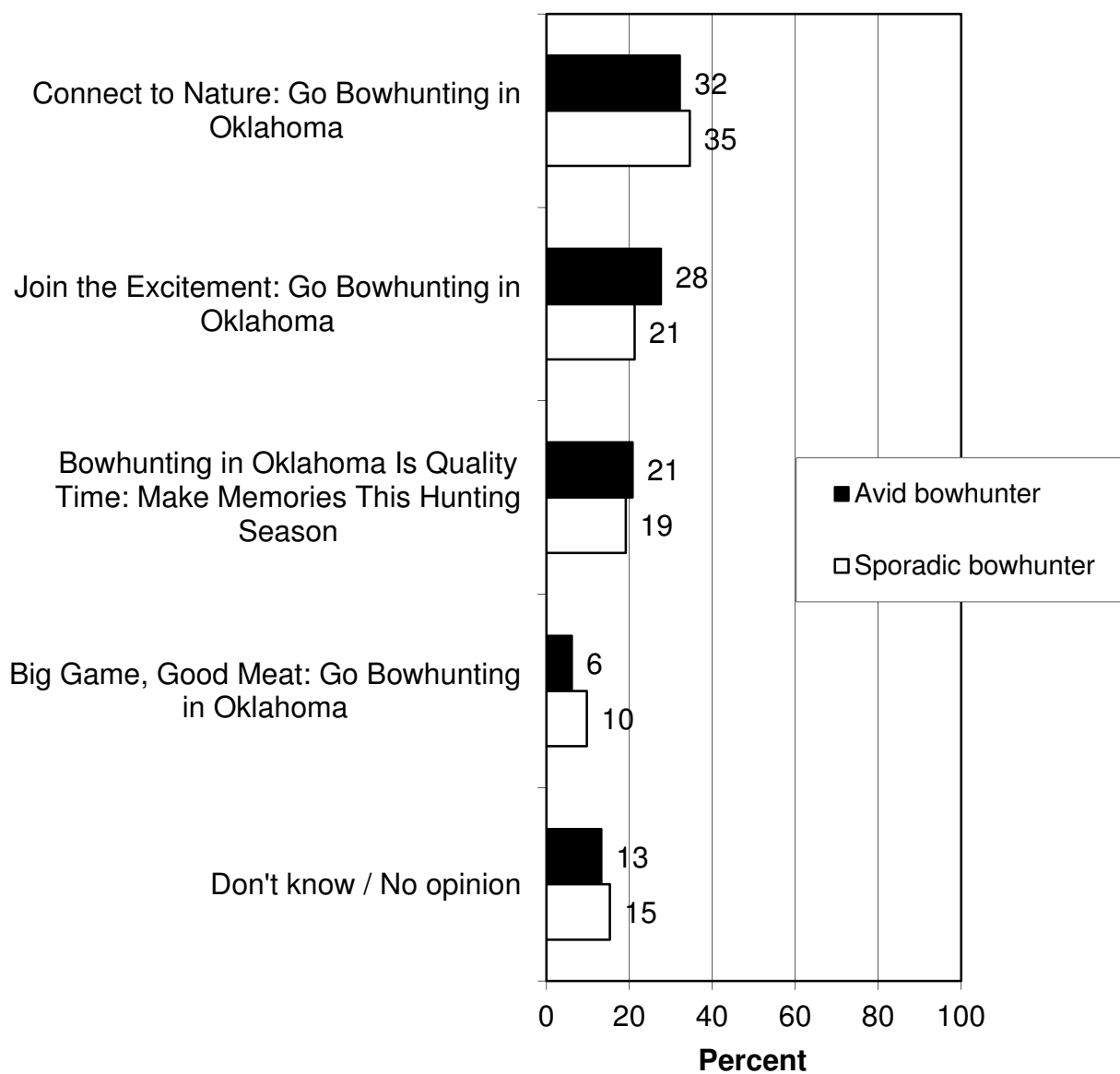


Figure 4.169. Theme Preference, Oklahoma Bowhunters, by Avidity

PERCEIVED IMPORTANCE OF HUNTING OVERALL AND OF VARIOUS MOTIVATIONS FOR HUNTING

One question simply asked about the importance of hunting to respondents, on a scale of 0 to 10, where 0 is not at all important and 10 is extremely important. Two thirds of all hunters, including firearms-only hunters who received the question before they were screened out of the main part of the survey (only those who had bowhunted within the past 5 years were included in the main part of the survey), rated the importance of hunting as a 10 (Figure 4.170). Furthermore, nearly all of these hunters (97%) gave it a rating above the midpoint.

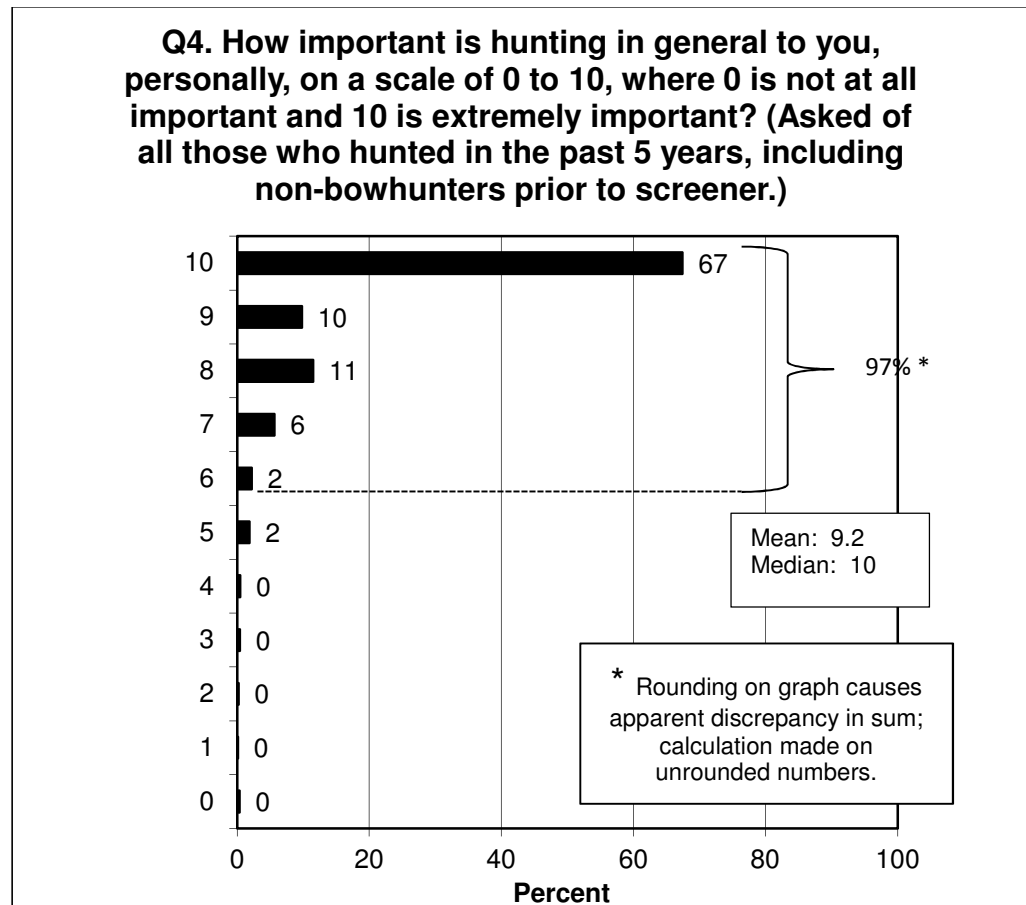


Figure 4.170. Ratings of the Importance of Hunting Among All Hunters

These same hunters were then asked to rate the importance of various motivations for hunting, using the same scale of importance. The mean ratings of the motivations are compared in Figure 4.171. The less utilitarian aspects of hunting are the most important. The top-rated motivations are getting out to enjoy nature and the outdoors (a mean rating of 9.5) and for fun, recreation, and adventure (9.1). These are well above for the meat or a trophy, with the latter having a mean rating that is below the midpoint.

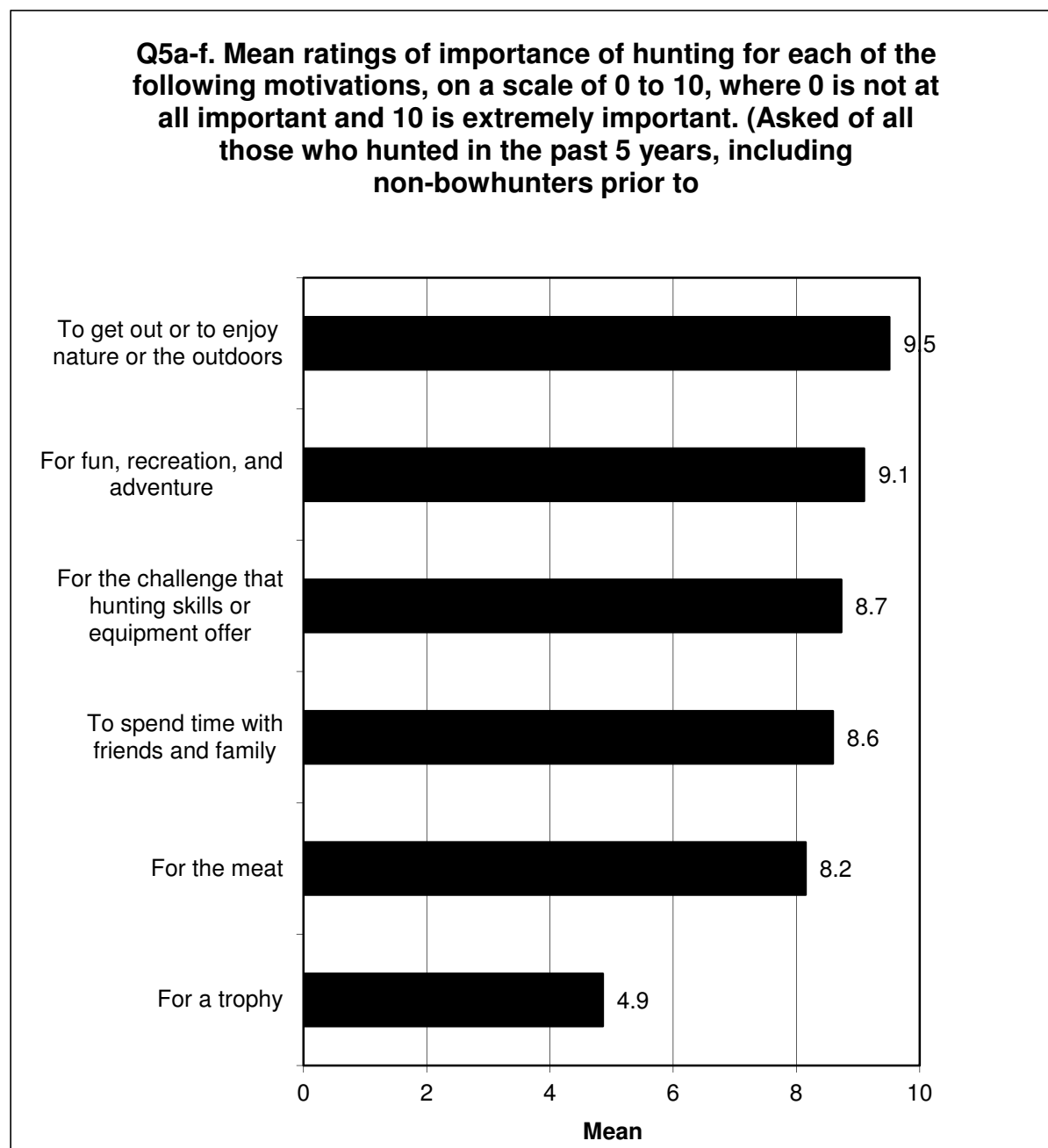


Figure 4.171. Ratings of Various Motivations for Hunting

After the questions above, the main part of the survey screened out firearms-only hunters so that only those who had bowhunted within the past 5 years were included. They were then asked to rate the importance of *bowhunting* to them, as well as the importance of the same motivations for hunting. On the rating of bowhunting, a majority of bowhunters (53%) gave the highest rating of 10, and the mean rating was 8.5 (Figure 4.172). Also, 89% gave a rating above the midpoint.

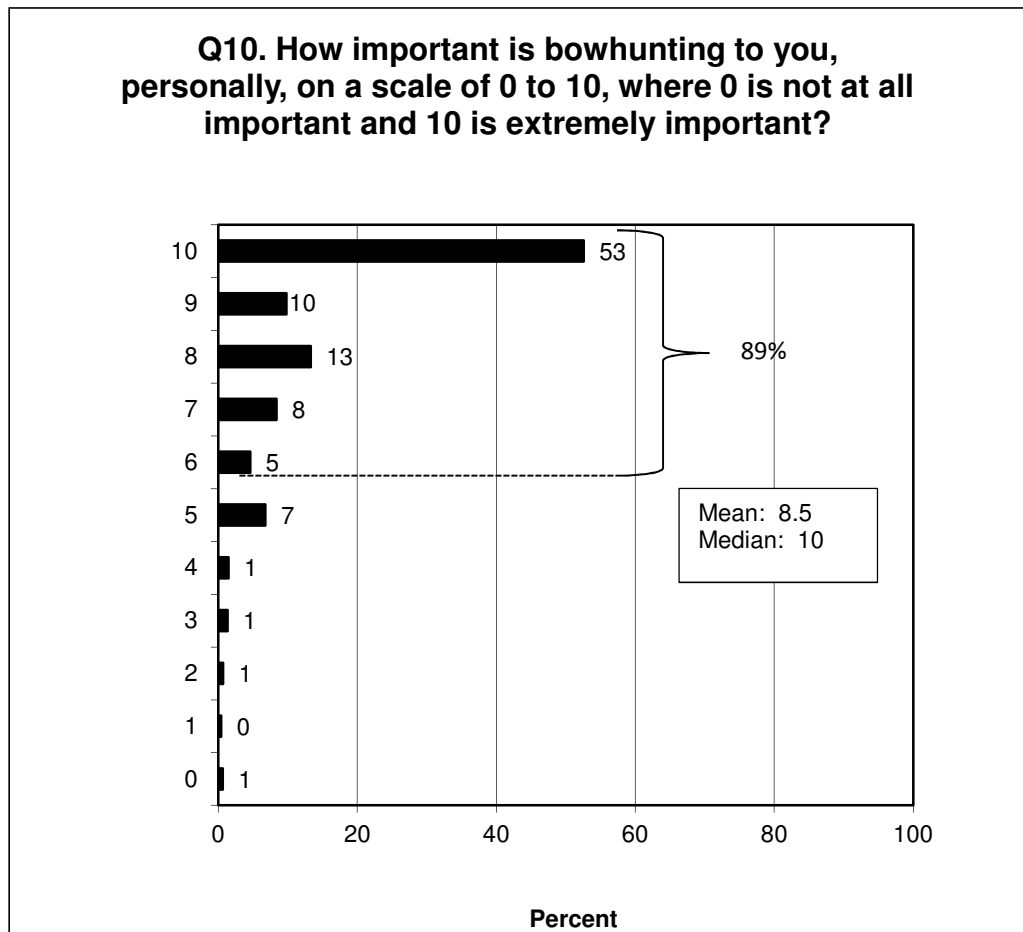


Figure 4.172. Ratings of the Importance of Bowhunting Among Bowhunters

Motivations for bowhunting were explored, as well. Getting out to enjoy nature or the outdoors was the top motivation among bowhunters (mean of 9.2 on the 0 to 10 scale) (as it also was among all hunters, including non-bowhunters, as previously discussed), while for the challenge (mean of 8.7) and for fun, recreation, and adventure (8.6) were close behind (Figure 4.173).

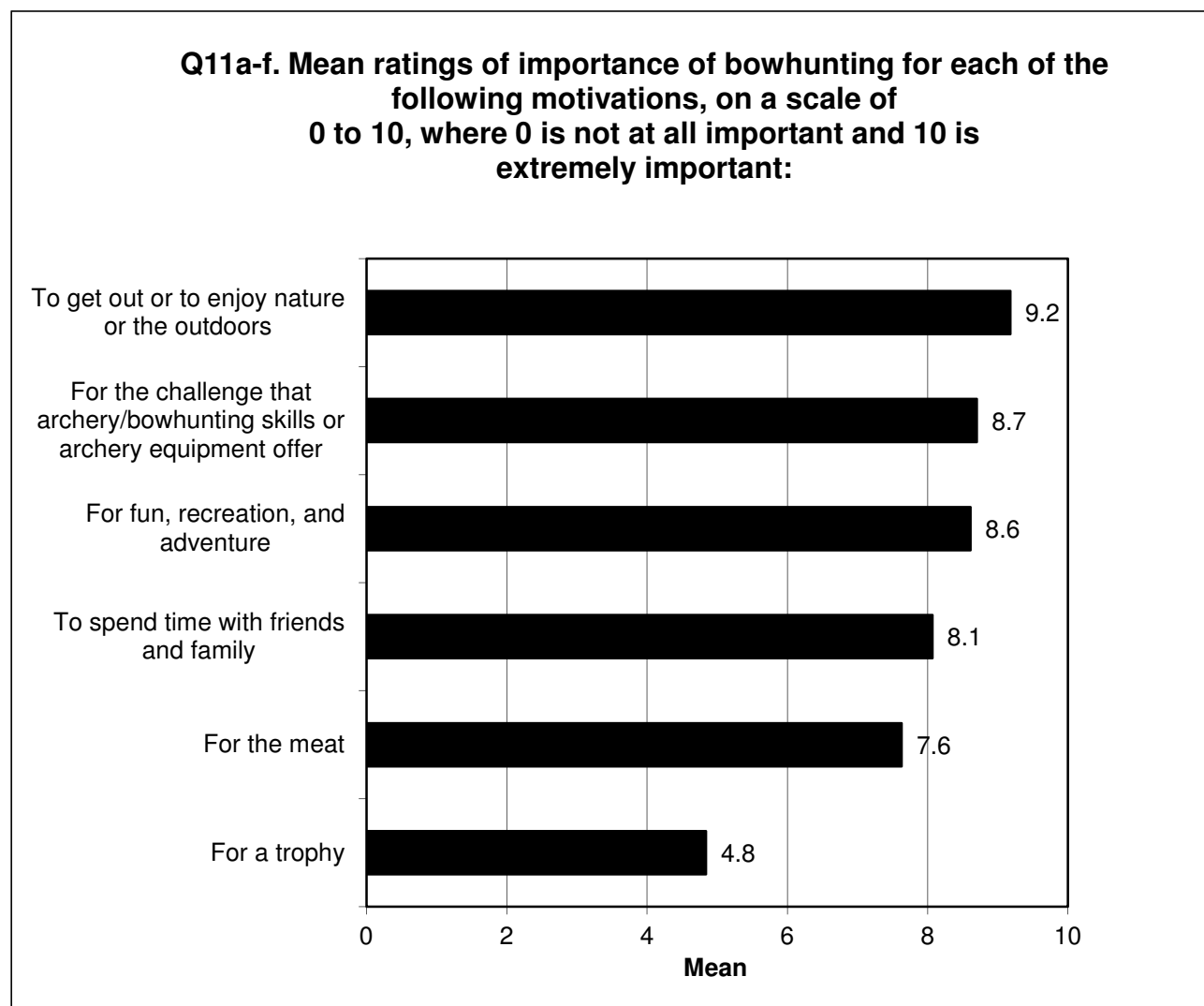


Figure 4.173. Ratings of Various Motivations for Bowhunting

The last question that is discussed in this section of the report asked bowhunters about the importance of going bowhunting as a reason for purchasing or renewing their license. Figure 4.174 shows that a majority (58%) rated it as a 10, and 81% gave a rating above the midpoint. The mean rating is 8.2 on the 0 to 10 scale.

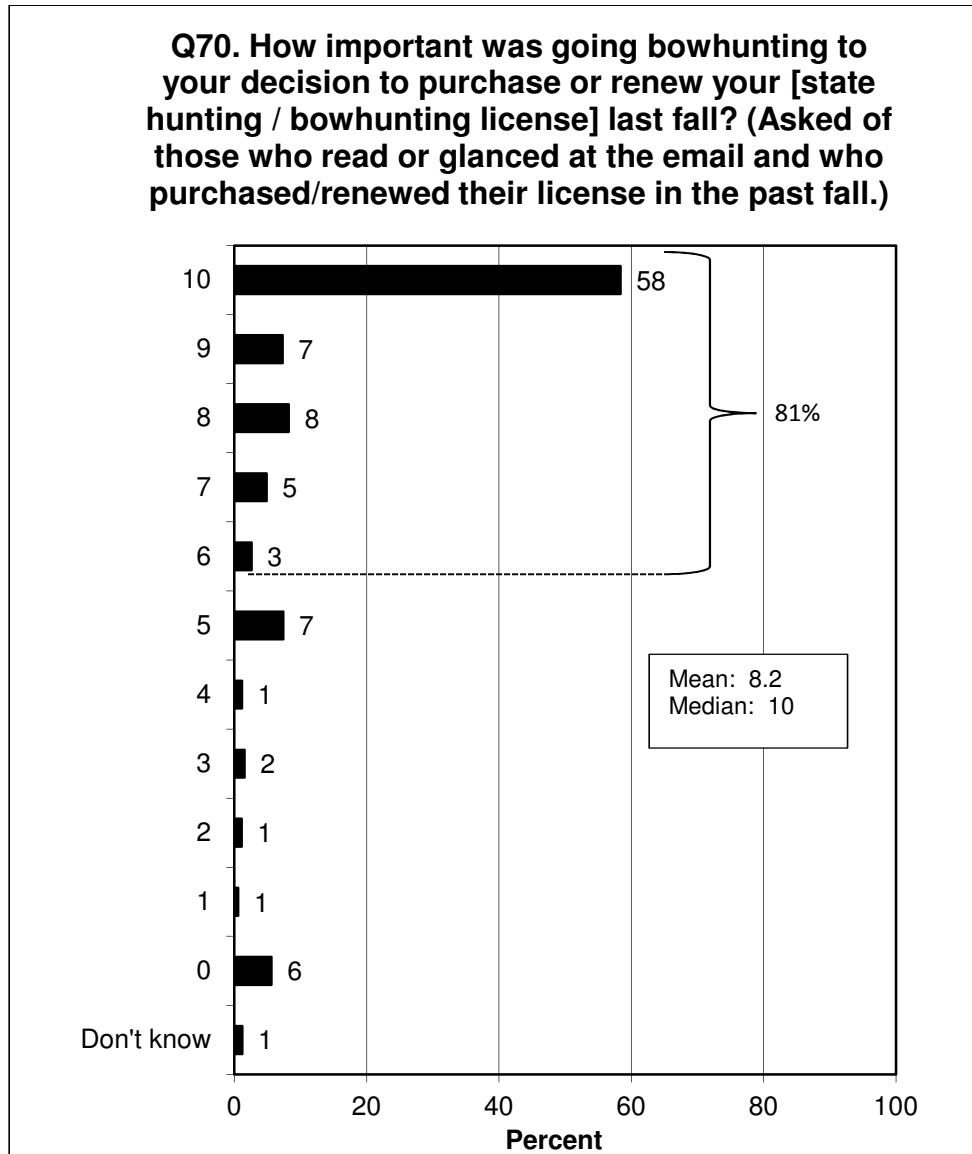


Figure 4.174. Importance of Going Bowhunting as a Motivation for Purchasing or Renewing Hunting Licenses, Bowhunters Overall

SATISFACTION WITH BOWHUNTING

The majority of bowhunters (65%) were satisfied with their bowhunting in their state over the past 5 years, while 18% were dissatisfied (Figure 4.175).

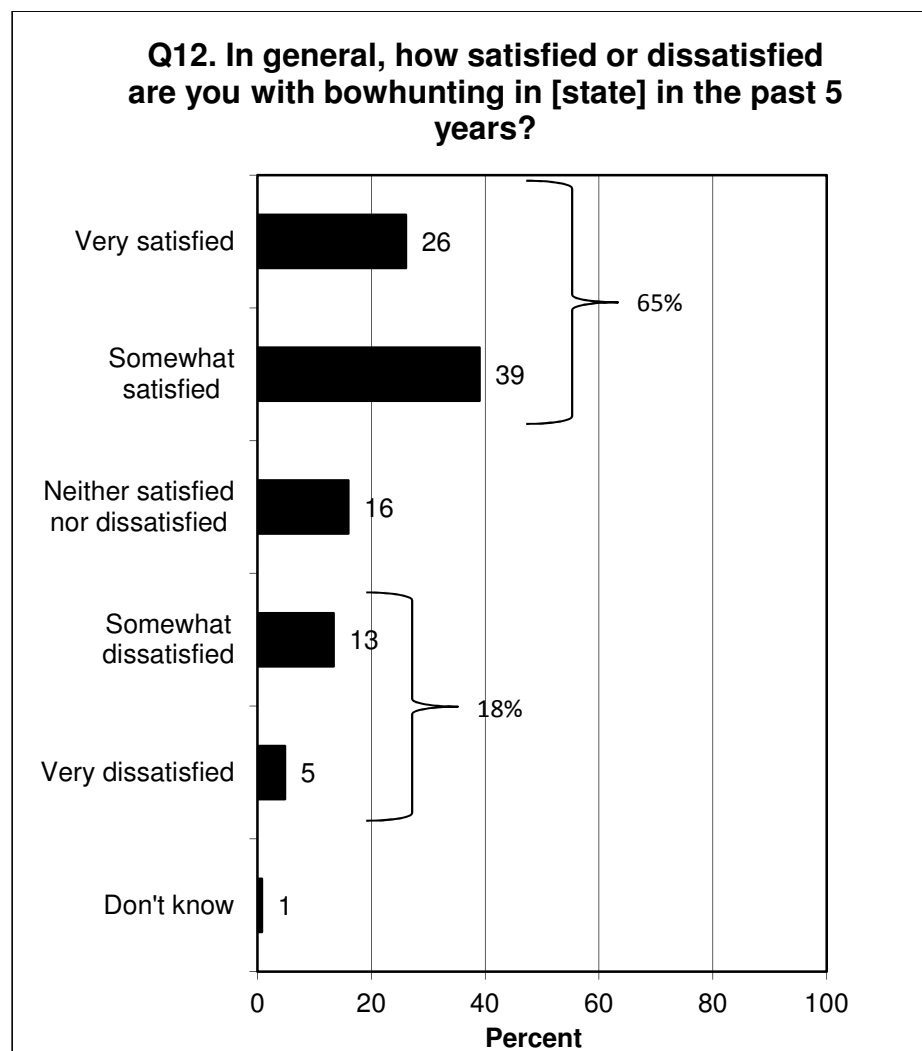


Figure 4.175. Satisfaction With Bowhunting Among Bowhunters Overall

These results are shown by state (Figure 4.176). The data suggest that Florida bowhunters are the least satisfied (of those states in the survey), followed by Indiana bowhunters. The highest satisfaction is among Oklahoma bowhunters.

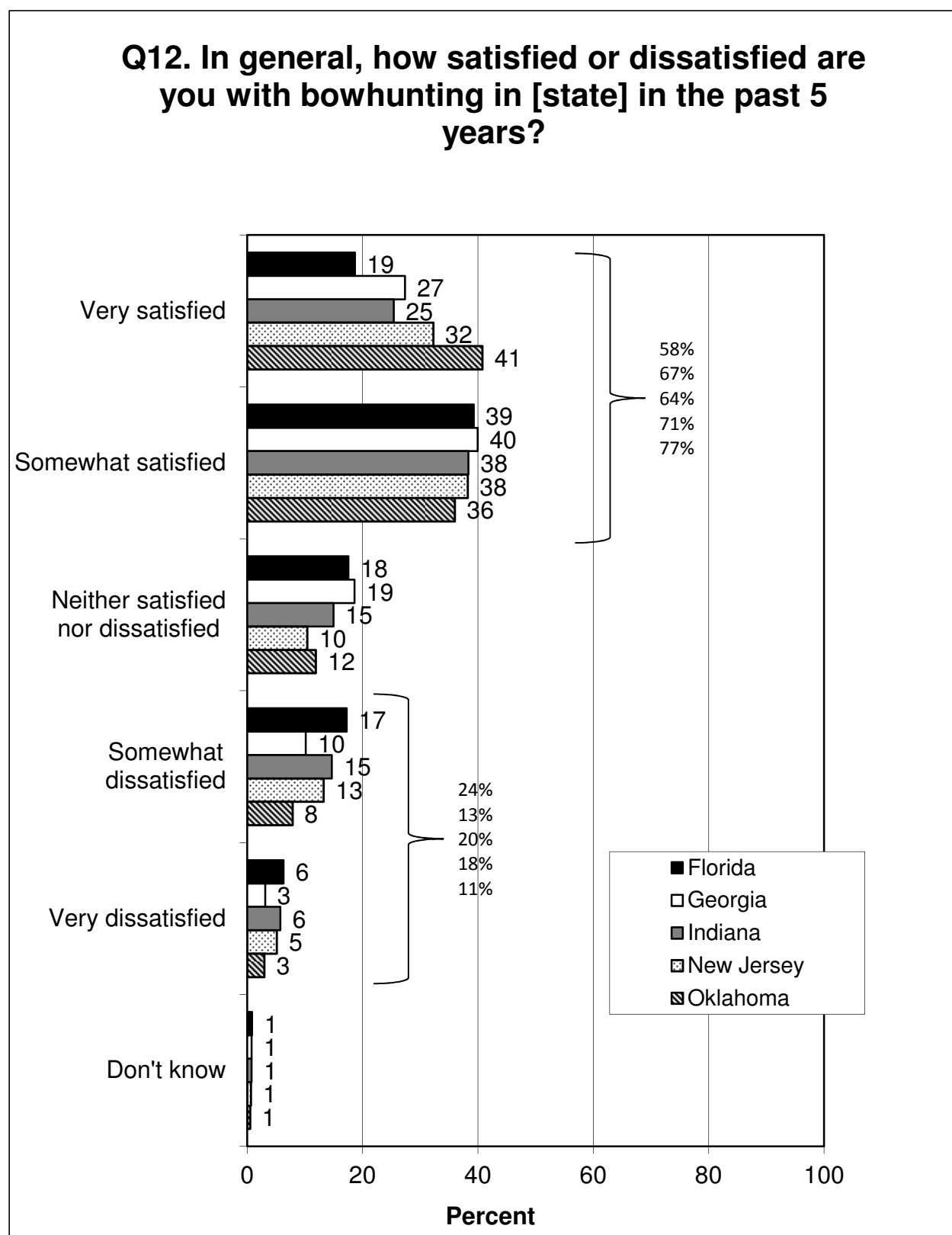


Figure 4.176. Satisfaction With Bowhunting, by State

CONSTRAINTS TO BOWHUNTING PARTICIPATION

The most important constraint to bowhunting participation is a simple lack of time—a social constraint (Figure 4.177). Otherwise, lack of access is an important constraint among bowhunters overall in the states in the survey, with 29% giving this response. (This question was analyzed only on the overall results.)

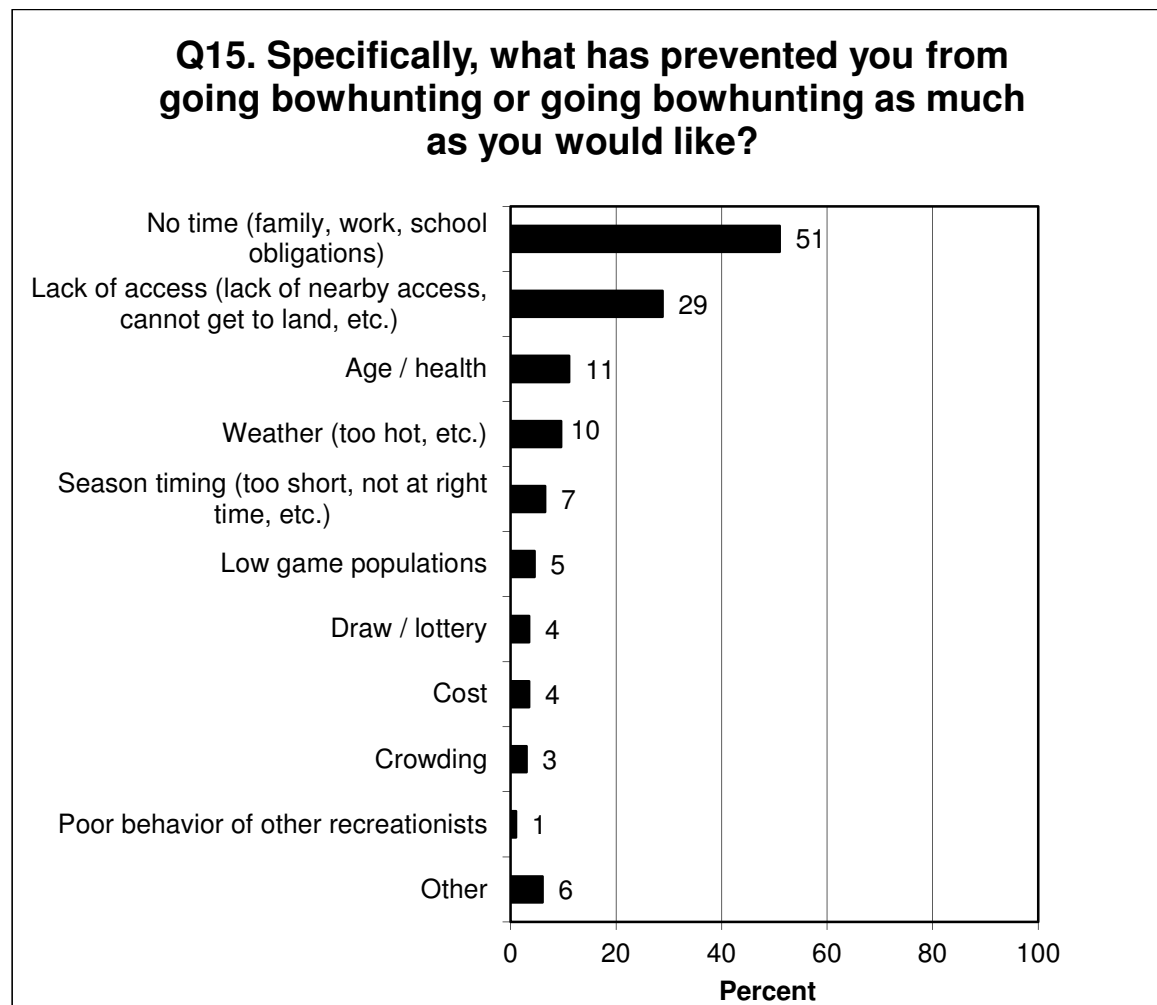


Figure 4.177. Constraints to Bowhunting Participation

Another question asked those who had not purchased or renewed their license in the previous fall to indicate why, in an open-ended question. Most commonly, lack of time was the culprit (Figure 4.178). The next two most common responses were that the bowhunter has a lifetime license or can hunt with an exemption. Access is the first issue over which agencies have much sway (after age/health). (This question was analyzed only on the overall results.)

The final question in this section asked respondents to say what would make them more likely to purchase a license. Some named various regulation changes other than season timing, including changes to draw systems (Figure 4.179). Lower cost and better access were also commonly named. (This question was analyzed only on the overall results.)

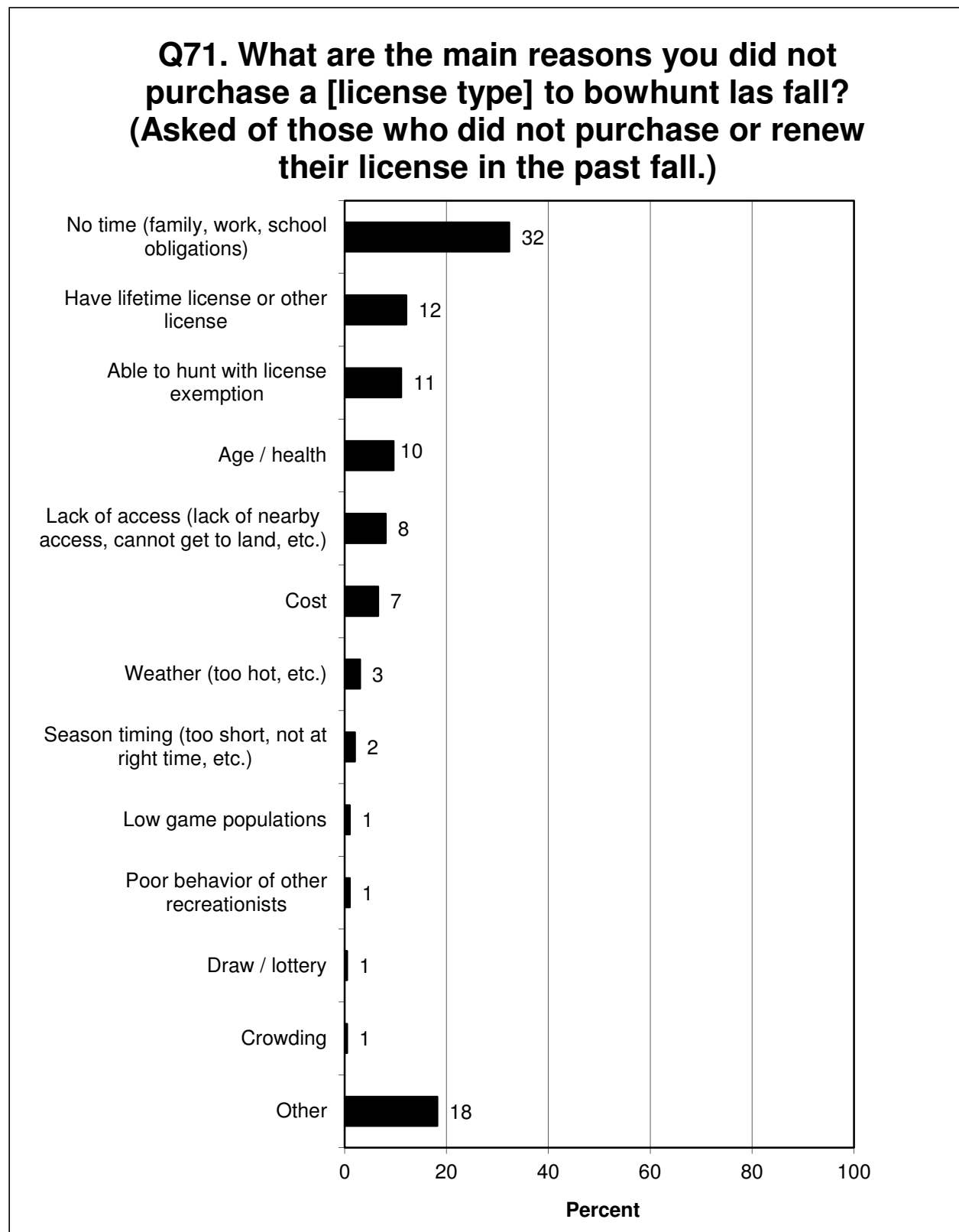


Figure 4.178. Constraints to License Purchasing

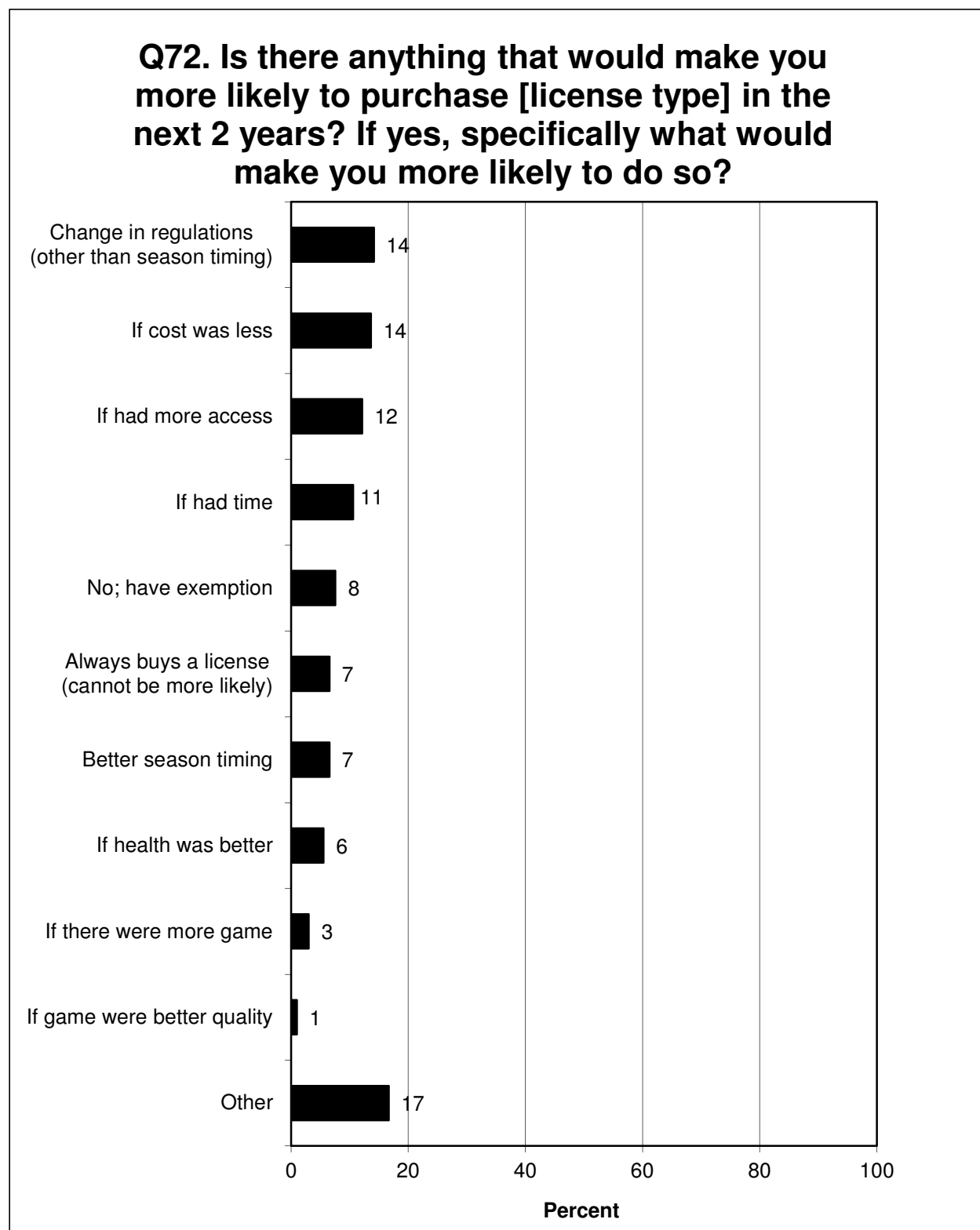


Figure 4.179. Things to Make It More Likely That Bowhunter Would Make a License Purchase

SPECIES TYPICALLY HUNTED

Bowhunters were asked to name the species that they typically bowhunt; results are shown for each state separately (Figures 4.180 through 4.184). Deer, feral pig, and wild turkey are the most commonly bowhunted species, with deer being, by far, the most popular.

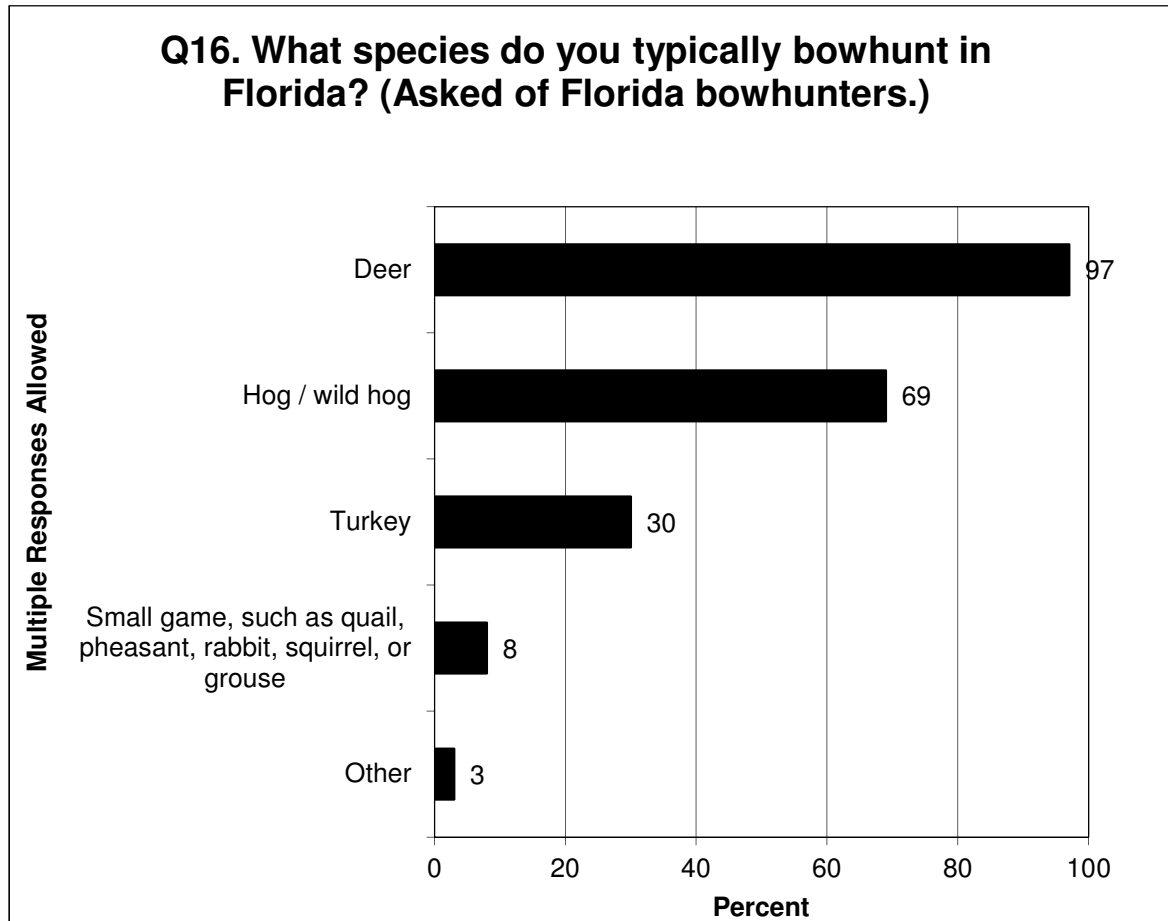


Figure 4.180. Species Hunted, Florida Bowhunters

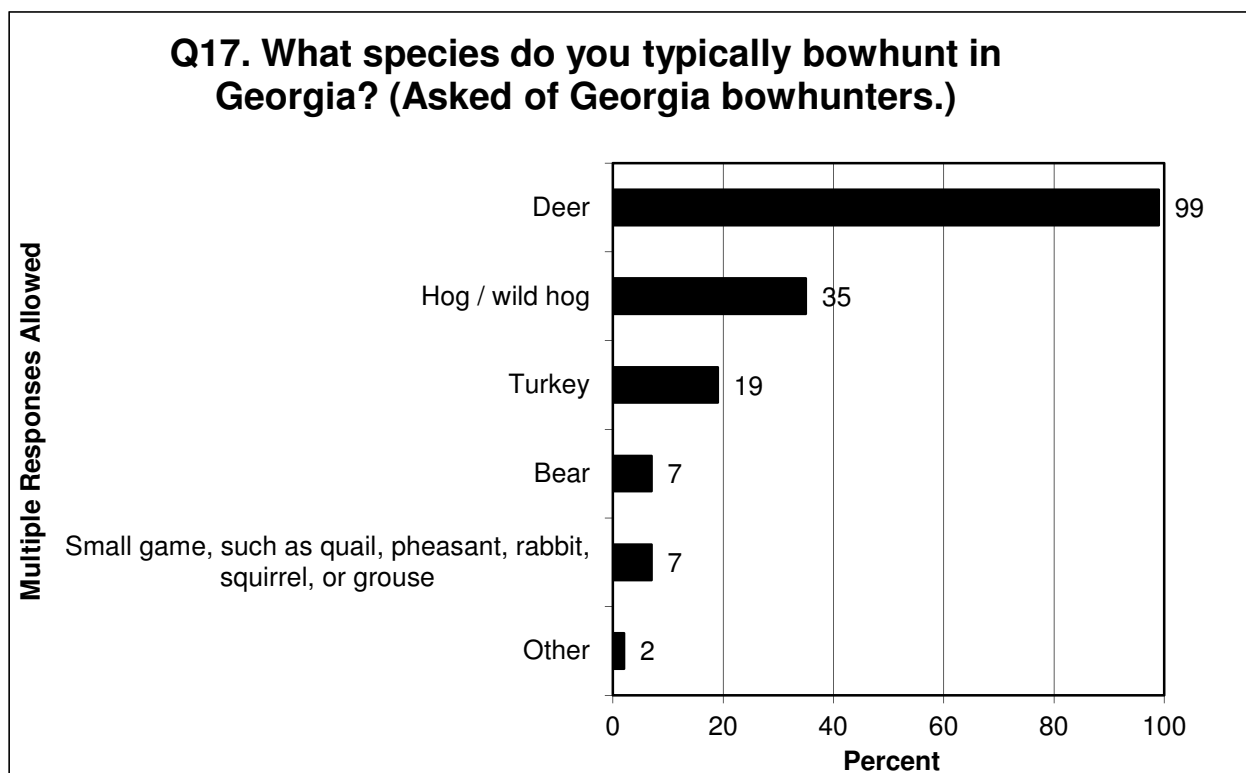


Figure 4.181. Species Hunted, Georgia Bowhunters

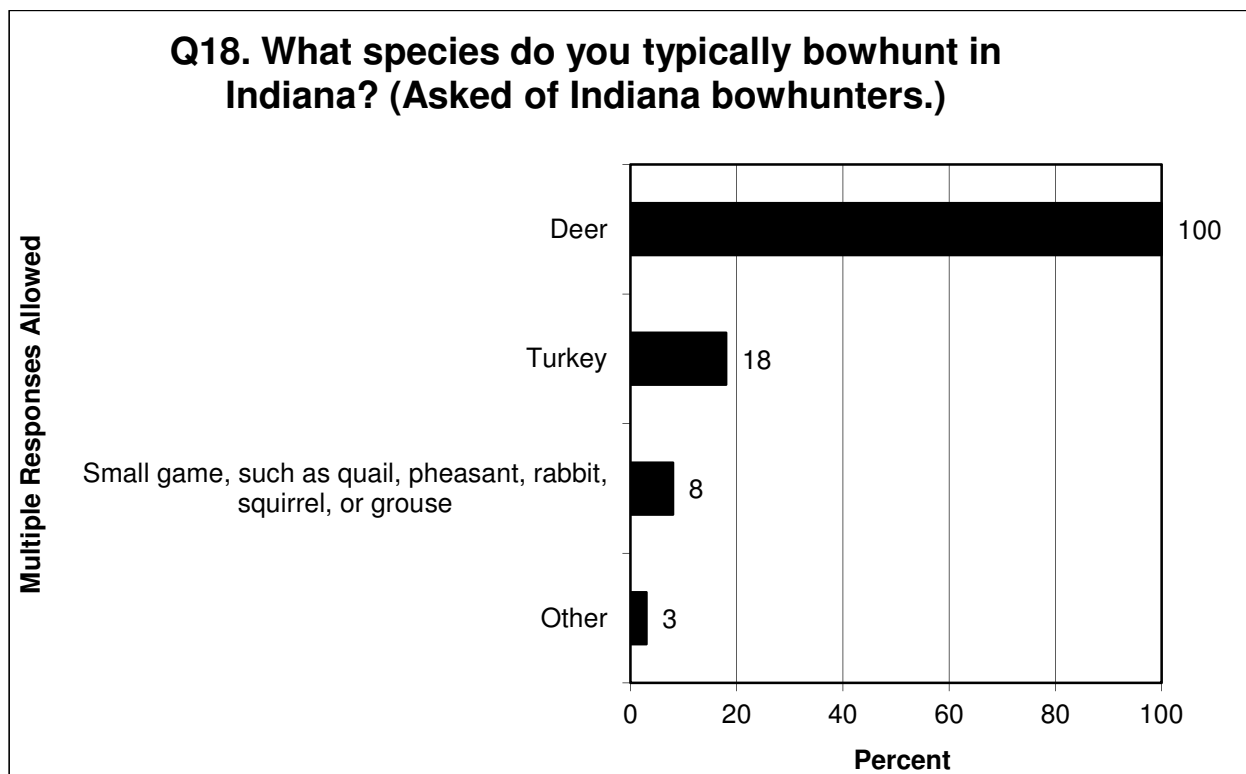


Figure 4.182. Species Hunted, Indiana Bowhunters

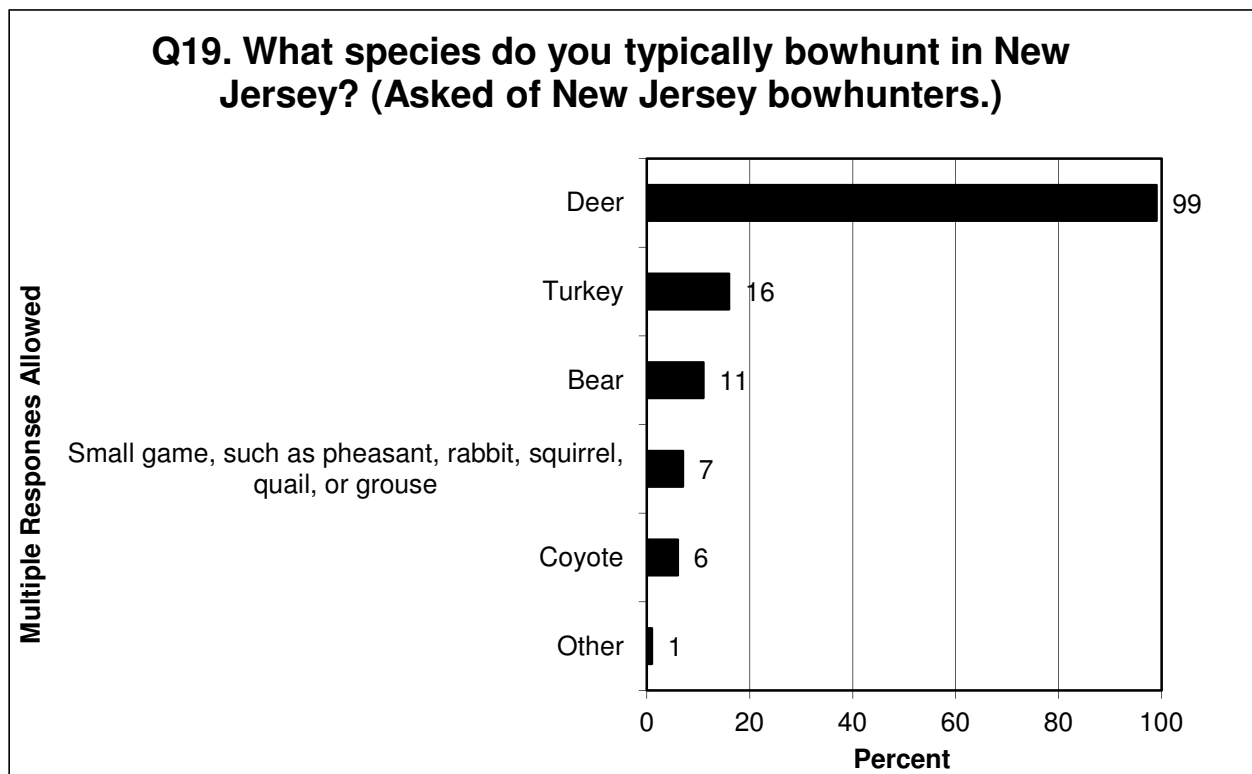


Figure 4.183. Species Hunted, New Jersey Bowhunters

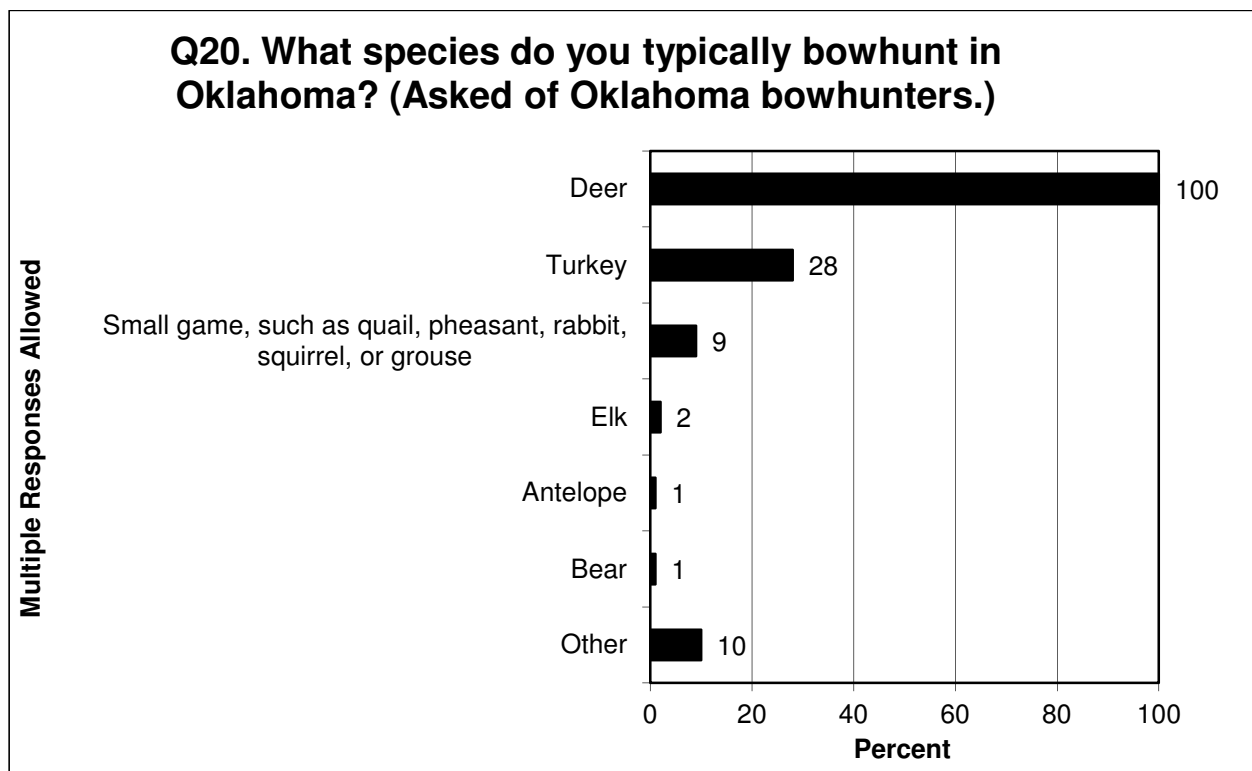


Figure 4.184. Species Hunted, Oklahoma Bowhunters

TYPES OF LANDS HUNTED

Private land predominates for bowhunting among the five states in the survey (Florida, Georgia, Indiana, New Jersey, and Oklahoma): 76% use private land at least half of the time, while 39% say the same about public land (Figure 4.185). One could speculate that, had this survey been conducted among bowhunters in some of the western states with a high proportion of their land in the public realm (e.g., Nevada), the percentage bowhunting mostly on public land would be higher.

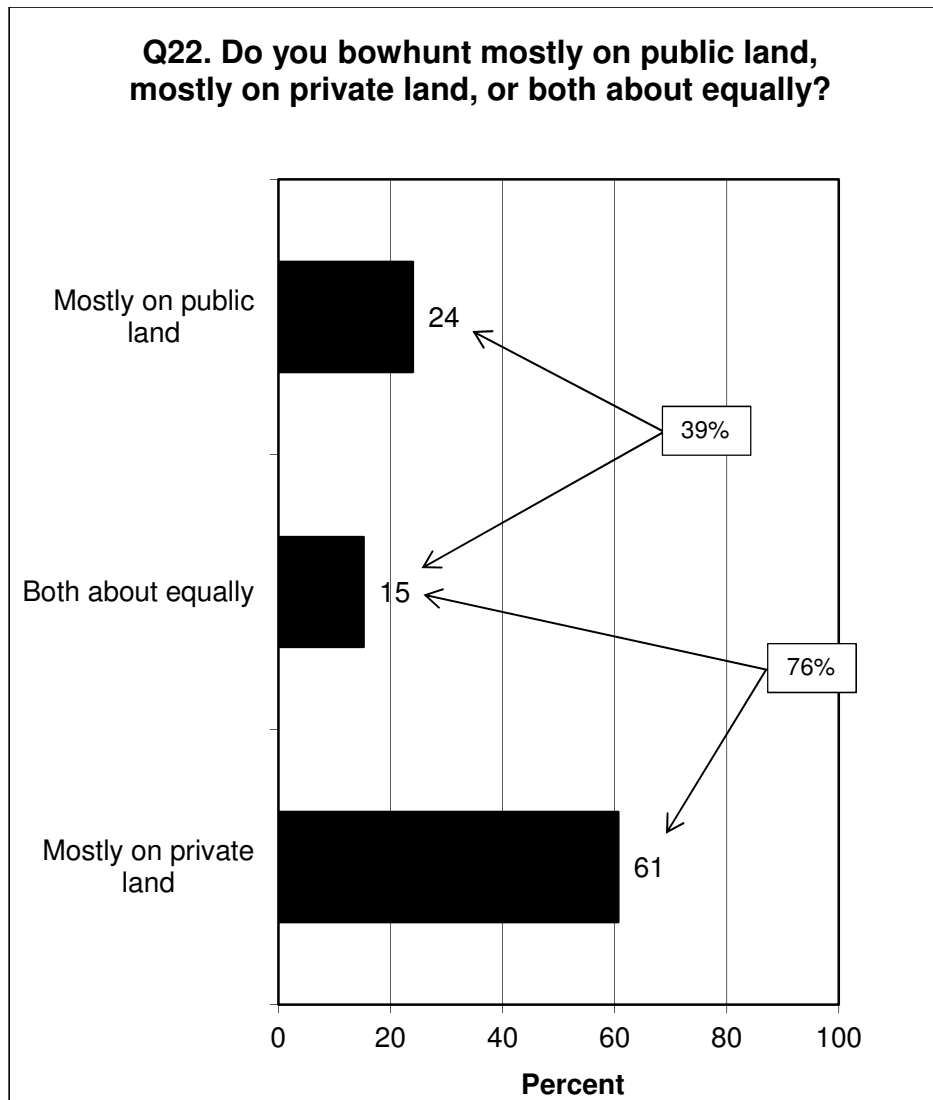


Figure 4.185. Public and Private Land for Bowhunting

Florida bowhunters have the highest rate of public land use, by far (Figure 4.186). Next in public land use are New Jersey bowhunters.

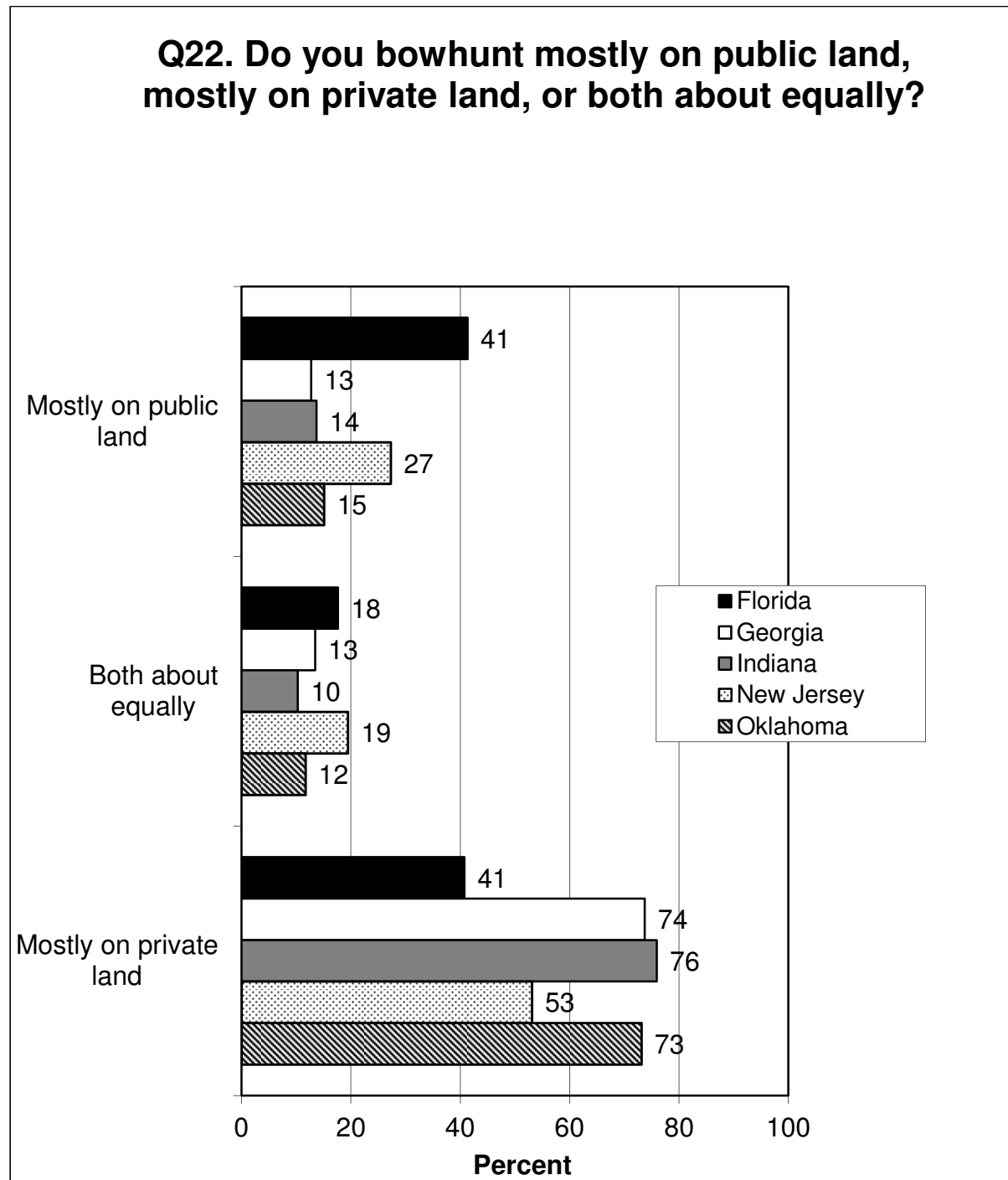


Figure 4.186. Public and Private Land for Bowhunting, by State

TYPES OF BOWS USED

Compound bows are the most-used among the bowhunters in the survey (80% use them), followed by crossbows (42% use them) (Figure 4.187). Recurve bows are not used much (only 10% use them).

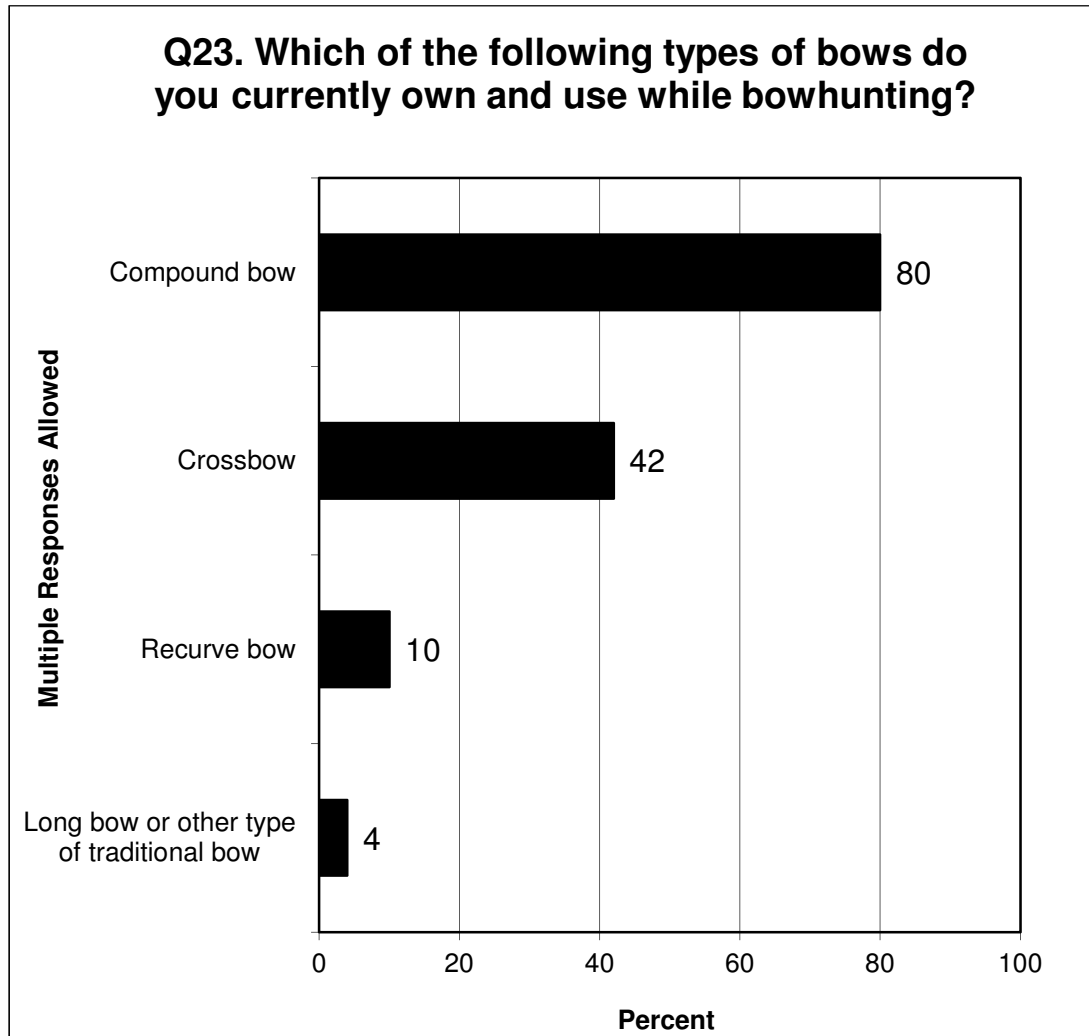


Figure 4.187. Bows Used Among Bowhunters Overall

BOWHUNTING AVIDITY: DAYS HUNTED ANNUALLY

Figure 4.188 shows annual days of bowhunting in a typical year.

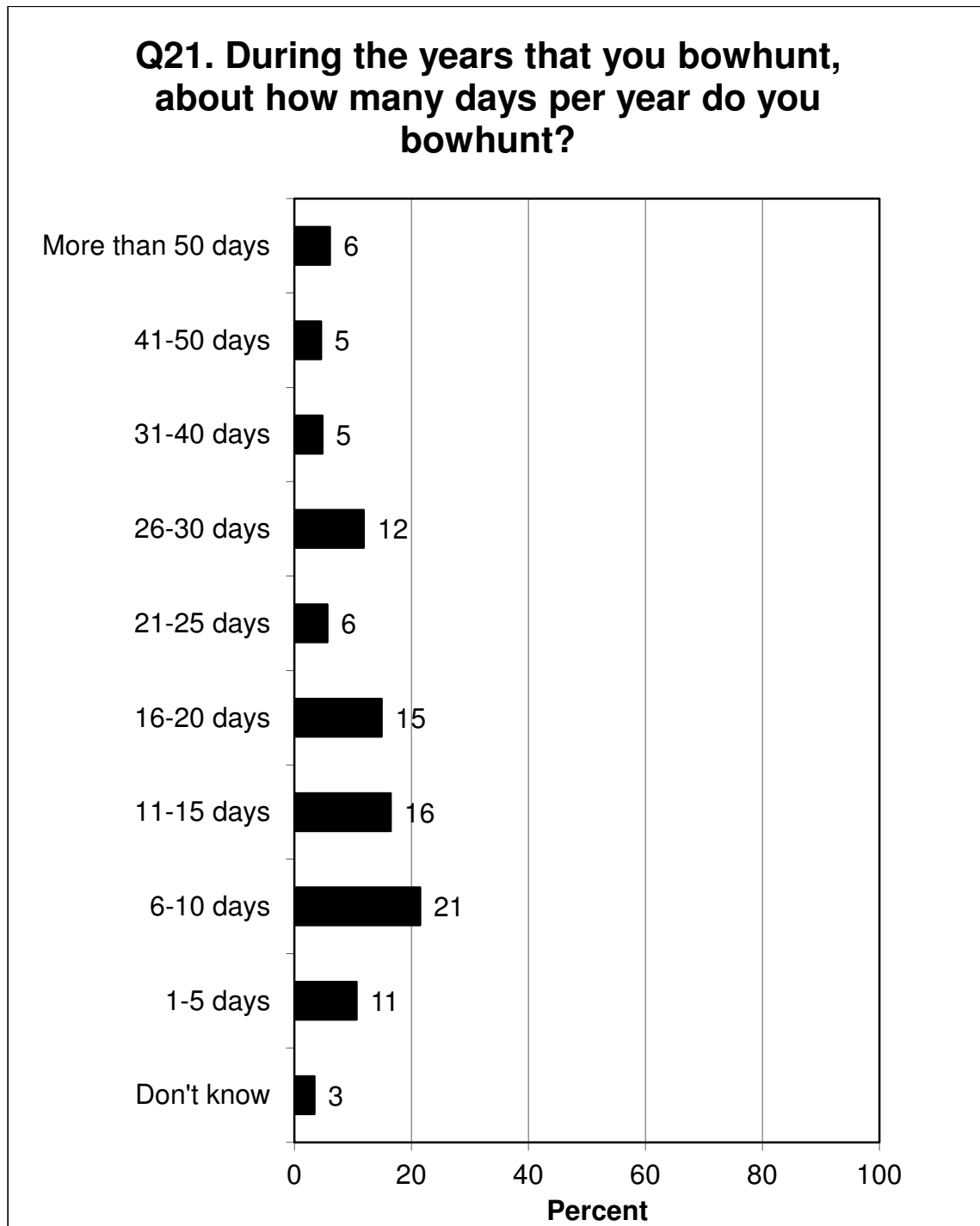


Figure 4.188. Annual Days of Participation the Last Time the Hunter Went Bowhunting, Among Bowhunters Overall

5. RECOMMENDATIONS AND BEST PRACTICES

The survey suggests that a little more than half of the people who received the email at least opened it. Thus, the email is reaching potential bowhunters; in this respect, the email campaign is effective. Furthermore, the statistical analyses of the databases suggest that treatments work. A comparison of any treatment versus no treatment found statistically significant lift was produced in Indiana and New Jersey, as well as on bowhunters as a whole when the states were combined (GA, IN, NJ, and OK) in the analysis.

Note that the survey results suggest that the email may simply serve as a reminder to those who would have been very likely to purchase anyway. Nonetheless, this is not to say that there is no value in sending the emails because, although the emails by themselves may not change potential bowhunters' minds regarding whether to purchase or renew licenses, the emails may keep hunting at the top of potential bowhunters' minds.

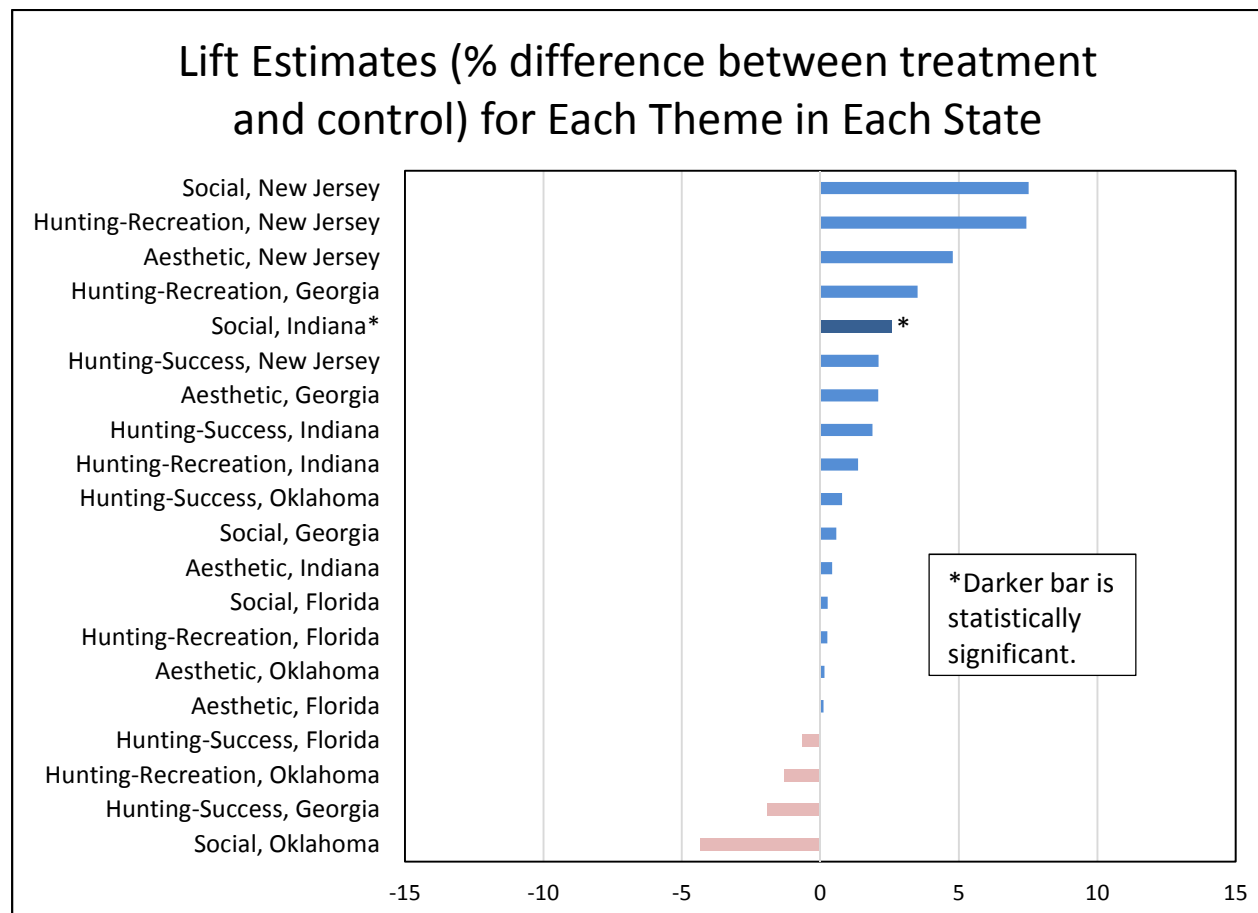
Regarding the themes themselves, the results for each message theme are mixed. Some themes worked well in some states but not in others. Some themes showed positive results in the lift analysis but were not rated highly in the survey, while others were positively rated in the survey but did not show much actual lift in license purchases. The lift results and survey ratings also varied by state.

In general, the social and hunting-recreation themes did well in both the statistical analyses of databases (i.e., based on the analyses of license sales) and in the survey. While the hunting-success theme showed some statistically significant lift in the analyses of databases, the survey data suggest that the hunting-success theme was not well received. The last theme—the aesthetic theme—seemed to be memorable in the survey (as discussed below) but did not have any statistically significant lift in any of the statistical tests.

Specifically within the lift analysis, each of the five participating states in the study experienced some lift for at least one message theme, although in some cases the lift may not have been statistically significant (Figure 5.1). The following graph shows the total lift by theme by state ranked from the greatest to the least lift.

Most notably, New Jersey received 7.52% lift in license sales with the social message theme and 7.44% lift with the hunting-recreation theme. The greatest lift for Georgia was with the hunting-recreation and the aesthetic themes. In Indiana, the social and hunting-success themes resulted in the most lift. Florida experienced modest lift with the social and hunting-recreation themes, while Oklahoma also had modest lift with the hunting-success theme.

The social, aesthetic, and hunting-recreation themes appeared to be more memorable than the hunting-success theme; those who received the former email campaign themes were more likely to correctly remember which message they received than were those who received the hunting-success theme. Indeed, those receiving the hunting-success theme hardly remembered it at all, and the research suggests that it was not effective in this regard.



*Significant at the 95% confidence level (t-test statistic = 2.125 and p-value = 0.0336).

Figure 5.1. Lift Estimates on All States Cumulatively

The hunting-recreation theme did not do as well among avid bowhunters as it did among sporadic bowhunters in the survey. It may be the email's attempt to create "excitement" is not needed for those who are already avid.

In one part of the assessment of themes, the survey presented the four emails to respondents and asked them to indicate the one that they thought would be the most effective. Across all states, the hunting-success theme with the imagery of meat did *not* do well, while the social theme was consistently in one of the top two spots in most states. Figure 5.2 shows the overall survey results regarding opinions on effectiveness. Table 5.1 shows the ranking of the effectiveness (again, based on survey respondent opinion) of the different themes by state; the hunting-success theme is at the bottom for each state.

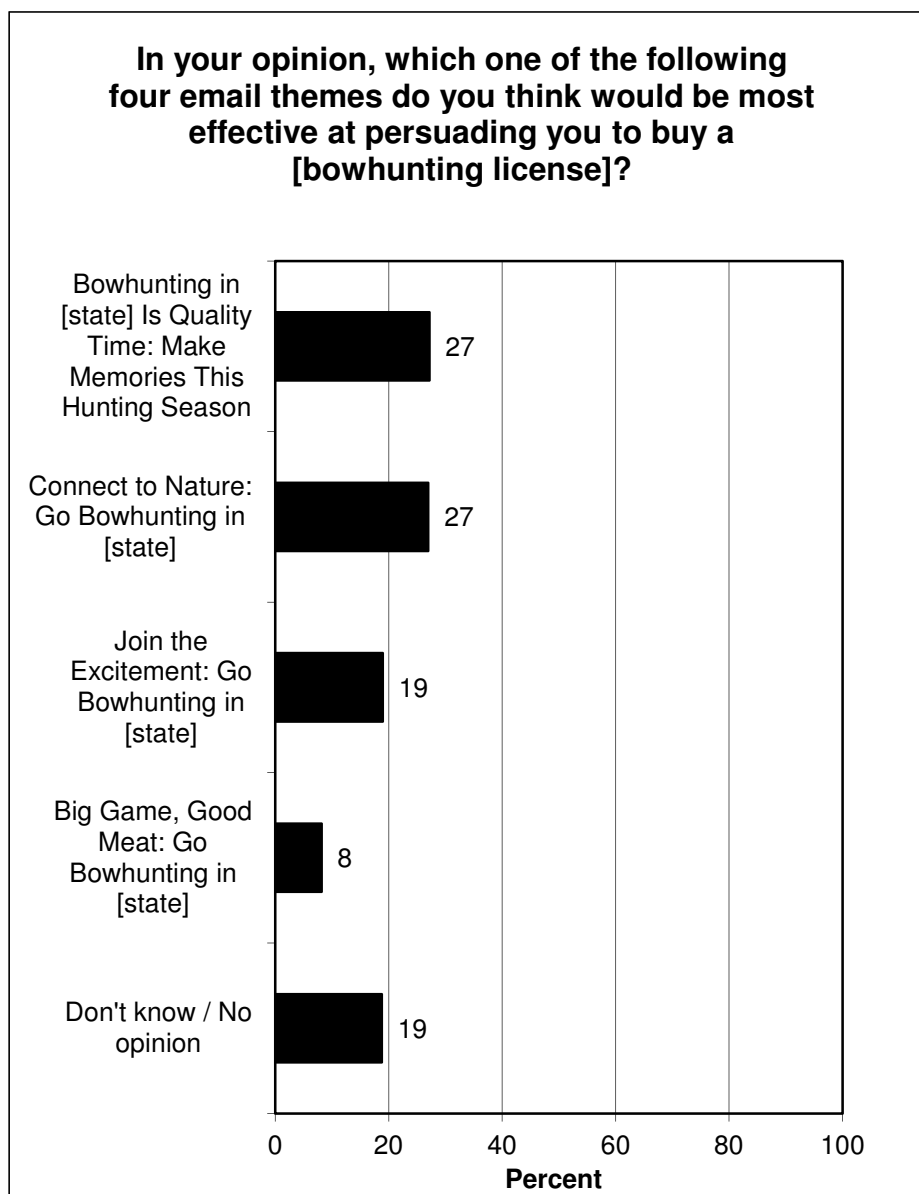


Figure ES.2. Opinions on Message Themes on All State Cumulatively

Table 5.1. Percent in Each State Selecting Each Message Theme as Most Effective, Ranked by Percent

| State | Theme | Percent Who Selected Theme as Most Effective |
|-------|--------------------|--|
| OK | Aesthetic | 34.05 |
| GA | Social | 29.96 |
| IN | Social | 29.06 |
| FL | Aesthetic | 28.11 |
| NJ | Aesthetic | 27.73 |
| GA | Aesthetic | 27.68 |
| NJ | Social | 26.87 |
| IN | Hunting-recreation | 26.87 |
| FL | Social | 24.62 |
| OK | Hunting-recreation | 22.61 |
| FL | Hunting-recreation | 22.45 |
| NJ | Hunting-recreation | 20.42 |
| IN | Aesthetic | 19.95 |
| OK | Social | 19.48 |
| GA | Success | 11.46 |
| GA | Hunting-recreation | 10.70 |
| OK | Hunting-success | 8.99 |
| IN | Hunting-success | 6.94 |
| NJ | Hunting-success | 6.87 |
| FL | Hunting-success | 5.75 |

Message Themes

1. **Social: Bowhunting in [STATE] Is Quality Time—Make Memories This Hunting Season** (image of two adults walking with or using archery/bowhunting equipment)
2. **Aesthetic: Connect to Nature—Go Bowhunting in [STATE]** (image of one or several bucks)
3. **Hunting-Recreation: Join the Excitement, Go Bowhunting in [STATE]** (image of a bowhunter with bow drawn and aimed)
4. **Hunting-Success: Big Game, Good Meat—Go Bowhunting in [STATE]** (image of game meat served as a meal)

Note that each state used an image consistent with the descriptions above, but the actual image used varied across the states.

In summary regarding the themes, the research suggests that the social and the hunting-recreation themes were received the best and were the most effective. The aesthetic theme also proved memorable and well-received in the survey. The social, hunting-recreation, and aesthetic themes should be tested again in a subsequent study.

Regarding timing, some evidence suggests that sporadic bowhunters responded better with the middle-of-the-season timing of the treatment than at the beginning of the season, while the avid responded better with the beginning-of-the-season treatment. However, the email timing (beginning versus middle of the season) was applied inconsistently among states, which created challenges in interpreting the results. Moreover, using a middle-of-the-season timing makes the sample sizes small (because only a small section of the season is being compared), which can sometimes produce statistically unreliable estimates (the 95% confidence limit was greater than 50% of the estimate). This affected results in New Jersey and Florida, for example. In future projects, comparing themes across a single timing schedule may produce more substantial findings regarding the efficacy of various themes.

Although not related to the themes or timing, it is worth noting that the survey found that a lack of time is the top constraint to bowhunting participation. About half of all survey respondents (51%) cited a lack of time as a reason they have not gone bowhunting at all or as much as they would like. Furthermore, this is a constraint that repeatedly ranks highest in previous studies on hunting participation. It may be beneficial to test a message that addresses the time constraint issue in future studies.

Access also appears to be a constraint that is affecting participation in bowhunting. Additionally, many bowhunters responded to the question about constraints by saying that the weather was too

warm or otherwise having a complaint about the season timing. Such problems with season timing and weather again effectively limit “access” to bowhunting.

In addition to constraints, motivations for bowhunting were also explored in the survey. While the top motivations reflect some of the more successful message themes in the study, such as getting out to enjoy nature or the outdoors; for fun, recreation, and adventure; and spending time with friends and family, the second top ranked response is for the challenge that archery or bowhunting offer (Figure 5.3). Testing a message theme that focuses on the challenge or skills aspect of bowhunting is recommended for future studies.

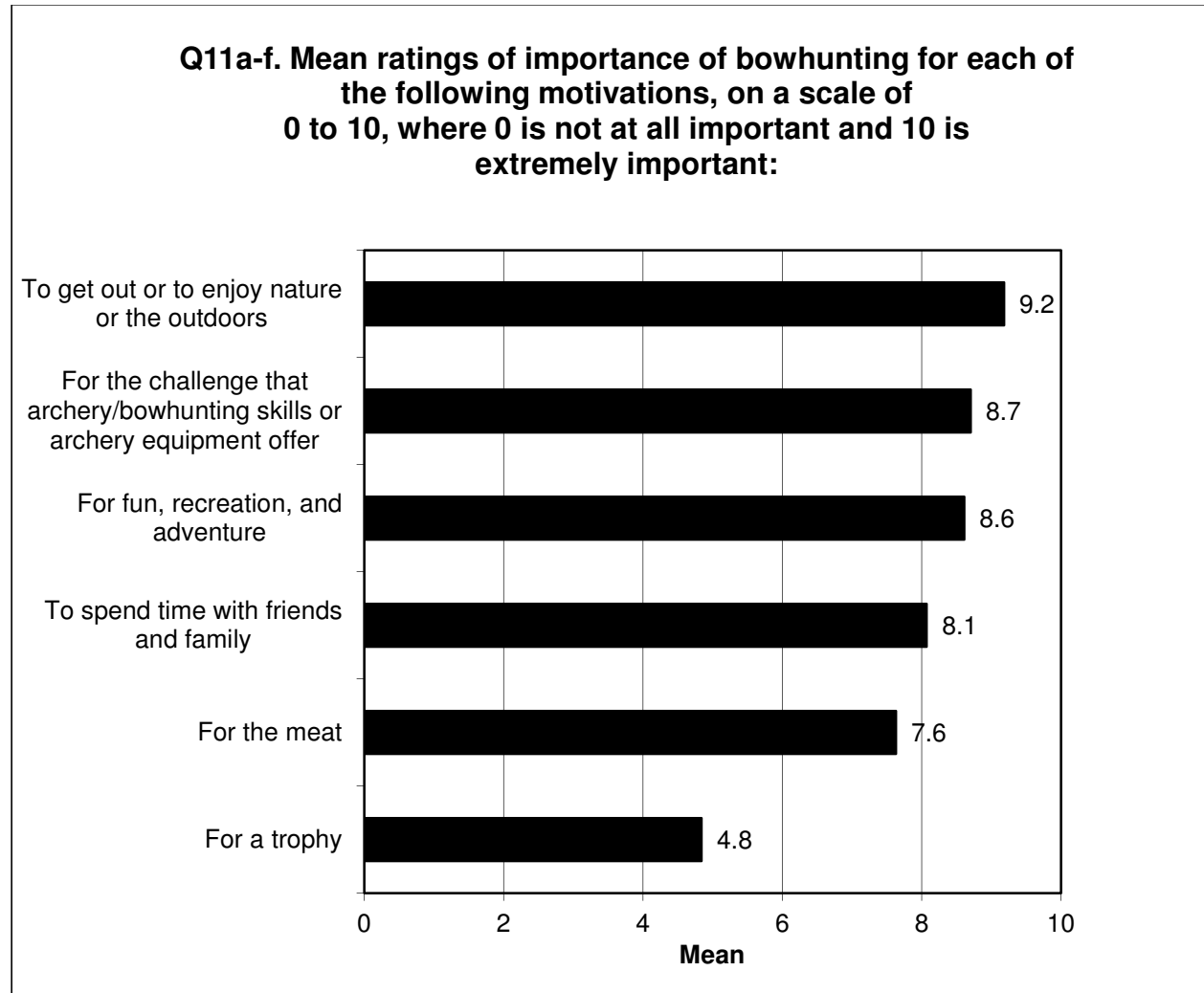


Figure 5.3. Motivations for Bowhunting

In a qualitative review of open-ended answers and comments in the survey, the idea of the “hunting heritage” and “tradition” were commonly identified as an important concept to bowhunters and a reason to participate in bowhunting. Testing a message theme that focuses on the heritage or tradition of bowhunting is recommended for future studies.

Finally, regarding the implementation of the campaigns, the project revealed some aspects of the pilot project that can inform implementation of the follow-up (and ongoing) email campaign. As much as possible, consistency in timelines, implementation factors, and message design is important for successful execution of the research.

One aspect of the research that led to challenges was having two timings in each state. The largest drawback with Timing 2 was that it simply had such a narrow window of time in which a license could be purchased by bowhunters—it is late in the season after most licenses are typically purchased anyway. Therefore, differences can become less meaningful, statistically speaking, if the second timing is too late in the year because the percentage rate of purchase in both control and treatment groups in such a scenario would both be so low.

Note that, by itself, administering a single timing in all the participating states still entails a different timing in each state, as each participating state has different hunting season dates and regulations, and numerous additional factors may result in changes and delays (which was the case for several states in this pilot project). Therefore, those administering similar email campaigns in the future should determine how to best ensure that the two timings are carried out in relatively similar fashions in the various states, both for comparability of data as well as for the ease of administering the campaigns themselves.

Based on the pilot study, the research team has determined that the images and message themes are more important variables than timing and avidity. Therefore, in addition to using a single timing, it is recommended that the separation of avid and sporadic bowhunters also be removed for the follow-up study. The additional sample groups that result from having separate avid and sporadic groups result in much lower n-values. The follow-up research will likely benefit from focusing on the message themes for further testing and refining. If desired, avid and sporadic bowhunters can instead be identified and examined further during the analysis stage of the research, when appropriate.

APPENDIX A: PAST RESEARCH ON MESSAGES

LAPSED HUNTING LICENSE BUYERS: 2013 STUDY

One study explored the efforts to entice lapsed hunting license buyers in Virginia to purchase a license.* The study explored message themes and methods of delivery. A primary finding was that the treatment group of lapsed hunters, regardless of the method of delivery or the message received, purchased a general hunting license for the 2012-2013 hunting season at a slightly higher rate than did the control group (i.e. the group that did not receive the outreach); however, the difference is not statistically significant (Appendix Table 1). Therefore, the best that can be said is that this finding is positive, but not definitive, and should be explored further in other studies.

*(Responsive Management/Virginia Department of Game and Inland Fisheries. 2013. From Media to Motion: Improving the Return on Investment in State Fish and Wildlife Marketing Efforts. Harrisonburg, VA.)

Appendix Table 1. Rate of License Purchasing Among Outreach and Control Groups

| | Outreach Group | Control Group |
|---|-----------------------|----------------------|
| Number of Hunters (see note below) | 38,832 | 21,101 |
| Number of Licenses Purchased | 1,938 | 1,041 |
| Purchase Rate | 5.0% | 4.9% |
| For the outreach group, this is the number of hunters for whom an attempted contact was made with the outreach (whether contact could actually be made or not); for the control group, this is simply the number of hunters that were analyzed. | | |

In addition to looking at the effect of the outreach overall, the study explored the methods of delivery, comparing email, letter, postcard, and telephone call. The most effective delivery method was through email (Appendix Table 2). The total response rate to messages delivered by email was 5.6%, compared to 4.9% for the overall control group.

Appendix Table 2. Rate of License Purchasing Among Hunters Receiving Outreach, by Type of Outreach Method

| | Number of Attempted Contacts | Number of Licenses Purchased | Purchase Rate |
|-----------|-------------------------------------|-------------------------------------|----------------------|
| Email | 9,778 | 551 | 5.6% |
| Letter | 9,702 | 490 | 5.1% |
| Postcard | 9,715 | 479 | 4.9% |
| Telephone | 9,690 | 471 | 4.9% |

This study of Virginia hunters also looked at various message themes. The images noted in the parentheses were included in the email, letter, and postcard contacts. Obviously, the telephone calls had no visual materials. The themes were as follows:

Traditional Appeal: “Protect the Heritage, Hunt Virginia”

(image of three generations of hunters together)

Naturalistic Appeal: “Connect with Nature, Hunt Virginia”

(image of single hunter in attractive natural setting)

Emotional Appeal: “Share the Experience, Hunt Virginia”

(image of hunting buddies)

Informational / Public Land Appeal: “300,000 Reasons to Hunt Virginia: More than 300,000 acres of land are publicly available for hunting in Virginia.”

(image of hunters in natural setting)

Opportunity Appeal: “Join the Excitement, Hunt Virginia: In less than 30 years, the deer harvest in Virginia has nearly tripled and has consistently been 215,000 or higher each year since 2001.”

(image of several deer in an open field)

The most effective message overall for the marketing campaign was the opportunity appeal, with the message, “Join the Excitement, Hunt Virginia,” as shown in Appendix Table 3. However, the difference is not statistically significant, so the evidence is not definitive. At best, one could say that it appears that the opportunity appeal had positive results, although more testing of this theme would need to be conducted.

Appendix Table 3. Rate of License Purchasing Among Hunters Receiving Outreach

| | Number of Attempted Contacts | Number of Licenses Purchased | Purchase Rate |
|---------------|------------------------------|------------------------------|---------------|
| Traditional | 7,788 | 385 | 4.9% |
| Naturalistic | 7,759 | 384 | 4.9% |
| Emotional | 7,775 | 355 | 4.6% |
| Informational | 7,759 | 390 | 5.0% |
| Opportunity | 7,751 | 424 | 5.5% |
| Total | 38,832 | 1,938 | 5.0% |

Among those who were contacted with outreach (either an email, letter, postcard, or telephone call), only 20% recalled being contacted—fully 80% had no memory of the contact. The method that had the highest percentage recalling the contact was by letter (31% remembered receiving a letter), followed by telephone (21%) and postcard (18%). At the bottom, only 11% remembered receiving an email.

In a follow-up question, those who remembered receiving an email, letter, or postcard were asked about whether they had read the material: 44% had read all of the material, and 22% had read some of it. Otherwise, 27% had glanced at it but had not really read it, and 6% had not looked at it at all. Of those who remembered receiving a telephone call, 59% had listened to the end of the call, 13% had listened to some of it but had terminated the call before it was over, 15% had terminated the call immediately, and the remainder of 15% did not remember what they had done (although they remembered getting the telephone call).

The study suggests that email, while relatively inexpensive, is also the most forgettable. However, it was associated with the highest purchase rate of the four methods. Cause and effect cannot be established, however, and it may be that there is another reason that the email group bought at a higher rate. The study was inconclusive regarding methods.

Regarding themes for appealing to lapsed hunters, the “opportunity” theme performed the best. On the other end, the “emotional” appeal had the lowest percentage of subsequent purchasers.

LAPSED HUNTING LICENSE BUYERS: 2009 STUDY

Another study** directed at lapsed hunting license buyers in Virginia was conducted by Southwick Associates, Tammy Sapp, the National Shooting Sports Foundation, and Responsive Management. In the telephone survey portion of the project, 14 questions tested themes that might encourage lapsed hunters to purchase a license (strictly speaking, there were 19 questions, with 14 questions that tested themes and 5 questions that asked about incentives for purchasing a hunting license or that entailed having the state take actions, as shown in Appendix Figure 1). Note that the order of the questions was randomized for each respondent, thereby eliminating order bias, which occurs when a previous question affects subsequent questions, as would happen if the very same theme was always first in the list.

** (The overall project consisted of the following parts: the initial identification of lapsed hunters from information in the licensing database, conducted by Southwick Associates; a review of agency strategic and marketing plans, a literature review regarding past research on the subject, an inventory of current agency outreach materials, and staff interviews, all conducted by Tammy Sapp; three focus groups (to help develop the survey instrument for the subsequent survey) and a telephone survey, conducted by the National Shooting Sports Foundation and Responsive Management titled, *Lapsed Hunters’ License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*, produced in 2009.)

Things That Would Make Hunters Likely To Purchase a Virginia Hunting License That Were Asked About in the Survey

(Would this make you very likely, somewhat likely, or not at all likely to purchase a Virginia hunting license during a year that you otherwise might not?)

14 Themes

What about being reminded that hunting is important for wildlife management?

What about being reminded that hunting is important for the conservation of land and natural resources?

What about being reminded that hunting is important for the conservation of wildlife?

What about being reminded that purchasing a hunting license helps fund conservation of wildlife?

What about being reminded that hunting provides an environmentally friendly source of food?

What about being reminded that you can hunt elk in Virginia?

What about being reminded that it is important to continue the hunting heritage of this country?

What about being reminded that hunting helps people learn the value of wildlife and natural resources?

What about being reminded that hunting helps people relax?

What about being reminded that hunting helps people connect with nature?

What about being reminded that hunting is peaceful?

What about being reminded that hunting is important to your family?

What about being reminded that you can bond with family and friends while hunting?

What about being reminded about the thrill or excitement you get from hunting?

5 License Incentives / State Actions

What about if a family hunting license was available in Virginia?

What about being able to attend an outdoors show free with the purchase of your Virginia hunting license?

What about just having more specific information about hunting opportunities in Virginia made available?

What about receiving a reminder about when hunting seasons for specific species will start?

What about receiving a reminder to purchase your license?

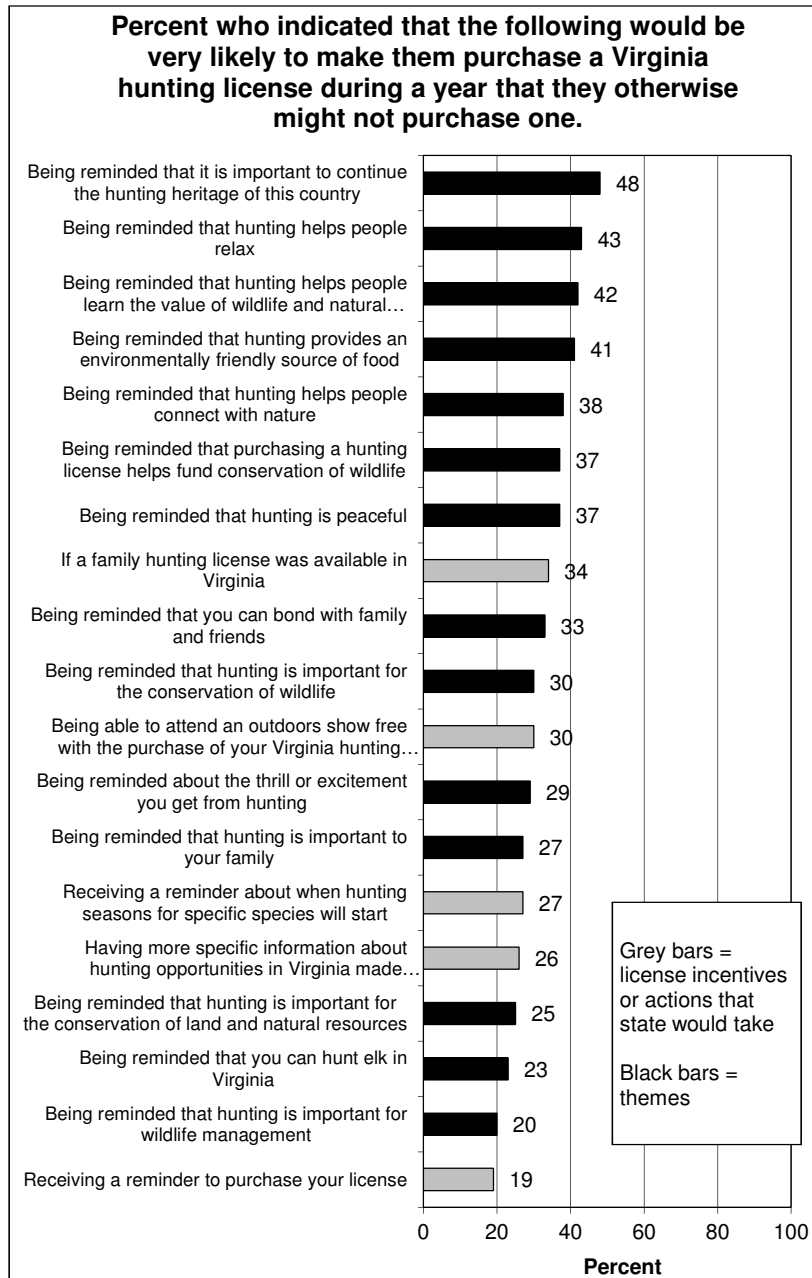
Appendix Figure 1. Outreach Themes Tested in Study

The top themes that resonated (i.e., the themes with the highest percentages of respondents saying that the items would make them *very likely* to purchase a Virginia hunting license) are listed below, each with more than a third of respondents saying it would make them *very likely* to purchase a license. Also shown in parentheses is the percentage who said the message would make them either *very* or *somewhat likely* to purchase a license.

- Being reminded that it is important to continue the hunting heritage of this country (48% *very likely*, 78% *very or somewhat likely*).
- Being reminded that hunting helps people relax (43% *very likely*, 69% *very or somewhat likely*).
- Being reminded that hunting helps people learn the value of wildlife and natural resources (42% *very likely*, 71% *very or somewhat likely*).
- Being reminded that hunting provides an environmentally friendly source of food (41% *very likely*, 73% *very or somewhat likely*).
- Being reminded that hunting helps people connect with nature (38% *very likely*, 65% *very or somewhat likely*).

- Being reminded that purchasing a hunting license helps fund conservation of wildlife (37% *very likely*, 70% *very or somewhat likely*).
- Being reminded that hunting is peaceful (37% *very likely*, 61% *very or somewhat likely*).

The full results of the questions above are shown in Appendix Figures 2 and 3. These figures include the themes tested as well as license incentives/state actions. Along with the results of the theme testing, the results show that the top state action/license incentive was the family hunting license being available. As mentioned previously, the order of the questions was randomized to eliminate order bias.



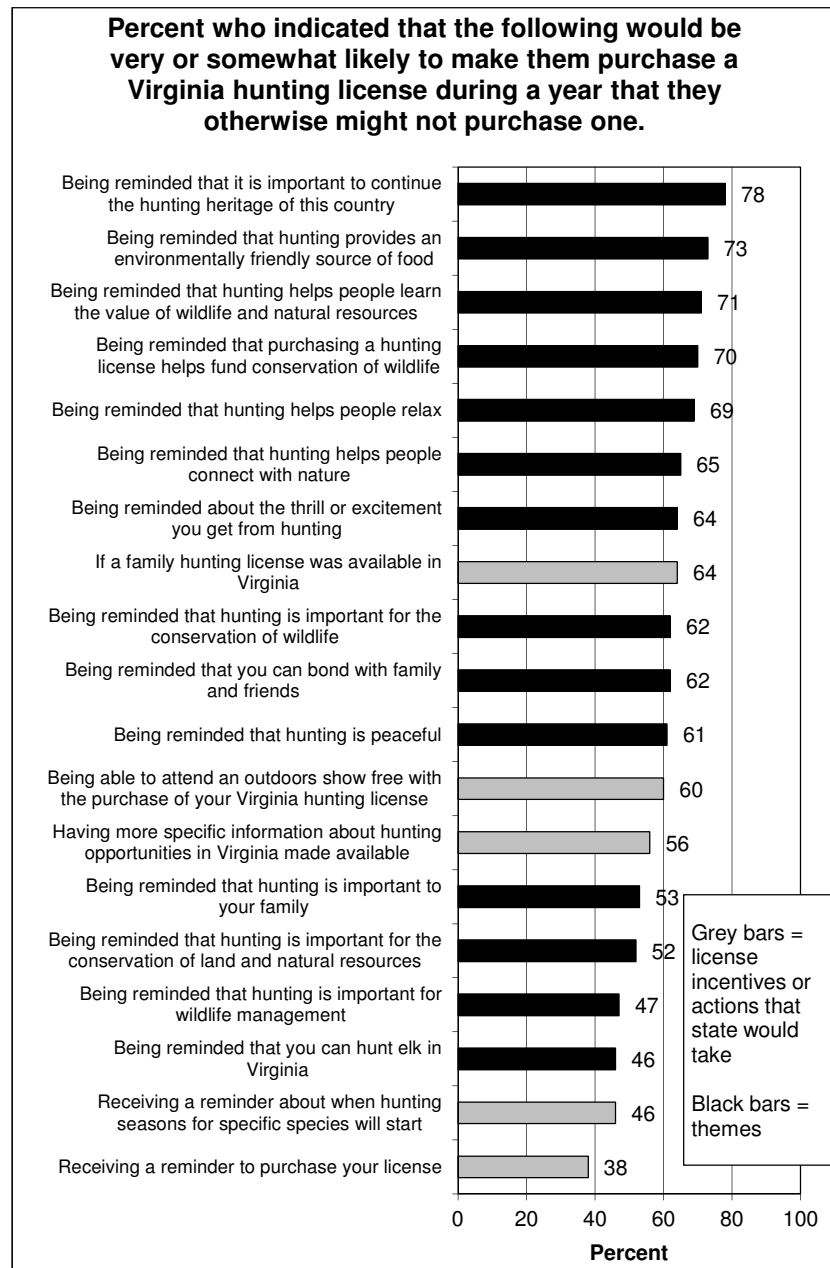
Truncated labels are:

"Being reminded that hunting helps people learn the value of wildlife and natural resources."

"Being able to attend an outdoors show free with the purchase of your Virginia hunting license."

"Having more specific information about hunting opportunities in Virginia made available."

Appendix Figure 2. Outreach Themes: Ratings of Very Effective



Appendix Figure 3. Outreach Themes: Ratings of Very or Somewhat Effective

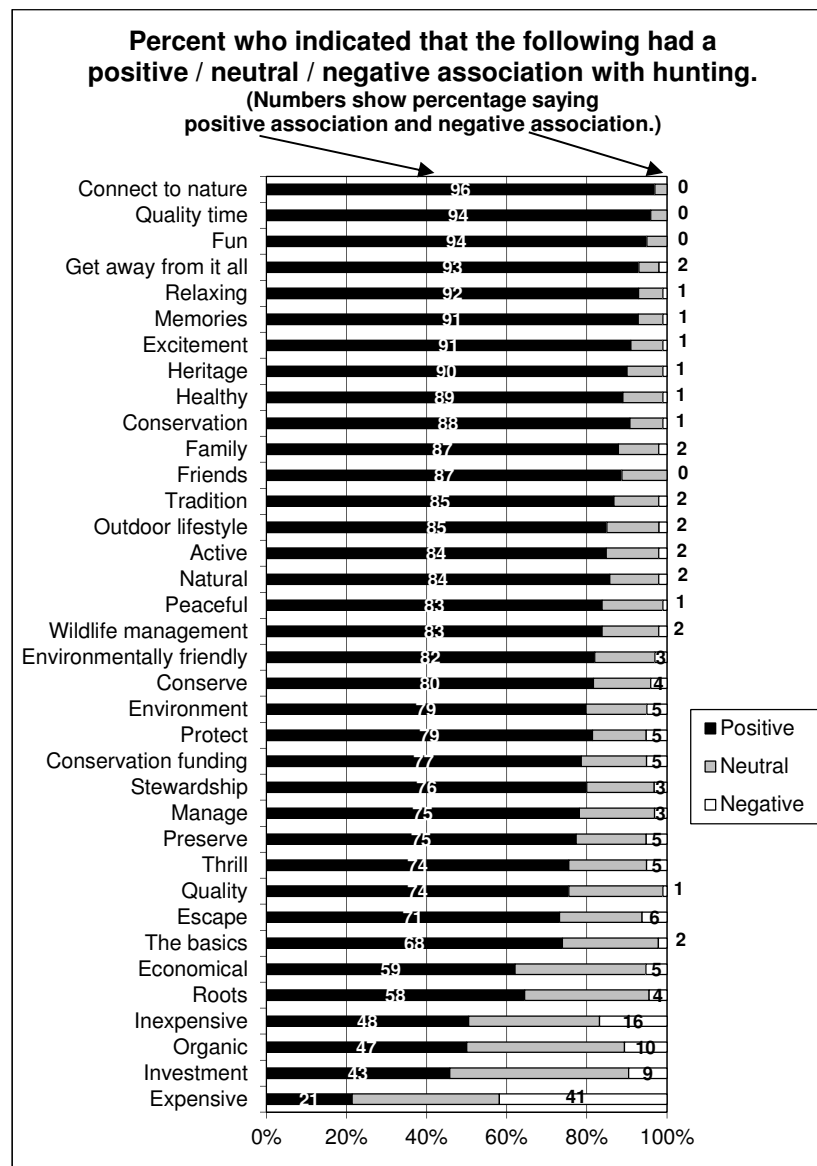
Along with the 17 messages that were tested, the study also tested 36 words or short phrases, as shown in Appendix Figure 4. Specifically, respondents were asked to indicate if the word/phrase had a positive association with hunting, a neutral association, or a negative association with hunting. Again, the order of the questions was randomized to eliminate order bias.

| Words and Phrases That Were Asked About in the Survey (Does this have a positive, negative, or neutral association with hunting?) | | |
|---|----------------------|---------------------|
| Conserve | Friends | Quality time |
| Environment | Relaxing | Connect to nature |
| Economical | Tradition | The basics |
| Family | Stewardship | Preserve |
| Active | Manage | Protect |
| Thrill | Outdoor lifestyle | Expensive |
| Heritage | Conservation funding | Memories |
| Natural | Organic | Fun |
| Quality | Investment | Excitement |
| Conservation | Roots | Escape |
| Environmentally friendly | Peaceful | Wildlife management |
| Inexpensive | Get away from it all | Healthy |

Appendix Figure 4. Outreach Words and Phrases Tested in Study

In this list, 8 of the 36 words and phrases had at least 90% of respondents making a positive association, as shown in Appendix Figure 5: connect to nature (96%), quality time (94%), fun (94%), get away from it all (93%), relaxing (92%), memories (91%), excitement (91%), and heritage (90%).

On the least positive end of the continuum (listed from the bottom up) are the following: expensive (21% say this has a positive association with hunting), investment (43%), organic (47%), inexpensive (48%), roots (58%), and economical (59%).



Appendix Figure 5. Positive and Negative Reaction to Outreach Words and Phrases

The final aspect of this study examined 28 messages that might encourage lapsed hunters to purchase a hunting license; these are shown in Appendix Figure 6. As was done with the other lists presented to respondents, the order of the questions was randomized to eliminate order bias. Three of the messages stand out, each with at least half of respondents saying it would be very effective:

- Make memories. Take someone special hunting. (54% rated it very effective)
- Hunting—protect the heritage, protect the environment. (also 54%)
- Hunting bonds family. Share the experience. (50%)

Six more messages rank above the rest, all with 44% or more saying it would be very effective at getting them to buy a Virginia hunting license:

- Connect to nature, hunt Virginia. (47%)
- Hunters, the original stewards of the land. (46%)
- Hunting connects family and friends. (46%)
- Buy a license, take a friend, make memories. (45%)
- Purchase a Virginia hunting license and help conserve wildlife. (44%)
- Connect with nature, connect with family. Hunt Virginia. (44%)

The full results are included in Appendix Table 4.

Messages Presented to Respondents in the Survey

(Do you think this message would be very effective, somewhat effective, or not at all effective at getting you to buy a Virginia hunting license during a year that you otherwise might not?)

Get outside, hunt Virginia. Only a license away.

Buy your license, help conserve the environment.

Hunters, the original stewards of the land.

Make memories. Take someone special hunting.

Buy your license today, plan your trip today. Visit

www.dgif.virginia.gov/hunting.

Hunting is a source of quality, naturally replenished food.

Hunting - big game, big fun, big benefits. Hunt Virginia. Buy your license.

Hunting is an investment with many returns.

Buy your license, help conserve habitat.

Life is short. Break free and go hunting.

Buy a license, take a friend, make memories.

Unwind the time, hunt Virginia.

Hunting provides healthy, organic meat, no hormones or chemicals.

Hunting - protect the heritage, protect the environment.

Hunting - it's our nature.

Purchase a Virginia hunting license and help conserve wildlife.

Need a break? Peace awaits you in Virginia's outdoors. Go hunting.

Hunting bonds family. Share the experience.

Hunting season only comes once a year - don't miss it.

Hunt Virginia and reduce your carbon footprint with a local, organic source of meat.

Hunting - make memories, fund conservation. Buy a license.

Connect to nature, hunt Virginia.

Purchase a Virginia hunting license and help manage wildlife.

Hunting connects family and friends.

Hunting - pass on the tradition. It starts with a license.

Big game, big fun. Hunt Virginia. [or Small game, big fun. Hunt Virginia.]*

Connect with nature, connect with family. Hunt Virginia.

Life is short, don't miss the hunting season. Buy your license today.

*This message used the term, "Big game," for hunters who indicated that they hunted bear, deer, elk, or wild turkey in the species question earlier in the survey; the message used the term, "Small game," for hunters who did not hunt any of the big game species *and* who indicated hunting for fox, raccoon, small game, and/or waterfowl. All remaining respondents (those who hunted some other species or who answered "Don't know" to the species question) were randomized between "Big game" and "Small game."

Appendix Figure 6. Outreach Statements Tested in Study

Appendix Table 4. Results of Statements Tested in Study

| Statement (ranked by percentage saying the statement would be <i>very</i> effective) | Very effective | Somewhat effective | Not effective | Don't know |
|--|-------------------|-----------------------|------------------|------------|
| Hunting - protect the heritage, protect the environment. | 54 | 30 | 15 | 1 |
| Make memories. Take someone special hunting. | 54 | 30 | 15 | 1 |
| Hunting bonds family. Share the experience. | 50 | 36 | 12 | 2 |
| Connect to nature, hunt Virginia. | 47 | 35 | 16 | 2 |
| Hunters, the original stewards of the land. | 46 | 30 | 21 | 3 |
| Hunting connects family and friends. | 46 | 36 | 17 | 1 |
| Buy a license, take a friend, make memories. | 45 | 36 | 18 | 1 |
| Connect with nature, connect with family. Hunt Virginia. | 44 | 39 | 15 | 2 |
| Purchase a Virginia hunting license and help conserve wildlife. | 44 | 39 | 16 | 1 |
| Buy your license, help conserve habitat. | 42 | 40 | 17 | 1 |
| Hunting - make memories, fund conservation. Buy a license. | 42 | 38 | 19 | 1 |
| Life is short. Break free and go hunting. | 42 | 30 | 27 | 1 |
| Hunting - it's our nature. | 40 | 40 | 20 | 0 |
| Need a break? Peace awaits you in Virginia's outdoors. Go hunting. | 40 | 38 | 21 | 1 |
| Hunting is an investment with many returns. | 39 | 34 | 25 | 2 |
| Purchase a Virginia hunting license and help manage wildlife. | 39 | 39 | 20 | 2 |
| Hunting - big game, big fun, big benefits. Hunt Virginia. Buy your license. | 38 | 35 | 25 | 2 |
| Hunting is a source of quality, naturally replenished food. | 38 | 36 | 25 | 1 |
| Hunting - pass on the tradition. It starts with a license. | 37 | 39 | 21 | 3 |
| Unwind the time, hunt Virginia. | 37 | 31 | 30 | 2 |
| Hunting provides healthy, organic meat, no hormones or chemicals. | 36 | 30 | 33 | 1 |
| Hunting season only comes once a year - don't miss it. | 34 | 41 | 22 | 3 |
| Buy your license, help conserve the environment. | 33 | 42 | 23 | 2 |
| Get outside, hunt Virginia. Only a license away. | 32 | 43 | 22 | 3 |
| Big/small game, big fun. Hunt Virginia. | 30 | 46 | 21 | 3 |
| Buy your license today, plan your trip today. Visit www.dgif.virginia.gov/hunting . | 26 | 35 | 36 | 3 |
| Hunt Virginia and reduce your carbon footprint with a local, organic source of meat. | 25 | 27 | 43 | 5 |
| Life is short, don't miss the hunting season. Buy your license today. | 25 | 39 | 34 | 2 |

Based on these data, the report went on to make some recommendations about message content and methods:

- The report advised using the top three messages (or variations of the messages using similar themes, phrases, and words) rated by respondents as very or somewhat effective at getting them to buy a hunting license during a year that they otherwise might not.
- The report advised using messages and outreach materials that incorporate the “passing on the hunting heritage” theme.
- The report advised using the words, phrases, and concepts of “connect,” “share,” “make memories,” and “heritage.”
- The report advised against using the term “environment” or other words, phrases, and concepts related to the theme of “environmentally friendly,” “eco-friendly,” or “going green” unless it is blended or used with another theme (other than the direct “buy a license” theme), such as the hunting heritage theme.
- The report advised against using the term “conserve” without being specific about what is being conserved.

- The report advised using messages and outreach materials that appeal to passing on the hunting heritage, connecting, making memories, and bonding with someone special, but the report advised being non-specific (e.g., someone special) or being all inclusive (e.g., friends and family) regarding who “someone special” is (with the caveat immediately below).
- The report advised against making family the primary or central person/people in messages and campaign materials that appeal to passing on the hunting heritage, connecting, making memories, and bonding.
- The report suggested addressing availability and quality of hunting opportunities on public land in messages and outreach materials.
- The report advised against using “buy a license” as the primary or dominant theme in messages and campaign materials.

RBFF GEORGIA NEW ANGLER RETENTION PILOT PROGRAM

This program*** used email contacts to encourage new anglers to continue to purchase licenses and go fishing. The sample consisted of anglers who had purchased a fishing license in 2015 but had not purchased one in the previous four years (from 2011 through 2014). The report states that “new anglers . . . with valid email addresses were selected as the target audience for this retention effort. These were divided into five groups with 10% of the total set aside as a control group . . . and the remaining treatment group divided evenly across the remaining four groups.”

***(*Southwick Associates, 2016. Southwick Associates. 2016. RBFF-GA New Angler Retention Pilot Program.*)

The treatment was as follows:

All five groups received a ‘thank you’ email upon license purchase. All of the treatment groups received email reminders the following year to renew their license. Two of the groups received additional emails with four monthly newsletters containing fishing-specific content and a follow-up survey. Additionally, the renewal notices included a discount promotion for early renewal for two of the groups while it was not mentioned for the other two treatment groups. The \$2.75 transaction fee was waived if the license was renewed before it expired.

Four renewal reminder emails were sent based on the license expiration date of each angler as follows. The first was sent 30 days before his/her license expired, a second sent 1 week before his/her license expired, a third sent 1 day before his/her license expired, and the fourth sent 30 days after his/her license expired.

All four of the treatment groups showed increases in renewal rates compared to the control group (Appendix Table 5). The email reminders generated an increase of 4.7% in the renewal rate compared to the control group. The groups whose reminder included the discount promotion for early renewal had statistically significant greater renewal rates compared the groups that did not receive the promotion for the discount. Groups that received emails with newsletters had slightly lower renewal rates compared to the groups not receiving these emails, but the difference in renewal rates were not statistically significant.

Appendix Table 5. Effect of Reminders, Newsletters, and Discounts on Fishing License Purchases

| Group | Renewal Rate | Amount of Lift |
|---|--------------|----------------|
| Control (no contact) | 19.2% | |
| Reminders | 23.9% | 4.8% |
| Reminders with discount | 24.7% | 5.5% |
| Newsletters and reminders | 22.5% | 3.3% |
| Newsletters and reminders with discount | 24.3% | 5.1% |
| Total treatment group | 23.9% | 4.7% |

The report went on to assess the discounts and newsletters. Regarding the discounts, the report stated that the “reminders promoting the discount increased the renewal rate by 1.3%.” However, regarding the newsletters, the report states that “the groups receiving newsletters had a slightly lower renewal rate compared to groups not receiving the newsletter.”

ENCOURAGING HUNTER EDUCATION PARTICIPANTS TO PURCHASE A HUNTING LICENSE

This study first discussed the percentage of hunter education course graduates who went on to purchase a hunting license in Alabama, Georgia, and Kentucky: 70% (Alabama), 76% (Georgia), and 78% (Kentucky) of hunter education course graduates subsequently purchased a license in that season. The project**** was aimed at those who did *not* purchase a license.

****(Georgia Department of Natural Resources/Alabama Department of Conservation and Natural Resources/Kentucky Department of Fish and Wildlife Resources/Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.)

The study entailed a marketing campaign to encourage hunter education graduates who had not yet purchased a hunting license to do so. The campaign distributed license purchase reminders to hunter education course graduates in those three states. An evaluation then determined the effectiveness of the delivery methods, of the messages themselves, and of the specific combinations of method and message.

Overall, the campaign tested single and multiple wave messaging strategies employing four different delivery methods (email, letter, postcard, and telephone call) and the following five unique messages (note that some information included in the messages, such as public hunting land acreage, varied by state, as indicated by brackets):

1. *Traditional / Emotional Appeal*: “This Season, Get Together, Get Outside, and Make Memories with the Many Great Hunting Opportunities in [State]!”
(included an image of several hunters smiling together, holding squirrel harvested)
2. *Naturalistic Appeal*: “This Season, Connect with the Great Outdoors and Enjoy the Peace and Relaxation of Nature Through the Many Great Hunting Opportunities in [State]!”
(included an image of white-tailed deer in natural forest setting)
3. *Informational Appeal – Private Lands*: “This Season, Take Advantage of the Many Great Hunting Opportunities in [State]! In addition to [Over 756,000 / Nearly a Million / More Than 1.5 Million] Acres of Wildlife Management Areas and Other Public Hunting Lands in [State], Private Land Hunting Opportunities May be Available Near You as Well—It Never Hurts to Ask.”
(included an image of hunter hunting on tract of private land with farmhouse in distance; note that the wording was different for each state, as shown)
4. *Informational Appeal – Hunting Seasons*: “This Season, Take Advantage of the Many Great Hunting Opportunities in [State]! [State] Hunters Can Hunt White-Tailed Deer, Wild Turkey, Small Game, Waterfowl, and Many Other Species.”
(included a collage image of several different popular hunting species)
5. *Informational Appeal – WMAs*: “This Season, Take Advantage of the Many Great Hunting Opportunities in [State]! [State] Hunters Have Access to [Over 756,000 / Nearly a Million / More Than 1.5 Million] Acres of Wildlife Management Areas and Other Public Hunting Lands.”
(included an image of several hunters walking on a WMA tract of land; note that the wording was different for each state, as shown)

On emails and postcards (i.e., the two delivery methods suited to the use of graphic or visual elements), the appeals included a hunting-related image (no images were used with letters or, obviously, telephone calls). Messages and images were based partly on previous research with hunters but also incorporated specific images and other content provided by the three partner agencies. In addition to the hunting-related appeals and images, each post card included a reminder to purchase a state hunting license and provided a web address and toll-free telephone number to do so. For messages delivered via email, a direct, clickable link to the license purchasing website was provided.

The study was further designed to test the effects of single wave and multiple wave messages. The marketing campaign included two waves of emails, letters, and postcards. (Although the first wave of telephone calls resulted in reasonable success, the researchers made the decision to conduct only a single wave of telephone messages following some minor negative feedback from recipients regarding license purchase reminder messages or “marketing calls” conducted on behalf of a government agency.) Some hunter education course graduates received only one message, and some received two messages to evaluate whether multiple mailings further increased the lift in license purchases.

Individual sample groups of hunter education graduates who had not purchased a hunting license were randomly selected for each individual combination of method and message. No recipient ever received more than one type of message, nor did anyone receive a message by more than one method of delivery. This design resulted in 35 different treatment groups, as follows. For each of five messages, there were two groups for email, two for letter, and two for postcard—depending on whether one email, letter, or postcard were sent or multiple emails, letters, or postcards were sent—making six of the groups for each message. In addition, there was a seventh group for each message consisting of those who received a telephone call (only one telephone contact was made). A control group that did not receive any messages by any methods was also established for calculating the lift.

One comparison looked at all treatment groups together, regardless of message, versus the control group. For two of the three states, the treatment groups bought licenses at a higher rate than did the control group (Appendix Table 6). However, only in Alabama was there a substantial gain.

Appendix Table 6. Effect of Treatment Overall Versus Control Group

| | Purchase Rate in Alabama | Purchase Rate in Georgia | Purchase Rate in Kentucky |
|-----------------|-----------------------------|-----------------------------|------------------------------|
| Treatment Group | 6.5% | 0.9% | 0.3% |
| Control Group | 5.0% | 1.0% | 0.0% |
| Amount of Gain | 1.5% | No gain | 0.3% |

The assessment also included a look at the delivery method (Appendix Table 7). Three of the methods were compared to the same control group; there was a separate control group for the telephone call method in Alabama and Georgia. In all three states, email fared the best, particularly in Alabama where email produced a 5.7% boost.

Appendix Table 7. Treatment Versus Control Group by Delivery Method

| | Email | Letter | Postcard | Telephone Call |
|-----------------|-------|---------|----------|-------------------|
| Alabama | | | | |
| Treatment Group | 10.7% | 5.5% | 6.0% | 4.9% |
| Control Group | 5.0 | | | 3.9% |
| Amount of Gain | 5.7% | 0.5% | 1.0% | 1.0% |
| Georgia | | | | |
| Treatment Group | 1.7% | 0.9% | 0.9% | 0.5% |
| Control Group | 1.0% | | | 0.7% |
| Amount of Gain | 0.7% | no gain | no gain | no gain |
| Kentucky | | | | |
| Treatment Group | 0.6% | 0.5% | 0.1% | 0.1% |
| Control Group | 0.0% | | | |
| Amount of Gain | 0.6% | 0.5% | 0.1% | 0.1% |

The comparison looked at the type of message, regardless of delivery method, as shown in Appendix Table 8. In this comparison, Message 5 (with a gain of 2.3%) did the best in Alabama, followed closely by Messages 3 and 4 (both with a gain of 1.5%). In Georgia, Message 3 did the best, but it was not a substantial gain (only 0.1%), and no other message in Georgia produced any gain. Finally, in Kentucky, Message 4 (0.8% gain) did the best, but, again, it was not a substantial gain.

Appendix Table 8. Treatment Versus Control Group by Message, All Delivery Methods

| | Treatment Group | Control Group | Amount of Gain |
|-----------|-----------------|---------------|----------------|
| Alabama | | | |
| Message 1 | 5.9% | 5.0% | 0.9% |
| Message 2 | 6.1% | | 1.1% |
| Message 3 | 6.5% | | 1.5% |
| Message 4 | 6.5% | | 1.5% |
| Message 5 | 7.3% | | 2.3% |
| Georgia | | | |
| Message 1 | 0.9% | 1.0% | no gain |
| Message 2 | 1.0% | | no gain |
| Message 3 | 1.1% | | 0.1% |
| Message 4 | 1.0% | | no gain |
| Message 5 | 0.6% | | no gain |
| Kentucky | | | |
| Message 1 | 0.1% | 0.0% | 0.1% |
| Message 2 | 0.0% | | 0.0% |
| Message 3 | 0.5% | | 0.5% |
| Message 4 | 0.8% | | 0.8% |
| Message 5 | 0.2% | | 0.2% |

The final comparison looked at all messages and all delivery methods together. (Note that Kentucky had too few license purchasers for this analysis to be run. For this reason, tables are only available for Alabama and Georgia.) The combination resulting in the highest lift for the marketing campaign in Alabama was Message 2 (naturalistic appeal) delivered by email (Appendix Table 9). This combination of message and delivery method resulted in a 133.91% lift in license sales among hunter education graduates. The total purchase rate for Message 2 delivered by email was 11.6%, compared to 10.7% for any email message, 6.1% for Message 2 using any delivery method, and 5.0% for the overall Alabama control group. The increase in comparison to the control group is statistically significant.

The combination of email and Message 5 produced a lift of 6.66 percentage points compared to the overall control group. The increase in comparison to the control group is statistically significant. In addition to the top combination of message and delivery method described above, every other combination of a message with email as the delivery method resulted in statistically significant differences between the Alabama treatment and control groups: Message 3 delivered by email resulted in a purchase rate of 10.91%; Message 1 delivered by email resulted in a purchase rate of 10.80%; Message 5 delivered by email resulted in a purchase rate of 10.79%; and Message 4 delivered by email resulted in a purchase rate of 9.18%.

Appendix Table 9. Treatment Versus Control Group by Message and Delivery Method, Alabama

| | | Treatment Group | Control Group | Amount of Gain | Estimated Increase in License Sales Due To Campaign |
|----------------|-----------|-----------------|---------------|----------------|---|
| Email | Message 1 | 10.80% | 4.97% | 5.83% | 117.24% |
| | Message 2 | 11.63% | | 6.66% | 133.91% |
| | Message 3 | 10.91% | | 5.94% | 119.42% |
| | Message 4 | 9.18% | | 4.21% | 84.65% |
| | Message 5 | 10.79% | | 5.82% | 116.93% |
| Letter | Message 1 | 3.15% | | no gain | no gain |
| | Message 2 | 4.78% | | no gain | no gain |
| | Message 3 | 6.21% | | 1.24% | 24.94% |
| | Message 4 | 6.41% | | 1.44% | 28.95% |
| | Message 5 | 6.87% | | 1.90% | 38.22% |
| Postcard | Message 1 | 7.65% | | 2.68% | 53.79% |
| | Message 2 | 4.34% | | no gain | no gain |
| | Message 3 | 4.99% | | 0.02% | 0.47% |
| | Message 4 | 8.33% | | 3.36% | 67.45% |
| | Message 5 | 4.23% | | no gain | no gain |
| Telephone Call | Message 1 | 4.47% | 3.95% | 0.52% | 13.16% |
| | Message 2 | 4.48% | | 0.53% | 13.38% |
| | Message 3 | 4.95% | | 1.00% | 25.46% |
| | Message 4 | 5.02% | | 1.07% | 27.05% |
| | Message 5 | 5.55% | | 1.60% | 40.48% |

Continuing the analysis of media and messages in Alabama shown in Appendix Table 9, none of the combinations of message and delivery by letter resulted in statistically significant differences between the treatment and control group purchase rates. One combination of message and delivery by postcard resulted in a statistically significant difference between the treatment and control group purchase rates: Message 4 (informational appeal—hunting seasons) delivered by postcard resulted in a 67.45% lift in license sales among hunter education graduates. Similarly, one combination of message and delivery by telephone call resulted in a statistically significant difference between the treatment and control group purchase rates: Message 5 (informational appeal—WMAs) delivered by telephone call resulted in a 40.48% lift in license sales among hunter education graduates.

Now turning to the results in Georgia, the analysis found that the combination resulting in the highest lift for the marketing campaign in Georgia was Message 4 (informational appeal—hunting seasons) delivered by email, which resulted in a 165.95% lift in hunting license sales among Georgia hunter education graduates (Appendix Table 10). The total purchase rate for Message 4 delivered by email was 2.6%, compared to 1.7% for any email message, 1.0% for Message 4 using any delivery method, and 1.0% for the overall Georgia control group. The combination of email and Message 4 produced a lift of 1.60 percentage points compared to the overall control group. The increase in comparison to the control group is statistically significant.

Appendix Table 10. Treatment Versus Control Group by Message and Delivery Method, Georgia

| | | Treatment Group | Control Group | Amount of Gain | Estimated Increase in License Sales Due To Campaign |
|----------------|-----------|-----------------|---------------|----------------|---|
| Email | Message 1 | 1.00% | 0.96% | 0.04% | 4.24% |
| | Message 2 | 1.53% | | 0.57% | 58.76% |
| | Message 3 | 2.05% | | 1.09% | 112.76% |
| | Message 4 | 2.56% | | 1.60% | 165.95% |
| | Message 5 | 1.53% | | 0.57% | 59.57% |
| Letter | Message 1 | 1.53% | | 0.57% | 58.76% |
| | Message 2 | 1.54% | | 0.58% | 60.40% |
| | Message 3 | 0.50% | | no gain | no gain |
| | Message 4 | 1.00% | | 0.04% | 4.24% |
| | Message 5 | 0.00% | | no gain | no gain |
| Postcard | Message 1 | 1.03% | | 0.07% | 6.93% |
| | Message 2 | 2.01% | | 1.05% | 108.49% |
| | Message 3 | 1.01% | | 0.05% | 4.77% |
| | Message 4 | 0.51% | | no gain | no gain |
| | Message 5 | 0.00% | | no gain | no gain |
| Telephone Call | Message 1 | 0.74% | 0.70% | 0.04% | 5.78% |
| | Message 2 | 0.45% | | no gain | no gain |
| | Message 3 | 0.59% | | no gain | no gain |
| | Message 4 | 0.45% | | no gain | no gain |
| | Message 5 | 0.30% | | no gain | no gain |

No other combination of message and delivery method resulted in a statistically significant difference between the Georgia treatment and control group purchase rates. However, several other combinations did produce notable purchase rates. The purchase rate for Message 2 (naturalistic appeal) delivered by letter was 1.5%, compared to 0.9% for any letter message, 1.0% for Message 2 using any delivery method, and 1.0% for the overall Georgia control group. The combination of letter and Message 2 produced a lift of 0.58 percentage points compared to the overall control group.

The purchase rate for Message 2 (naturalistic appeal) delivered by postcard was 2.0%, compared to 0.9% for any postcard message, 1.0% for Message 2 using any delivery method, and 1.0% for the overall Georgia control group. The combination of postcard and Message 2 produced a lift of 1.05 percentage points compared to the overall control group. Finally, the purchase rate for Message 1 (traditional/emotional appeal) delivered by telephone call was 0.7%, compared to 0.5% for any telephone call message, 0.9% for Message 1 using any delivery method, and 0.7% for the Georgia telephone call control group. The combination of telephone call and Message 1 produced a lift of 0.04 percentage points compared to the telephone call control group.

A final part of the analysis looked at the effect of one contact versus a second contact, which was done by email, letter, and postcard (but not telephone, as explained previously).

A second wave of messages appeared to increase license purchases among Alabama hunter education graduates: for the entire campaign in Alabama, hunter education graduates who received a second message purchased hunting licenses at a higher rate than did those who received only a single message. The purchase rate was 7.8% for the multiple wave group, compared to 6.2% for the single wave group and 5.0% for the control group. The differences in these comparisons are statistically significant.

While Georgia hunter education graduates who received a second wave of messages purchased licenses at a slightly higher rate than did graduates who received just one message, the difference between the two groups is not statistically significant. The purchase rate for the multiple wave group was 1.2%, compared to 0.8% for the single wave group and 1.0% for the control group. As stated, however, these differences are not statistically significant.

APPENDIX B: FULL ARRAY OF IMAGERY USED FLORIDA

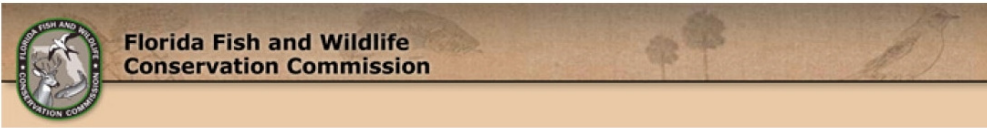


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Is Quality Time**
Make Memories This Hunting Season

It's a great time to go bowhunting. Don't forget to buy or renew your license if you haven't already.

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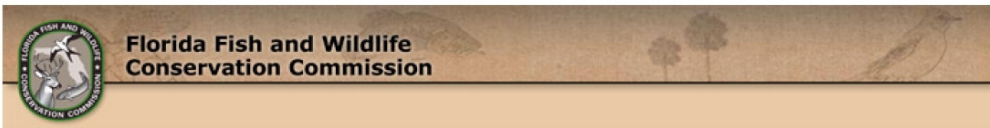
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Is Quality Time**
Make Memories This Hunting Season

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Thank you,
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New Jersey Division of Fish and Wildlife
Mail Code 501-03
PO Box 420
Trenton, NJ 08625-0420
Phone: (609) 292-2965

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courtesy of Craig Lemon


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Oklahoma Department of Wildlife Conservation
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Oklahoma City, OK 73111
Phone: (405) 521-3851

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Oklahoma City, OK 73111
Phone: (405) 521-3851

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Responsive Management has conducted research for every state fish and wildlife agency and most of the federal resource agencies, including the U.S. Fish and Wildlife Service, the National Park Service, the U.S. Forest Service, the Bureau of Land Management, the U.S. Coast Guard, and the National Marine Fisheries Service.

We have also provided research for many nonprofit and nongovernmental organizations, including the National Wildlife Federation, the National Shooting Sports Foundation, the National Rifle Association, the Archery Trade Association, the Izaak Walton League, the Rocky Mountain Elk Foundation, Ducks Unlimited, SCI, and Dallas Safari Club. Other nonprofit and NGO clients include Trout Unlimited, the Sierra Club, the American Museum of Natural History, the Ocean Conservancy, the National Association of State Boating Law Administrators, and the BoatUS Foundation.

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