



## 2020-2021 South Carolina Bobwhite Quail Hunter Survey



The South Carolina Department of Natural Resources Small Game Project conducts an annual survey of the state's bobwhite quail (*Colinus virginianus*) hunters. This survey was initiated during the 1987-88 hunting season and was conducted for the 34th consecutive year during the 2020-21 season. The purpose of the Quail Hunter Survey is to collect quantitative information on hunting success, which aids biologists in tracking quail population trends.

### Methods

As in previous years, a mailing list was generated from individuals who had participated in the Quail Hunter Survey in previous years and individuals who responded to news releases or otherwise heard about the survey.

Immediately prior to the opening of the 2020-21 quail hunting season cooperators were provided with materials necessary to participate in the survey. The materials included a pocket-size hunting diary, a data sheet, a postage-paid return envelope, and instructions for the survey. Potential cooperators were also provided with a larger return envelope with tags and asked to collect 10 wings from harvested quail. The wings were used to estimate sex and age ratios for the state's quail population.

In addition, hunters were provided the opportunity to sign-up to participate online and given the option of downloading a hunt report form or reporting their hunts directly using their computer or mobile device. Hunters can now sign up to participate at [www.dnr.sc.gov/surveys/smallgame](http://www.dnr.sc.gov/surveys/smallgame).

Cooperators were instructed to keep accurate records while quail hunting by recording the following information for each hunt: date, county of hunt, number of quail coveys flushed, number of quail bagged, and an estimate of average covey size. We also asked for the number of woodcock (*Scolopax minor*) flushed, number of woodcock bagged, and number of rabbits (*Sylvilagus* spp.) seen while quail hunting.

Information and comments concerning the overall quality of the season, dog performance, quail food habits, weather, habitat conditions and other observations were also requested. Cooperators were asked to collect 1 wing from each quail harvested (up to 10 per cooperator) and affix a tag with the date, county and sex of the bird for each wing. Survey participants were urged to record information for wild, native bobwhite quail hunts only.

Near the close of the quail season, a reminder postcard was mailed (or an email sent) to each potential cooperator encouraging prompt return of the survey forms and wings. Data received were entered into a computer file, proofed, and summarized. Data were then analyzed to determine differences by year, county, region, month, or a combination of these variables.

## Results and Discussion

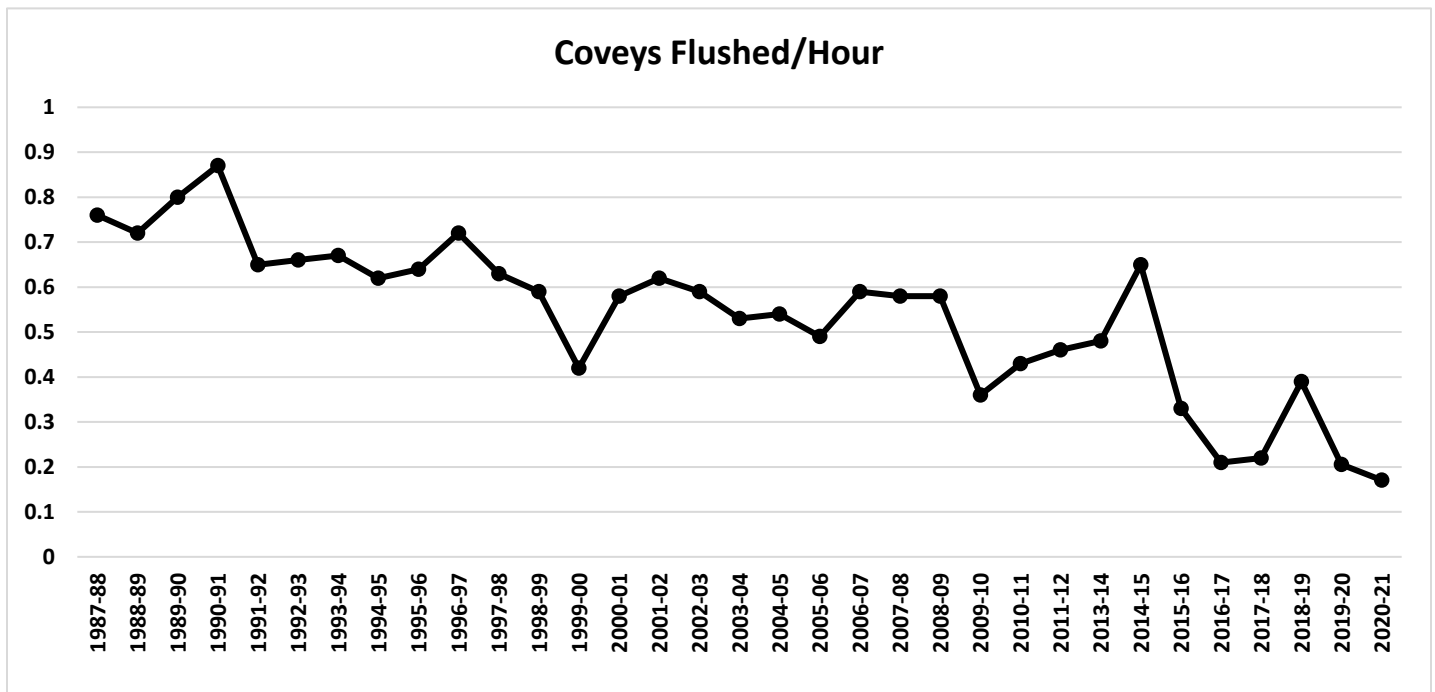
### Statewide

Responses were received from 29 (11 online, 18 mailed) individuals, with usable data. Information was obtained from 220 hunts. Average hunt length was 2.73 hours and average hunter group size was 1.67 (for those reporting group size). The highest frequency of survey quail hunting activity occurred during the months of January and December, followed by February (Table 1).

**Table 1. Quail hunting activity by month, 2020-21 South Carolina Quail Hunter Survey**

Month	Number of Hunts	Percentage of Total
November	20	9.09
December	71	32.27
January	82	37.27
February	46	20.91
March	<u>1</u>	<u>0.45</u>
TOTAL	220	100.00

Survey cooperators flushed an average of 0.17 coveys per hour during the 2020-21 season, a decrease from the 2019-20 season (Table 2). Quail bagged per hour increased from the previous year and the reported average covey size declined slightly compared to the previous year. The trend in the coveys per hour index for the past 33 years of the survey is illustrated in Figure 1.

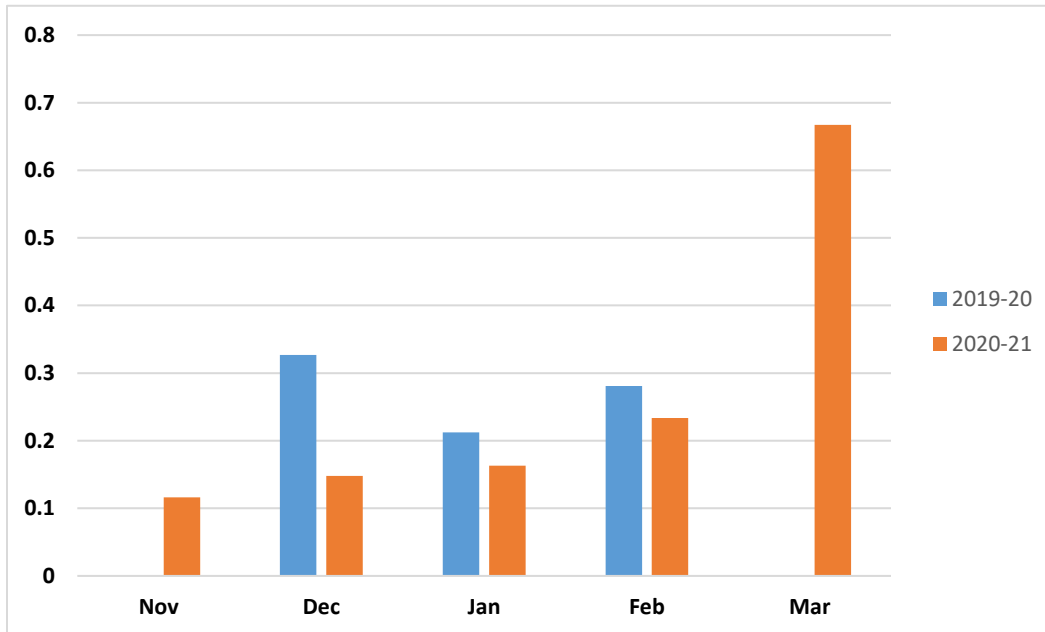


**Figure 1. Coveys per hour index and trend, South Carolina Quail Hunter Survey, 1987-2020.**

**Table 2. Statewide South Carolina Quail Hunter Survey results, 1987-2020.**

<b>Year of Survey</b>	<b>Coveys Flushed per Hour</b>	<b>Quail Bagged Per Hour</b>	<b>Average Covey Size</b>	<b>Rabbits Jumped Per Hour</b>
1987-88	0.76	0.99	12.5	0.21
1988-89	0.72	0.94	12.2	0.19
1989-90	0.80	1.04	12.9	0.16
1990-91	0.87	1.07	12.5	0.19
1991-92	0.65	0.75	12.2	0.15
1992-93	0.66	0.73	12.2	0.15
1993-94	0.67	0.73	11.9	0.22
1994-95	0.62	0.72	11.8	0.17
1995-96	0.64	0.76	11.7	0.16
1996-97	0.72	0.79	12.3	0.18
1997-98	0.63	0.66	11.9	0.14
1998-99	0.59	0.62	11.3	0.16
1999-00	0.42	0.38	10.7	0.14
2000-01	0.58	0.55	11.4	0.13
2001-02	0.62	0.56	11.8	0.17
2002-03	0.59	0.56	11.2	0.16
2003-04	0.53	0.49	11.6	0.13
2004-05	0.54	0.55	11.1	0.14
2005-06	0.49	0.42	10.5	0.13
2006-07	0.59	0.43	11.2	0.14
2007-08	0.58	0.33	12.1	0.15
2008-09	0.58	0.41	10.9	0.18
2009-10	0.36	0.32	11.1	0.10
2010-11	0.43	0.33	10.4	0.15
2011-12	0.46	0.40	10.1	0.20
2013-14	0.48	0.32	10.2	0.19
2014-15	0.65	0.47	8.0	0.08
2015-16	0.33	0.29	8.9	NA
2016-17	0.21	0.19	9.0	0.07
2017-18	0.22	0.15	10.2	0.05
2018-19	0.39	0.20	12.2	0.19
2019-20	0.21	0.07	11.1	0.29
2020-21	0.17	0.10	10.5	0.09

The Quail Hunter Survey also provides information on hunting success by month, region, and county. Hunting success rates as measured by coveys flushed per hour were higher in November and March (there was only one hunt reported in March) and lower for the remaining months when compared with the previous season (Figure 2).

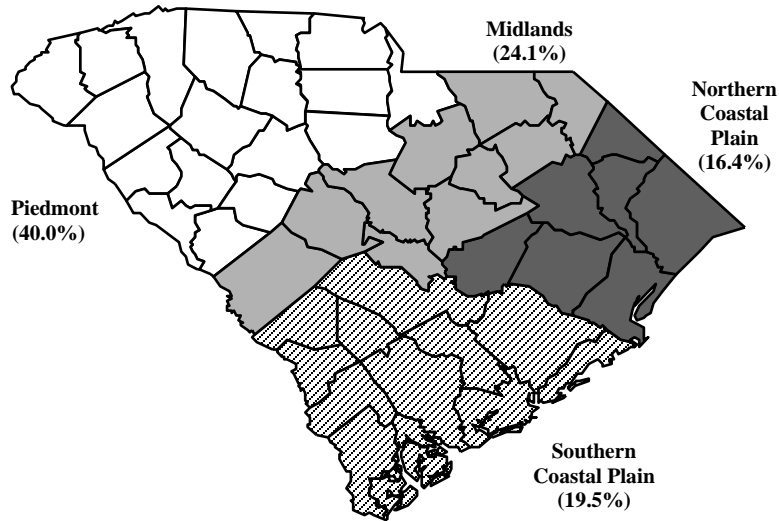


**Figure 2. Coveys flushed per hour index by month for the 2019-20 and 2020-21 seasons, South Carolina Quail Hunter Survey.**

### **Regional Comparisons**

South Carolina can be divided into 4 broad geographical regions based on habitat type similarities. The Piedmont, which includes the mountain and foothills areas, encompasses about 1/3 of the state. The Midlands extends in a broad band of mostly sandhills habitat on a northeast - southwest axis across the middle of South Carolina. The Northern Coastal Plain or "Pee Dee" and the Southern Coastal Plain or "Lowcountry" are the other 2 regions.

Hunting effort expended in the 2020-21 Quail Hunter Survey was greatest in the Piedmont, accounting for 40.0%, and followed by the Midlands (24.1%) of all hunts (Figure 3). The coveys per hour index was highest in the Midlands followed by the Piedmont and Northern Coastal Plain, respectively (Table 3) with quail harvest rate greatest in the Midlands followed by the Piedmont and Northern Coastal Plain as well. The reported average size of quail coveys ranged from 8.0 birds per covey in the Northern Coastal Plain to 11.3 birds per covey in the Piedmont.



**Figure 3. Percentage of total hunts occurring in each region, South Carolina Quail Hunter Survey, 2020-21.**

**Table 3. Results by region, South Carolina Quail Hunter Survey, 2020-21.**

<b>Region</b>	<b>Coveys Flushed Per hour</b>	<b>Quail Bagged Per hour</b>	<b>Average Covey Size</b>
Midlands	0.33	0.21	10.7
N. Coastal Plain	0.06	0.01	8.0
Piedmont	0.18	0.11	11.3
S. Coastal Plain	0.05	0.00	9.4

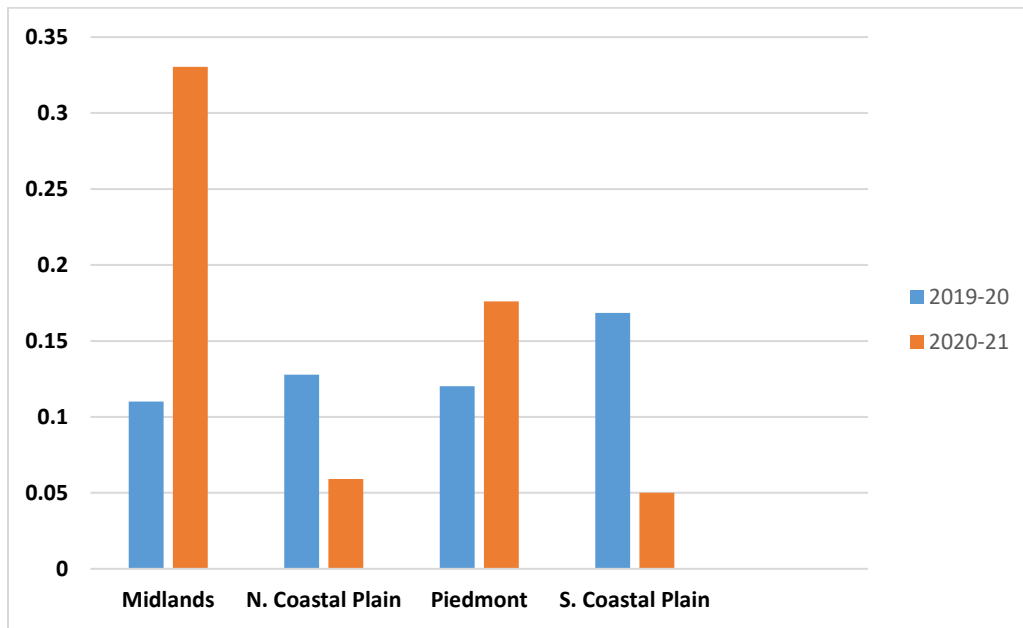
### **County Results**

The top counties (with a minimum of 10 hunts) for each of 4 indices are listed in Table 4. Marlboro County claimed the top spot in the coveys per hour index at 0.70, followed by Lancaster (0.55) county. Marlboro County led the state in quail harvested per hour at 0.50, followed by Lancaster (0.25).

**Table 4. Ranking of the top counties for indices measured in the South Carolina Quail Hunter Survey, 2020-21.**

Rank	Coveys Found per Hour	Quail Harvested per Hour	Average Covey Size
1	Marlboro (0.70)	Marlboro (0.50)	Lancaster (13.7)
2	Lancaster (0.55)	Lancaster (0.25)	Newberry (10.8)

Midlands counties led in most of the major quail hunting indices, including coveys flushed per hour (Figure 4). Historically, Northern Coastal Plain counties have proven better for quail hunting in South Carolina.



**Figure 4. Coveys flushed per hour index by region for the 2019-20 and 2020-21 seasons, South Carolina Quail Hunter Survey.**

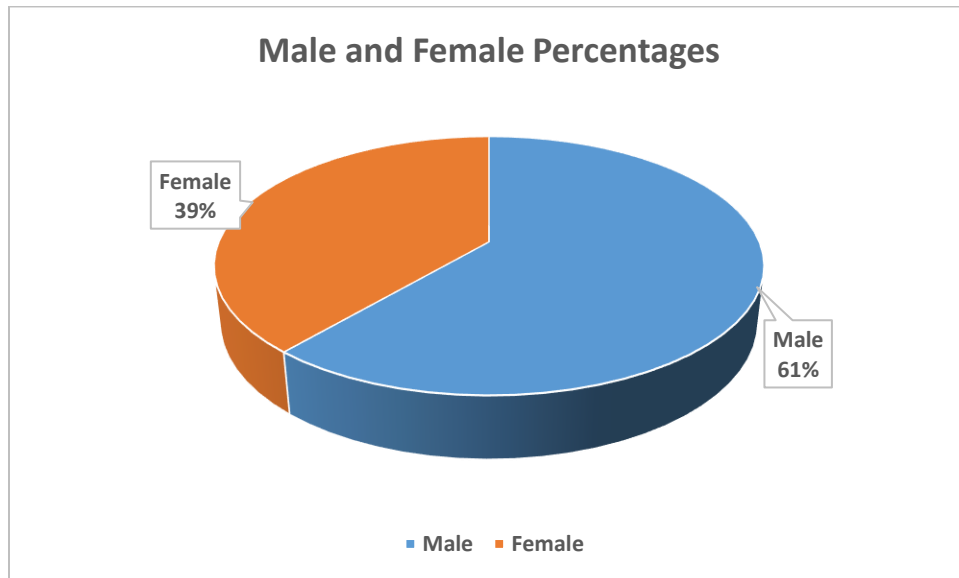
### Quail Wing Data

All potential Quail Hunter Survey cooperators were asked to provide wings from harvested birds. Eight survey participants provided usable wings, for a response rate of 28% of those providing hunting data. Age information was obtained from 38 wings collected during the 2020-21 season, and cooperators provided the sex of the birds from which 31 wings were taken.

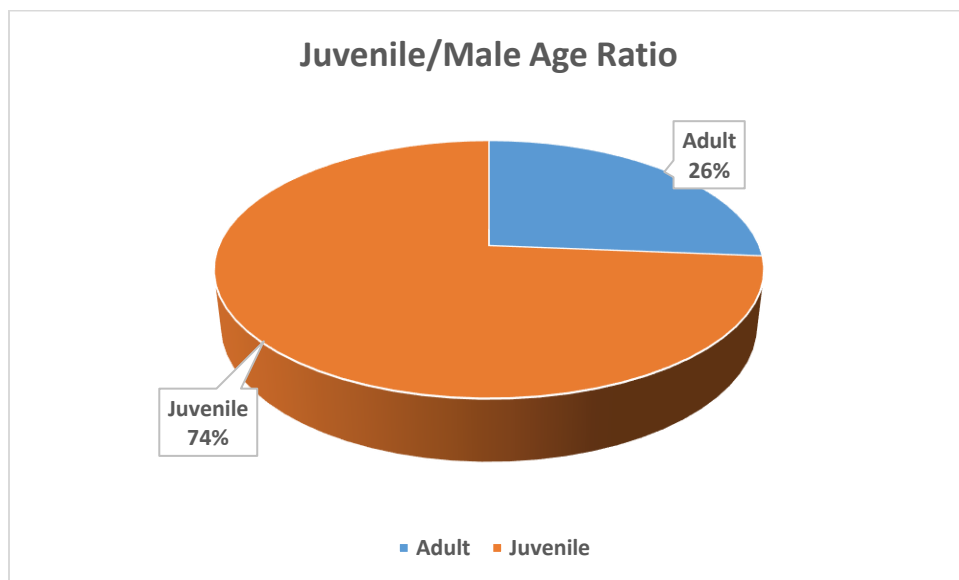
A higher percentage of males is believed to be normal for fall quail populations because of the hen's greater susceptibility to predation and physical stress due to egg laying and incubation during the nesting season. The sex ratio obtained from quail wing samples during the 2020-21 season was 61% males to 39% females (Figure 5). Overall, the percentage of juveniles in the harvest was 74%, versus 26% adults (Figure 5). The age ratio

was 1:2.8 juveniles per adult. Age ratios in quail of 5-6 juveniles per adult are considered good and 7-8 juveniles per adult excellent.

A.



B.

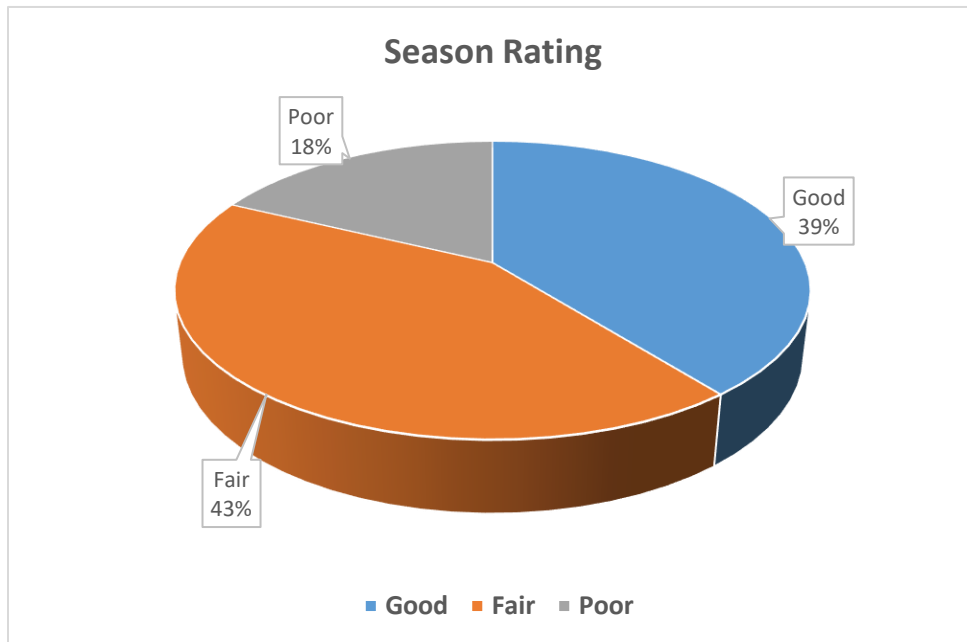


**Figure 5. Quail sex (A) and age (B) distribution from sample wings, South Carolina Quail Hunter Survey, 2020-21.**

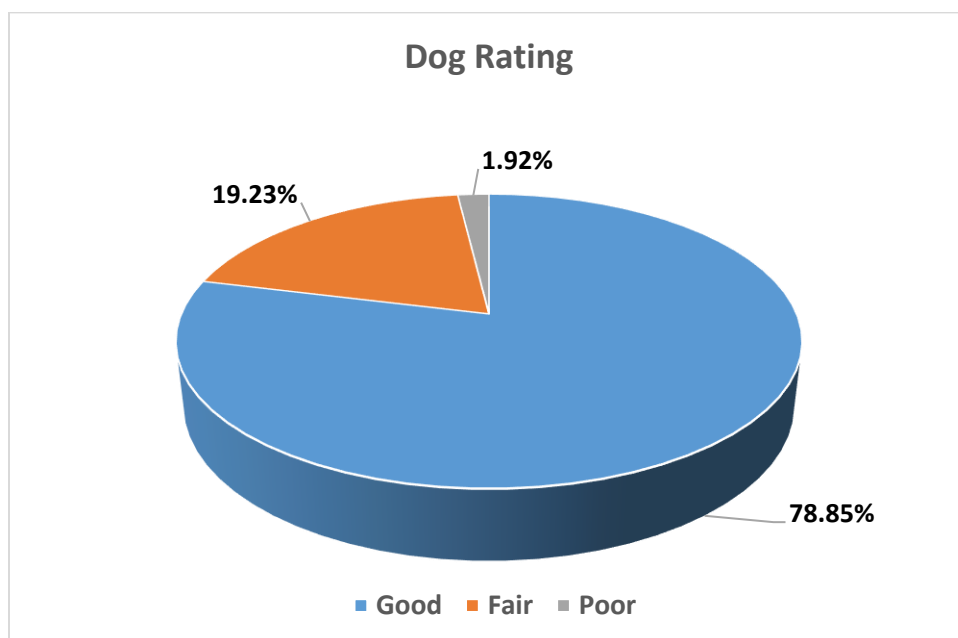
## Comments from Cooperators

As is our practice, we encourage hunters to provide comments on their hunting experience for the season. Of particular concern for the 2020-21 season was the unusually wet conditions.

Respondents rated their 2020-21 hunts and their dog performance for each hunt. Season rating was mostly rated fair with good rated second (Figure 6). Dog performance was mostly ranked good with only 19.23% ranking performance fair and 1.92% ranking performance poor (Figure 7).



**Figure 6. Season ranking, in percent, by hunt, for the 2020-21 season.**



**Figure 7. Dog performance ranking, in percent, by hunt for the 2020-21 season.**



Plans are underway to continue the Quail Hunter Survey for the 2021-22 season. Efforts are ongoing to increase the number of cooperators and all avid quail hunters are encouraged to participate. Contact the SCDNR Small Game Project, P.O. Box 167, Columbia, SC 29202 (telephone 803-734-3609) to be included in the survey or go to [www.dnr.sc.gov/surveys/smallgame](http://www.dnr.sc.gov/surveys/smallgame) and sign up online.