

TECHNICAL GAME SESSION

BOBWHITE AGE-WEIGHT RELATIONSHIP AND THE OPENING DATE OF THE HUNTING SEASON

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A study of age-weight relationship was made on 175 wild bobwhites, *Colinus virginianus*, collected from the Piedmont Soils Region near Camp Hill and Auburn, Alabama. Most of these birds were collected during the hunting seasons of 1955-56 and 1956-57, but a few were collected as early as 1950. Most of the very young birds were examined during the summer of 1957. This study revealed information concerning approximate age at which bobwhites first reach mature size. Such information is useful in selecting a satisfactory date for the opening of the hunting season. Ages were determined from examination of wing feather characteristics (Dwight, 1900), (Stoddard, 1931), (Leopold, 1939), (Petrides and Nestler, 1943), (Haugen, 1955).

The average weight of 25 adult quail was 173.5 grams. If this weight is considered as a standard, and the assumption is made that the average hunter in the field may be able to distinguish a bagged quail that is 10 percent or more below adult weight as an immature bird, then it is apparent that bobwhites weighing more than 156 grams are, for all practical hunting purposes, fully grown.

Twenty-four quail between 88 and 127 days of age averaged 166.3 grams. The average weight of 41 quail with an average age of 168 days was 171.3 grams, while the average weight of 58 birds with an average age of 209 days was 171.7 grams (Figure 1).

The above age-weight data show that bobwhite quail over 90 days of age are for all practical hunting purposes indistinguishable from older birds in so far as estimated weight is concerned.

It has been generally established that normally about 80 percent of the bobwhite quail population is replaced each year. The maximum population for each year no doubt occurs very near the close of the hatching season. The rate at which the 80 percent loss occurs is not fully known, but from the point of view of maximum harvest by hunting, the earlier the quail season is opened after hatching is completed the more quail will be available to hunters. This is true simply because other mortality factors will have had less time to take their toll.

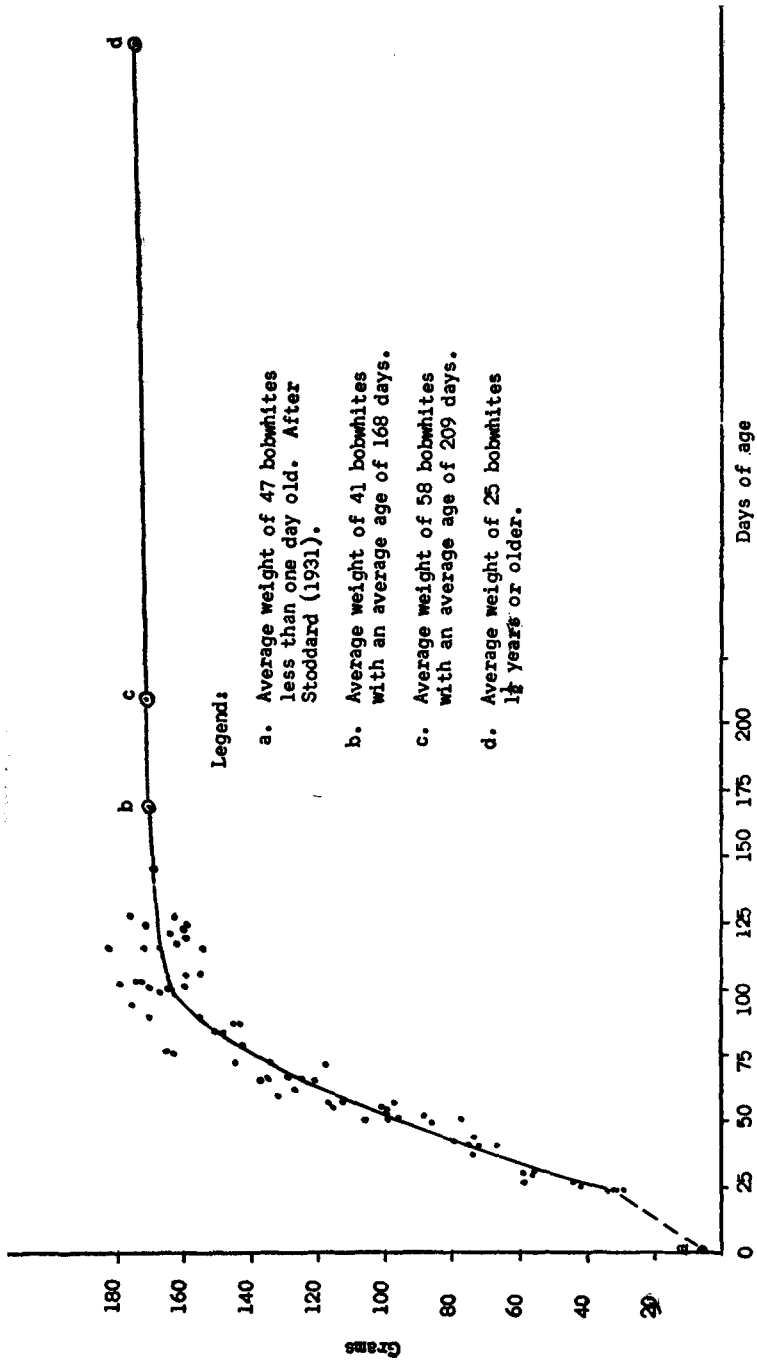
Ideally the quail season should open as soon as most of the young quail have reached a satisfactory weight. If the season is opened too early, a waste of birds that are too young to provide sport or food is the result. Would it be desirable to wait until approximately all of the young quail have attained fully mature weight or would it be better to allow one or two slightly underweight birds in an average bag of 10 quail in order to harvest more birds by hunting?

Data from an Alabama state-wide quail wing study conducted at this Unit between 1952 and 1956 are presented in the form of an average cumulative hatching curve (Figure 2). Possible opening dates for the quail season may be selected with the use of these data.

Approximate dates by which 75 percent of the juvenile bobwhites had reached 90 days of age in Alabama for 1952, 1953, 1954, 1955, and 1956 are shown in Table I. If the season were opened on these dates, two birds weighing less than 156 grams would be expected per average bag of 10 birds on opening day. It is believed that the average quail hunter would not object to pocketing two

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Legend:

- a. Average weight of 47 bobwhites less than one day old. After Stoddard (1931).
- b. Average weight of 41 bobwhites with an average age of 168 days.
- c. Average weight of 58 bobwhites with an average age of 209 days.
- d. Average weight of 25 bobwhites 1½ years or older.

Fig. 1.---Relationship of weight to age of 175 bobwhite quail from the Alabama Piedmont (eight young bobwhites were re-trapped and weighed more than once, giving a total of 193 weights).

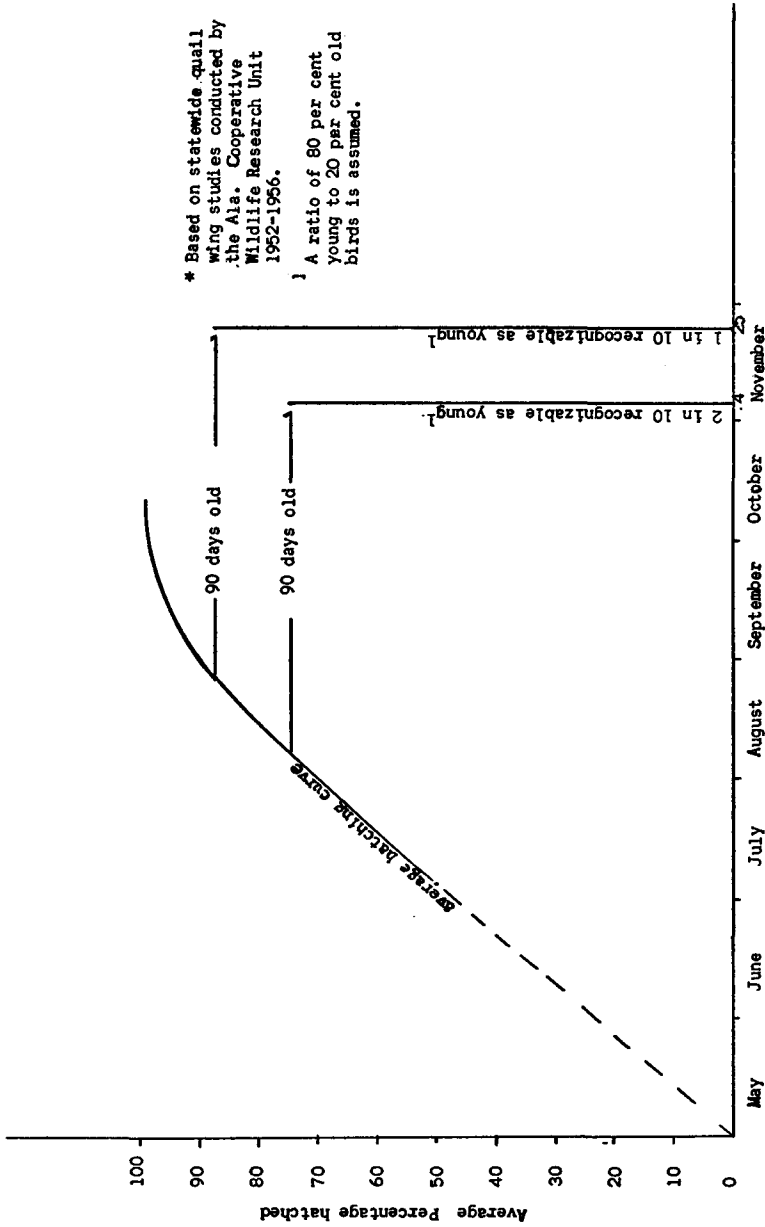


Fig. 2.--Relationship of average hatching dates of bobwhites to possible opening dates for hunting in Alabama

slightly under-weight birds in a bag of 10. If this is true then the quail season could have opened much earlier in four out of the last five years, without resulting in a heavy kill of light birds.

TABLE I
 DATES ON WHICH APPROXIMATELY 75 PERCENT OF YOUNG ALABAMA BOBWHITES
 REACHED 90 DAYS OF AGE

<i>Year</i>	<i>Date</i>	<i>Actual Opening Date of Hunting Season</i>
1952	Oct. 22	Nov. 27
1953	Nov. 4	Nov. 26
1954	Oct. 27	Nov. 25
1955	Nov. 23	Nov. 24
1956	Nov. 7	Nov. 20

Usually quail hunting in Alabama would not be satisfactory until about the second week in November because of weather conditions; therefore, it is felt that little could be gained by opening the season earlier than November 10. The data presented indicate that in most years it would be biologically sound management to open the bobwhite quail season around the 10th to the 15th of November. This opening time, it should be noticed, allows a safety margin for variability in the hatch from year to year.

Should a significant delay occur in the hatching season for any summer, an appropriate adjustment should be made in the opening date for the following fall. This delay might be determined in ample time by the use of regular quail cock call counts.

In the case of the exceptional year, 1955, when the hatch was very late (Table I), the season probably opened at the optimum time. Oddly enough, state-wide productivity in 1955 was the best recorded during the five-year period. The percentage of young birds in the population was approximately 83.5 as based on examination of 11,387 quail wings collected by hunters. A state-wide quail wing study could probably detect unusual productivity such as occurred in 1955 by early January. In that case an increase in the bag limit in January or February might be allowed, or a few extra days of hunting at the end of the season might be granted.

LITERATURE CITED

- Dwight, J., Jr. 1900. The Moults of the North American Tetraonidae. *Auk* 17(1-2):34-51, 143-166.
- Haugen, Arnold O. 1955. Recognizing Juvenile from Adult Bobwhite Quail. Southeastern Assoc. of Game and Fish Commissioners Meeting, Daytona Beach, Florida.
- Leopold, A. Starker. 1939. Age Determination in Quail. *Jour. Wildl. Mgt.*, 3(3):261-265.
- Petrides, George A. and Ralph B. Nestler. 1943. Age Determination in Juvenile Bobwhite Quail. *Am. Midland Nat.*, 30(3):774-782.
- Stoddard, H. L. 1931. The Bobwhite Quail: Its Habits, Preservation and Increase. New York, Chas. S. Scribner's Sons, 559 pp.