Fawning Date and Growth of Male Alabama White-tailed Deer

M. Keith Causey, *Department of Zoology and Wildlife Science and Alabama Agricultural Experiment Station, Auburn University, AL 36849–5414*

Abstract: Male white-tailed deer (*Odocoileus virginianus*) fawns were collected from the wild at random in Alabama during the springs and summers of 1986 and 1987. Average body weight at 16 months of age was 58.3 kg (50.4 to 68.2 kg) and antler weight averaged 150.1 g (25 to 339 g). Yearling weight and date of birth were not related ($r = -0.36$; $P = 0.078$) nor were antler mass and date of birth ($r = -0.17$; $P = 0.411$). Racks averaged 4.2 points (range 2 to 8 points). Point number and date of birth were not related ($r = 0.02$; $P = 0.914$).

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While most populations of white-tailed deer in North America breed in late fall (Nov–Dec) and fawn in May and June (Halls 1978, Chapman and Feldhamer 1982), many Alabama deer breed as late as February and fawn as late as September (Lueth 1955, 1967, Causey unpubl. data). This late breeding peculiarity also has been reported in Louisiana (Robertson and Dennett 1966), Mississippi (Jacobson et al. 1979), and South Carolina (Payne et al. 1966).

White-tailed deer fawns born in August and September may be at a distinct disadvantage compared to their May–June born cohorts. Browse available to the dam likely would be less succulent, lower in quality, and more limited. Additionally, young fawns would be weaned in winter at a time of year when many food items are at an annual low. Therefore, it seems possible that poor plane of nutrition, colder temperatures, and inopportune weaning time might negatively impact the early growth and development of these late-born fawns resulting in stunted yearlings that also might have poor growth potential as adults. These deer could be 2–3 months younger than "expected" when entering the next hunting season as yearlings.

The range in size of mature white-tailed deer is large (Hesselton and Hesselton 1982). Live weights of yearling males from Florida average about 47 kg and those from West Virginia about 56 kg (Sauer 1984). Average live weight of yearling males from a "good" Alabama herd is about 50 kg (Davis 1979). Halls (1978) noted that within subspecies, body weight variances mainly are a reflection of nutrition.

Antler size varies among individuals much the same as body weight. Yearlings may sport racks from spikes to 10-pointers. Sauer (1984) concluded that antler size depends upon age and nutrition. Fowler et al. (1967) reared 5 male fawns in captivity on good rations in Louisiana, and as yearlings they had antlers averaging 5.5 points (4–9 points). At 18 months of age they weighed, on average, 64 kg.

Many variables, including soil fertility, range condition, habitat type, and genetic variability, influence body size and antler development in white-tailed deer. Poor range condition produced a high incidence of "spiking" in bucks from Texas (Harwell 1982). Deer in Llano County, Texas, (on poor range) were approximately 30% smaller than deer of the same subspecies on good range in the Rio Grande Plain (Teer et al. 1965).

Casual personal observation of hunter attitudes in Alabama seems to indicate that many believe small-bodied and small-antlered males are genetically inferior, and these hunters often are reluctant to consider the possibility of having too many deer or poor quality range.

Quantitative data on the influence of fawning date on subsequent body and antler size in yearling male white-tailed deer are scarce, although Zwank and Zeno (1986) noted differences in weight gain by white-tailed deer fawns attributed to fawning date.

I tested the hypothesis that fawning date, especially a late fawning date, would negatively impact body growth and antler development and might account for an apparently high incidence of spiking and small average body size among yearling male deer harvested in Alabama. The study objectives were to 1) determine maximum body and antler weight achieved by male white-tailed deer from Alabama after 16 months on optimum rations, and 2) correlate observed differences in body and antler growth with fawning date.

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Methods

Fawns were collected throughout Alabama from May through September 1986 and 1987. Most were confiscated by conservation department personnel from people who picked them up from the wild. Others were picked up by farmers cutting winter grain crops or hay.

Fawns were examined, weighed, and aged based upon behavior, weight, condition of umbilical scar, and toe nail length (Haugen and Speake 1958). From this approximation of age in days, a birthdate was assigned each fawn.

Fawns were bottle-fed 4 times daily with calf milk replacer and after a variable adjustment period were allowed to drink until sated each feeding. Feedings were reduced to 3 times/day after 3 weeks and were discontinued at approximately 3.5 months of age. A custom-blended high protein (22%) pelleted ration was offered ad libidum after about 6 weeks of age.

When 16 months old, study animals were sedated with Rompun® and weighed. For most study animals (80%) this occurred at the approximate mid-point of the Alabama deer hunting season. Antlers were removed at the bur and air-dried for 6 months or longer, then weighed. Number of points and their configuration were recorded.

Body weight (kg) and antler mass (g) at 16 months of age was regressed against birthdate. Antler mass and number of antler points were regressed against body weight, and number of antler points was regressed against date of birth.

Results

Body weights of 25 male fawns collected randomly from throughout Alabama averaged 58.3 kg (SE = 1.0) at 16 months of age (50.4 to 68.2 kg) (Table 1). Date of birth and body weight at 16 months were not related ($r = -0.36$; $P = 0.78$).

Antler weight averaged 150.1 g (SE = 15.0; 25 to 339 g) and was not related to date of birth ($r = -0.17$; $P = 0.411$). However, there was a tendency for larger bodied yearlings to have greater antler mass.

Yearling males had antlers with an average of 4.2 points (SE = 0.4). Number of antler points was not related to date of birth ($r = 0.02$; $P = 0.914$) or body weight ($r = 0.09$; $P = 0.665$). Antlers with greater mass, however, had more points than those of lesser mass ($r = 0.71$; $P = 0.0001$).

Discussion

The hypothesis that well-fed captive fawns born in late summer and early fall in Alabama are smaller-bodied and smaller-antlered than those born in spring was rejected. However, an extension of this conclusion to wild deer in Alabama may be inappropriate because wild deer likely would not have access to nutritionally complete and unlimited rations. There are, however, some note-worthy management implications.

Yearling male white-tailed deer from Alabama taken directly from the wild and placed on high quality rations averaged 58.3 kg at 16 months of age and most (72%) produced branched antlers ($\bar{x} = 4$ points). Average body weights of yearling males harvested in Alabama often are <45 kg (Causey unpubl. data). Although it is unlikely that many wild deer in Alabama will be as well-fed as our study animals,

Table 1. Birthdates and selected physical features at 16 months of age of wild-born, captive-reared male white-tailed deer, Alabama 1986–87.

Date of birth	Body weight (kg)	Antler weight (g)	Antler points
20 May	62.3	161	4
23 May	64.6	185	2
30 May	58.6	141	3
15 Jun	60.0	156	2
28 Jun	59.6	170	6
20 Jul	53.2	143	4
20 Jul	59.6	83	3
22 Jul	55.5	128	5
1 Aug	59.6	336	8
1 Aug	55.0	165	6
1 Aug	65.5	339	6
1 Aug	67.3	138	6
1 Aug	52.3	87	2
2 Aug	59.1	75	2
2 Aug	63.6	190	6
8 Aug	68.2	172	6
15 Aug	51.0	210	5
15 Aug	58.2	139	5
17 Aug	52.3	65	2
21 Aug	52.3	25	2
23 Aug	58.6	189	4
26 Aug	50.1	159	4
26 Aug	62.3	78	2
26 Aug	54.6	194	7
2 Sep	54.6	25	2
$\bar{x}$	58.3	150.1	4.2
SE	1.01	15.0	0.4

I believe it is realistic to set a management goal of approximately 55 kg as expected average weight for well-fed yearling males. Average weights lower than that probably are indicative of over-crowding and/or lack of sufficient amounts of quality food.

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