SEASONAL AVAILABILITY OF BICOLOR LESPEDEZA AND LARGE PARTRIDGE PEAS TO GAME

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In the past five or six years increasing emphasis has been placed on food and cover improvement as a means of habitat management for game. Earlier attempts at habitat development had consisted mainly of planting food patches with a variety of "shot gun" mixtures of grains. Almost every study made of such "ice cream" patches showed they seldom had any lasting value and usually were consumed by migrating species of birds before the period when a handout was most needed by game.

Since World War II an increasing number of states have added emphasis to cover improvement for game. In some sections of the country multiflora rose has gained considerable favor as a cover plant. In many places, however, it has been found that protection from grazing alone has resulted in improved cover.

The two most promising plants used for quail food plantings in the southeast are bicolor lespedeza *(Lespedeza bicolor)* and large partridge peas *(Chamaecrista fasciculata)*. These two species received their greatest boost from food habit studies which indicated they are relished by the bobwhite wherever available. These observations have resulted in the planting of more food patches of bicolor and partridge peas for bobwhites in the southeast. Bicolor has received section-wide emphasis for quail food, whereas the large partridge pea seems to have been given its greatest boost in Alabama.

Bicolor lespedeza and large partridge peas each may yield a harvest of 50 - 200 lbs. of clean seed per acre. However, up until now we have had little information on the availability of the seed of either plant to the "ground scratching" bobwhite.

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METHODS

In order to obtain a better idea of the amount of seed available to quail, a special ground sampling technique was developed. Periodically one square foot random samples of the ground litter were taken. In each sample the litter was scraped down to solid earth and all the scrapings placed in a paper sack to dry. The process of separating the seed from the debris consisted of cleaning and recleaning each sample as many as 5 or 6 times in a table top model "Grain, Seed and Bean Cleaner" manufactured by the A. T. Ferrel Col of Saginaw, Michigan.

RESULTS

Partridge Peas

The partridge pea patch studied for seed availability must be considered one of decling productivity as it was seeded (10 - 12 lbs./acre) in 1945 and has not

received any cultural treatment since. Accordingly, the ground samples were recovered from a stand of peas which has volunteered for the 4th year. The soil in the patch consists of Cecil Sandy Loam (Piedmont Soil) which received its last application of fertilizer (50 lbs. potash/acre) in 1945.

In a series of 65 one square foot samples taken, the number of partridge pea seeds varied from 29 to 456 (Table 1). On an averaged, each square foot of ground surface in October contained 311 seeds. The available seed supply declined gradually to an average of 104 seeds in June. The recovery of an average of 118 seeds in August is not significantly different from the June sample of 104 seeds. It is apparent that the supply of partridge pea seed in winter when most needed is still roughly ½ as abundant as it was the previous fall.

Table 1. Partridge pea availability per square foot of ground.

Date	Number of Seeds			Average Volume (CC)	Number Samples
	Minimum	Maximum	Average		
10/7/49	190	456	311		5
11/14/49	29	393	197		13
3/7/50	113	188	156	2.1	12
4/22/50	74	168	109	1.4	12
6/15/50	51	163	104	1.2	11
8/10/50	40	176	118	1.6	12

Bicolor Lespedeza

The stand of bicolor in which samples were taken is four years old and is located on Cecil Sandy Loam (Piedmont soil). It was planted in March 1945, with 15 lb. of common (unimproved) bicolor seed to the acre. At that time 50 lbs. of potash was applied per acre. The patch which is 12 - 15 acres in extent now consists of approximately two dozen stems per square meter and reaches to an average height of about 7 feet.

In a series of 71 samples taken in November, February, March, April, June and August the number of bicolor seeds recovered varied from 214 to 1707 seeds per square foot (Table 2). The average number declined from 1165 in October to 703 in April. There was an unexpected increase in the average number of seeds found in the August samples. It is possible that the student who gathered the samples may have collected them on an adjacent terrace that was not combined in the fall or 1949.

Table 2. Bicolor lespedeza availability per square foot of ground.

Date	Number of Seeds			Average Volume (CC)	Number Samples
	Minimum	Maximum	Average		
11/26/49	775	1,606	1,165	6.2	12
2/21/50	841	1,392	1,019	7.0	12
3/7/50	435	1,276	788	5.4	12
4/22/50	380	1,166	703	5.0	11
6/15/50	407	1,288	824	5.4	12
8/28/50	214	1,707	1,035	7.1	12

On the basis of volume of seed available in late winter (March and April) the bicolor seed was 2 to 3 times more abundant than partridge peas. An abundance of 1000 bicolor seed to the square foot indicates the presence of roughly 500 lbs. of seed to the acre (82,000) seed per pound. Accordingly, the supply of available bicolor seed at no time dropped below roughly 350 lbs. per acre. A pound of large partridge peas contains 47,000 seeds. Accordingly the November supply of partridge peas available was roughly 175 lbs. and in March 140 lbs. to the acre.

SUMMARY

The two food patches studied, one of large partridge peas, and the other of the unimproved strain of bicolor, provided a sort of "ever normal" granary for wildlife on the area. Even in spring the patches contained an ample supply of seed, which was equivalent to roughly 0.50 to 0.75 the supply available in the fall.