

## A METHOD OF EVALUATING FARM GAME PLANTINGS

C. H. SHAFFER, Leader, Farm Game Project, Virginia Commission of Game and Inland Fisheries

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Farm game projects apparently are popular in most of our Southeastern states. Here in the South where quail and rabbits are more or less abundant and extensively hunted, habitat improvements have been accepted as the basic method of managing and increasing these favorite farm game species. Current land use practices are usually adaptable to border plantings and our landowners generally are interested. Erosion problems are widespread and farm game habitat programs have fitted well into corrective measures recommended by land use agencies.

Most of the Southern Farm Game Projects are similar in their objectives, organizations and operations; Virginia's program could be called typical in many respects. Our experience and problems possibly do not vary too widely from those found in the other states of the Southeastern Conference. The purpose of this paper is to enumerate and stress some of the fundamental weaknesses of greatly expanded programs, as well as to discuss corrective measures which appear to be sorely needed. Perhaps through an interchange of ideas and experiences we may be able to determine a more satisfactory method of operation.

A brief history of Virginia's Farm Game Project may help to illustrate what problems have been encountered in our State. Undoubtedly other states with similar programs have had identical experiences.

In 1948 a modest project was initiated to carry out habitat improvements on privately-owned land for the benefit of quail and rabbits. The State was divided into districts and trained biologist were assigned to each area. Five districts comprising 66 counties were formed in the portion of the State east of the Blue Ridge Mountains, and the principal function of each of the biologist thereafter was the execution of the Farm Game Program. From the start, a cooperative working agreement was negotiated with all of Virginia's 22 Soil Conservation Districts, and a great deal of attention was given to developing cooperative projects with county work unit conservationists. The Game Commission's law enforcement personnel were likewise brought into the program and trained by the district biologists in habitat improvement techniques. The game wardens and soil conservationists were encouraged to work as a team in each county in executing certain functions of the program. Other agencies and organizations were asked to cooperate on this project for habitat improvement.

In the beginning, project biologists spent their time in planning farms for improvements, planting demonstration farms, attending meetings in order to promote the program, and in evaluating the results being obtained through the project. With a relatively few cooperating farmers it was possible for the technician to make most of the essential contacts personally and the results obtained were encouraging.

It was found that four contacts with the landowners were necessary for maximum planting results: 1) Original contact to convince the farmer of the need

for habitat improvement, 2) Farm planning and mapping, 3) Delivery of planting materials, 4) Follow-up and evaluation. On the average, five landowners could be contacted in a work day.

From the inception of the project, Virginia, like most of the states, featured the planting of shrub lespedeza plants and seed and sericea lespedeza seed. We also made available an annual seed mixture to the farmers of the State. These materials were issued free of charge to landowners who promised to plant and protect the planting materials. Plant and seed production nurseries were established to take care of the demand forthcoming from cooperating farmers. Within two years the planting program had "snow-balled" into big business. In 1950 the biologists worked with 2295 cooperators and distributed over a million plants and 10 tons of seed. By 1951 over 3500 cooperators received in excess of two million plants and 15 tons of seed. In 1952 we cooperated with over 4000 landowners, delivering 2,000,000 plants and approximately 21 tons of seed. Plant and seed nurseries had to be greatly expanded. The mechanical handling and delivery of the planting materials became a tremendous task; technically trained men were reduced to the status of "delivery boys" during the spring of the year. With the ever-growing program of producing and delivery of planting stock, along with other district duties, there remained little time for observations and evaluation. It may be significant to note that throughout this period of rapid expansion the number of farm game biologists remained essentially the same. Most of the individual contacts with cooperating farmers had to be discontinued and the essential activities of planning and follow-up were of necessity greatly curtailed. However, it was no longer necessary to ask farmers to plant the materials; the demand for materials often exceeded the available supply.

On the surface this appeared to be a healthy condition. The records showed unbelievable progress with each succeeding year; the number of landowners with whom we were cooperating had climbed remarkably and we were yearly giving away astronomical quantities of planting materials. But what results had we actually obtained? We honestly did not know. We were merely hoping that we had increased the quail and rabbits for the sportsmen of the State through our distribution of planting materials. We had no yardstick with which we could measure actual results.

On selected demonstration farms where the biologists had planned the habitat improvements and carefully followed the results, the plantings were generally successful in attracting and holding quail and rabbits. It was assumed that the tremendous demand for seed and plants indicated that the landowners were obtaining similar results and were well satisfied with the program. However, spot checks revealed that in our mass production methods we had lost out on efficiency and desired results. We found upon examination that too much of the planting material was being wasted. Carefully written planting instructions apparently were being ignored, plantings were being made on unsuitable sites, and an unknown quantity of the materials were never planted. It was obvious that our original objective of improving food and cover to increase wildlife was not being achieved on a substantial number of farms. It was also apparent to the game biologists that to judge the progress of the project merely on total amount of materials distributed and on potential plantings was pure folly. Quail and rabbit populations cannot possibly be measured in terms of an entry on the ledger, a bag of seed or a bundle of plants.

Still another shortcoming of the mass production methods, the generalization of our planting techniques, soon became apparent. Identical recommendations were being made on the sandy soils of Eastern Virginia and the mountainous slopes of the Appalachians regardless of soil types, land-use practices and food and cover already existent on the farms. Paradoxically, the counties where natural food and cover was abundant and farm game populations were already high, we had our greatest number of cooperators; in the counties where wildlife habitat was practically non-existent; it was difficult to locate a farm game cooperator. We began to seriously question whether the lack of food and cover actually was the limiting factor to quail and rabbits in many regions.

In the meanwhile, other complicated problems became evident. Expected results from the plantings of bicolor lespedeza were not being obtained. Early frosts in Virginia too often resulted in a complete seed loss for the year, and old plantings of the shrub revealed the need for continual maintenance. Japanese honeysuckle in Piedmont and Eastern Virginia readily invaded the majority of the shrub lespedeza plantings and soon rendered their value useless. It was obvious that there still remained many unknown questions concerning the intricate operations of the farm game program which could only be answered by observations in the field.

Early in 1952, with the approval of the Game Commission, a number of significant and greatly needed changes were made in the usual operation of the farm game project. A program was embarked upon which stressed quality of plantings over quantity operations. Promotional schemes to obtain more cooperators were discontinued and intensified efforts were made to obtain fewer but better plantings. Emphasis was shifted to the number of good establishments rather than in number of cooperators. At the same time, investigational projects were started to find out whether conditions were as dismal as they appeared.

In general, the following steps were taken to solve the fundamental problems to improve the execution of the project:

1. To save time for the project biologist more efficient methods of material distribution were devised.
2. Direct seeding techniques for shrub lespedeza were developed.
3. Educational media were utilized to spotlight need for more care in establishing and maintaining the wildlife borders.
4. Monthly and yearly work schedules were initiated for the district game biologists. The itineraries included sufficient time for planning, follow-up, evaluation and observational projects.
5. Biologists were assigned practical investigational sub-projects in order that they might solve some of the farm game problems in their particular districts.
6. Finally, a uniform sampling program for border evaluation was initiated.

In an attempt to determine the extent of misused materials and to discover the underlying short-comings of the program, it was considered necessary to systematically evaluate a large number of plantings in each county of the State. Ideas were obtained from each of the project technicians and a uniform follow-up and evaluation form was devised to grade the individual plantings. The habitat improvements were judged on five essentials: survival or germination, competition, seed production, location of planting, and size of planting. A maximum numerical value of four points could be attained on each of the five categories; thus, a

perfect planting according to the analysis would be 20 points (Fig. 1). It will be noted that other essential data were collected at the same time that the evaluation was being accomplished. Such information as fertilization, cultivation, utilization by wildlife, etc., were collected and recorded.

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County \_\_\_\_\_ Grade \_\_\_\_\_  
Name of Cooperator \_\_\_\_\_ Address \_\_\_\_\_  
Route to and exact location of farm \_\_\_\_\_  
Location of planting on farm \_\_\_\_\_  
Type of planting \_\_\_\_\_ When planted \_\_\_\_\_  
Method of planting (check) rows \_\_\_\_\_ broadcast \_\_\_\_\_ plants \_\_\_\_\_  
Has Planting been cultivated \_\_\_\_\_ Has Planting been fertilized since? \_\_\_\_\_  
How much fertilizer? \_\_\_\_\_  
Has maintenance been done? \_\_\_\_\_ What method? \_\_\_\_\_  
Wildlife utilization (signs) \_\_\_\_\_  
Was Planting censused (dogs)? \_\_\_\_\_ Results \_\_\_\_\_  
Did landowner receive planting instruction? \_\_\_\_\_ Written \_\_\_\_\_ Verbal \_\_\_\_\_

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#### EVALUATION

1. Survival or germination (check) less than ½ (1) \_\_\_\_\_; ½ to ¾ (2) \_\_\_\_\_  
¾ to 9/10 (3) \_\_\_\_\_; 9/10 plus (4) \_\_\_\_\_
  2. Competition (check) heavy (1) \_\_\_\_\_; Moderate (2) \_\_\_\_\_;  
light (3) \_\_\_\_\_; nil (4) \_\_\_\_\_
  3. Seed production (check) heavy (4) \_\_\_\_\_; Moderate (3) \_\_\_\_\_  
light (2) \_\_\_\_\_; nil (1) \_\_\_\_\_  
(1st year border or early follow-up assign #2 rating)
  4. Location of planting (grade) (4) \_\_\_\_\_; (3) \_\_\_\_\_; (2) \_\_\_\_\_; (1) \_\_\_\_\_  
(Land use, relation to farm practices, relation to cover)
  5. Size of planting (grade) 1 or 4 \_\_\_\_\_
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#### REMARKS

##### Ratings

- A 19-20
- B 17-18
- C 15-16
- D 13-14
- F Below 13

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

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Fig. 1. Farm game evaluation sheet.

Efforts were made to take the human element out of the grading and care was exercised to make certain that all of the project biologists were judging the plantings in identical fashion. It should be emphasized that the grading was purposely devised to be super-critical. After the standard evaluation form was thoroughly tested, and the anticipated work load in each district approximated, goals were set for follow-up work in each farm game district.

The follow-up and evaluation work, along with the observational sub-projects, became the principal activity of the game biologists for an eight-month period. At the end of this time 1339 wildlife plantings were inspected and evaluated. This figure represented an approximate 12% sample of all materials allocated to cooperators during the spring of 1952 in all of the counties east of the Blue Ridge. The sampling procedure was not a true random method and thus probably not sound statistically. However, district work loads were the controlling factor, and the objective was to grade as many plantings as time allowed (Table 1).

Table 1. Evaluation of borders planted for wildlife, 1952 - 53.

District	Type planting	No. graded	A	B	C	D	F	Not planted
II	Bicolor	102	4	26	26	12	33	1
	Annuals	172	31	37	42	24	28	10
III	Bicolor	398	129	189	55	9	9	7
	Annuals							
V	Bicolor	301	36	75	143	16	6	25
	Annuals	95	32	38	12	5		8
VI	Bicolor	35	2	5	9	4	11	4
	Sericea	29		2	8	2	6	11
IX	Annuals	70	7	21	22	6	9	5
	Bicolor	85		11	35	8	11	20
IX	Annuals	52	3	19	18	6	1	5
Totals		1339	244	423	370	92	114	96
Percent			18.23	31.59	27.63	6.87	8.51	7.17

There was a wealth of essential information unearthed during the investigations; data which helped to point out certain weaknesses in the operation of the project and revealed where more emphasis should be placed in future farm game work. The composite figures above show that 49.82% of the wildlife borders were found to be in the A and B classifications. If our ultimate objective is 100% excellent and good borders, then we were merely half way to the goal. It was fairly obvious that steps should be taken to eliminate the failures and the materials not planted, and measures adopted to raise the borders from C and D into the higher classifications. Some corrective measures include: A more careful selection of cooperators, more attention given to individual cooperators, increased insistence for fertilization and cultivation, and an over-all policy emphasizing quality over quantity. It should be noted above that in District III there was a predominance of excellent and good plantings. In this district the technician had less total cooperators, and thus had more time available for planning and technical advice to individual farmers. The results obtained show a closer adherence to the ultimate goal than is shown in any of the other districts. The experiences in District III

indicate that to obtain maximum planting results Statewide, either more personnel or a retrenchment of total number of cooperators is needed.

Other important data were collected by the project biologists during the follow-up and evaluation work. Fertilization and cultivation have always been recommended for wildlife establishments to achieve the best planting results, but heretofore there was no available information on how well the cooperators were following planting instructions. Basically, of course, all plantings were made to feed the various wildlife species, so each of the 1339 plantings were examined carefully for signs of wildlife utilization (Table 2).

Table 2. Wildlife use of wildlife plantings.

District	No. inspected	Fertilized	Cultivated	Utilized
II	274	169	70	152
III	398	45	0	160
V	396	58	6	90
VI	134	3	1	
IX	137	29		50
Totals	1339	304	77	452
Percent		22.70	5.75	33.76

The above figures are revealing, but several contributing factors should be considered. The data on utilization by wildlife is probably not a true picture, since more of the evaluation work was accomplished during the months of August, September and October when natural food is normally abundant. Furthermore, utilization of first-year plantings of bicolor and sericea is seldom expected.

The data on cultivation is not conclusive since the predominance of the materials distributed consisted of seed and this is normally broadcast. It does reveal, however, that most cooperators take the easier course by broadcasting rather than row seeding and cultivation. It will be noted that practically all the cultivation that was carried out was accomplished in District II. Reasons for the practice in this district could probably be attributed to stress placed on cultivation by the technician and also to a number of worthwhile wildlife planting contests among youth groups which demand cultivation for contestants.

The fact that only 22% of the plantings were fertilized undoubtedly accounts for the number of patches graded C, D and F on the evaluation study. Obviously, more attention must be given to fertilization of the wildlife plantings. The discouraging fact is that none of the cooperators would think of planting a crop without utilizing fertilizer, but they refuse to apply it on the wildlife establishments.

## CONCLUSIONS

By utilizing the information uncovered by the evaluation study, it is believed that a more efficient and effective farm game program can be operated in the future. We are now in the position that we know where to work and what must be accomplished.

It was obvious that there must be more care taken in the choice of cooperators; more time spent on planning and observing results on individual farms; more time

and effort must be expended in counties that the study showed to be especially weak in following planting instructions.

We have become cognizant of the fact that deliveries alone of huge quantities of farm game planting materials does not necessarily result in an effective program. The larger the expansion the greater the possibility of wasted planting materials.

It appears that entirely too much emphasis has been placed on millions of plants and pounds of seed in analyzing our projects, rather than in searching for the basic results that we originally hoped to obtain (increasing game populations through habitat improvements.) There appears to be useless competition within and between states for the top position in the production and distribution of plants and seed. Each state, county and individual farm has its unique problems and requirements. We are in the game management profession and we cannot possibly adapt wildlife management techniques to mass production mail order practices.

Apparently we are attempting to carry out too large and extensive programs in relation to the number of trained men assigned to the habitat improvement projects. The Soil Conservation Service, with whom most of us cooperate, usually have two technicians per county; we are attempting to carry out intensive farm work much like the Service does, but with one technician in from 10 to 25 counties.

There is definite need for continuous investigations and observations on farm game techniques. Too much of the knowledge and theories upon which we are now operating have become stereotyped; the conditions affecting wildlife are changing and we must keep pace.

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