

FOOD PLOTS AND AGRICULTURAL CROPS: USE AND BENEFIT FOR QUAIL

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A statement in the Northern Bobwhite Conservation Initiative reads “state wildlife agency programs that have long promoted inefficient quail habitat practices such as food plots could be re-directed to more beneficial management actions.”

A Mississippi wildlife brochure on food plots opens with this observation: “The merit of wildlife plantings is debatable”.

Against that backdrop you might be asking yourselves why would we include this talk in the program? The answer in south Florida is two fold. First, the sandy soils that are almost universal in this area are inherently infertile and therefore, we should be able to produce more quail by providing more food. Second, and perhaps more important, establishing food plots provides a means of addressing partial conversion of the all too prevalent improved or tame grass pastures to more favorable quail habitat.

Numerous studies, including some here in Florida by the Tall Timbers Research Station, suggest that providing supplemental food for quail can enhance populations. Such supplementation programs include the provision of feed at feeders, spreading feed through adequate cover, the establishment of food plots, and leaving certain agricultural crops unharvested in the field.

There is much debate as to whether providing feed at feeders helps or hurts quail populations, and such methods are expensive. Better results have been obtained by spreading feed such as milo through foraging cover. And, I’ve heard it said that spreading feed versus establishing food plots is a more cost effective means of enhancing quail populations. However, in many parts of south Florida, access for the purpose of spreading feed can be problematic in the rainy season. Therefore, I believe that food plot establishment and leaving crops unharvested as food sources are worthwhile undertakings.

PLOT LAYOUT

The classic food plot design for quail is long and thin, $\frac{1}{8}$ to $\frac{1}{4}$ acre in size, dotted around the landscape. This often constitutes an “**attractant**” food plot approach that brings wildlife to a specific location, often to facilitate the harvesting of animals, but does not necessarily supply a long term or dependable food source.

An alternative approach is the “foraging” plot that will provide a long term, more dependable food source. I strongly recommend the latter approach if you are going to embark on a food plot program. In flatwoods or large areas of tame grass pasture, long, continuous food plots or strips should be developed. This is the approach taken on much of the Webb Wildlife Management area that used to have the more classic style of food plot layout. After conversion in 1988 to the strip layout, I observed a noticeable improvement in covey finds. The SW Florida Chapter of Quail Unlimited (SWFLQU), having also observed this phenomenon, helped fund expansion of the program to other areas in 1992 and 1999. SWFLQU hopes to help fund the whole area being developed this way. This is an appropriate way to develop a food source for quail for an area in which bi-weekly spreading of food is not practicable.

Research suggests that the amount of land devoted to food plots should exceed 1% of the entire area to improve the wildlife habitat. On the Webb, the following statistics pertain to the areas that have been planted with continuous plots, and it does seem to have helped quail.

Site	Size of Site (acres)	Size of Food Plot (acres)	Proportion of Site in Food Plot (%)
Field Trial Area	7,000	117.1	1.7
Area A	4,200	48.9	1.2
Area B	3,900	58.8	1.5
Area C	4,600	62.2	1.4
Area D	3,700	69.9	1.9

An effective application of continuous food plots is in large improved or tame grass pastures. By breaking up these monocultures with wide, continuous food plots, food, cover, and edge habitats are provided, enhancing the area for quail.

ESTABLISHMENT

In most situations in south Florida, opening new ground for food plots can be done with a heavy disk, or if the breaking of a thick palmetto cover is necessary, other means such as roller chopping or even palmetto ploughs may be used, but a heavy disk is usually adequate. This should be followed by 2 to 4 more diskings to make a good seed bed.

After the 2nd disking of new ground, lime or dolomite should be applied to raise the pH since most all flatwood soils are acidic. Establishing food plots in bahia pastures may require less pH adjustment since prior establishment of the pasture would have been preceded by liming. Soil analysis should be used to determine the correct application rate that will generally be in the range of 1 to 3 tons per acre.

Some of the continuing food plots in the Webb were established by 1 to 2 passes of a heavy disk followed by no further treatment for a year to allow palmetto rhizomes to begin to breakdown before being disked again. If time is of the essence however, more intense disking or other treatment maybe employed to achieve a desirable end result.

PLANTING

Plant Selection

What to plant (or not to plant). Ideally food plots should provide an abundance of insect life early in the season to benefit chicks. They should then progress to a prolonged production of seed for the fall and winter months.

There are a host of plants that are recommended for planting to benefit quail. These include:

Legumes	Others
Partridge pea	Oats
Vetches	Millet
Lespedezas	Soybeans
Peas	Corn
Beggarweed	Wheat
Hairy Indigo	Sunflower
Aeschynomene	Barley
Sesbanias	Sorghums
Clovers	
Beans	

Again, an ideal food plot should contain a mix of plants with different maturity dates to prolong the supply of food. Also structure, in the form of good overhead cover and open below, is desirable.

Now the realty check: Many of the plant groups shown on the slide won't tolerate "wet feet" and if you're going to attempt to grow something in the south Florida flatwoods, it had better be able to grow well in wet and dry conditions. In other words, any plants that would fall into the categories of Facultative or Facultative Wet, as used by state agencies in Florida to define wetlands. Going back to the list, this reduces to Japanese millet a.k.a. barnyard grass or *Echinochloa crusgalli* and hemp sesbania a.k.a. *Sesbania macrocarpa* or *S. exaltata*. A possible addition is common aeschynomene a.k.a. *Aeschynomene americana* that is adapted to moist sites.

Other plant groups may be used successfully on drier sites, but it is my belief that sesbania is the most highly suited food plot plant for use in south Florida because it is tolerant of a wide range of hydrologic conditions from inundated to moist. It produces thick stands and once it matures, the pods dehisce by partially splitting and allowing seeds to drop over a protracted period of time. In this way it enhances status of a “foraging” versus an “attractant” plot, by providing a long-term food source.

Planting sesbania with Japanese millet provides the most practical way of producing a successful quail food plot.

Fertilizing

Foods that are high in nutrient content are sought out by wildlife. Therefore ensuring higher nutrient content in a food plot is a sensible goal that is achieved via the application of fertilizer.

Once again soil testing should be used to guide fertilizer composition and application rates. This is more important for fertilizer application than for lime. The reason is that many south Florida soils are so poor that a suite of minor nutrients is necessary as well as the macro N:P:K. Bear in mind that legumes such as sesbania can do with little or no nitrogen, whereas grasses such as Japanese millet, require equal amounts of nitrogen, phosphorus and potassium. When planted together, as I am advocating for most south Florida range and pasture situations, a 15-15-15 at 200-400 pounds per acre will be appropriate for a single application immediately before or at planting. At the Webb, 400 pounds of 8-8-8 to the acre are used

Seeding Rates

Successful plantings in the Webb WMA have comprised 20 lbs. of sesbania and 20 lbs. of Japanese millet seed to the acre. This is broadcast from two spreaders facing inwards from the draw-bar of a tractor. One contains the sesbania seed and the other the millet. It is necessary to separate the two seed types due to the difference in weight resulting in uneven distribution if they are spread from the same spreader. Seeding must be followed by the use of a drag harrow or by rolling with a cultipacker.

PRECAUTIONS

When establishing food plots, it may be necessary to fence areas to exclude livestock, at least until they are fully established. This allows for the sesbania and Japanese millet to become established without being grazed by cattle. Recently *aeschynomene* has been included in the Webb plantings to benefit deer. Should it survive to seed bearing age, it is used by quail and in its

young stages, it is associated with insect production, offering additional benefit to quail.

AGRICULTURAL CROPS

Corn, sorghums, sunflower, wheat, oats and soybeans, to name a few, all provide valuable food sources for quail. If any of these are being grown and it is economically feasible to leave 4 to 8 rows un-harvested, outside the perimeter road and/or swale of a farm field, and contiguous with a weedy edge or native flatwood area, great benefit can accrue to quail. Similarly, strips of 2 to 4 rows may be left un-harvested in the field to provide food and cover for quail away from the field edge. However, it may not be effective for either quail or crop returns to do this throughout a field.

Alternatively, if a field has been disked and limed for row crop production and a border is sacrificed for quail food production, it should be planted and fertilized outside of the perimeter road with a desirable food plant or mixture of plants.

CONCLUSIONS

- Supplemental feeding has been shown to be beneficial to quail production and survival in the more fertile soils of north Florida and south Georgia. Therefore, the benefits of feeding and/or food plot establishment should be as great or greater in the less fertile soils of south Florida.
- If a decision is made to establish food plots for quail, then the “**foraging**” versus “**attractant**” variety should be used. Greater than 1% of the whole area should be established, and the continuous strip design provides for this.
- The use of lime and fertilizer is essential to maximize the value of food plots to quail via increased nutrient value of food produced.
- Precautions should be taken to minimize losses from food plot plantings to domestic cattle.
- Benefits can accrue to quail production from leaving un-harvested edges in agricultural crop fields or establishing food plots along farm field edges.

