

Temporary Food Plot Deterrents for Deer: Do They Work?¹

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Introduction

Many Floridians enjoy the opportunity to hunt, watch, or photograph white-tailed deer (*Odocoileus virginianus*). Deer are the largest native herbivores in Florida, feeding on the leaves, shoots, flowers, fruits, and nuts of a wide variety of trees, shrubs, and forbs, as well as on some grasses, fungi, and agricultural crops. Hunters and landowners plant forage for deer in food plots for two reasons. First, small food plots containing a highly preferred food can attract deer and other game species to specific locations for hunting or viewing. Second, large food plots with a blend of carefully selected plants can provide a dependable food source that may improve the nutritional standing of the local wild game.

In Florida, the most common food plot plantings are cool-season annuals established sometime during September through November (Figure 1). These plantings provide food for deer and other wildlife throughout the winter. See <https://edis.ifas.ufl.edu/pdffiles/AG/AG13900.pdf> for tips on planting food plots in north Florida, and <http://edis.ifas.ufl.edu/pdffiles/UW/UW26200.pdf> for tips on planting food plots in south Florida.

In areas with high deer densities and/or scarce food resources, deer may forage on food plots as soon as the plants emerge and before they become established. Intense

early foraging weakens plants and can cause food plots to fail before they can achieve their purpose of attracting deer for hunting or providing nutrition to deer during winter. A food plot demands an investment of time and money; to prevent loss of that investment, the hunter or landowner can develop a strategy to bar deer from newly planted food plots until the plants are well established and strong enough to attract and sustain hungry deer through the winter. This fact sheet discusses options to temporarily limit deer access to new food plots.



Figure 1. Small cool-season food plot planted in north Florida.

Credits: Tyler Jones, UF/IFAS

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Methods for Temporarily Deterring Deer

Methods employed to limit deer access to a newly planted food plot usually include erecting a temporary fence around the perimeter of the food plot, applying a “contact” repellent directly to the establishing plants, or applying an “area” repellent in or around the food plot.

Temporary electric fences have the advantage of being re-usable year after year. However, they may not be an economical means of protecting food plots because they require a considerable investment in materials (wire or polyrope, fence posts, insulators, charger) as well as weekly maintenance checks. Furthermore, they cannot be relied upon to keep every individual deer out; temporary electric fences are on average 60–90% effective (VerCauteren et al. 2006).

“Contact” repellents deter deer by creating an unpleasant taste on the surface of treated plants. The cost of using these repellents can be high, especially in areas with frequent precipitation, because reapplication is typically required after rain. The label of each of these products indicates which plant species it can be legally applied to. Unfortunately, few contact repellents are labeled as suitable for materials planted in food plots. We are aware of only one common, commercial contact repellent labeled for use on food plots: Liquid Fence Deer and Rabbit Repellent[®]. This repellent contains putrescent egg solids and garlic powder, and is applied directly to plants with a sprayer. The label instructions recommend reapplying the material once per month, or more often if feeding pressure is intense or if rainfall exceeds 1 inch per week.

Most “area” repellents deter deer by creating an unpleasant odor in the vicinity of the desired plants. A common commercial area repellent specifically intended for temporarily deterring wildlife from food plots is PlotSaver[®]. This repellent contains putrescent egg solids, mint oil, and rosemary oil, and is applied to a polytape ribbon that is stretched around the perimeter of posts erected at the corners of the food plot. Similar to Liquid Fence, the label instructions for PlotSaver recommend reapplying the material once per month.

Another alternative for temporarily protecting food plots that has received limited attention is Class AA pelleted biosolids. One common commercial product is Milorganite[®]. There are similar products available throughout the country, such as GreenEdge[®] in Florida. Class AA pelletized biosolids are an organic form of a nutrient-rich,

slow-release fertilizer derived from municipal waste treatment that is deemed safe to use in home, garden, and agricultural landscapes. To date, several short-term studies have assessed the efficacy of a single application rate of biosolids to protect particular crops from deer. However, there are no known reports demonstrating the effect of different application rates to food plots, or that provide an estimate of how long each application rate may be expected to deter deer grazing.

Effectiveness of Various Strategies to Temporarily Deter Deer

We conducted trials to determine which repellents were most effective at temporarily deterring deer from food plots for three months following planting: the two previously described commercially available products (Liquid Fence Deer and Rabbit Repellent[®] and PlotSaver[®]), and GreenEdge[®] broadcast-applied at four different rates. Three months is the typical period between planting food plots and the beginning of hunting season in north Florida, and a time period long enough to determine the effect of the repellents in deterring deer during food plot forage establishment.

We planted four large food plot blocks in Quincy, Florida, a region with relatively high deer density compared to other regions of the state. Each food plot was comprised of a blend of Buck forage oat (80 lb/A) and Dixie crimson clover (15 lb/A). Each of these 4 large blocks were approximately 0.1 hectare. We then marked off seven smaller plots at 6 m x 6 m (20 ft x 20 ft) within each of these four large areas in which to conduct our experiments. The seven repellent treatment options we applied to these plots were:

- GreenEdge[®] (5-3-0) applied at 125 lbs/acre
- GreenEdge[®] applied at 250 lbs/acre
- GreenEdge[®] applied at 500 lbs/acre
- GreenEdge[®] applied at 1000 lbs/acre
- Plot Saver[®]
- Liquid Fence[®]
- Control (no treatments were applied to demonstrate local deer pressure)

We seeded food plots in late September 2012, applied 50 lb N/ac fertilizer to all plots one week after seeding, applied biosolids one week after seeding, and applied Liquid Fence and Plot Saver two weeks after seeding. Thereafter we reapplied both Liquid Fence and PlotSaver as recommended by label instructions. We then visited each plot twice per week for three months after planting to evaluate how well

each treatment worked at deterring deer. We evaluated the efficacy of each product according to three measures: the length of time each treatment option delayed deer feeding on food plot materials, the percentage of forage plants the deer grazed on over time, and forage removal rates inside versus outside small enclosures.

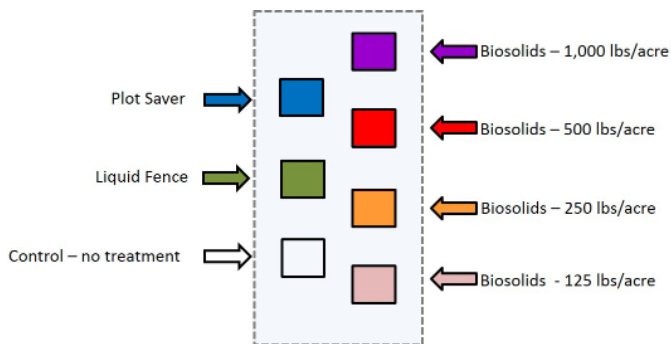


Figure 2. Diagram showing layout of the 6m x 6m food plot repellent treatments applied within each of the 4 replicate 0.1 ha blocks of planted clover and oats.

Delay in Deer Feeding

We assessed how many days after planting deer began to graze each food plot, to get an idea of how long each repellent treatment prevented deer from foraging. We found that untreated plots, plots treated with 1000 lbs/acre of GreenEdge, and plots treated with Liquid Fence were grazed first: feeding was first seen 3.5 weeks after planting. Feeding was first seen in plots treated with 125 lbs/acre, 250 lbs/acre, and 500 lbs/acre of GreenEdge 4 weeks after planting. Grazing was delayed longest in plots treated with Plot Saver: feeding was first observed here nearly 4.5 weeks after planting.

Forage Removal

We assessed the percentage of forage plants showing signs of grazing in each food plot over time to get an idea of deer foraging activity in the different treatments. We rated each food plot according to the percentage of plot area that showed signs of grazing (<5%, 5–25%, 25–50%, 50–75%, >75%). Results are shown in Figure 3.

- Most extensive grazing — Untreated plots experienced extensive grazing: nearly 75% of these plots were grazed 7.5 weeks after planting. Only one treated plot (the one treated with GreenEdge at 250 lbs/ac) experienced similar grazing pressure, and this was after 8 weeks.

- Moderate grazing — Liquid Fence and GreenEdge applied at 250 lbs/acre crossed the threshold of 50% of forage plants grazed in each plot during week 6. GreenEdge applied at 1,000 lbs/acre crossed this threshold by week 7.5, GreenEdge applied at 125 lbs/acre by week 8, and GreenEdge applied at 500 lbs/acre by week 8.5.
- Minimal grazing — Plots treated with Plot Saver experienced the least aerial extent of deer feeding. After 66 days these plots were still experiencing less than 50% of forage plants grazed.

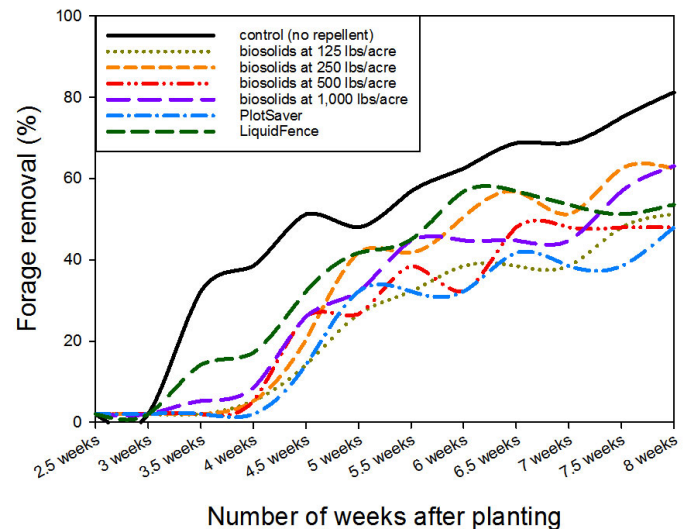


Figure 3. Change in severity of deer feeding on food plot materials over time, averaged across four replicate plots in north Florida.

Exclosures

We also assessed forage removal rates within each plot by measuring the height of forages in small caged exclosures (areas fenced off to prevent grazing) that completely prevented deer access versus outside caged exclosures, where deer could access the plants (Figure 4). This provided an additional indication of the amount of forage being consumed among treatments.

- Severe height differences — As expected, the greatest differences between forage height inside versus outside exclosure cages were found in the control plots (2.8 cm height difference). This large height difference was expected because there were no deterrents protecting the forage outside the cages in these plots.
- Moderate height differences — The plots that fared moderately in terms of forage height loss were those treated with Liquid Fence (2.0 cm difference), GreenEdge at 125 lbs/acre (1.9 cm difference), and PlotSaver (1.8 cm difference).

- Minimal height differences — The smallest height differences between forages grown in enclosures and those grown in unprotected areas were found in the remaining GreenEdge treatments: 500 lbs/acre and 1,000 lbs/acre both had 1.5-cm differences, and 150 lbs/acre had 1.4-cm differences. This indicates that these three deterrents provided the most protection against deer feeding pressure.

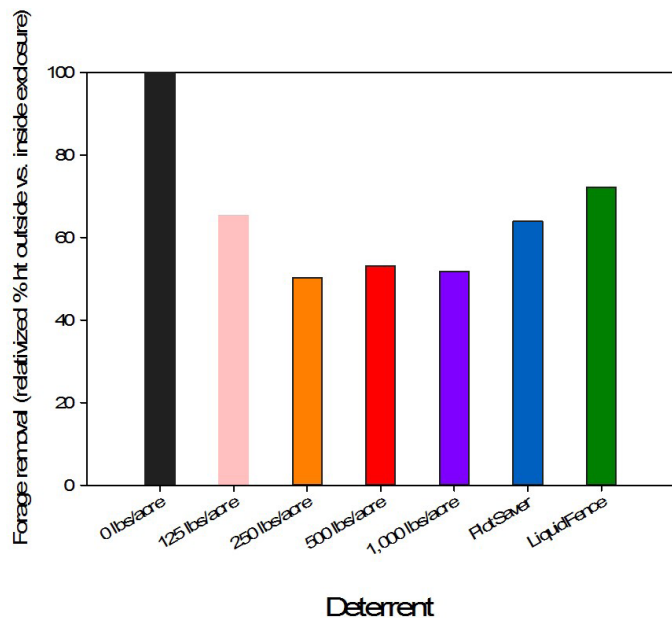


Figure 4. Percent of the canopy removed through grazing as measured by the difference in canopy height inside vs outside enclosures, with values normalized to the control treatment (0 lbs/ac) equating to 100%.

Conclusions

All the food plot replicates that received a treatment suffered less deer grazing than the food plot replicates that remained untreated. Therefore, any of the treatments should help deter some early food plot feeding by deer. We saw no extra deer deterrent advantage to applying GreenEdge at a rate of 1,000 lbs/ac. There appeared to be somewhat less canopy grazing with the 250 lbs/ac compared to the 125 lbs/ac GreenEdge.

Beyond this, our recommendation regarding which treatment is best would be based on your specific objectives:

- If your objective is to delay grazing as long as possible, our recommendation is to use Plot Saver. This product delayed grazing a full week longer than Liquid Fence or 1000 lbs/acre of biosolids.

- If your objective is to reduce grazing for approximately 1 month, we recommend Plotsaver or biosolids applied at 125 to 250 lbs/acre.

It is worth noting that the manufacturers' recommendations for the 2 commercially available repellents we tested (Liquid Fence Deer and Rabbit Repellent® and PlotSaver®) require regular reapplication at least once a month to remain effective. This increases not only the cost of the deterrent materials but also labor. In contrast, the biosolids retained high efficacy in repelling deer after being applied only once during food plot establishment. If labor is a concern, biosolids may be an attractive alternative to the commercial repellents. Additionally, the 500 lbs/ac biosolids rate provides 25 lbs N/ac and 15 lbs P₂O₅/ac slow-release fertilizer to your plots.

Lastly, it may be the case that the novelty of the test materials was partially responsible for the reductions in deer feeding. Deterrents often become less effective at reducing deer damage over time (Baker 2010). We found decreased efficacy of our treatments when repeated the following year. Switching tactics from year to year may provide the most consistent deterrent strategy over time.

*The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication do not signify our approval to the exclusion of other products of suitable composition. All chemicals should be used in accordance with directions on the manufacturer's label. Use pesticides safely. Read and follow directions on the manufacturer's label.

Sources of Additional Information

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