



## Successful Food Plots for Wildlife



Clifton Martin  
OSU Extension  
Muskingum County



# OHIO STATE UNIVERSITY EXTENSION



*Image source, bugwood.org*

Food plots alone do not create large antlered, trophy sized whitetail deer.

However, you might...

...increase your opportunity to kill a deer

...see more wildlife you enjoy

...spend time and resources on a satisfying project (money)

Should you be planting a food plot or manage the forest resource?



## A few assumptions...

You care about holistic management for the land and wildlife--

You have a goal in mind...create an attractive space to wildlife

You know there is a cost

You have some equipment, or have the ability to access needed equipment



There is a lot information out there. Wildlife specialists, universities, retailers, neighbors. Tread thoughtfully through the catalogs.

# What are your management objective for your property?

## Food Plot

Essentially raising a crop and need to plan for stand establishment, fertility, and equipment usage.

## Forest Management

Selective changes to the landscape.

Opening canopies in select areas, releasing oaks for acorn harvest, select tree plantings, etc.

Promote other natural food sources: berries, nuts, leafy understory.

**What about light, shelter, water, other food sources, wildlife lanes, nearby agricultural crops, annual maintenance needs, equipment needs, and neighbors?**

# Forest succession

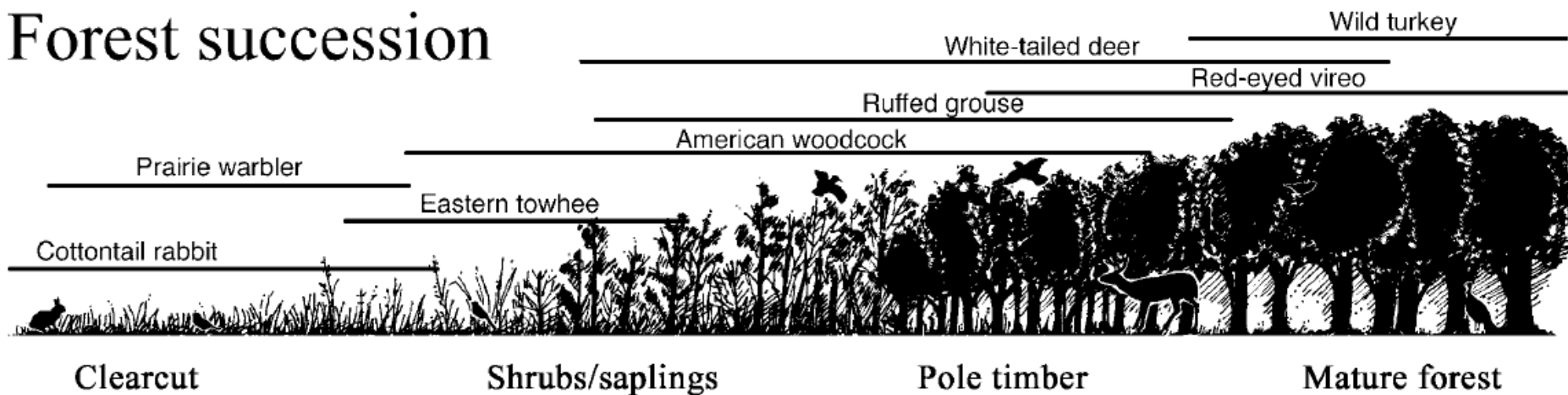


Figure 1: The above figure shows forest succession and examples of associated wildlife.

## A few rules of thumb...

Deer: 1 acre blocks. High density population = large blocks (3-5 acre)

One food plot per 40 acres of farmland or forestland at minimum but no more than 5 percent of the total acreage. (Purdue, FNR-194)

Try to establish a plot that can meet a nutritional need that is not met in the surrounding area.



# Equipment

Small plots can be done on limited equipment

Large plots: start thinking like a farmer

Seedbed preparation is critical

NO-till: herbicides required to reduce competition

Conventional tillage: clear and clean seedbed with great seed/soil contact

ATV, disk, plow, cultipacker, sprayer, spreader, mower, combination tools,  
chainsaw

Frost seeding: planting in February and March. Useful technique to fill in bare  
areas



# Fertility

- Loss of P and K in grazing/browsing conditions is minimal.
- Food plots should require less nitrogen than a commercial grain crop.
- Basic fertility program:
  - Soil Test
  - Apply lime to correct pH (plan on annual or bi-annual applications)
  - Apply nitrogen especially in a grass only system (plan on an annual basis), use reduced rates and try to model a grazing system versus a commercial grain system
  - Apply P&K at establishment based on soil test



# Fertility

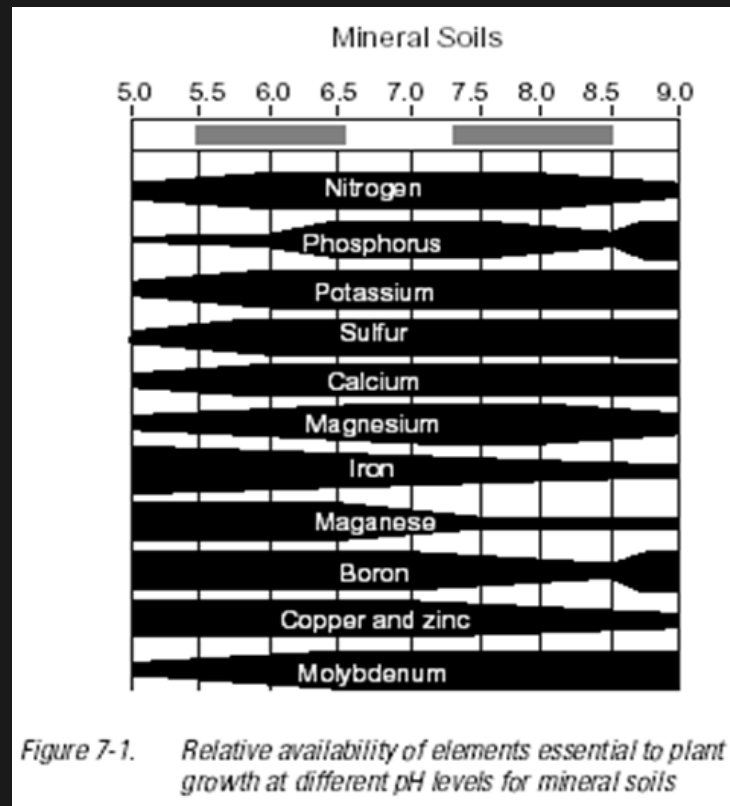
Start with a soil test

pH is the “cheapest fertilizer”

pH values that are outside the acceptable range will inhibit plant ability to use a nutrient source

If lime is required, try to work it into the soil

Selecting a rate for nitrogen, phosphorous, and potassium

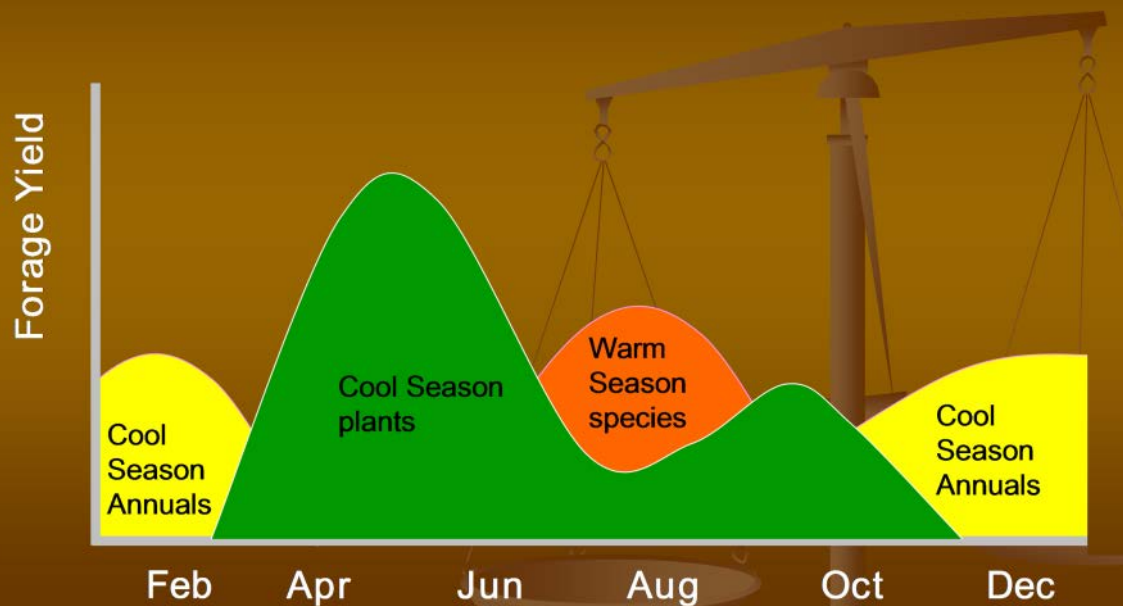


# Fertility: Nitrogen

- Critical for establishment and year-to-year maintenance
- Legumes will fix their own nitrogen, grasses require nitrogen
- Grass legume mixes are useful approaches.
- Target N applications for rapid plant growth periods or use a single surface application.
- For late plantings, the amount of N can be cut back considerably
- A minimum rate of N is suggested for maintaining a stand. *Maximum* rate of no more than 60 lbs.
- Challenge with grass/legume mix: Grasses produce more leafy mass with nitrogen and can shade out a legume. Legumes will use applied N in place of fixing atmospheric N

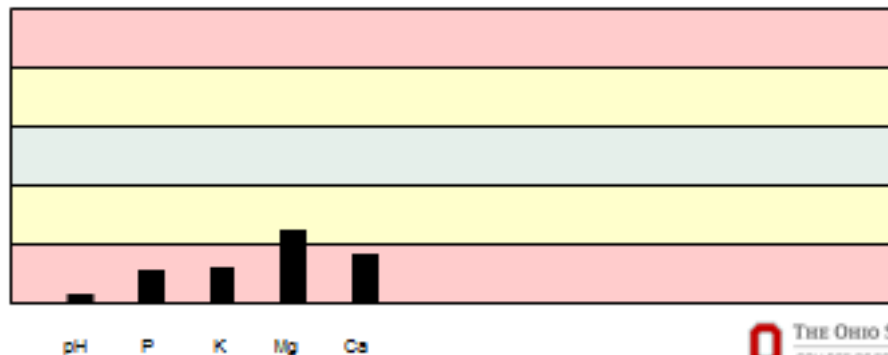
# Fertility: Nitrogen

Fertilize strategically, based on forage growth potential and plan food plots that can provide forage at the desired time of year.



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Analysis		Result	Optimal
Soil pH		4.8	6.3-6.7
Buffer pH		6.2	
Organic Matter	%	1.3	
CEC		13.1	
K Saturation	%	0.8	2.0-4.0
Mg Saturation	%	6.4	10-20
Ca Saturation	%	19.6	50-70
K/Mg Ratio		0.4	
Ca/Mg Ratio		6.0	
Phosphorus	m3-ppm	12	50-70
Potassium	m3-ppm	49	170-260
Magnesium	m3-ppm	115	210-360
Calcium	m3-ppm	687	1700-2500



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*Spectrum Analytic*

1087 Jamison Road NW  
Washington Court House, OH 43160-8748

www.spectrumanalytic.com

Report To

OSU EXT - MADISON CO  
PO BOX 230  
217 ELM ST  
LONDON, OH 43140

Prepared For

OSU EXTENSION MADISON COUNTY  
GWYNNE DEER PLOTS  
PO BOX 230  
LONDON, OH 43140

Sampled 09-07-2016  
Tested 09-12-2016

Sample Number	Lab Number	pH		Organic Matter %	Analysis Result* and Rating				CEC	Base Saturation			Mehlich-3 PPM and Rating						
		Soil pH	Buffer pH		Phosphorus P	Potassium K	Magnesium Mg	Calcium Ca		K %	Mg %	Ca %	Sulfur S	Boron B	Zinc Zn	Iron Fe	Copper Cu	Mang. Mn	Alum. Al
GWYNNEDEER	B39976	7.6		2.0	16 L	111 M	465 H	3241 H	15.8	1.5	21.6	76.9							
Sample Number	Lab Number																		

\* P, K, Mg and Ca are extracted by Mehlich-3 (ICP) and are reported in ppm

Sample Number	Lab Number	Year	Crop	Yield Goal	Acres	Nutrient recommendations expressed in broadcast rates of lbs/A except where noted.												
						CaCO3** Lime	N	P2O5	K2O	Mg	S	B	Cu	Fe Foliar	Mn Row	Zn		
GWYNNEDEER	B39976	17	Oats for Forage or Hay	2 Tons	1	0	50	72	45	0								
GWYNNEDEER	B39976	18	Clover, Red	4 ton	1		0	112	256	0								

# Corn

Warm season annual

Plant March to June

Sensitive to browsing at  
establishment

Interseed with oats, annual ryegrass,  
turnips

High energy, high protein feed late  
into winter



*Source: Landefeld & Little*

# Alfalfa

Cool season perennial legume

“Queen of Forages”: high yield, great nutrition, very palatable

Disadvantages: does not hold up to uncontrolled browsing, requires rest periods to replenish, plants become fibrous when deer clip off plant tips





# White Clover

Cool season legume

Persistent and highly palatable

Adapts to a variety of soil conditions

Frost-killed

White clover and ladino clover are the most utilized legumes in wildlife seed mixtures



*Source: Landefeld & Little*

# Brassicas

Cool-season annual

Tolerates variety of soil fertility and drainage

Works well planted in August and will yield well through October

Turnips, kale, rape

Tops deteriorate after multiple hard freezes but bulbs can remain a suitable forage late into winter



*Source: Landefeld & Little*

# Annual Ryegrass and Oats

Cool season annuals

Staple for wildlife plots, easy to establish

High yield, high palatability

After germination, a light application of 50 units of N per acre is needed

Annual ryegrass, wheat, triticale, and cereal rye grow through early winter, go dormant, than grow again in early spring



*Source: Landefeld & Little*

# Winter Wheat

Winter annual

Highly palatable

Moderate fall yield, rapid spring  
growth

Best in combination with other  
species



*Source: Landefeld & Little*

# Soybean

Summer annual

High nutrition, palatable

Summer and fall browsing

Do not regenerate well after browsing

Best in large fields--small acres with  
heavy pressure yield poorly



*Source: Landefeld & Little*

# Chicory

Perennial

Wide adaptability

Responds well to browsing, yields well, drought tolerant

Not easy to establish, forms in clumps

Best in a perennial mix with clover



# Crimson Clover

Summer annual legume

High yield

Tolerates moderate pH levels

Best in well-drained soils

Peak production in summer, killed by  
frost in fall.



# Kura Clover

Perennial legume

Very persistent, spreads well

Highly nutritious

Difficult to establish

Useful to consider in a perennial food  
plot



*Source: Landefeld & Little*



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**Table 3. Recommended planting dates and selected nutritional values for parts of annual and perennial food plot plants (% dry weight). Note, values are not averages of published information and should only be used as approximate guides. Nutritional information adapted from Preston 2001, Berglund 1998, Banks and Stewart 1998, and National Research Council 2001.**

Species	Approximate Planting Dates	Crude Protein (%)	Calcium (%)	Phosphorus (%)	Sodium (%)
Corn (whole, grain)	April 15 - May 15	19	0.02	0.30	0.02
Grain Sorghum (grain)	May 15 - June 15	11	0.04	0.28	0.01
White Proso Millet (grain)	May 1 - July 1	12	0.05	0.30	<sup>1</sup>
German/Pearl Millet (grain)	May 1 - July 1	18	0.54	0.35	<sup>1</sup>
Spring Oats (grain)	Mar. 1 - Apr. 15 or Aug. 1 - Sept. 1	13	0.05	0.41	0.03
Sunflowers (oil seeds, whole)	May 1 - June 1	19	0.71	0.51	0.01
Cowpeas (whole)	May 1 - June 1	23	0.10	0.42	0.01 <sup>2</sup>
Soybeans (whole)	May 1 - June 1	40	0.27	0.64	0.01
Partridge Pea (whole)	March 1 - June 1	17	1.312	0.17	0.01 <sup>2</sup>
Buckwheat (grain)	May 1 - June 1	12	0.11	0.36	<sup>1</sup>
Rye (silage)	Sept. 15 - Oct. 30	16	0.43	0.42	0.05
Wheat (fresh, pasture)	Sept. 15 - Oct. 30	20	0.35	0.36	0.06
Alfalfa (fresh)	Mar. 1 - May 1 or Aug. 1 - Sept. 1	19	1.35	0.27	0.01 <sup>2</sup>
Ladino Clover (fresh)	Jan. 1 - May 1 or Aug. 1 - Sept. 1	25	1.27	0.38	0.01 <sup>2</sup>
Red Clover (fresh)	Jan. 1 - May 1 or Aug. 1 - Sept. 1	18	1.70	0.30	0.01 <sup>2</sup>

<sup>1</sup> No data

<sup>2</sup> Value for forage legumes, pasture from National Research Council (2001)

# Grass Seed Mixture for Disturbed Sites

Skid Trails and Road Cuts	Perennial Ryegrass	50%
	KY 31 Tall Fescue	20%
Note: These seed mix examples are typical for erosion management, not necessarily food plots.	Potomac Orchard Grass	20%
	Red Clover	10%
Landings and Flat Cuts	Perennial Ryegrass	50%
	Red Clover	20%
	Potomac Orchard Grass	20%
	Ledina Clover	20%

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	Species	Pure Stand Rate (lbs/A)	3/4	1/2	1/3	1/4	1/8
Perennial	Alfalfa	15	12	8	5	4	2
Perennial	Kura Clover	6	4	3	2	1.5	1
Perennial	Red Clover	11	8	6	4	3	1.5
Perennial	White Clover	5	4	3	2	1	0.5
Perennial	Rye	24	18	12	8	6	3
Perennial	Chicory	6	4	3	2	1.5	1
Annual	Annual Rye	24	18	12	8	6	3
Annual	Oats	87	65	44	29	22	11

# Shape and design

Edge effects--linear designs over square designs

Wildlife like to move along edges

Benefit to providing low story vegetation along edges

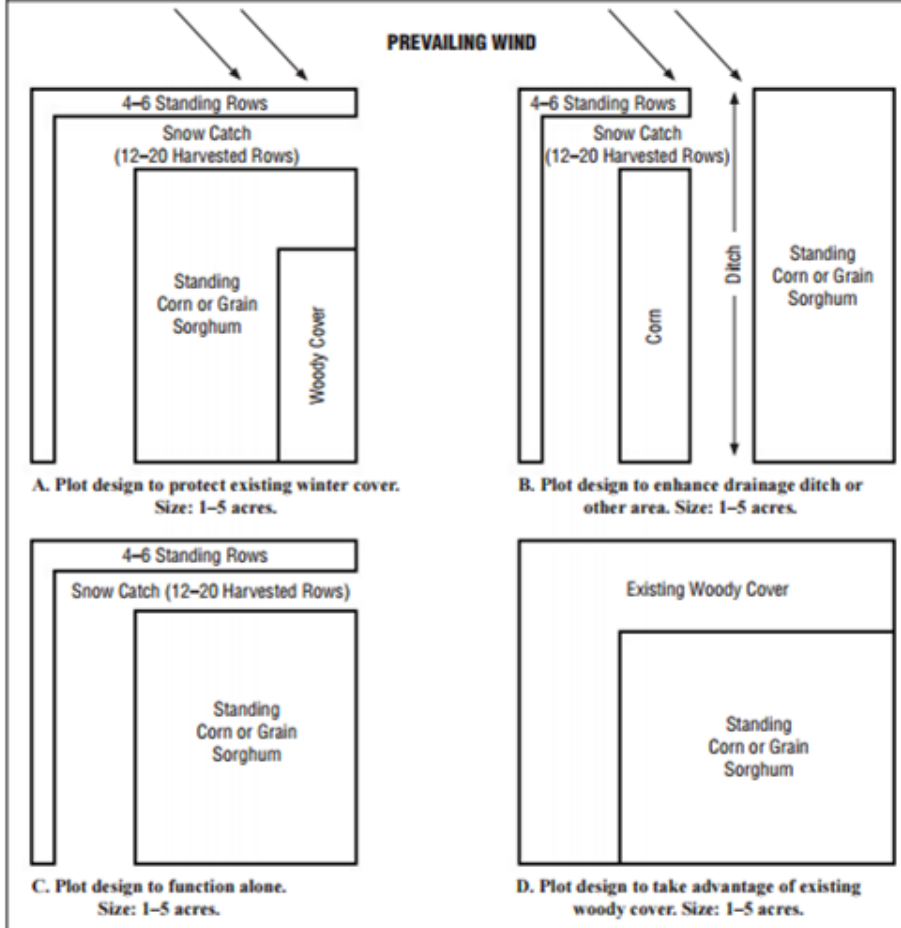
Logging roads--works if there is enough light penetration--probably requires the cutting back of tall trees

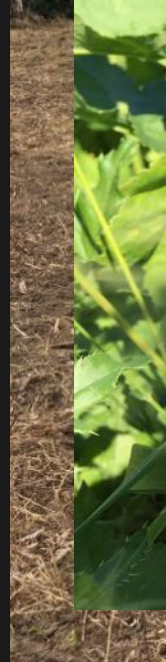
Habitat for attracting deer: 3-5 acre blocks that are dense enough that you cannot see more than 50-60 yards

Hunters need to consider the prevailing wind and their position to approach the plot

# Plot Shape

Figure 1. Examples of annual food plot design. (Adapted from USDA-NRCS 1999.) Note, establishment of a snow trap on the windward (NW) side of the food plot can be important only for areas that receive significant annual snowfall.





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# For example....

Gwynne

<https://u.osu.edu/mcdermott.15/2016/10/03/food-plots-and-habitat-improvement-to-benefit-wildlife/>

Hocking

<http://u.osu.edu/mcdermott.15/2016/07/10/food-plots-for-deer-and-other-wildlife/>





Purdue University  
Forestry and Natural Resources

FNR-194

## Food Plots for White-Tailed Deer

Brian J. MacGowan, Department of Forestry and Natural Resources, Purdue University  
Dave Osborne, Purdue University Cooperative Extension Service

PURDUE UNIVERSITY

The establishment and maintenance of food plots can be a component of any wildlife management plan. When used in conjunction with other habitat management techniques, food plots are useful for attracting wildlife. However, landowners may have unrealistic expectations about the utility and function of food plots. Food plots are not a replacement for habitat management. They can enhance your property for wildlife by increasing the numbers that frequent your property at different times of the year. Food plots can also be a supplemental food source during harsh weather conditions when they are a part of a comprehensive wildlife management plan.

Much of the current literature regarding the use and necessity of food plots originates from the southeastern United States. Soil fertility and water abundance in the southeast are relatively poor compared to those found in Indiana. Research confirms that the presence and condition of many wildlife species are correlated to soil fertility (Bolen and Robinson 1999:234-240). Soil fertility is an indicator of food quality and quantity. Food supplementation can be important for managing wildlife in the Southeast; however, in the Midwest, wildlife populations are not as dependent upon supplemental food plots, although they will use supplements if available. Productive glaciated soils found in the Midwest support a bounty of food for white-tailed deer and other wildlife in areas with a mixture of agricultural crops, woodlots, and old fields.

### Myths of Food Plots

Establishing food plots can be a costly endeavor. Therefore, it is important to understand what food plots can do, for example:

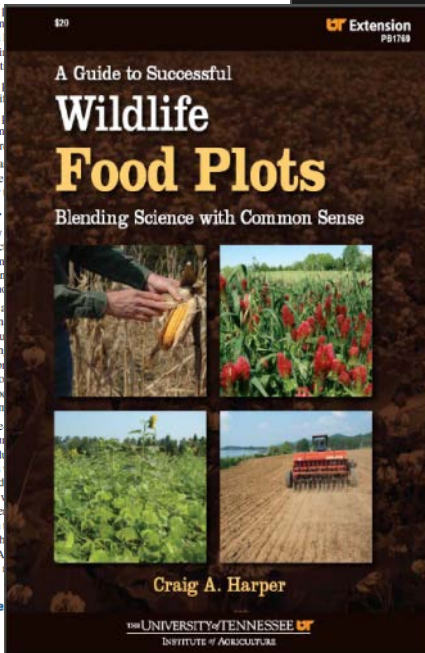
- They can potentially attract more deer to an area.
- They increase the chance of seeing one or more mature deer that have large racks.
- Food plots potentially concentrate deer during the hunting season, especially if the food plot is planted to a green fall or winter crop such as winter wheat or rye.

- They...
- that m...
- when...
- corn i...
- somet...
- Food...
- wildli...
- They...
- less m...
- requir...
- Resea...
- increas...
- buck or...

### Deer

Many...

White...



Purdue Bulletin FNR-194

<https://www.extension.purdue.edu/extmedia/fnr/fnr-194.pdf>

Tennessee Bulletin PB1769

<http://fwf.ag.utk.edu/personnel/charper/pdfs/PB1769.pdf>

## References (<http://go.osu.edu/foodplot>)

Food Plots for White Tailed Deer, Purdue Fact Sheet FNR-194

Assessing Your Land's Potential for Wildlife, Purdue, FNR-175-W

Incorporating Wildlife Needs into Forest Management Plans, Ohio Fact Sheet, W-1-2001

A Guide to Successful Wildlife Plots, Tennessee, PB1769

Nutrient Management, Wildlife Food Plots, Minnesota

Establishment of Wildlife Food Plots, Unpublished, Landefeld & Little, OSU Extension

Ohio Agronomy Guide, Bulletin 472