

Annuals vs.



COWPEA

WHICH ONE IS THE **BEST CHOICE**

By Dr. Craig Harper

"I'm tired of planting food plots every year. I'm going to plant perennials this year so I won't have to worry with my food plots anymore."

Sound familiar?

"Perennials come with a big problem – weed control. Mow, mow, mow. Spray, spray, spray. That's all I ever do, and I still can't control the weeds in my [perennial] clover plot. I'm sick of this."

Ever felt like that? How about this —

"My [perennial] clover and chicory looked great in the fall, but now (winter) there's hardly anything out there for the deer to eat. I know forage availability during winter is important. What can I do?"

Or this —

"There's nothing in my [perennial] clover plots."

It's been so dry, the clover has just wilted and turned brown. Will it come back, or should I go ahead and plan to replant?"

That's a small sample of the countless emails I get from landowners/hunters trying to manage food plots. Everyone wants to have lush forage and abundant grain available for deer and other wildlife, but realizing top-quality plots can be difficult and frustrating. Few are willing or able to put in the time, effort, and expense required to maintain quality food plots through the year.

A real source of frustration is maintaining perennial plots and replanting annual plots. Most people don't want to replant annual plots, but they can't control the weeds in their perennial plots either.

I am often asked whether to plant annuals or perennials. Of course, the answer depends on the situation, and usually I recommend both. But, more often than not, most landowners/hunters are under the impression that perennial plots are better than annuals. I want to highlight some advantages and disadvantages

LADINO CLOVER



Perennials

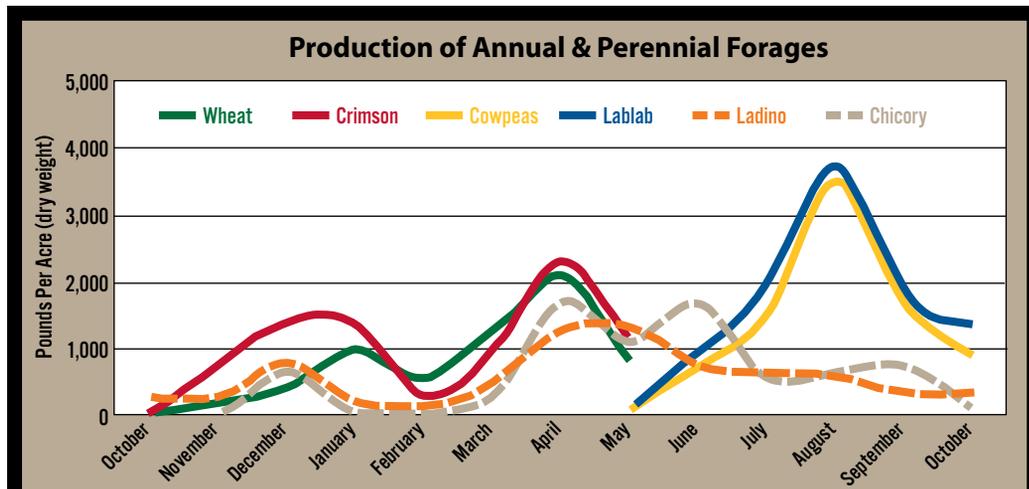
FOR YOUR DEER NUTRITION PROGRAM?

of both annual and perennial plots and hopefully give you some ideas that will help when planning your food plot acreage this year.

Which produces more, and when?

On an annual basis, annual cool- and warm-season plots can easily produce more forage through the year than perennial plots (as seen in the chart on the right). This is because annual warm-season forages (such as soybeans, cowpeas and lablab) produce more forage than perennial clovers or chicory during the summer, and annual cool-season forages (wheat, oats, rape, crimson clover) produce more than perennial clovers, alfalfa, or chicory during

Continued.



This graph shows monthly production for two perennial and four annual forages averaged across three fields in Tennessee (all forages present in separate plots in each field) with varying deer densities over several years (perennials are indicated with dashed lines for easier comparison). Production of annual forages is shown from the time they were planted until maturity. Production of perennial forages is shown through the year.

the winter. Of course, those differences may be buffered (or made more extreme) by season in the Deep South and in the North. For example, perennial clovers and chicory may produce as much as annual cool-season forages during winter in the Deep South. But during the summer, perennial forages will not produce nearly as much as warm-season forages. In the North, summer production of perennial forages may compare favorably to warm-season forages, but during winter, availability of annual cool-season forages is critical.

Species and varieties of forages vary with regard to time of production and drought/cold tolerance. For example, among annual clovers, crimson and berseem clover establish relatively quickly and can produce significant forage through the fall after planting in September. Arrowleaf clover does not establish as quickly, but produces forage April through June after crimson clover dies in April/May. Red clover is classified as a biennial, but can be managed as an annual. It also establishes slowly, but it is cold and drought hardy and will produce considerable forage April through August. None of the annual clovers are well suited to northern climates. Even crimson and arrowleaf clover commonly winter-kill where temperatures reach 0 to 10 degrees. Annual species better adapted to those conditions include wheat, cereal rye, brassicas, and Austrian winter peas. Varying with location, several of these annual forages



Maintaining perennial forage plots, such as these perennial clovers and alfalfa, can be frustrating. Mowing and spraying weeds require more time and money than many land managers realize.

can be combined in a mixture to produce an annual cool-season plot that will produce high-quality forage through the entire year (September to August) with relatively little input and maintenance.

Providing quality forage during late summer and through winter is important to fill naturally occurring nutritional gaps for whitetails. Perennial forages often provide less than what is needed during these times. Recent advances with improved varieties of perennial clovers and chicory have helped with late summer production, and alfalfa is renowned for its summer production, but production of these forages in winter is woefully inadequate

Warm-season annual forages, such as these iron-and-clay cowpeas (below, left) produce far more forage than perennial clovers and chicory (below, right) during summer. These plots were in the same field, and the pictures were taken the same day, August 3, 2007.



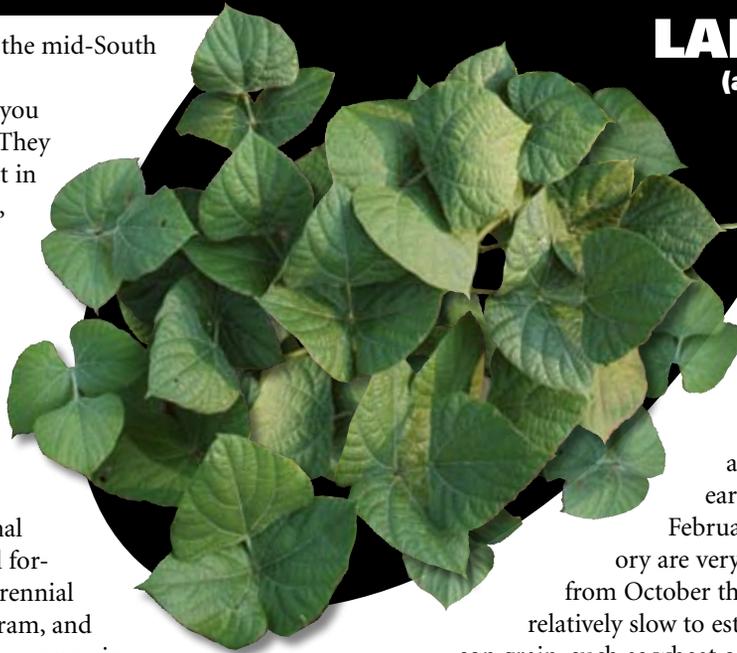
LABLAB (annual)

to feed many deer, especially from the mid-South northward.

Do not think I am suggesting you shouldn't plant perennial forages! They represent an important component in a well-rounded food plot program, and they are especially important during early fall and late spring when annual plots are becoming established. However, they do not produce the tonnage of annual plots (when production of annual cool- and warm-season forages are combined on a per acre basis) and may not produce the forage needed during nutritional stress periods. The point is, annual forages are at least as important as perennial forages in a quality food plot program, and their advantages may warrant more acreage in annual forages than perennial forages.

Which requires more time and effort?

I cannot count the times I've heard someone say, "I'm going to go with perennial plots this year so I won't have to worry with them anymore." How untrue! The one big advantage to perennial plots is that you shouldn't have to plant them but once every three to five years. However, that doesn't mean they don't require as much or more work than annual plots. After planting peren-



ennial plots in the fall, cool-season annual weeds (such as chickweed, henbit, and purple deadnettle) need spraying before they reach 3 to 4 inches in height.

Depending on temperature and rainfall, this may be as early as November or as late as February. Perennial clovers and chicory are very susceptible to weed pressure from October through March because they are relatively slow to establish. Including a cool-season grain, such as wheat or oats, will help smother weed pressure while the perennial forages develop, but, regardless, if you've ever planted a perennial food plot, you know cool-season annual weeds are a problem. The biggest weed problem, however, is yet to come.

Although cool-season annual weeds can be a pain, it is the warm-season weeds, especially the perennial warm-season weeds, that are toughest to control. Controlling horsenettle, passionflower, horseweed, sicklepod, spiny amaranth, and others requires diligence and absolute correct timing or you will never get rid



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Cool-season annual forages, such as wheat and crimson clover (left), produce far more forage than perennial clovers and chicory (right) during winter. These plots were on the same property, and the pictures were taken the same day in December 2007.

of them. And you will never spray a perennial plot once and not have to worry about it again. To maintain weed-free perennial plots and maximize forage production, you will have to spray weeds, at an absolute minimum, twice per year – once for cool-season weeds and once for warm-season weeds.

Did I mention mowing? How many times do you mow your perennial clovers and chicory per year? Twice? Three times? Five times? Depending on weed pressure and deer density, you may need to mow three or more times per year.

The main disadvantage to annual plots is you must plant them every year. An exception is the Quail Haven re-seeding soybean, but you still must re-disk the plot in early spring to stimulate adequate germination and growth.

There are several advantages to annual plots with regard to your time and effort. The majority of annual cool-season plots should only need spraying once per year, if at all. Most annual cool-season forages, such as crimson and berseem clover, wheat, oats, and brassicas, establish relatively quickly. This really helps them compete with cool-season annual weeds much better than the slower establishing perennial clovers and chicory. And if the cool-season annual weeds become problematic, you should only have to spray the plot once. When warm-season weeds become problematic, the annual cool-season forages will be dead and the plot can be disked under in preparation to plant something else. Or, you can spray the entire plot with a glyphosate herbicide and plant another plot via no-till drilling.

Continued.

Alfalfa can provide outstanding forage for whitetails during spring and summer; however, there is very little for a deer to eat in an alfalfa field in winter. This is the same alfalfa plot in May 2005 (left) and January 2006 (right).



Most annual warm-season plots will require spraying only once, just prior to planting (preplant incorporated) or just after planting (preemergence). This is convenient, especially if you don't live near the plot, because you can do all the work necessary (plant and spray) in one trip. An exception is Roundup Ready crops, which are usually sprayed two to three weeks after planting. Warm-season annual plots may need spraying again in midsummer, but if preplant or pre-emergence herbicides are used, having to spray again is less likely because the crop develops a canopy that suppresses weeds that germinate later. Of course, successful weed control with preplant and pre-emergence herbicides is dependent on which weeds are in the seedbank and which herbicide(s) you use.

Another big advantage to annual plots is they never have to be mowed!

Perennial clovers and chicory are mowed through summer to stimulate fresh growth and knock back weeds. Annual warm-season forages don't need mowing to stimulate growth; mowing them only reduces forage available for deer. Annual cool-season plots can be mowed after they die, or the plot can be sprayed (if weeds are present), burned, or disked in preparation to plant something else. But annual cool-season forages do not need



Weed control in annual cool-season plots is relatively easy. After the annual forages die, like this crimson clover seen in May, the entire plot can be sprayed with a glyphosate herbicide to kill all weeds. Re-disking in late August/early September will effectively re-seed crimson and arrowleaf clovers. Wheat, oats or brassicas can be top-sown or drilled at that time if desired.

mowing to stimulate growth either.

In essence, work associated with annual and perennial plots is differentiated by planting annual plots and spraying and mowing perennial plots. You can decide which you would rather do. But, as you decide, remember how much forage you are getting with each and when that forage will be available.

Which costs more?

Data collected in Tennessee from actual research and demonstration plots show the cost per pound of forage produced over a two-year period after planting is cheaper with annual plots than perennial plots because annual plots may produce twice as much forage as perennial plots. The cost projection for perennial plots will improve somewhat over the next two years *if* the plot is well maintained. But let's face it, few landowners maintain

Meet Dr. Craig Harper

The author of this article, Dr. Craig Harper, will be one of many featured speakers at the 2008 QDMA National Convention in Chattanooga, Tennessee, July 24-27. Craig's seminar will focus on natural vegetation management, with a focus on his research into "old field" management techniques. The seminar will extend the information Craig first presented in his "Old Field Management" article in the June 2007 issue of *Quality Whitetails*. A regular contributor to the magazine, Craig has also been a favorite speaker at past Conventions. Join us in Chattanooga this summer and be sure to catch Craig's seminar and meet Craig and other speakers in person.

a perennial clover plot so that it produces as much in the fourth year as the second year. In the fourth year, many landowners see increased weed problems and reduced clover production.

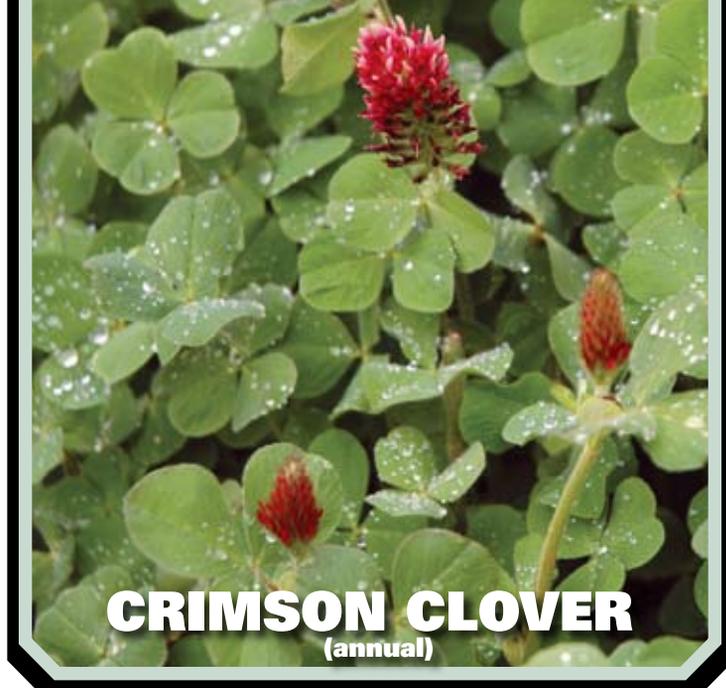
The assessment below considers two acres managed in annual food plots (one cool-season and one warm-season) and two acres managed in a perennial plot over a two-year period. It also implies you are doing the work yourself and does not include costs for labor, equipment, or fuel, which can be considerable. Costs for lime and fertilizer are also not included, as both types of plots require roughly the same amendments.

In this example, only oats were used in the annual cool-season plot. Fortunately, in the years these data were collected, the oats were not winter-killed. If winter-kill is a factor in your area, you will get roughly the same forage production from wheat, depending on soil productivity, rainfall, and temperature. You could also add some annual clovers and a brassica to the oats or wheat and get considerably more forage production over a longer period. Likewise, chicory could be added to the perennial plot, which would increase forage production somewhat in the perennial plot during summer. *(Note: I realize prices vary by dealer and year, but these were our prices.)*

ANNUAL PLOTS

Cool-season (1 acre over two years)

Seed (oats – first year) in September.....	\$25
Postemergence herbicide (Harmony Extra®) in November (to kill annual cool-season weeds)	\$5
\$25 seed (oats – second year) in September	\$25



Postemergence herbicide (Harmony Extra®) in November (to kill annual cool-season weeds)	\$5
Total forage produced for both years (October to early April)	5,918 lbs. dry weight
<i>(Note: this includes palatable biomass only; it does not include biomass data from the bolt/flowering/seed-forming stages)</i>	
Number of visits to the plot:	4 (2 to plant; 2 to spray)

Continued.

Warm-season (1 acre over two years)

Seed (iron-and-clay cowpeas – first year) in May\$64
 Preemergence herbicide (Pursuit®) at planting.....\$20
 Seed (iron-and-clay cowpeas – second year) in May.....\$64
 Preemergence herbicide (Pursuit®) at planting.....\$20
 Total forage produced for both years:**18,775 lbs. dry weight**
(this includes palatable forage only; not large stems)
 Number of visits to the plot: 2

Total forage produced from 2 acres of annual plots over two years: **24,693 pounds dry weight**
 Total cost for both annual plots (2 acres; two years)\$228
 Cost per pound forage produced:\$0.009
 Total visits to both annual plots: 6

PERENNIAL PLOT

Cool-season (2 acres over two years)

Seed (ladino clover and oats) in September (because oats were added, weed pressure was reduced and herbicides were not necessary in the fall after planting)..... **\$102**
 Mow in June (after clover had flowered)
 Mow in August (to knock back warm-season weeds before they flower)



Preemergence herbicide applications can provide clean, weed-free warm-season annual forage plots, such as these iron-and-clay cowpeas that were planted by broadcast seeding and disking.

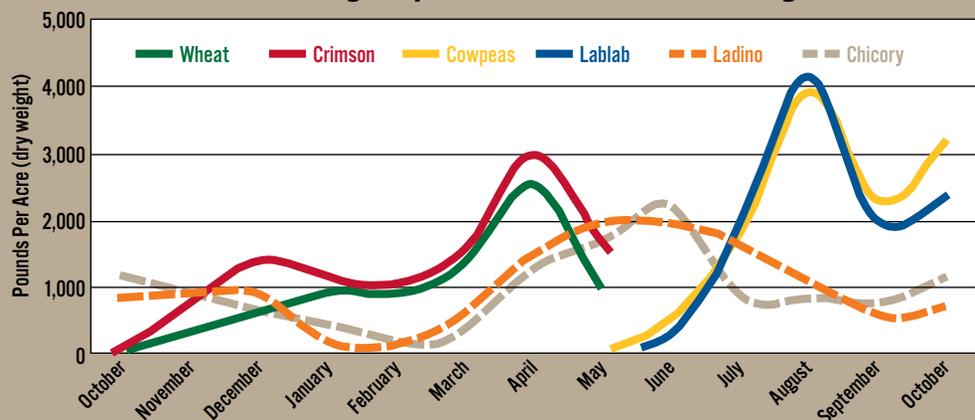
Postemergence herbicide (Butyrac 200® and Arrow®) application in October \$58
 Postemergence herbicide (Pursuit® and Arrow®) application in May \$58
 Mow in July/August

Total forage produced from 2-acre perennial plot over two years: **13,846 pounds dry weight**
(this includes approximately 2,000 pounds produced by the oats from October through early April following planting)
 Total cost.....\$218
 Cost per pound forage produced.....\$0.015
 Total visits to the plot 6 (1 to plant; 2 to spray; 3 to mow)

Considerations for planning

Annual forages should be considered closely by anyone planting food plots for white-tailed deer. They are especially advantageous if you are managing small acreage because they can produce more forage per acre. And, because they produce quality forage during periods when naturally occurring forage may be limiting, they further help attract deer to your property. Annual plots also should be considered if you have limited time for management. For warm-season annual plots, you can spray preplant

Standing Crop of Annual & Perennial Forages



This graph shows standing crop (amount of forage available) of two perennial and four annual forages averaged across three fields in Tennessee (all forages present in separate plots in each field) over several years (perennials are indicated with dashed lines for easier comparison). Standing crop will vary greatly depending upon deer density and habitat quality. Here, standing crop has been averaged across three areas where deer density ranged from 30 to 90 deer per square mile. Of particular interest is forage availability during the primary stress periods for white-tailed deer (late summer and winter). It is clear annual forages provide the most forage during these periods. Established perennial forages complement annual forages by providing nutrition in fall while cool-season annuals are developing and in spring while warm-season annuals are developing.

be planned accordingly to provide a high-energy food source during winter, which can be especially important during poor mast years.

Final thoughts

As has been said many times, there is no single planting that can provide all the nutritional needs for white-tailed deer throughout the year. In fact, several different plantings are required, and this includes both annuals and perennials. Annual plots may require additional planting effort, but if top-quality plots are the objective, perennial plots require at least as much work in terms of maintenance. Regardless, I like to look at it this way – managing food plots, whether planting, spraying, or mowing, is not work, it is an enjoyable way of life. I would much rather spend my “free” time sitting on a tractor than a golf cart!



or preemergence and plant the same day and not worry about them for the remainder of the summer. In fields with especially bad weed problems, it may be necessary to spray a postemergence herbicide later, but this is less likely if you use a preplant or pre-emergence herbicide. Because cool-season annual plots establish so quickly, weed control is usually not as problematic as when establishing perennial forages. Thus, annual cool-season plots often do not require spraying at all. Quick establishment also provides an advantage if you intend to hunt near the plot. Cool-season annual plots containing brassicas, cereal rye or winter wheat are especially important for northern managers. These crops stay green under the snow and provide high-quality food at a time when other foods are unavailable or of low quality.

As always, the amount of food plots planted should be determined by food availability and deer density. If food plots are eaten to the ground, more acreage should be planted and/or the deer density should be reduced. Additional annual plots should be planted if/when you notice perennial plots are not producing adequate forage during nutritional stress periods. The amount of perennial plots should be determined by the amount of forage necessary to support deer when annual plots are becoming established in early fall and late spring (see the chart on this page). Of course, annual grain plots (such as corn and grain sorghum) should

About the Author: Dr. Craig A. Harper is the Extension Wildlife Specialist at The University of Tennessee. Dr. Harper maintains an active food plot research program and has recently finished a new book on food plots that should be available in spring 2008.