

Forage Soybeans: A High Octane Food Plot Crop for Deer

By Jason R. Snavelly

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There's little doubt that you have experienced the high draw that soybeans have on deer. Imagine a food plot that can cover the months of June, July, August, September, October, November, December, January and February. Does that sound too good to be true? It's not and in fact, deer managers across the whitetail's range are doing it with the help of **forage** soybeans.

At Drop-Tine Farms, my research and demonstration facility in Bloomsburg, PA, I get my forage soybeans in the ground in early to mid-May. After a few weeks of "down time" while the cotyledons pop through the soil and the young tender plants develop, my forage beans are off to producing several tons of high quality forage per acre. This forage producing machine continues longer than any single food plot crop available. Better yet, throughout the month of October and even into November, when I'm bow hunting my farm, I'm the only guy in the neighborhood with soybean



The Only Shop in Town! October 11, 2009 Drop-Tine Farms photo of actively growing Eagle forage beans planted next to a plot of agricultural beans. The forage beans remained green and continued to serve as an attractive forage throughout the Pennsylvania archery season.

fields that are still green.

As a private consultant I only get paid when my company produces results. We don't have time for pretty bags and confusion marketing but are more interested in what's inside. With whitetails being picky eaters with a limited amount of space in the rumen, we're continually seeking ways to ensure that deer only consume "the good stuff". To date, nothing has stepped up to this challenge better than forage soybeans produced by Eagle Seed Co. in Weiner, AR (www.eagleseed.com).

While visiting with clients or giving seminars I'm often asked: "If you could plant only one crop or forage for deer what would it be?" We are incredibly fortunate to have a full arsenal of different food plot crops that shine under different growing conditions, different seasons, different planting times, and across all regions of the whitetail's range. Although there is not one food plot crop that will perform year round, fill all nutritional gaps and thrive under all conditions mother nature hands out, forage soybeans are the closest I've found after 10 years of exhaustive research. You will have to trust me when I say that what follows will change your food plot program and the way you push nutrition to your deer herd forever...that is if you don't currently incorporate arguably the most impressive warm season food plot crop into your year-round nutrition program: forage soybeans.

Not to be confused with Roundup

Ready® agricultural soybeans bred to have one main, combine friendly erect stem and grown for maximum bean production, forage varieties are designed to remain in a vegetative or pre-reproductive stage longer and therefore produce significantly more leaf & stem tonnage longer into the growing season. There is some misinformation out there that forage varieties don't flower and produce pods and grain. This couldn't be further from the truth. In fact, forage soybeans do complete the flowering stage and produce pods of grain. With soybeans, the flowers become the pods that contain the protein packed beans.

Forage varieties are bred to delay the flowering and reproductive stages. Why is this important? Those of you who already plant clovers, alfalfa, chicory and other food plot crops have experienced an increase in attraction immediately after a mowing. You know that attraction to deer declines as those plants mature. The reason for the sudden surge of deer activity after a mow-



The explosive growth of forage soybeans is obvious in this picture. Equally important is the pod count on the forage beans; debunking the myth that forage soybeans do not produce pods of grain.

ing is because those maturing plants were in their reproductive stages (flowering) and the nutritional quality was dramatically declining. The plant was putting all of its energy into completing its reproductive stage taking away from its quality as a forage crop. By mowing the top portion of the plants you returned them to a pre-reproductive (actively growing) stage. Young and actively growing plants in pre-reproductive stages (prior to flowering & seeding) are much more nutritious. For food plot managers, this is old hat; however, some of you may not be aware of the indeterminate growth strategy of forage varieties resulting in much longer forage production while plants continue to grow by putting out new leaves very late in the season. This is vital.

Interestingly, a single forage soybean plant can produce pods at the bottom of the plant, flowering in the middle, and producing new growth at the top portion of the plant all at the same time. Conversely, with Roundup Ready® agricultural beans planted for grain production the whole plant is going through each stage at the same time. This is crucial because after the plant has put on new growth, flowered and starts producing pods, its maximum potential as a high quality forage crop for deer has passed. Sure, the high fiber content of the pod and the extremely nutritious beans are now available; however, wouldn't you rather continue producing more forage throughout the warm season as well? On my farms in PA and NY as well as those of our clients, we've target-



Forage soybean on bottom and Ag soybean on top pulled from Drop-Tine Farms on July 23rd 2012. Note that the Ag beans have already formed pods with maturing grain (past peak) whereas the forage bean is still performing as a high quality forage. Pods of grain will come later in the growing season.

ed, with assistance from Eagle Seed Co., different varieties of forage beans that produce pods of grain at different times throughout the growing season. Some begin early while others may never fully mature as optimal growing conditions wind down. This is ok and expected.

Soybeans originally came to America as a forage crop; however, this changed as demand for the grain (animal and human consumption) from a soybean plant increased. This demand led to the breeding of smaller agricultural soybean plants with one main stem (easier to harvest with combines) that were also genetically engineered to mature much earlier in the year. It's the third week in July as I type this article and the Roundup Ready® agricultural beans planted by my local farmer have already reached their maximum potential as a forage for whitetails. As you can see in the above picture, the pods on his agricultural beans are formed whereas the forage soybean plant is still serving as a high quality forage as it remains in its pre-reproductive (actively growing) stage.

Soybeans require most of their moisture during the flowering period; therefore, the earlier you plant them and the quicker they mature the less susceptible

they are to dry summer weather. This is the strategy when producing the soybean grain is the ultimate goal. Herein lies the problem for those of us who are interested in feeding whitetails by incorporating plants that keep putting out highly nutritious leaves as long as possible during the growing season.

Although the earlier maturing varieties had initially proven to out yield late maturing varieties when it comes to the beans there is a tremendous advantage when forage is greener and better longer (4-8 weeks) that can still throw a respectable bean yield when it's all said and done. In fact many of the forage soybean varieties from Eagle Seed Co. in Arkansas have shown just as much potential to produce beans while producing a plant twice as large (and often larger) as a conventional agricultural soybean. There's another advantage to extending the length of time forage soybeans are green and growing. Since the plant continues to pack protein into the leaves, the older leaves contain higher amounts of protein. That's right, super-charged soybean plants that are taller offer far more biomass and protein, continue putting out leaves longer, possess many branches on one stem, stay green-

er longer and still produce a respectable, if not superior, soybean yield for late season attraction all in one plant!

When I was first introduced to Eagle Seed Roundup Ready® forage soybeans as an undergraduate student at Mississippi State University many years ago I didn't pay much attention. After all, soybeans are the king of deer nutrition, why mess with them? Little did I know they would play a significant role in the way I would manage deer herds for my clients many years later. While attending the 2007 Southeast Deer Study Group Meeting in Ocean City, MD it sunk in that agricultural soybeans planted for grain production were only highly nutritious as a deer forage during a relatively short window of time: in the early stages of their growth. A couple of papers presented at that conference brought this to my attention. I immediately recalled hearing about Eagle Seed Co. in AR and sought test plots for a personal observation.

Less than six months later I was on a magnificent property and test plot on the Eastern shores of Maryland. Being a skeptical wildlife biologist who just couldn't put his hands on any "real data", I had to get to the bottom of it. My mind raced and I quickly imagined these plants had to be drought tolerant



Leaf size comparison—forage soybean leaves are much larger, oftentimes 2-3 times larger. Apply this size difference across an entire plot and you realize the benefits of Eagle forage soybeans.

and equally had to offer the stiff competition against weeds that I had been seeking for client's properties and on our own properties. Considering the incredible amount of biomass above ground I suspected a large root system underground that would mine deep for soil moisture during dry periods. My thoughts turned to the Roundup Ready® technology allowing a food plotter to spray prior to planting and just prior to leaf canopy virtually eliminating weed competition for sunlight, soil moisture, space and nutrients. Further, once a canopy of broad soybean leaves is established, the soil surface is quickly shaded, minimizing the loss of valuable soil moisture through evaporation. I was almost sold.

I pulled plants from a side by side trial of agricultural soybeans of an unknown grower and forage soybeans from Eagle Seeds. The first thing I noticed was the incredible difference in both underground root mass and above ground leaf/stem mass. The Big Fellow variety from Eagle was head and shoulders out-competing the agricultural soybean in the same soil conditions only a few feet apart. Leaves of the forage soybeans were nearly three times the size of the agricultural soybean leaves. I was immediately thinking about how much high quality nutrition this product could offer does during lactation/fawn rearing and bucks during that critical antler growing period. At the time I didn't consider the bonus benefits of the soybean yield as a late season food source.

That research I was in need of...it's plentiful after all and even more so today. Dr. Rebecca Atkinson, a beef forage specialist from Southern Illinois University, reported up to 9.6 tons per acre on a dry matter basis and 29% leaf protein in varieties from Eagle Seed Co. Eagle also reports up to an incredible 42% leaf protein in Arkansas, their highest to date. I have seen fields of forage beans grow to over 6 feet tall with excellent seed yield. What will you plant next year as a warm season annual?

In a controlled penned study, South Dakota State researcher Kyle Monteith found that deer preferred Big Fellow soybeans from Eagle over a commercial variety and Large Lad. Kyle further detailed that "Females preferred Big Fellow 50% of the time, Large Lad 33% of the time, and the commercial variety 17% of the time". Finally, Kyle also reported that "Males preferred Big Fellow 49% of the time, Large Lad 18% of the time, and the commercial variety 33% of the time.

Perhaps some of the most impressive research was conducted in drought conditions on acidic sandy soils by Dr. Twain Butler of the Noble Foundation in Oklahoma. The test was conducted on sandy soils with a pH of 4.8! Only 2 inches of rainfall came during the hot, dry testing period. 90 days after planting, biomass data were taken from several products, including forage soybean varieties from Eagle Seed Co. The top three products were from Eagle. Two of those products, Whitetail Thicket and Large Lad produced 2,000 Lbs./acre! Keep the growing conditions in mind! Cowpeas and a different brand of Roundup Ready® soybeans came in around 1100 Lbs./acre with Lab Lab coming in well under 500 Lbs./acre.

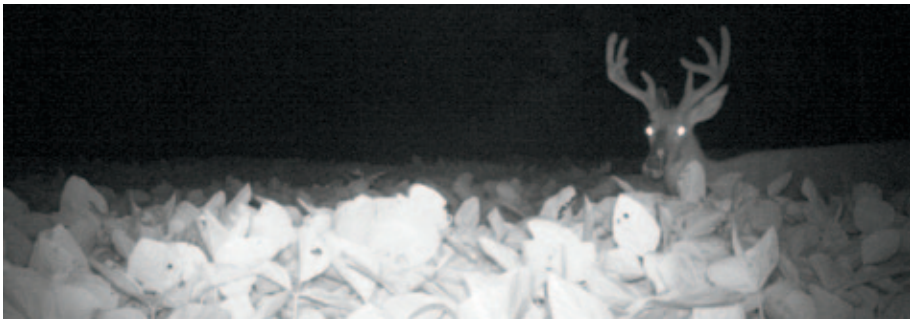
Anyone who has planted big seeded warm season annuals has dealt with the

tough decision of when to plant. Soil temps really need to reach 55-60 degrees for the go ahead to plant although it's safe to expect emergence in 7 days if soil temperatures have reached 65 degrees. Early planting experiments on our research and demonstration facility in Pennsylvania of late April sometimes took up to 2 weeks to emerge. For that reason early May is considered more conservative for planting on my Pennsylvania farm.

For those of you who have battled Boone & Crocket weeds while waiting for warm season annuals to germinate and develop canopy closure it gets better! Eagle Seeds offers Roundup Ready® technology to manage your weed problems. Planting early can be a gamble that has the potential of paying off big or backfiring. The 2009 season on our research fields displayed just that. As a result of a perfectly timed planting, our deer enjoyed increased plant height, tonnage and soybean yield. In fact, had we been standing in the middle of that 2009 plot just 4 feet apart we could hear each other talking but we could not see each other due to the amazing height of the soybean plants. Needless to say, we also had deer utilizing that plot as bedding and security cover. We firmly believe the results of our hunting season (and upcoming shed



September 12, 2012 photo of a utilization cage on Drop-Tine Farms PA. Just two weeks prior to when this photo was taken the soybean plot was high enough to make finding the utilization cage nearly impossible. A utilization cage is an excellent gauge, suggesting where you fall on the population size/food plot acreage scale. During years with poor growing seasons, the utilization cage details the level, as well as the timing, of nutritional bottlenecks. The heavy utilization of this 3 acre plot makes the author nervous about extending the life of this particular plot.



This trail camera photo was taken on a client's farm inside a high tensile reversible fencing project. Four acres were high fenced and gated to keep the deer out until the Eagle forage soybeans were established. With poor natural habitat conditions, this forage banking technique allowed the client to produce a high quality soybean plot on poor ground. Once the soybeans reached waist high, managers opened gates on each end of the fence to allow deer in. Gaining control of when and how long deer eat the soybeans is a step in the right direction.

hunting season) were in large part due to an overabundance of high quality nutrition (i.e. 151 4/8 clean 8 point). As late as February and March, deer and turkeys are still seen feeding in forage soybean fields planted back in April and May! That fact eliminates the false claim that late maturing forage soybeans don't produce pods of grain. The plot was extremely productive throughout all hunting seasons. Eagle has addressed concerns of late maturing varieties in the far northern reaches of MN, WI and the Dakotas by developing wildlife mixes with varieties bred for those growing seasons and conditions.

It's important to note that when growing deer forage, green is not always good. I'm here to assure you that the green on

forage soybeans is highly digestible, extremely palatable, available for a longer period of time, and incredibly nutritious. There is a growing list of university research from around the country to back this up. While talking to Brad Doyle, General Manager of Eagle Seed Co., I was pleased to hear about their plans to conduct extensive total plant nutrient tests. While we were talking on the phone a few years ago, Brad pulled out some results from a September 2009 test. Crude protein, % Phosphorus and % Calcium were 29.25%, .35% and 1.13%!

For those of you wondering about the cost of forage soybeans. Research conducted by Marcus A. Lashley and Craig A. Harper at the University of Tennessee reported the total costs for

seed, lime, fertilizer, herbicide (glyphosate), as well as man and tractor hours for a typical "co-op" agricultural soybean to be \$175/acre. Those same costs for the forage soybeans from Eagle were reportedly \$185/acre. As Dr. Joyce Doyle, daughter of Eagle Seed Co. founder, Dr. George Berger, puts it "Only \$10.00 more for 1st class"!

Like other nitrogen fixing legumes including soybeans it's important to inoculate forage soybeans with an inoculant that is not expired and specific for soybeans. This is especially important if there is not a history of soybean crops in your field.

As with anything planted for deer that is highly nutritious and palatable, forage soybeans need to be protected from excessive over browsing in areas with high deer densities or in smaller plots. I have seen amazing production from Eagle's forage soybeans after being completely over browsed in poor deer habitats. In fact, they branch out rapidly and cover up what's been nipped off. However, severe pressure on young, highly nutritious seedlings (notably the cotyledons) prior to the root system establishing itself can result in a "failed plot". A small utilization cage or two in your plot will reveal how much your field is being browsed. Utilization cages are a great tool when studying the delicate balance between food plot acreage required and current deer densities on your hunting property. If your plots are lip high everywhere except in your utilization cage it's time to plant more acreage to food plots and/or remove a few does. Personally, I prefer to raise the nutritional carrying capacity by ramping up food plot acreage (size and number) as opposed to carrying less deer; my clients agree!

I have a 2.8 acre field on my farm where I rotate corn and forage soybeans. During good growing seasons, with plenty of moisture at the right times, the tonnage produced in this soybean plot swamps my local deer herd and yield is quite impressive. However, during drought years, when deer are nutritionally



Food plot insurance--Research in recent years has proven the effectiveness of electric/psychological barriers such as this Gallagher fence. Managers can now employ forage banking techniques on their properties with these easy to install fencing products. It's a much more cost-effective insurance plan for food plot programs.

stressed due to a lack of high quality forage availability elsewhere, this same plot receives heavy browsing. The Eagle forage soybeans in this plot still grow chest high during these dry years. The same situation occurs with pod/grain availability. During good years you will find deer and turkeys feeding on soybean grain right into the early spring months.

However, during dry years, when that plot is the best buffet in town, my soybean grain is fully consumed by the end of December. The severity of our winters also plays a role in how long I can drag the productivity of this plot out each year. During years of heavy snow fall and prolonged cold spells the local deer herd hits it very hard. Although it's a great late season hunting location, I can't carry soybean grain into the late winter/early spring like I want to. This is where being a deer manager and identifying these factors comes into play. I've adjusted my plan by offering additional acreage planted in forage soybeans...problem solved!

Another excellent and proven strategy to gain control over when and how hard deer feed in your forage soybean plot is through a technique called "forage banking". A physical barrier of some sort, usually some form of fencing, will keep deer out during a pre-determined period of time. Many deer managers also refer to this technique as "reversible fencing". The best and most common time to protect your forage soybeans is immediately after planting them and as the initial growth (cotyledons) erupts from the soil. The cotyledons are the first two leaf structures to emerge from out of the ground at germination and they are extremely susceptible to being over browsed. If these cotyledons are nipped off at this sensitive stage the game is over for that soybean plant as they contain all of the energy and nutrients required to continue adding growth.

In years past we've employed the use of high tensile deer fence to exclude deer from our client's plots until they were established. This is a technique that has been used extensively on well-man-

aged ranches in South Texas for many years. A few years ago I was finally convinced that the electric/psychological barrier fencing by companies like Gallagher and the Hot Zone Deer Exclosure System from Non-typical Wildlife Solutions, are just as effective as high fences. This new technique is significantly less expensive and the flexibility to expand and/or move the systems is extremely valuable. Like an insurance policy, these fencing systems allow you to protect ("bank") your investment of time and money by ensuring that your plots are far more productive for a much longer period of time. This technique also allows a manager to plant highly attractive crops, like forage soybeans, in small areas that otherwise would be over-browsed immediately after germination. I've personally assisted clients with using this technique to select certain plots that will serve to bank forage for times of the year that are generally known to be nutritional bottlenecks. This strategy has proven very effective for clients who are looking to

maximize herd health and ultimately the hunting potential of their properties.

Another great benefit to using one of these systems, and my personal favorite, is the amount of control you gain while patterning deer you are hunting. Once your food plot can withstand browse pressure a "gap" is created by opening a section of the fence. When timed right with the hunting season, this gap serves to focus deer movements in a specific location that can then be monitored with trail cameras and ultimately hunted. This is one advanced hunting strategy that successful hunters have been employing more and more each year.

Eagle Seed Company is located in Weiner, AR. Please note that Jason R. Snavelly does not work for Eagle Seed Company nor does he get paid by them. His reported results are a product of several years of independent research on Drop-Tine Farms-PA and on Drop-Tine client properties located throughout the country. To contact Eagle Seed Co. you can call Brad or Joyce Doyle at 870-684-7377 or look them up on the web at www.eagleseed.com.

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