FROM OAT PATCHES TO FOOD PLOTS

By Dr. James C. Kroll, Phd

As I noted last issue, believe it or not, there was a time when the concept of planting forages for whitetails was unknown. In 1975, I was working with Temple-Inland, Inc., the largest landowner in Texas. They operated two wildlife/forestry research areas here in eastern Texas; one along the Neches River (Boggy Slough) and one on the Louisiana border (Scrappin' Valley). The idea behind these areas was to develop and test strategies to integrate wildlife and forest management in an environmentally sound manner. The deer herds of both areas were, unfortunately, not much to talk about at that time. The areas were over-populated, after years of bucks-only hunting. In those days, each county made up its own game laws, principally by the county commissioners and judge. This produced some really odd rules. For example, Houston county (in which the city by that name does not occur) opened its deer season on the Monday following the first weekend in November. When asked why, the local judge told me, "We set it up that way so the folks from the city of Houston would be less likely to be there on opening day!" Adjacent to Houston county was Angelina county. The county commissioners of that county ordered a bag limit and season on javelina (collared peccary). The only problem was, the nearest javelina was about 300 miles south!

As I noted last issue, the method was simple to plant an oat patch. You spread about 50 pounds of seed over an acre, then applied about an equal amount of fertilizer. The result was a pretty pathetic, pale green crop of oats. The seed used to establish these plots, more often than not, came from the farm & ranch store as <u>feed oats</u>! Throughout the South and Midwest, only a handful of folks planted anything on purpose for deer. In 1978, Mr. Arthur Temple, Jr. gave me permission to develop something new. We decided to call them <u>food plots</u>, instead of oat patches to differentiate what we were trying to do. Yes, we did want to lure deer to the gun, but we also wanted to improve their nutrition. Much of the southern forest occurs on very poor soils, producing less than optimum nutrition during critical times.

The first step was to analyze what we knew scientifically about the nutritional needs of deer. Much of the published research suggested a significant increase in need for the following nutrients and minerals: protein, carbohydrates, phosphorus, calcium, zinc, selenium and copper. There also was a demonstrated need for other "micro-nutrients," but these appeared to be the limiting factors for most herds. The question became, what is the most cost-effective way to get these nutrients into the population of deer?

Last issue, I recounted how we had discovered in 1975 places where deer were eating the dirt. They usually occurred along the banks cut by creeks and streams. What made these places so attractive? You even could see the teeth marks made by the deer as they ate the soil. We did two things to answer our questions. First, we were tinkering then with some new technologies, as part of a recreational use study of the National Forests. It consisted of a sending and receiving unit that emitted an infrared beam. Using a common tail light reflector, we directed the beam back at the unit. Anytime the beam was broken, it would

trigger a counter. Using this device, we counted the number of visits to the area. Yet, we were not sure, even though there were deer tracks, that it was only deer using the "mineral licks." About that time, a company in California developed a simple triggering device that would cause a camera and flash to fire. Using a very expensive Nikon camera and flash, we obtained photographs to confirm it was indeed deer that used the site. [Later, this work would be advanced by others to produce the infrared-triggered cameras now so commonly in use.] Second, we analyzed the content of the soils and compared this analysis against randomly selected soil samples from the area. It turned out the soil outcrops being used were high in the minerals needed by deer. Using this information, we concocted the first deer mineral, which was later marketed by a company under the name "Horns O' Plenty."

So, from this work we had produced a deer mineral in granular form. Unfortunately, after 30 years of research, I still have not been able to prove this does any good for deer. Yet, I still use mineral supplements, since growing up on a ranch, I fully appreciated the need of ruminants for minerals. Our conclusion eventually was that crops planted for whitetails was the best way to supplementally feed deer.

While all this research was going on, we decided to formulate and test some plantings that might benefit deer. To get an idea of what to use, I consulted the many dairy farmers in our area. "Why I plant a full seeding rate of oats, wheat, rye and clover," was the most common answer. On further questioning, we discovered the most commonly planted clovers here in eastern Texas were crimson and Yuchi arrowleaf. I will never forget the day, when Mr. Temple supported adding clover to the food plots are Boggy Slough. I went home and celebrated with an "adult beverage." The next step was test these and other plantings for production and use.

The results were quite striking. It seemed deer tended to feed throughout the fall on the cereal grains, then slowly switch to legumes such as clovers, as spring developed. The reasons were simple. Cereal grains in the South tend to flower in early spring, and in so doing become less digestible and have less nutrients such as protein as they do. Clovers such as Yuchi arrowleaf tend to put on the most growth early in spring, making them much more nutritious. There were many things discovered through this research, but what we had found was combination plantings for the cool season were best. The warm season was another story.

Our warm season plantings met with mixed success. Plant varieties such as cowpeas and Alyce-clover were heavily utilized, but there were two problems. First, you had to plant large acreages to keep the deer from over-browsing. Second, warm season plantings tended to not compete well with native plants such as grasses. The search for a good warm season planting has continued to this day.

In 1987, NAWT initiated our research study at Ft. Perry, Georgia. Our goal was to conduct research on <u>intensive</u> whitetail management, according to our **Building Your Own Deer Factory** series. By that time, there were other research studies going on around the country on potential deer forages. Our strategy at Ft. Perry was to determine

how many deer we could produce, without damaging the natural ecosystems of the research center. We slowly "inched up" the acreage we planted to cool and warm season forages, until we reached 22% of the 2,000 acre area. Each time a particular forage variety passed our rigorous testing, we quickly incorporated it into the program. This work was not met with universal enthusiasm. Some of the southeastern deer biologists criticized this work, saying that it was "fool hardy" to try to increase production through agricultural crops. To our delight, our habitat measurements of native forage use clearly indicated we were not hurting, but helping the native plant communities. [Some of our biggest opponents now write glowingly about food plots for deer; giving "sage" advice.]

In 1991, my doctoral graduate student, Billy Higginbotham, was given the task of developing a research protocol for evaluating deer forages; one most commonly in use to this day by ourselves and other researchers. He not only would look at plants that potentially could provide a nutritional boost during the cool season, but also during the warm, growing season. In all, we tested more than a dozen varieties of legumes and cereal grains. The protocol was pretty simple. We used 10 feet by 20 feet plots, that were replicated to be statistically significant. We conducted the study at more than one location, since deer population density could have an impact. Each variety was assigned randomly to a plot, and replicated across plots and areas to reduce variation due to plot position, soils, etc. This "salad bar" technique developed by Billy is the backbone of our research program today.

Each year, the Institute tests a host of plant varieties at our research station near Nacogdoches, TX. We view ourselves as the "Underwriter's Laboratory" of the deer world. Almost annually, new types of plants come on the market touted to help deer. And, each year we dutifully test these new varieties. Very few ever make the "cut," but there have been a few that have been added to our list of recommended plantings.

The work by the Institute was summarized in two books (1994, 1998) dealing with food plots and supplemental feeding of whitetails. Our new book, ***Growing Bigger Bucks: Food Plots and Native Forage***, hopefully will be on the market as you read this column. We also produced another "best seller" video on the topic in 1994, which soon will be replaced by a more up-to-date DVD version from our new book. Again, sales from the books and videos benefit our research program here at the university.

I hope this discussion has given you what I call an appreciation for the "institutional history" behind food plots for deer. Since our first work, there have been many research projects published by many biologists. What started out as a way to deal with an east Texas deer herd in poor condition, has become a multi-billion dollar industry! Few of the successful plantings have happened by accident. Each represents the hard work and dedicated science of many researchers around the country. So, when you plant your food plot this year, think about how this all came to be and the thousands of man-hours by various researchers that led to these plantings.