

PLANTING OUTSIDE THE BOX

Establishing A Combination of Warm and Cool Season Forage Varieties

Billy Higginbotham
Professor and Extension Wildlife and Fisheries Specialist
Texas A&M-Overton

It all started in September 2001 with the establishment of a warm and cool season forage combination to enhance the potential to attract deer for archery and the Managed Lands Deer Permit (MLDP) seasons opening in early fall. The combination of Iron and Clay cowpeas and Apache arrowleaf clover were already proven winners when planted alone in the warm and cool seasons, respectively.

The 2001 trials were established at the high fenced Cherokee Ridge Hunting Club owned and managed by International Paper. Although IP's Kenneth Edwards and Charles Hamilton looked at me with a little skepticism (hey, if we knew what we were doing, it wouldn't be called "research"!), our original trial proved that Fall planted cowpeas could produce plenty of forage before first frost—an ideal way to attract deer to the October hunting seasons. The Apache arrowleaf is traditionally established in the Fall, and its Spring production provides forage for deer well after Spring green up. The establishment of these two legumes held the promise of a winning combination.

The results of the September 7, 2001 plantings made us even more optimistic about combining warm and cool season plantings. By mid-November, the cowpeas had produced almost 2 tons of dry weight forage per acre! By late May 2002, the arrowleaf clover stands also had produced almost 2 tons of forage per acre.

The only problem was that the gap in forage availability from first frost (late November) when the cowpeas disappeared until the Apache arrowleaf clover came on strong following Spring green-up (mid-March). With the help of Ray Smith, Professor and Legume Breeder at the Texas Agricultural Experiment Station in Overton and my partner in crime, we decided to add a variety that would fill that December to March gap. Using Heavy Grazer oats, we felt that the three forages in combination would provide forage from October through June when planted in August-early September—provided adequate soil moisture was present at planting!

An unanswered but extremely important question was determining the ideal combination of seeding rates between the varieties to maximize growth of each without creating competition for nutrients and sunlight between the different crops. Call it "variety compatibility". There are lots of seed combinations on the market today, but most do not undergo this battery of trials to determine how much of each is just right.

We settled on 6 different seeding rate combinations for the cowpea and oat components: 20/20, 25/15, 30/10, 40/40, 50/30 and 60/20 pounds of seed per acre, respectively. We held the arrowleaf clover seeding rate constant across all 6 combinations at 10 pounds per acre. The 6

different seeding combinations were then replicated 3 times each for a total of 18 plots planted.

September 2002 found us back at Cherokee Ridge establishing our 18 plots of cowpeas, oats and arrowleaf clover. When we returned 30 days later to begin monitoring plant growth, we were not really prepared for what we found. Instead of luxurious stand of cowpeas and the beginning stages of oat and clover growth, we encountered a set of plots that were completely root plowed, courtesy of a band of marauding feral hogs. All data was lost and so was a year's set of trials.

Then came August of 2003. Dr. Smith and I consulted with Dr. Monte Rouquette, Forage Physiologist-Texas Agricultural Experiment Station and with his cooperation, decided to move our trials to Texas A&M-Overton to hopefully avoid the problems caused by feral hogs. We knew the move would cause us to forego assessment of utilization because our deer population is low. Nevertheless, we felt that was a good trade-off in order to obtain yield potentials for the combination of varieties at the various seeding rates.

We broke ground and planted on August 28, 2003—traditionally way too late to establish a Spring crop like cowpeas and way too early to establish cool season crops like oats and arrowleaf clover. Using the same 6 different combinations of the three varieties planted and lost in 2002, we planted what had to be considered an unorthodox forage combination for East Texas white-tails. However, the weather forecaster's prediction was for good rains over the Labor Day weekend and we were not disappointed.. The cowpeas literally sprang out of the ground with the combination of warm temperatures and good soil moisture and were fully six inches tall a mere week after planting.

As we expected, the peas provided the majority of growth among the combinations for the first 90 days of the trials. A hard freeze occurred on November 24 and 25, 2003, which spelled the end of cowpea availability for the year. In general, we found that as we increased the cowpea component seeding rate from 20 pounds per acre up to 60 pounds per acre, the yields increased from a low of 1,660 pounds per acre to a high of 3,372 pounds per acre. But, did that mean that the higher cowpea seeding rates would interfere with early oat or arrowleaf clover production?

The oat components of the plots began to come on strong following the freeze of the cowpeas and continued to increase all winter and into Spring. The 40 pound seeding rate of oats in combination with the 40 pound seeding rate of cowpea providing the highest yields of any combination in both December and January. Statistically, this seeding rate provided as much oat availability as any other rate when the last sample was taken in April. However, Spring green-up was complete by then and the availability of any planted forage is less important as the deer find an abundance of native plants to eat.

Once the oats matured and died back in April, the arrowleaf clover had no competition, grew rapidly and represented the only component until the study was terminated in May 2004. Although total production yield analysis for the May harvest are incomplete as of this writing, Apache arrowleaf yields estimated for April ranged from 2,648 to 3,905 pounds per acre.

So what does all of this mean to the landowner and deer hunter interested in attracting deer early in the fall, holding them throughout the gun season, providing forage during the cool season stress period and finally providing a transitional source of forage in late spring prior to the availability of warm season planted forages?

There appears to be one planting option that stands out. First, if you plan on starting your deer season in October with a bow or with a gun under the Managed Lands Deer Permit system, you want a strong cowpea crop present to attract and hold deer in October and most of November.

Next, if you are more of a traditional hunter spending most of your hunting time in the woods during November and December, you want a strong cowpea stand in November followed by a strong oat stand in December and early January. This strategy also assures oat availability during February and March, a time when the arrowleaf clover stands are also on the rise.

The advantage of arrowleaf component that compliments the oats and cowpeas is that it provides growth well after spring green-up and is most important in the month of June. This helps to “buy time” until Spring planted crops can become available to deer in late June and July. While the deer will nibble on arrowleaf anytime its available, a dry June will often find deer heavily using this crop -- even during the middle of the hottest day!

Based on the results our trials examining six different seeding rates, we recommend going with a combination seeding rate of 40 pounds of forage cowpeas, 40 pounds of oats and 10 pounds of arrowleaf clover on a per acre basis. This resulted in over 3,000 pounds per acre of cowpea production by Thanksgiving, over 5,000 pounds per acre of oats by April and over 3,500 pounds per acre of arrowleaf clover in April--with even higher yields possible in May.

It's time again to plant your fall crops. Why not turn an eye to the sky and as soon as moisture becomes available around Labor Day, try establishing this triple threat food plot? You just might improve your chances of making your hunting season successful with the satisfaction of knowing that you are increasing the nutritional plane available to your white-tails.