

Supplemental Feed Helps Deer Nutrition, But It's Complicated

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VIA WEBINAR — White-tailed deer nutrition is no simple matter. That's particularly true when it comes to a highly variant environment like South Texas.

That was some of what Dr. David Hewitt shared with participants at the recent Future of the Wildlife Enterprise virtual symposium held by the King Ranch Institute for Ranch Management in partnership with the Caesar Kleberg Wildlife Research Institute (CKWRI), the program which Hewitt heads up.

He first offered some broad perspective thoughts noting specifically from a management standpoint, the focus for many managers has long been on producing bucks with large antlers. Over the years, CKWRI's research has helped narrow the focus on what needs to be done to produce these large antlered bucks. What they've determined is it comes down to three main issues; age, nutrition and genetics.

From a management perspective, age is the one leg of the three-legged stool that's most easily managed in South Texas, Hewitt said. That's because, in part, Texas is a private land state giving the landowner control over which deer are harvested. He added that traditionally harvest has been relatively low to begin with in South Texas so bucks more easily reach that older age category.

There are still other tools that enable deer to get to that mature age class things like high fencing, for example. Also, the large property size typical of South Texas certainly helps.

"Trying to manage hunting across a whole bunch of hundred acre properties is very different than managing the harvest on a 20,000 acre property," he pointed out.

On the nutrition leg of the stool, Hewitt identified two broad categories of foods that deer need, forbs and browse, the woody shrubs and their fruits, pods, leaves and even twig tips. He noted, too, that South Texas is renowned for having a diverse and abundant browse and woody plant community. Also, browse is primarily for maintenance and doesn't really enable a deer to maximize its production potential.

On the other hand, forbs, which are much more digestible and typically have higher levels of important nutrients like protein and phosphorus, contribute more to the production of fawns and antlers. The downside of that is forbs are a function of rainfall and rainfall in South Texas is highly variable, he noted. The end result is a lot of annual variation in things like fawn-doe ratios, Hewitt told participants.

He shared a graph of a 25 year run of fawn-doe ratios from two South Texas ranches which spoke to that tremendous variation. In fact, it ranged from near total reproductive failure to 80 fawns per 100 does. The average for that 25 year period was 31 and 39 fawns per doe for each of those two properties which Hewitt said is typical for South Texas.

CKWRI has also started a long-term deer study on one of the properties of the East Foundation, a 150,000-acre ranch south of Hebbronville. It's unique in that it's an unmanaged deer population meaning there is no feeding, no deer harvests and no predator control. There is cattle grazing.

CKWRI researchers have been monitoring the deer population here for the past seven years. Based on helicopter surveys deer density is about 50 to 60 acres per deer seen. It has not changed much at all over the last seven years, Hewitt stated. He pointed out that if a deer population in one of the southeastern states wasn't effectively harvested, the population would increase tremendously, but that's not the case for this particular property that has essentially gone unharvested not just for seven years but for decades.

The plausible explanations are that for one the fawn population is not low every year; it's high in wet years. Thus, there are these "pulses" of fawns coming into the population. Secondly, adult survival is high.

"That's a requirement of a deer population if fawn production is relatively low," Hewitt pointed out.

Another observation on this particular ranch is that with this stable population there is no browse line. In fact, there is plenty of food available for the deer to eat. Albeit much of it is browse, but in the wet years there are so many forbs that the deer really can't get ahead of it, he told participants.

"It's not a damaged habitat by any standpoint," Hewitt reiterated. "In fact, it's really good habitat for South Texas; it's just highly variant."

Coming back to the three legged stool, while the age thing is relatively easy to take care of in South Texas, managing nutrition in this highly erratic environment can be tricky. Food plots are popular and work well for those in the Southeast and even the Midwest, but they are not a great option in South Texas.

"Rainfall patterns make it such that it's hard to grow them in dry periods when the deer really need them and for the most part the soils aren't great and if they are the land is most likely farmed. Plus, food plots are just a huge amount of work," he opined.

Habitat management is a possible option. In South Texas it typically involves manipulation of brush in an attempt to improve forb production, but again if it doesn't rain then it's not going to result in more forage. He also stressed that doing habitat management may not be ideal for deer if the habitat is a really diverse mature plant community because that in and of itself is very valuable for deer.

"If the area's been manipulated before and it's heavily dominated by mesquite or huisache, then some brush management is probably going to be beneficial to the deer. However, it's not going to solve the nutrition problem," Hewitt told participants.

Another way to possibly improve nutrition is through management of deer density. However, just like on the East Foundation ranch reducing the number of deer may not make any big difference in the growth rate if the population is not limited by food availability. In that case, reducing the number of deer simply means there will be fewer deer and not necessarily more or better nutrition for the deer remaining in the population.

Given all this, the way that many now manage nutrition in South Texas is through pelleted feed. To that end, Hewitt shared details of a long-term research project focused on improving nutrition through the use of pelleted feed.

Before getting into the details of the research, he clarified that their results are largely specific to the rangelands of Southwest Texas. He further clarified that while some of the results may not be broadly applicable, some of the principles learned may offer some additional insight for deer managers in other parts of the state and possibly in other parts of the country.

Known as the Comanche-Faith study, the study site was on two large ranches in the western part of South Texas. Each of the two ranches had six 200-acre enclosures. In some of the enclosures deer were fed protein pellets and in other enclosures they were not.

One thing they learned over the course of the nine year study is that providing supplemental feed had a variable impact on pregnancy. Specifically, he noted that a doe fawn born in July in this environment potentially has the opportunity to be bred and have her first fawn before its one year of age. However, in the enclosures where the deer did not receive any supplemental feed only eight percent of the doe fawns were pregnant. In contrast those enclosures where the deer received supplemental feed about a third of the doe fawns were pregnant.

Researchers used some genetic techniques to determine who the mother was for a lot of the deer born in the enclosures. Based on that information, what became really apparent was even in the enclosures where the deer were supplemented the young does were not very good mothers and rarely raised their fawns.

Also, they found that when supplement was provided the survival of young deer, those from 14 months up to two years of age, increased from 62 to 87 percent, though it varied by sex. For example, there was a six percent increase in survival of the bucks in that early age category and doe survival increased by about 20 percent. Overall, they saw 70 percent survival on the native forage and about 90 percent with supplement. Put another way, with supplement the population grew by 30 percent each year.

"As a manager that puts you in a bind really quickly if a population almost doubles every three years," said Hewitt.

Does on pelleted feed, however, were only about a pound heavier than those in the native forage enclosure. He attributed that to the fact that does were putting all their nutrients into growing fawns.

As for the bucks, there was a pronounced difference between treatments, specifically a 37-pound difference. Also, there was about a 17-point increase in Boone and Crockett score between the two treatments, meaning specifically the deer that had access to supplemental feed had bigger body weights and larger antlers.

Hewitt also pointed out that there is this presumption that by providing supplemental feed during the dry years as well as the wet years some of the variation is taken out of the system. What researchers learned is that is not really the case. As an example, he pointed to fawn-doe ratios. What they found over the course of the nine years is that fawn-doe ratios did increase when protein feed was provided but the ratio still dropped in those dry years. The same was true for antler size and the population growth rate overall.

"What this says is there's something out there that rainfall provides above and beyond the pellet that's important in these production processes," Hewitt stressed.

Additionally, he pointed out that deer won't totally fill up at a feeder. They still want variation in their diet. The worry is then that in balancing out their diet they put more pressure on the really good deer foods available in the native habitat. In teasing out that concern, the research showed that deer that had access to pelleted feed a little more than 45 percent of their diet was browse whereas deer without pelleted feed only about a third of their diet was browse. That was true across seasons with the exception of winter. In winter deer with or without access to supplemental feed about two-thirds of their diet was made up of browse.

Also, they found that the amount of forbs in the diet did not change with supplementation and the mast component decreased with supplement. Also, another interesting finding is in the winter the deer with access to supplement ate fewer flowers and more dead leaves.

Hewitt summarized the nutritional implications this way. First, he reiterated that deer in western South Texas are nutritionally limited. If high quality food is added, then everything from growth rate and body weight to antler size changes. At the population level fawn-doe ratios and population growth rates change. However, supplement doesn't remove the environmental variation.

"The deer still do better in the wet years than the dry years even with supplementation," Hewitt stressed. "Also, in seeking out variety for their diet supplement doesn't cause the deer to focus just on the very best vegetation. In fact, there is some indications of the opposite. They might go looking for fiber to balance out the high quality supplement."

He also reminded that providing supplement will cause the deer population to increase. Thus, some sort of management will have to be interjected to keep the population in check.

Finally, Hewitt stressed that the benefits of supplemental feed don't come cheap.

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