Early deer harvest assists population management

by Josh Gaskamp / jagaskamp@noble.org and Stephen Webb / slwebb@noble.org

Deer season is upon us. Surveys are being conducted. Deer cameras are being set. Managers are making harvest recommendations from these data. But let’s be honest, hunters across the country are more eager to hit the woods in search of that trophy buck than to spend time on reviewing harvest recommendations.

As part of most management programs, doe harvest is an important component that needs just as much attention as trophy bucks. Hunters see doe harvest as an inconvenience. Therefore, most hunters put off doe harvest until late in the season after they have had sufficient time to fill their buck tag. This, however, could cause hunters to fall short of their overall harvest goals.

Researchers from the Noble Foundation and Mississippi State University designed a study to address many aspects of deer behavior as it relates to hunting pressure. During the 2008 and 2009 deer rifle season, landowners and volunteer hunters from the community were invited to participate in a two-year study to determine how hunting pressure affects observability and harvest susceptibility of white-tailed deer. No archery or primitive rifle hunting was allowed prior to the study. Thirty-seven adult bucks (≥2.5 years of age) were equipped with GPS collars across the Noble Foundation Oswalt Road Ranch. Hunters were assigned to compartments at a high hunter density (one hunter per 75 acres) or a low hunter density (one hunter per 250 acres). From this study design, researchers determined how hunter density and duration of the hunting season influenced observation rates of white-tailed deer.

Hunter observation rates of collared bucks were highest during the first weekend of the deer-gun season in both the low and high data.
hunter density areas, but as the hunting season progressed, observation rates declined. The number of observations of collared bucks in both the low and high hunter density areas declined by greater than 60 percent across the 16-day deer-gun season. But what about does? Hunters also collected observation data on does throughout the season and found similar trends. Observation rates were greatest the first weekend of hunting and declined across the low and high hunter density areas as the hunting season progressed.

Overall, deer modified their behavior to avoid hunters by moving less and using security cover, which made observation by hunters more difficult. Early in the season, hunters had greater success observing deer at higher elevations on the ranch where vegetation was relatively short and woody cover was sparse. Late in the season, deer chose areas that were more densely vegetated – areas with greater woody cover or along riparian corridors.

On properties with similar hunter densities, these results might explain decreased observation rates to hunters, and illustrate why it is important to adjust timing and intensity of harvest to help achieve population management goals. If you are like most hunters and feel that meeting population management goals is an inconvenience, consider harvesting does earlier during the season. And the more time you spend in the field, the greater your overall chances of meeting population management goals.

Six rules aid auto/tractor safety

by Ugochukwu Uzoeghelu

With the boundaries of rural and urban America blending more and more every day, it is important for all motorists to be aware and cautious of farm equipment on the roads. According to the National Safety Council, approximately one-third of fatal tractor accidents occur on public roads.

To decrease the chance of a collision, motorists should follow these six rules:

1. Slow down when you see a piece of agricultural equipment. Most farm equipment is designed to travel at speeds of only 15 to 25 mph.
2. Watch for slow moving vehicle (SMV) signs: SMVs are required for vehicles traveling less than 25 mph.
3. Watch for hand signals. Just because a tractor veers right does not mean the operator is pulling over to allow someone to pass. The size of farm equipment often dictates the necessity of wide turns.
4. Pass farm equipment cautiously. Even when passing safely and legally, the turbulence created by a vehicle may cause the machinery to sway and become unstable. Do not expect operators to drive their equipment onto the shoulder of the road. Driving with one set of tires on loose-surfaced shoulders substantially increases the risk of turning over.
5. Watch for flashing amber lights. This type of light often marks the far right and left of farm equipment. Also watch for reflective tape marking extremities and sides of equipment.
6. Remember that agricultural vehicle operators have a right to drive their equipment on the road.

Consider these facts next time you encounter agricultural equipment on the road:

1. A car moving at 50 mph has less than 10 seconds to avoid a collision with a tractor moving at 20 mph that is 400 feet ahead.
2. It only takes five seconds for a motorist driving 55 mph to close a gap the length of a football field when approaching a tractor moving at 15 mph.
3. Nearly half of all incidents between motorists and farm implements involve either left-hand-turn collisions or rear-end collisions.

For additional information, visit these online road safety resources:
edis.ifas.ufl.edu/AE176
richland.osu.edu/agriculture/farm-equipment-safety-reminder
Noble Foundation releases mobile recordkeeping app

by Bryan Nichols / bmnichols@noble.org

Since 1988, the Noble Foundation has sponsored a contest called the Junior Beef Excellence Program. This program recognizes the carcass merit of steers exhibited at junior livestock shows by 4-H and FFA members in eight south-central Oklahoma counties – Carter, Garvin, Jefferson, Johnston, Love, Marshall, Murray and Stephens. After their respective county livestock shows, steers are harvested at a commercial packing facility. Carcass measurements are taken and used to rank steers. The top 10 entries are then awarded prize money for their respective placing.

For the 2014 contest, a recordkeeping and interview contest was incorporated with the intent of enhancing the educational value of the program. Participants submitted their information in paper format; then an interview was conducted where participants were judged based on their thoroughness, detail and overall knowledge of what it took to raise their animal and how it performed.

To keep up in a technological world, the Noble Foundation recently released a mobile recordkeeping app as part of the program. The app will provide 4-H and FFA students with the ability to capture key pieces of information from the field as they raise steers for competition. While the app was originally designed for students participating in the program, it can be used by any student or producer to maintain individual records.

The app is called Noble Jr. Beef Journal and is available for free download on iTunes for the iPhone and on Google Play for Android devices. The app can also be used on a computer, not just a smartphone. With this app, users will be able to:

- Create multiple steer profiles.
- Nominate steers for the Noble Foundation’s Junior Beef Excellence Program.
- Record steer identifiers, such as ear tag numbers.
- Log body weight measurements.
- Log steer health conditions and medical treatments.
- Log feeding information.
- Write journal entries.
- Upload photos to document and enhance log and journal entries.
- Calculate an overall performance summary.
- View a complete, detailed report of all steer recordkeeping activity for use in competitive programs that have recordkeeping requirements.

To download the app, please visit www.noble.org/ag/jrbeef. For more information about the app or the Junior Beef Excellence Program, contact Bryan Nichols at 580.224.6523.
Pecan trees exhibit a strong tendency to produce a heavy crop one year, followed by one or more years of little to no production. This may best be characterized as alternate bearing with irregular symmetry. Alternate bearing is the most significant horticultural problem in pecan production.

Alternate bearing is caused by a biennial cycling in flowering that takes place at the shoot level but is recognized at the tree, orchard and regional levels. An interesting aspect of alternate bearing is that it occurs not just on an orchard level, but normally it is expressed throughout the production region. The result is that regional production will be high one year followed by a low year.

Alternate bearing is enhanced by biotic (e.g., aphid or scab) and abiotic (e.g., drought or nutrient stress) stresses. Cultural practices, such as annual fertilization, irrigation and pruning strategies can have pronounced effects on alternate bearing. Intensive management reduces the natural tendency of pecans to alternately bear; however, it does not eliminate it. Cultivars vary in their tendency to alternate bear. Typically, cultivars that yield the most in a short time after establishment have a greater tendency to be more severe alternate bearers.

In pecans, flowers that produce the following year’s crop are initiated in the shoots of the trees during the time of year when the current year’s crop is maturing. Therefore, stress to the trees during this time of year affects the next year’s crop.

Unlike other fruit crops, pecan fruit mature late in the season, leaving little time for carbohydrate storage to occur before leaf fall. Carbohydrate reserves stored in the roots and shoots are utilized in the spring flush of shoot growth and in the terminally positioned female flower development. Flower initiation and development is controlled by interactions of several factors including overall tree health, carbohydrate reserves and a balance of plant hormones.

This irregular and often unpredictable production impacts all economic aspects of pecan production and marketing. Alternate bearing is typically associated with a lack of return bloom rather than flower or fruit abortion. Researchers have not yet discovered the causes of alternate bearing in pecans. There have been several theories for pecan alternate bearing, including stored carbohydrate, phytohormones or growth regulators, and nitrogen and/or potassium depletion during large crops. To date, many of these previous theories have been proven to not be the cause of alternate bearing in pecans, and further research is being conducted.
Have you ever wanted to predict the future? Now you can and, best of all, the tool to do so is free on the Noble Foundation Web site. Before you get too excited, the future I’m talking about only applies to your pasture and hay situation this fall and winter. If you are a cattleman, though, accurately prognosticating this future is valuable and may end restless nights wondering if the cows will have enough to eat this winter.

To begin, go to www.noble.org/tools. There you will find several calculators* that can be used for various agriculture-related applications. The calculators to look for are the “Reserve Herd Days” and “Hay Days Available” calculators. First, go to the “Reserve Herd Days” calculator and click on the “launch calculator” button. The calculator will appear as seen in Figure 1. Complete the sections in blue and the red sections will be calculated automatically. Note that “Forage Type” has a drop-down box with multiple categories from which to select. As an example, let us assume we have a 40-acre bermudagrass pasture that was fertilized in late August and stockpiled through fall. The bermudagrass is 15 inches tall (the 235 pounds-per-acre-inch on the screen applies). It will be grazed to a 4-inch stubble height with 50 dry cows weighing 1,200 pounds each with consumption being 2.6 percent of body weight. Plug those numbers into the calculator and click “calculate.” The number of reserve herd days (RHD) is estimated to be 66.28 days at 100 percent efficiency. However, cattle will not graze all of the available forage so we have to assign utilization, which varies depending on pasture conditions. (Note: This next step is not available on the calculator.) If strip-grazed, we could assume about 90 percent utilization, but let’s assume 75 percent on a continuous grazing scenario. That gives us about 50 (66.28 x 75 percent) RHDs grazing in this pasture. With good fall grazing conditions, it might last a few days longer. With an abnormally wet fall, the pasture may not last the entire 50 days. Regardless, this gives you a way to plan.

Let’s do another example. This time the bermudagrass pasture was not stockpiled, however, it has been deferred from grazing since August. It is 12 inches tall and only fertilized in the spring. It was heavily grazed early in the summer, so the pounds-per-acre-inch (estimated pounds per acre of production divided by the average height in pasture) is about 160 pounds instead of 235. Since the stand is more mature, we will only graze down to a 6-inch residual height, and intake will be less at 2.4 percent of body weight. The calculator computes 26.7 RHDs, but we need to assign utilization. Being lower in quality, let’s use 60 percent. Sixty percent of 26.7 days is 16 RHDs.

Turning our attention to predicting hay days, pull up the “Hay Days Available” (HDA) calculator. Your screen should show a calculator resembling Figure 2.

If we use the same cow herd as above as an example, 50 head of 1,200-pound cows consuming about 2.5 percent of body weight daily, and we have 140 1,200-pound bales of fair quality hay and assume 20 percent wastage, our HDA calculates to 89.6 days. The calculator also has the option to limit-feed the hay. If we limit hay allocation to 25 pounds per head per day, we have hay to feed for 107.5 days.

Looking at these examples as one scenario, we would have one pasture that has 50 RHDs, one pasture with 16 RHDs and hay for 90 days, if full-fed. That equals about 156 days worth of forage. If today is Oct. 15 and we have 156 days of hay, the forage supply would last until about April 10. So, will spring begin by then?

Use these calculators to test your prediction skills. Give us a call if you have questions. If you master this, you can try your hand at predicting the long-term weather forecast – but we don’t have a calculator for that. ■

* not supported on mobile devices

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Figure 1. Reserve Herd Day calculator

Figure 2. Hay Days Available calculator
Ranchers continue to face tremendous challenges with drought and increasing input costs. This has led many to seek alternatives that are both ecologically sustainable and economically feasible to keep their operation going. Grazing lands provide forage for livestock, habitat for wildlife and recreational opportunities such as hunting. The assessed value of a ranch based on aesthetics and wildlife habitat or its recreational opportunities can often exceed the property’s agricultural value. This provides additional economic incentive to apply effective grazing management.

Many operations have not capitalized on the integration of cattle and a wildlife enterprise – often because they don’t know how to successfully manage both. One challenge is the amount of resources needed to manage both cattle and deer. Cattle complement deer habitat when they are stocked at the proper rate and managed with a grazing system that allows for periodic rest. However, it is impossible to maximize both cattle production and deer habitat.

Aldo Leopold, the father of wildlife management, often referred to the “cow” as an effective wildlife management tool. Cattle can be used as a tool to enhance deer habitat by manipulating plant diversity and structure. The main role of grazing in a deer management program is to reduce the quantity of grass. This allows sunlight to reach the lower growing forbs, many of which are important deer foods. Furthermore, this creates more structural diversity, which helps to improve habitat for other game and nongame species.

The way you graze a pasture with cattle affects how the wildlife use it. It’s easy to let native grasses get too mature and limit the food available to deer. Grazing keeps the grasses young, tender and higher in protein, which is better for cattle. Deer, to some degree, utilize areas after cattle grazing, so we’re using the cattle to create deer food (forbs). Cattle prefer grasses; however, cows can eat up to 15 to 30 percent browse and forbs. If you have a 1,150-pound cow, that’s 5 pounds per day of forbs at 15 percent of their daily intake – about what one deer eats. When improper stocking rates or poor grazing management occurs, grasses become limited and cattle can shift their diets up to 70 percent towards forbs and browse. At this level, cattle will compete directly with the deer for browse and forbs.

Key grazing and deer management practices include:
- **Stocking rates** – Balance livestock numbers with available forage. Light to moderate stocking rates are ideal, allowing for flexibility to respond to drought, proper fuel load accumulation for prescribed burning, reduced supplementation for cattle and a reduced need for “weed” control.
- **Monitor** – Careful, regular evaluation of the habitat and vegetation will benefit cattle, deer, other wildlife and the land.
- **Rest** – Defer pasture through a grazing system to allow plant recovery.
- **Prescribed burning** – Burning can promote an increase of native perennial grasses and forbs, enhancing habitat for deer and a wide variety of wildlife species. It will also help reduce the invasion of invasive woody species such as Eastern red-cedar onto rangelands.
- **Harvest management** – Overpopulation of deer will stress the plants that benefit them and other wildlife. A yearly deer census needs to be conducted to determine deer harvest strategy. It is very important that land managers understand the basic ecological principles of plant succession, plant growth, water, mineral and soil cycles that affect rangeland, deer and grazing management. A thorough knowledge of deer habitat requirements, food habits, population dynamics, life history and biology is fundamental to managing the ecosystem.

The ax, plow, cow, fire and gun continue to be important tools land managers can use to manage habitat resources for deer and cattle. Although you may be focused on cattle and deer management, remember that single species management deserves less attention, while the system in which they live requires more.
Cattle nutrition rules of thumb allow quick estimation

by Ryan Reuter / rrreuter@noble.org

Rules of thumb can be dangerous because they are simplified, generalized algorithms that we use instead of a more detailed, accurate calculation. Many times, however, rules of thumb are very useful when you need a quick estimate of a quantity or relationship. Rules of thumb in the cattle business can be developed from cumulative years of experience from many producers and are often verified when they are evaluated with replicated research studies.

Some of my favorite cattle nutrition rules of thumb (in no particular order) are:

- It takes one round bale of hay to feed one cow for one month.
- Calves can be early-weaned as young as 70 days old.
- The crude protein (CP) rule of thumb for mature cows is 7–9–11. Cows need 7 percent CP feed during mid-gestation, 9 percent during late gestation and 11 percent during lactation. The total digestible nutrients rule is 55–60–65 for the same periods.
- Hay rings reduce hay waste by at least 10 percentage units.
- Stressed calves, limit-fed yearlings and cows need 24 inches of bunk space per head.
- Cows need 30 to 40 square feet of shade per head.
- Cattle drink about 1 gallon of water per 100 pounds of body weight (BW) in the winter and 2 gallons per 100 pounds in summer. Lactating cows drink about twice the amount of water as dry cows.
- Cattle will consume 1.5 percent of BW of low quality forage per day, 2 percent of their BW of medium quality forage per day, and 3 percent of their BW of high quality forage per day.
- A 50-pound bag of minerals should last 10 cows almost a month.
- Supplement conversion ratio (the amount of supplement fed relative to the amount of additional average daily gain) can be as good as 2:1 when feeding 1 to 2 pounds of a high protein supplement with monensin to calves grazing late summer native range. It is typically 6–7:1 when feeding less than 1 percent of BW of an energy supplement with monensin to calves grazing wheat pasture. It may be as poor as 15–20:1 when creep-feeding calves.
- Feeding spring-calving cows in the evening, rather than the morning, will cause substantially more of them to calve during the daylight hours.
- Cattle will typically eat no more than about 0.1 percent of their BW of salt per day. So if you want cows to eat about 1.5 pounds of cottonseed meal per day, make a 1:1 cottonseed meal:salt mix and offer it free choice. If you want them to eat about 3 pounds of cottonseed meal, make a 2:1 mix.
- Wheat pasture lease prices are typically about 2/3 of current feedyard cost of gain.
- All else being equal, a corn price increase of 10 cents per bushel will reduce feeder cattle price by about 80 cents per hundred-weight.

Before relying on any of these rules of thumb, it is important to consider all of the factors involved and the natural variation that is expected in animals. Consult your professional advisor for more details. No guarantee is made on any of these rules of thumb.