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Renewable Natural Resources
Timely Tips

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Estimating Live Age Instead of Antler Restrictions for QDM

One of the cornerstones of quality deer management (QDM) is achieving a balanced age structure in the deer herd. Of course, this involves allowing young bucks to reach older age classes. QDM programs strive for bucks to reach at least 3 years of age before harvest. Age of bucks is most often estimated by antlers; however, hunters often confuse larger antlers with older bucks, and this is not always the case.

Antler size is a product of age, nutrition and genetics. If a buck is killed when young, it has no chance of producing a large rack. Therefore, hunters must allow bucks to reach maturity if they want to kill deer with large antlers. If a buck lives to maturity, but nutrition is limited, antler size may still be relatively small. Available nutrition first goes to body growth and function. Only after those requirements are met will additional nutrition go into antler production. Only if a buck lives to maturity, and nutrition is not limiting, can the genetic potential of that animal be expressed. Of course, the genetic traits of every animal are different; thus, some bucks are inherently able to grow larger antlers than others. That being said, there are very few bucks that wouldn't please the vast majority of hunters if the genetic potential of those animals is expressed at maturity.

Antler restrictions are usually implemented to help bucks reach older age classes. Common antler restrictions include 4 points on one side, 8 points total, a spread minimum that might range from 12–15 inches, or a minimum antler score based on the Boone and Crockett scoring system. *Depending on the area*, various antler restrictions are successful in enabling bucks to reach a certain age. The only way to know if an antler restriction is applicable, and for which age classes it is applicable, is to evaluate the antler characteristics of bucks by age class within an area. For example, if yearling (1½ years old) bucks in a given area only produce 2–6 points, a 4-point-to-a-side or an 8-point-total restriction would eliminate yearling buck harvest. However, many 2-year-old deer in that area might grow racks with 7 or more points. The spread of the 2-year-olds then would need to be evaluated. If the average spread of 2-year-old bucks was less than 15 inches, then a 15-inch spread restriction would protect most of the 2-year-olds. But, what about the "upper end" 2-year-olds? They would be eligible for harvest. It is most desirable to allow bucks to reach at least 3 years of age before being eligible for harvest in a QDM program. Thus, a minimum score could be implemented to protect all of the 2-year-olds. Let's say a minimum score of 120 inches is used to protect all of the 2-year-old bucks. Then, there will be 3-, and possibly some 4-year-old bucks in the population that might not score 120 inches. What about them? Should they be eligible for harvest, even if they don't meet the score restriction? If the goal is to allow bucks to reach at least 3 years of age before harvest, the answer is yes. *According to your deer management objectives*, there is nothing wrong with harvesting bucks, regardless of antler size or characteristic, if the buck has reached maturity.

At this point, it should be obvious bucks must be aged on the hoof, and antler characteristics should be used only as a *clue* to identify a buck's age. Body characteristics more accurately identify age, and learning the body characteristics of various age classes is important to successfully achieve a balanced age structure. Without any reference to antlers, a general description of body characteristics by age class is described below. This information comes from ***Observing and Evaluating Whitetails*** by Dave Richards and Al Brothers. It is an excellent reference, with hundreds of explanatory color photos, available through the Quality Deer Management Association (800-209-3337).

Yearling bucks are easy to identify with slim faces and necks. Their body is also slim, resembling a doe, and their legs appear long (in relation to body size). Two-year-old bucks still appear long-legged and their back and stomach are generally taut. The neck and body are larger than a yearling, but the face still appears larger than the neck from the front and long from the side. Three-year-old bucks exhibit a fuller neck and deeper chest, which, for the first time, appears as large or larger than the rump. The stomach and back are still straight and taut. When bucks reach 4 years of age, for the first time, their legs do not appear relatively long, and may appear slightly short for the body. The neck and body will appear more muscular and full, but still relatively trim. The stomach and back will not sag. In a QDM program, a 4-year-old buck is a prime target. If the vast majority of hunters ever saw and could get a shot at a 4-year-old buck, they would take it.

Identifying characteristics for older bucks are given in ***Observing and Evaluating Whitetails***. For most QDM programs, it is a real achievement for bucks to reach 4 years of age before harvest. Using body characteristics to estimate the age of bucks requires practice, just like learning to judge antlers. Of course, this can be frustrating if no mature bucks are present! However, if young bucks are not shot, the population will ultimately include mature animals. Using references such as ***Observing and Evaluating Whitetails*** will help ready you for field judging live bucks.

Craig A. Harper
Associate Professor

Maintaining Drought-Stressed Trees

The year 2007 has been especially challenging for trees throughout Tennessee and much of the Southeastern U.S. An unusually early spring caused leaves and flowers to emerge prematurely in March, only to be followed by several days of below-normal, freezing temperatures in April. The cell walls of many leaves were punctured by freezing ice crystals, causing leaf mortality. Then trees had to draw upon already depleted energy reserves to flush new leaves and accelerate photosynthesis.About the time that many of the trees were recovering, a second more devastating stress developed in the form of prolonged drought and excessive heat. This caused many trees to initiate early fall dormancy. Essentially, trees retarded efforts to grow much in 2007, instead holding their resources for a better chance in 2008. Some leaves, and what little fruit that is present, have aborted much earlier than normal. Red oak acorns, hickory nuts and walnuts began dropping prematurely, as early as the second week of the summer. White oak acorns are virtually non-existent throughout most of the region. Squirrels have resorted to feeding on tree buds, which will further affect tree health.

When trees are under extreme stress they will abandon the portions of their system that are least essential to direct energy and moisture to the most critical life-sustaining areas. Energy is most needed for maintaining living tissue and for the production of fine roots. Everything else, such as fruit development, stem elongation and trunk diameter expansion, is secondary.

It is difficult to predict how trees are going to respond to this unusual growing season. Many will die. Trees most susceptible to mortality include those that are overly mature or newly planted, previously damaged or predisposed to stress (such as lightning, insects, etc.), in over-crowed conditions, and growing on dry soils.

The best remedy for trees in yard settings is to kill the grass directly under the tree crown, conduct slow and deep waterings twice per week, one-half hour per time, fertilize late this winter and mulch. If replanting is necessary, drought-tolerant trees should be selected. In the forest setting where watering and fertilizing are impractical, the best remedy is to regulate density by properly timed thinnings and harvests. This will liberate sunlight, water and nutrients to the remaining trees. As always, it is recommended that inexperienced homeowners and landowners seek professional assistance.

David Mercker, Extension Specialist
Forest Management

Heating with Wood: A Wise Choice

Throughout history, wood has been an important source of fuel. Today, about half the wood harvested globally is used for heating and cooking. Even in the United States, wood represents about half of our renewable-fuel usage.

Despite the fact that using wood for fuel is an old concept, heating with wood continues to have a number of advantages:

1) Established technology. Some renewable-energy technologies, such as wind turbines and solar panels, are still being developed and remain relatively expensive. By contrast, efficient, clean-

burning stoves for burning wood are readily available, affordable, durable and easy-to-use. Wood is also very flexible. It can be stored until it is needed and can be burned (depending on the system) as firewood, chips, sawdust, pellets, etc. Wood can be used efficiently in a small household stove or in large, industrial boilers.

2) Low cost. While coal and other fossil fuels may be cost-competitive sources of fuel for large utilities, wood is often the least-expensive option for smaller-scale users. For example, at my house in Knoxville I have a natural gas furnace. My utility charges $1.44 per therm of natural gas. The equivalent cost (per unit of usable energy) of firewood is $269 per cord. I can purchase firewood for less than $200 per cord, so I am saving a lot of money by heating with wood instead of natural gas! As another example, electric heat at 7.1¢ per kilowatt-hour is the equivalent of firewood at $325/cord.[1]

3) **Environment-friendly**. Wood is a renewable, plentiful and locally available resource. In Tennessee, we have more forests now that we did in the past, and tree growth outpaces harvest by about 2:1. Burning dry wood in a properly-operating stove produces very little smoke. Wood is extremely low in mercury, sulfur and heavy metals, so burning wood does not produce the acid rain and other emissions associated with burning coal. Trees capture carbon dioxide from the air as they grow and make wood. This same carbon dioxide is released when the wood is burned. Because of this cycle, burning wood is considered to be "carbon-neutral" in terms of contributions to the greenhouse effect and global climate change. Finally, any wood species can be used for fuel, and tree form is not important. Thus, trees that do not have value for products such as lumber can be cut and used for fuel. Removal of these trees from a stand can often be beneficial to the long-term health and productivity of the forest.

The biggest disadvantage of burning wood is that it is less convenient. If you have a natural-gas furnace, you only need to adjust the thermostat. Wood must be cut, split and stored. The stove must be loaded and the ash must be disposed of.

If you want to use firewood for heating, it is important to have a good-quality stove and chimney system. This 'wood-burning system' also includes dry firewood. Dry firewood delivers more heat, because less heat is used up evaporating water. Dry wood also burns more completely, ensuring a cleaner and safer fire. Incomplete combustion of wet wood produces dirty smoke that can accumulate as creosote in the chimney. If this creosote builds up, it can eventually ignite and cause a chimney fire. Wood that is cut-to-length, split, stacked and exposed to drying breezes in the spring should be dry enough to burn the following fall. If you burn dry wood in a properly installed and well-maintained stove, it is no more dangerous than other heating systems.

Heating with wood is an established technology and can be a safe, money-saving, environmentally friendly way to heat your house. As a bonus, there is a unique feeling of satisfaction and comfort that comes from admiring a wood fire.

Adam Taylor, Extension Wood Scientist

Drought-tolerant pastures and wildlife?

The spring and summer of 2007 has been one of Tennessee's worst droughts in decades. While another drought like this one may not occur for years, it is certain that we will face many more summer dry spells that stress our pastures. Having a good reliable source of summer forage can be an important part of maintaining a profitable operation and having flexibility to wait out markets during drought periods. The good news is that there are some summer perennial grasses that can fill this need.

Most of us have heard about switchgrass in recent years and how it can be used to make ethanol. What you may not know is that switchgrass is also a very good forage. Grazing trials have shown daily gains of 1.5–2 pounds over the summer. Stocking rates can be in the 180–200 Animal Units/ac range. That works out to about 290–320 days of grazing per acre for steers and 135–150 days for cow-calf pairs.

Switchgrass is also very drought-tolerant. Long-term studies in the Southeast have shown that there is very little effect of April–June rainfall on first-cutting switchgrass yields. During that 10-year study, yields remained at about 4 tons/acre for switchgrass cut in mid- to late-June. An Alabama study showed little pattern between rainfall and yields over a 13-year period. However, neither study captured years as dry as 2007. Switchgrass in Tennessee this summer clearly was stressed by the drought and yields were reduced. However, they remained well above what cool-season pastures were producing.

There are several other warm-season perennials that Tennessee producers could use besides switchgrass. Big bluestem and indiangrass are two

species that, like switchgrass, are very drought-tolerant. At this point, there may not be a biofuels market for these two species, but they are excellent forages. Gains on these species have been consistently 2–2.5 pounds per day through the summer grazing season. They also provide more late summer forage than switchgrass, with peak production during July and August. However, stocking rates for these species would need to be about 20 percent lower than for switchgrass.

Since switchgrass, big bluestem and indiangrass are all native to Tennessee, they have one other advantage. They are the grasses that bobwhite quail are adapted to, and as a result provide good habitat for this species as well as rabbits, many songbirds and even good bedding cover for deer. In fact, some of the best wild quail populations today can be found in cattle country where these species of grass are managed for forage.

Producers interested in learning more about these native grasses should contact their county Extension agent.

Pat Keyser, Extension Grassland Habitat

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