Robeson Wildlife Control Meeting

There will be a meeting on Beavers’ and Coyotes’ effect on our landscape on May 12 from 9 am – 4 pm (rain date May 19). The meeting starts at the Lowry’s shop, 8879 Highway 74 West, Pembroke, N.C., and carpool to the beaver dam site for the trapping demonstration. To register or for more information, contact Michelle Shooter in Robeson County at 671-3276 by May 10th.

NCDA&CS Agriculture Tornado Assistance Program (AgTAP) Hotline Information

Farmers can call to get more information about assistance programs, have their concerns heard, and get answers to their questions. Websites are under development to assist farmers with sharing resources and finding volunteers. Farmers can call the Hotline to find out more information about ongoing Departmental and other agency efforts. The phone number is 1-866-506-6222 and the hours of operation are 7am-7pm Monday - Friday. If calling after hours, please leave a message.

USDA Emergency Assistance to Producers of Honeybees, Livestock and Farm-Raised Fish for 2010 Losses

Agriculture Secretary Tom Vilsack announced that more than $8 million in disaster assistance will be issued starting immediately to livestock, honeybee and farm-raised fish producers that suffered losses in 2010 because of disease, adverse weather or other conditions. The aid will come from the Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP).

Included in the $8 million is more than $5 million to compensate beekeepers for 2010 losses. Under ELAP, producers are compensated for losses that are not covered through other disaster assistance programs established by the 2008 Farm Bill, specifically the Livestock Forage Disaster Program (LFP), Livestock Indemnity Program (LIP) and Supplemental Revenue Assistance Payments (SURE) Program.

ELAP sign-up for 2011 losses is underway. Producers with 2011 losses must file an ELAP application no later than Jan. 30, 2012. They also must file a notice of loss within 30 calendar days of when the loss is apparent to the producer or Oct. 31, 2011, whichever date is earlier. ELAP benefits related to 2011 losses are expected to be issued in early 2012. For more information about USDA Farm Service Agency (FSA) disaster assistance programs, please visit a nearby FSA service center, call the Elizabethtown office at 862-3179 ext 2, or online at http://http://www.fsa.usda.gov/elap.
Poultry farms are not required to be inspected twice a year like swine farms. Most inspections on poultry farms are a result of complaints about the improper spreading of poultry litter, odor, or stockpiled litter. This has happened several times in the past couple of weeks so I think it is a good time to remind poultry farmers about poultry litter regulations.

Most poultry farmers now have a poultry nutrient management plan, but as was determined a couple of weeks ago, not everyone is following their plan at all times. If you are a poultry farmer and do not have a nutrient management for your litter, please call your Cooperative Extension office and we will help you get your plan in order.

Keith Larick, Supervisor, Animal Feeding Operations Unit with the Division of Water Quality summarized most of the regulations pertaining to dry poultry litter a couple of years ago. His summary begins in the next paragraph. However, there are additional regulations that are not included in his summary. These include a setback of 200 feet for spreading litter near dwellings other than the farmer’s own dwelling. Another major requirement is the application window, or dates litter can be applied for different crops. If you need a copy of this information please call your local Cooperative Extension office and you will get one.

According to G.S 143-215.10C, dry litter poultry operations are deemed permitted. This means that while these operations do not have to apply for permits, they do have to follow a list of general requirements. A summary of these requirements is provided below.

1. All dry litter operations over 30,000 birds are required to develop and maintain a Waste Utilization Plan. The waste plan must contain a list of fields that will be used for land application, the crops that will be grown, and the maximum application rate of each field.
2. Litter shall not be stockpiled within 100 feet of perennial streams or wells.
3. Litter shall not be left uncovered for more than 15 days.
4. For land application, a setback of 25 feet from perennial streams must be maintained. However, land applicators should be aware of setbacks from all ditches and intermittent streams. Runoff of litter due to improper land application can lead to discharges which can result in violations or enforcement actions.
5. Litter shall be applied at rates that do not exceed the agronomic rate of the receiving crop.
6. Litter shall be sampled as close to the time of application as practical, but at least within 60 days of the land application event. If manure is given or sold to a 3rd party, it is still the responsibility of the generator to conduct the waste analysis, and provide a copy to the 3rd party hauler/farmer.
7. An annual soil analysis is required for all fields that receive litter.
8. Recordkeeping for dry litter poultry. All records shall be kept for three years, including but not limited to: soil test and waste analysis results, land application records, records of litter sold or given to a 3rd party.
9. For litter that is given to a 3rd party, the following information must be maintained: amount of litter removed; date litter was removed; name, address, and phone number of the manure hauler.
10. Lime shall be applied to fields as specified by the Soil Test Report to assure suitable conditions for crop growth.
11. When litter is given to a 3rd party, the following requirements apply: recordkeeping requirements in #7 above, copy of the current waste analysis must be provided to the 3rd party, provide a copy of these guidelines to the 3rd party.

**Forage Management Tips**

**May**
* Plant summer annuals at two-week intervals to stagger the forage availability.
* Fertilize warm-season grasses with nitrogen after each cutting or every four to six weeks on pastures.
* Spray pasture weeds while they are small (3 inches) for most effective control.
* Do not apply nitrogen to fescue pastures from April until August.

**June**
* Soil sample fields to be overseeded or planted in the fall.
* Apply limestone as far in advance of planting as possible.
* Consider a late planting of summer annuals.
* Cross fence to help manage feed quality.
* Graze bermudagrass close (1 to 2 inch stubble) and harvest any growth not grazed every four-six weeks.
* Control summer weeds before they get too mature.
With the return of spring, we will see many changes over the coming weeks. Hay feeding gives way to grazing, weather forecasts are studied much more intently, and thunderstorms are either welcomed or cursed with equal enthusiasm depending on when you cut hay. Another item you can add to this list of summer events is seeing Spiny Amaranth making its return. Spiny Amaranth (also known as pigweed, spiny pigweed, purple chicken litter weed) is one of the most commonly seen weeds in North Carolina. From the mountains to the coast, from white sand to red clay, pigweed is an equal-opportunity nuisance for forage growers to deal with.

Fortunately, forage growers have a wide arsenal of herbicides that will control pigweed. The difficult part of effectively controlling pigweed is not just killing the plant when you spray, but rather deciding when to spray, which product to use, and weighing the chemical cost verses residual control.

In my opinion, the most critical decision in getting good pigweed control for the season is when you elect to spray. Spiny Amaranth is not an especially early weed in the spring, but once it starts germinating it will do so continuously all summer. Most herbicides will control larger pigweed plants very effectively, therefore most farmers will elect to wait until the first generation out of the ground gets a little size on them to spray, at which point there will probably be another crop coming up behind them. Showing a little patience and spraying these weeds a little bigger should increase the number of pigweed plants killed and hopefully break the germination cycle for several weeks. The most critical thing to remember though is spray BEFORE the first generation forms a seedhead. Once this happens, you will have another round of pigweed to deal with in the coming months, or the next year.

What product to spray?

This is not a discussion of what herbicide will kill pigweed, as almost all of our pasture broadleaf herbicides will control pigweed effectively, but rather what else is in your fields you are wanting to control, and also how much are you willing to spend for residual control. The First product that presents a dilemma in deciding this is the Cimmeron (Metsulfuron) family. Cimmeron has always been known as an excellent pigweed killer, and can do so at a very low rate (.15 ounces/acre). The problem with this option is that you do not get very long residual control, as well as you might miss some weeds that the Cimmerons are not very effective on, such as horsenettle. Conversely, if you have a problem with something like Bahiagrass in your fields, Cimmeron would be by far the most logical choice. If we look at some of the other more commonly used broadleaf herbicides, such as Forefront, Grazon, Weedmaster and the Triclopyr family, every single one of these kill pigweeds effectively. The debate is if you want to just kill what weeds are currently there for as little money as possible. If so you can get by with a low and inexpensive rate (1 pint/acre). On the other hand, you can elect to go with a much higher rate of product (3 pints) and get much longer residual weed control, but at a higher price.

Either decision has merit. If you have a terrible recurring pigweed problem every year, it is almost inevitable you will see some pigweed coming back later in the summer/fall. If this is the case, you will have to at least do some spot applications to try to break this cycle for the next year. In this case, you may elect to save money and put out a lower rate initially as you will be looking at investing in more chemicals later in the year. If you just have a few problem spots in the spring and are not in that bad of shape for pigweed infestation, then using a stronger rate may very well get you by for the year.

Controlling Spiny Amaranth is not so much a matter of technical difficulty and determining weather patterns, but more a matter of determination, elbow grease and spending the necessary money to tackle the problem.
Weaning is a very stressful time in a calf’s life. The calf is separated from its mother and they encounter new animals, a new location, and a new diet. All this stress increases the animal’s likelihood of developing a disease problem. Also cows and calves spend time walking around looking for each other which uses energy and time. Weight gain and performance decrease because of the stress. This article will discuss research on two weaning methods—fence-line and two-step method.

The following information was gathered in a national study of cattle farms of all types and sizes by the National Animal Health Monitoring System (NAHMS). 50% of calves were weaned the day they left the farm. 17% were weaned for 1 to 31 days before leaving the farm and 14% were weaned for 32 to 81 days. Also, 52% of calves in the Southeastern United States were never vaccinated against respiratory diseases compared to 13% in the West and 15% in the Central Region. Another interesting note from the study is that feeder cattle deaths from respiratory diseases has risen in the last twenty years.

**Fence-line weaning**
This method allows the cows and calves to have contact and see each other while being physically separated. Some farms will keep cows and calves together in one pen for several days to get the calves used to eating and drinking. The calves are separated seven to fourteen days later. Fences should be sturdy and allow nose to nose contact while preventing nursing.

Research from the University of California-Davis showed that fence-line weaning reduced the distress response in calves. The study looked at five groups which are represented in the graph below. The same research reported that the calves had a 30% increase in weight gain compared to traditionally (abrupt) weaned calves.

**Two-step method weaning**
This practice was tested at the University of Saskatchewan. The purpose was to figure out if the stress was due to being denied milk or being denied the contact with their mothers. The first step prevents the calves from sucking using an anti-sucking device (see figure 1), but allows them to drink and graze with their mother. The second step is to remove the calves from the dams. The study recommended calves to wear the anti-sucking device for four to ten days to have a greater calming effect on the cows after separation.

The research shows that calves prevented from nursing behaved the same as the group that was allowed to nurse. The two-step calves vocalized 85% less, walked 80% less and spent 25% more time eating compared to calves that were traditionally weaned.

<table>
<thead>
<tr>
<th></th>
<th>Calling (calls/ hour)</th>
<th>Eating (minutes/day)</th>
<th>Distance walked (miles)</th>
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<tr>
<td>Two-step Stage 1</td>
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<td>230</td>
<td>NA</td>
</tr>
<tr>
<td>Two-Step Stage 2</td>
<td>5</td>
<td>270</td>
<td>6</td>
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<tr>
<td>Abrupt wean</td>
<td>55</td>
<td>205</td>
<td>13</td>
</tr>
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Reducing stress on cows and calves will increase performance while decreasing disease problems. These methods have been shown to reduce stress. For more information on weaning management, contact your Livestock agent.
Creep Feeding Foals

By: Elena Eller, Livestock Extension Agent with NC Cooperative Extension in Moore County

Sound early development is essential for all types of horses and nutritional considerations need to be made while foals are still nursing the mare. While some horses are genetically predisposed to skeletal problems regardless of how they are managed, nutrient imbalances early in life can contribute to developmental problems in all horses. Nursing foals become interested in feed fairly soon after birth and will begin consuming small amounts of the mare’s feed. As the foal grows, it will continue to consume more feed in order to meet the increasing energy requirements that are not met by mare’s milk alone. Foals, however, have very different nutritional requirements than mares and owners must either provide a “creep ration” for the foal or feed the mare a diet that is balanced to meet the foal’s nutritional needs.

It has long been misunderstood that feeding high protein feeds to growing horses predisposes them to developmental problems including various developmental orthopedic diseases. Research conducted over the last several decades has demonstrated that it is not the amount of protein in the diet that contributes to developmental problems but rather a lack of quality protein (specifically the amino acid lysine), an unbalanced diet, or a diet that is deficient in certain minerals. Top-quality broodmare feeds are formulated to meet the nutritional demands of the mare but will lack the protein quality, mineral concentrations, and nutrient to calorie balance needed by foals. When feeding young horses for sound development, the protein and mineral concentrations relative to how much energy (or calories) the diet provides is extremely important (we refer to these as nutrient: calorie ratios). Relative to calories, mare feeds provide at most only about 90% of the lysine and 80% of the calcium required by foals, and these are typically much lower in most mare diets as the popularity of fat-supplemented diets has increased. Foals allowed to eat these feeds will consume enough energy to gain weight, but will not receive adequate nutrients for proper skeletal development leading to fat foals with improperly developed musculoskeletal systems.

Creep feeding provides the proper nutrients to supplement milk and decreases the amount of broodmare feed the foal consumes in addition to acclimating foals to eating grains prior to weaning.

Concentrations of protein, minerals, and vitamins that are needed in a creep feed will be influenced by the amount of energy in the feed. While feed tags do not usually indicate the amount of calories in a feed, they will provide a percentage of fat and fiber which provides information about the energy density of the feed. Foals do not need fat-supplemented diets; instead owners should look for a feed that contains 3 to 3.5% fat (the amount naturally occurring in most grains) and no less than 6% crude fiber although there is no need to go above 10% crude fiber in a creep feed. At this level of fat and fiber, the feed should contain at least 16% crude protein, 0.7% lysine, 0.8% calcium, and 0.5% phosphorus. Most commercial feed companies are now adding synthetic amino acids to their products to increase protein quality. Feeds containing 14% crude protein with added synthetic lysine at a minimum of 0.7% are also a great way to meet the foal’s amino acid requirements with a reasonable amount of daily feed. If you are going to purchase a feed with less than 16% crude protein for a foal, make sure that percentage lysine is included on the feed tag or call the manufacturers directly to obtain this information.

Creep feed should be introduced gradually in small amounts and then fed at least once every day until weaning. Ideally, feed should be made available at all times so that foals can eat frequent small meals throughout the day. Foals prefer to eat this way as they sometimes nurse up to 70 times per day. Creep feeding systems need to be designed to allow continual access by foals while keeping mares out. Designs can range from something as simple as a foal feeder mounted on a wall or fence to large facilities in pastures that allow several foals to feed at one time. Feeders should be examined every day to monitor feed consumption and to check for feed that has been spoiled by moisture, birds, or ants. Additionally, feeders should not sit empty for a period of time and then be filled with large amounts of feed as this can cause hungry foals to overeat. In situations where creep feeding facilities are not feasible, the mare will need to be fed a balanced foal ration so that foals eating from the mare’s feeder will receive adequate nutrients for skeletal development.

Designs for creep feeding facilities as well as further management guidelines for creep feeding can be found in the publication Design and Use of Creep Feeders for Foals which is available on our website at http://moore.ces.ncsu.edu/files/library/63/Creep%20Feeders.pdf.
Multispecies Grazing

By: Tiffanee Conrad-Acuña, Extension Livestock Agent with N.C. Cooperative Extension in Richmond County, adapted from an article written by Linda Coffey, National Center for Appropriate Technology NCAT Agriculture Specialist

Has anyone ever told you that you shouldn’t put different species of animals on your pasture, because it will kill them? Many people believe this myth, but there are actually many benefits to mixing species for grazing purposes. The main benefit you can get from doing this is to save money on herbicides. For example, cattle and horses prefer grass and sheep and goats prefer weeds. Sheep prefer broad-leaved weeds, and goats have a preference for browsing on brush and shrubs, and then secondly prefer broad-leaved weeds. Therefore, grazing cattle, horses, sheep, and goats together on a diverse pasture should result in all types of plants being eaten, thus controlling weeds and brush, while yielding more pounds of gain per acre compared to single-species grazing.

The addition of goats/sheep to cattle/horse pastures has been shown to benefit the cattle/horses by reducing browse plants and broad-leaved weeds. This permits more grass growth. Goats will control blackberry brambles, multiflora rose, honeysuckle, and many other troublesome plants. Experts say that you can add one goat per cow to a pasture without any reduction in cattle performance. You may be able to add more goats depending on the quality of forages. This is an economical way of renovating pastures and you can sell the extra goats and kids for a profit, as well. The same principle applies for sheep, however they are less likely to clean up woody plants.

Multispecies grazing may also benefit pastures by keeping grass even. Cattle and goats will tend to graze taller grasses that sheep and horses may reject. Research shows that sheep graze near cattle manure, which cattle avoid. Also, some researchers have found that adding cattle to a sheep flock may help reduce predation losses after the animals have bonded. Another benefit includes the consumption of poisonous plants by a species that is not harmed by the toxins. For example, black walnut and red maple trees are toxic to horses, but not other species.

We all know that parasites are a major concern with sheep and goats under any system. Worm eggs are deposited through the manure; the eggs hatch and larvae are consumed by grazing animals. Higher concentrations of animals tend to amplify the infestation. The good news is that parasites are species-specific. This means that cattle parasites affect cattle, and not sheep, goats, or horses.

The cattle act as "vacuum cleaners", ingesting the sheep worm larvae, which prevents them from affecting the sheep. However, goats and sheep do share parasites, and therefore grazing them together does not improve parasite control.

Of course, with any system problems may arise. One of these is the potential for "bully" animals. For example, rams may be aggressive towards cattle. This can include keeping them from the water trough. At kidding/lambing time, some cattle may be bothersome to the does/ewes. Another challenge is supplemental feeding, including the feeding of trace minerals. The mineral supplement that is adequate for sheep may not be adequate for cattle, and a mineral supplement that is best for cattle/goats may be toxic to sheep, as sheep do not tolerate much copper. These difficulties may be overcome by simply rotating the animals. If sheep are grazed for a few days, then moved to a fresh pasture and the next species put on the first pasture, you may get the benefits to your pasture while avoiding these problems. Also, cattle, goat, and sheep feed often contain additives such as monensin, which are toxic to horses.

Fencing is another issue to consider. Electric fencing is generally considered to be the most economical and convenient. You will need several more strands of fencing for goats/sheep as compared to cattle/horses alone. If cattle fence is already in place, you can string off-set wires inside the fence. It is most effective to space this off-set wire 8" from the cattle fence, place it 12-14" above ground, and use 4,500 volts or more.

When adding a new animal species to your operation, it’s a good idea to start with small numbers and build slowly after gaining experience and adapting species to one another. This will greatly reduce risk during the learning process. For more information on multispecies grazing, please call your local Livestock Agent.
Livestock judging is the evaluation of an animal based on a widely accepted standard or ideal. Standards are based on consumer and industry demands and change from time to time depending on the trends in demand. Ever since humans have domesticated animals and raised them for meat, livestock judging has been an essential tool in livestock production. Producers had to look at their animals and determine which males would pass on the best genetics and which females would produce and care for their offspring the best and meat packers had to determine how much meat a carcass would have by looking at the live animal. Even today livestock producers, breeders, feeders, buyers and packers all use livestock judging when choosing their animals. It is also the foundation of any 4-H livestock project.

Across the country, 4-H’ers compete in livestock exhibitions as well as livestock judging competitions. A livestock judging contest consists of a number of classes that include breeding and market classes for beef cattle, sheep and swine. A few years ago the demand and popularity of goats has risen, so they have been added to contests across the country. Each class consists of four animals that are numbered one through four. Each animal is compared to the commonly accepted standard and then the animals are ranked one through four based on how well they fit that standard.

After the ranking is established, contestants will take notes on the class to later defend their placings in front of a judge. This process is called oral reasons. The contestant will study his or her notes then put their notes away and stand in front of a judge and defend their placings on a class using the proper terminology to describe the animals and confidence.

There are four techniques to livestock judging. First, knowledge of the parts of the animal, a mental image of the ideal animal, and the breeds and sexes of each species. The second thing is observation; a good livestock judge should look at the class from three different angles (rear, side, front) and not overlook anything while comparing the four animals in front of them to the ideal animal in their head. The third is comparing each animal to the other animals in the class; a good judge should be able to find the good and the bad things about each animal and then make a decision based on those findings. The fourth and final thing is making the decision. This can be the hardest part of the contest. It requires the judge to think critically and logically and then be able to defend his or her decision. This is livestock judging in a nutshell.

So, what does livestock judging do for you? Other than give youth the opportunity to meet new people, learn characteristics of an ideal animal, and win all kinds of awards (plaques, ribbons, belt buckles, etc.), it teaches skills used throughout the course of life. These skills include problem solving skills, decision making skills, the ability to defend your decisions, and a good work ethic.

Looking at a situation, determining the bad and the good in the situation, and then deciding what to do about it is the basis of problem solving. A livestock judge will look at a class, determine the good and the bad of each animal, then place them based on those observations helps youth understand the concept of problem solving and be able to apply that to real life situations. This applies to decision making as well; in order to make a decision, the good and the bad aspects have to be weighed.

After making a decision, in most cases, that decision has to be defended. Although parents are able to tell their children “because I said so” or “that’s just the way it is,” most of the time its not that easy. In the workplace, an employer wants to know why you make certain decisions. Livestock judging shows kids that they must use the proper terminology, defend themselves, all while communicating effectively and with confidence.

In order to be good at anything in life, you have to work for it. Livestock judging takes practice and dedication, which develops a strong work ethic. Livestock judging teams build our future leaders. Contact your local Cooperative Extension Agent if you are or know someone who is interested in joining the livestock judging team. The state contest is June 28th in Raleigh.
Is the grass greener on the other side of the fence?

By: Tyrone Fisher, County Extension Director and Livestock Agent with N.C. Cooperative Extension in Harnett County

Over my 14 years as a livestock agent, I have advised many livestock owners on animals involved in automobile accidents and/or property damage. Whether it’s a horse hit by a car in the middle of the road or a goat in the neighbor’s tree eating his peaches, the livestock owner could be in court facing a judge and jury.

North Carolina law requires keepers of livestock to enclose their livestock, poultry and horses with an adequate fence. Livestock is broadly defined as bovine or equine animals, swine, sheep or goats. As a fencing-in state, North Carolina is distinguished from states located primarily, but not entirely, in the western U.S. where cattle grazing predominates, and landowners who want to keep livestock off of their property are forced to fence them out. Currently, there is no law in North Carolina regulating the type of fencing that must be used to restrain livestock. The livestock owner must take reasonable precautions to keep the animals within the fence. What is considered reasonable is determined by the type of livestock, the terrain, customary practices, past experiences and whether the livestock are kept for business or pleasure. In contrast to the North Carolina requirement that livestock owners act wisely to fence their animals, some other states have “legal fence” laws that specify the type of fencing that must be used. Although North Carolina’s rule provides less explicit guidance than legal fence laws, it offers more flexibility and discretion to livestock owners.

Livestock owners who do not act reasonably to keep their animals properly fenced are liable for damages caused by their stray animals. This potential liability could range from damage to a neighbor’s vegetable garden to a fatal traffic accident. In addition, a livestock owner in North Carolina who knowingly or recklessly fails to keep his animals fenced can be charged by the police or sheriff with a misdemeanor.

Liability for damages caused by stray livestock depend upon whether the livestock owner took sensible steps to keep the livestock fenced. A person who fails to act reasonably is by legal definition negligent, and may be liable if the damages that occurred were a foreseeable result of the negligence. On the other hand, livestock keepers who have acted reasonably will not be liable even though livestock escaped. For example, a farmer may have a sound fence that has successfully contained his or her cattle. If a tornado knocks the fence down and the cattle immediately escape and are hit by a car, it is “unlikely” that the farmer will be liable for injury to the car or the driver. The farmer would not be expected to construct tornado-proof fences, although in this example he or she would be expected to act promptly to recover the stray cattle and repair the fence.

When livestock have escaped and caused damage, the question of whether the livestock owner did or did not act prudently to restrain the animals is likely to be disputed. These disputes are resolved by negotiation between the parties, by insurance adjusters, or by juries in court.

In my cases, I have stated with farmers if they have any previous history that involves verbal testimony or written documentation by their neighbors, animal control, or the sheriff department, then I have advised them to explore settling out-of-court because that could show proof of neglect by not properly managing the animals, the fence, or the property. I advise all livestock owners to have an “Emergency Action Plan” if their animals are ever reported out or off their property. Ask yourself, can you lead your animals back to your property carrying a white five-gallon feed bucket? Will the animals follow your vehicle back to your property because they know it’s feeding time? Or will you need a team of ropers to corral them in? Establish a “Good Neighbor Policy” where all your neighbors have your access numbers and they know what to do if they see your animals in the road. Response and reaction time is very important in the eyes of the “non-agricultural” person that will most likely be sitting in the jury.

As more people move into the countryside, this issue will continue to be discussed. For more information on North Carolina fence laws and liability involving livestock, please go to http://www.ag-econ.ncsu.edu/VIRTUAL_LIBRARY/ECONOMIST/septoct06.pdf or contact your local Cooperative Extension office.