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**Montgomery County Livestock News**

**Cattlemen’s Association**

Next Cattlemen’s Meeting-Tuesday March 8, 2022 at 6:30 PM at the Ag Center on Glen Road. The guest speaker will be Mr. Johnny Rogers, NC State Amazing Grazing Program Coordinator, speaking on “Managing Grazing Systems with Higher Input Costs.” This will be the last Cattlemen’s Meeting until fall.

**Highly Pathogenic Avian Influenza**

Please be advised that Avian Flu is still present in North Carolina. If you are a poultry producer or have a backyard flock, please follow strict biosecurity measures to stop the spread. Keep birds contained if at all possible and quarantine new additions for 30 days. Symptoms include lack of energy, decreased egg production, soft/misshapen eggs, swelling of the head, eyelids or comb, purple discoloration of the wattles, combs, and legs, stumbling falling down, diarrhea, & sudden death.

**Montgomery County VAD**

Is your land going to be in agricultural or forestry production for the next 10 years? Would you like the support of other local farmers & land owners should a nuisance complaint arise? Consider joining the Montgomery County VAD (Voluntary Agriculture District). The board will begin meeting again soon to approve new members. Applications are available in the Montgomery County Extension Office.

**FREE Equine Castration Clinic**

NC State is hosting free equine castration clinics March 22, 29, & April 5. Please contact Kate Fiebrandt at [keryman@ncsdu.edu](mailto:keryman@ncsdu.edu) or 919-515-7459 for more information.

**Upcoming Workshops & Events**

**March 4–** Pasture Management & Soil Sampling—Moore County Extension Office

**March 17 & 24–** Better Business Practices for Farmers & Growers—Montgomery County Extension Office

**April 20-22–** Farm Animal Days at NC State

**April 23–** Wolfpack Roundup at NC State Beef Unit

**Hay Directory**

North Carolina Department of Agriculture’s Hay Alert is at <http://www.ncagr.gov/HayAlert/>. It lists people selling hay or looking for hay to buy. It is free to list your hay.

For any meeting listed, persons with disabilities may request accommodations to participate by contacting the Extension Office where the meeting will be held by phone, email, or in person at least 7 days prior to the event.

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## Waste Management Updates

By: Becky Spearman, Livestock Extension Agent with N.C. Cooperative Extension in Bladen County

### Initial 10-hour Animal Waste Operator Class (OIC)

There will be an initial class on May 3 and 4 in Wayne County. Participants will be able to take the June exam. To sign up, call Max Knowles at (910) 592-7161 or Stefani Sykes at 919-731-1521.

### Zero Hog Permits

If you lost a contract and currently have no hogs, you can request a zero hog permit from the Division of Water Resources (DWR) Animal Feeding Operations. What does it mean? Permittees may want to go under the zero animal permit for various reasons, such as not having to pay an annual fee, but want to keep the permit. A zero animal permit would give the following options:

1. No annual permit fee
2. Can re-populate within five years
3. Can re-populate within 10 years with prior DWR approval
4. The farm must maintain the lagoon and spray fields, so there will not be any adverse impacts on the environment and according to your permit and waste plan. Annual inspections will still occur.

How to request the permit? Contact Ramesh Ravella, PhD, Program Supervisor, Animal Feeding Operations, NC-DEQ-DWR at 919-707-3702 or email [Ramesh.Ravella@ncdenr.gov](mailto:Ramesh.Ravella@ncdenr.gov) or mail to 1636 Mail Service Center, Raleigh NC 27699-1636.

**REMINDERS FROM DWR INSPECTORS:** Due to the high input costs, this year many farms will be using manures from different types of animal operations. All fields that receive animal waste will need to be in a Waste Utilization Plan (WUP). This is especially important in new fields.

Public complaints have already started because of this practice. The adjacent land owners were not told in advance of these activities and they call DWR wanting to know if this is legal. The smell and look of these activities are new to them and can be very alarming. This phone call requires DWR to visit the site and investigate the complaint. If you would let them know in advance that manure will be applied and the methods used, this could eliminate the concerns that they have. Explain to them you have and will follow the regulations that govern these activities in addition to incorporating the waste following application on conventional fields will reduce odor and is required in your sludge removal plan.

### Application period for Phase II of the Swine and Dairy COVID Economic Assistance Program opened Feb. 23

RALEIGH – The N.C. Department of Agriculture and Consumer Services will open the application period for Phase II of the state's Swine and Dairy Assistance COVID program beginning Feb. 23.

The N.C. General Assembly approved \$30 million in federal COVID funds to assist eligible swine and dairy producers for losses incurred from termination of contracts or ceased milk production due to the pandemic. Phase II of the program focuses on infrastructure modifications and/or cost-share assistance for barns, hog houses, lagoons and waste structures. Funding for infrastructure and rebuild modifications are limited to swine operations only per legislation. (S.L. 2021-180)

The application, eligibility requirements, and other program information can be found on the NCDA&CS website at [www.ncagr.gov](http://www.ncagr.gov). The deadline to apply is June 30, 2023, but funds are limited so farmers are encouraged to apply early.

For questions about the program in general, please contact the COVID Assistance helpline at 866-747-9823. Applicants may also reach out to their local Cooperative Extension office, Farm Service Agency or N.C. Farm Bureau offices for application support. Applicants seeking cost-share funds to close waste structures or to convert the structures to agricultural ponds may seek assistance from their local Soil & Water Conservation District Office.

## Feeding Hay to Beef Cattle

*By: Randy Wood, Livestock Extension Agent with N.C. Cooperative Extension in Scotland County*

When cattle farmers take a minute to break down what it costs them to keep a cow each year, the biggest cost will be feeding hay. Hay is a necessary evil on beef farms, especially for those of us who farm in the sandhills and are limited in our forage options. We feed grass to cows two different ways. The first way is with green grass in the spring/summer where we simply open a gate and stand back while the cows walk out and start grazing. The other way we feed is we cut green grass with a mowing machine, let it dry for 2-3 days, rake it, bale it, and then store it somewhere for several months. Then we go and move it again and finally bring it to the cows like we're glorified, self-employed waiters. When we choose option two, we will use about \$50,000-\$100,000 dollars' worth of equipment getting it into a bale, not counting our labor. Some farms will just buy their hay, but they still have to shell out \$20-\$40 per bale. Option 1 is a whole lot easier and cheaper way to feed a cow.

However, in NC and especially in the sand lands where our options are bermudagrass and more bermudagrass, we have no choice but to feed hay during the cold months. So, when it comes time to start putting hay out, you need to do all you can to use this expensive resource as efficiently as possible.

If you take nothing else from this article, note that cows waste a lot of hay eating a hay bale that is just sitting there on the ground. Cows can easily waste 40% to even 50% of a bale of hay that is fed with no type of feeder or feeding system. Almost all farmers agree with this because it is impossible to ignore the foot or two of trampled/wasted hay scattered around when cows are allowed to tear into a bale that's just sitting there. This brings us to the point of this article, how to avoid having a bunch of expensive hay wasted and stomped into the mud every day.

### Hay Feeders vs Unrolling

Unrolling hay to feed has a small but dedicated following. Normally these are people who own hay unrollers because not many farmers who do not own a hay unroller are going to attempt this task for very long. Unrolling hay to feed has some advantages. It allows for a large number of cows equal access to a single bale. You can easily feed hay at a different part of your pasture every day to spread out manure accumulation and nutrients. Once trained, cattle will learn to eat off the ground fairly efficiently. If we have any snow or ice, then cattle will have some where to bed at night.

While unrolling has some advantages, there are some minuses too. You just about have to feed every day. unrolling more than one day's worth of hay will increase hay wastage by as much as three-fold. Unrolling daily with the correct amount of hay to trained cows will result in as little to a 13% wastage. However, if you unroll 2-3

days' worth of hay this number goes up to 30%-35% waste. Also, it takes a large amount of acreage to unroll hay all winter to a large herd of cows. Smaller pastures and long-term wet weather makes finding clean, dry spots to unroll into a challenge over time.

### Feeders

Most farms elect to go with some type of hay feeder. Usually a ring of some sort. As with everything else in the world, the costs of hay feeders have risen significantly the last few years. Currently hay feeders start at around \$300 and go up from there depending on the gauge of metal and how well they are built. Any type of hay ring/feeder is way better than no feeder at all, but there certainly are differences in how well they reduce hay loss among feeder types. Several studies have been conducted over the years on different types of feeder designs.

The biggest winner by far are the inverted cone feeders that actually hold the hay bale off the ground as the cows are eating. These feeders come in at around 3%-5% of hay wastage. Unfortunately, the cost of these feeders usually scares off most farms from trying them. More commonly seen feeders are the slanted bar rings with solid wall/"hay saver" bottoms. These have a significant advantage (8%-10% waste) over open bottomed rings (12%-15% waste). Hay feeder trailers come in around 12%-15% on most studies.

### Mud Accumulation

Anybody who has fed a bunch of cows in one spot over time knows that it does not take long for mud and manure to accumulate in those spots. There are several ways to fight this problem.

Heavy use feeding pads, while expensive to construct, work well on reducing erosion and avoiding knee deep mud at the feeder. Your local Soil & Water Conservation District have plans to construct these areas and often have cost share funds available.

Another cheaper route is to move your hay trailers or rings to a new spot in your pasture at every feeding. This only takes a few minutes each time you feed. When it's dry and you have good quality hay you can often feed in the same spot for 3-4 feedings without any major mud or wasted hay accumulating. When it's wet or if your forage quality is not up to par you need to move each time. Often the cows and calves will clean up any hay that was at the middle of the ring after it has been moved.

With the price of everything from ear tags to fertilizer increasing dramatically this year, farmers are looking at everything to see where they can cut costs. Finding an efficient way to feed & preserve hay should **not** be one of them!

## Managing Internal Parasite in Sheep and Goats

By: Liz Joseph, Livestock Extension Agent with N.C. Cooperative Extension in Cumberland and Hoke Counties

It's never too early to start thinking about internal parasite management because the high temperatures and humidity of summer will be here before we know it! Generally speaking, stomach worm populations, such as the Barberpole worm, accumulate over the summer grazing season. This buildup creates internal parasite issues in the late summer months, especially if there is adequate moisture. Most stomach worms like a warm, moist environment. Temperatures around 85 degrees Fahrenheit coupled with high humidity and moisture make an ideal environment for the eggs to hatch and develop into larvae. Since the Barberpole worm is one of the most significant internal parasites in small ruminants, this article will concentrate on managing this particular species.

Before we begin trying to manage internal parasites, it's important to understand their general lifecycle. In our area, the winters are not cold enough to kill all worm larvae so stomach worms can overwinter in the ground or even in the animal's digestive system. The worms that were able to overwinter deep in the stomach of the animal are called arrested larva which lay dormant until they are triggered by a stressful event such as kidding or lambing. After breaking dormancy, these arrested larvae mature into stomach worms and produce eggs. These eggs are shed from the animal and deposited to the ground in their feces.

About a week or so after worm larvae hatch from their eggs in a manure pellet, they climb up 2 to 3 inches onto grass blades that goats and sheep consume. When the animal ingests the larvae, they attach and feed on the true stomach (abomasum) and intestine linings which can be damaged or irritated. This damage reduces the amount of nutrients that an animal can absorb during digestion. Additionally, some eggs are re-deposited back to the ground in manure, continuing the infectious cycle.

If left unchecked, stomach worms will cause weight loss, stunted growth, anemia, poor conception rates, and can even cause death. To get an idea of how heavy a worm load is, periodically examine your animals. Things that usually indicate heavy worm infestations are: thin body con-

dition, weight loss, rough hair coat, pale or white tongue, gums, and inner eyelids, and diarrhea. If you are properly feeding your animals but they exhibit these symptoms then you may need to implement some management options. Here are some tips goat and sheep owners can use to manage worm loads in their livestock:

- Provide your animals with a nutritious diet for a good immune system
- Divide up large pastures to allow for rotational grazing
- Graze above the worms by keeping pasture grass at least 4 inches high
- Reduce contamination by keeping feed elevated and off of the ground
- Keeping water troughs and feed bunks clean will also reduce worm ingestion
- Monitor parasite loads by using FAMACHA and fecal egg counts
- Time dewormings around kidding and lambing season
- Refrain from using worm blocks (it's hard to measure a single animal's intake)
- Feeding copper boluses to goats may help reduce Barber Pole worm infestations
- When using recommended dewormers it is important to rotate chemical classes and selectively treat animals that need it to minimize resistance
- Work with a veterinarian who is familiar with internal parasite issues in your area to provide "extra-label" dewormer recommendations.

Internal parasites are a significant issue in small ruminant management. Adopting practices, such as rotational grazing and good sanitation, will help reduce infective parasites in your herds or flock. It is also important that producers employ these best management practices to slow internal parasite resistance to our dewormers so that they can continue to be effective on our target parasites. If you have any questions concerning livestock management please contact your local Extension agent.

## Pasture Condition Scoring

By: Stefani Sykes, Livestock Extension Agent with N.C. Cooperative Extension in Wayne County

As the weather flops back and forth between warm and cold, we know spring is on its way. Many of you are thinking about turning your animals out onto pasture and grazing. But is your pasture well-managed? How can you tell? With fertilizer prices increasing, it's important to know what you have out there and if your fertilizer will do any good.

We're going to discuss well-managed pastures in terms of a "pasture condition score." There are several times of the year you should do this:

- At the start before placing livestock on pasture
- At peak forage supply periods
- At low forage supply periods
- As plant stress appears
- Near the end of grazing season to help decide when to remove livestock

Pasture condition scoring involves 10 key indicators, to help rate pasture condition. The information below was taken from the NRCS "Guide to Pasture Condition Scoring." Each indicator has 5 conditions described, ranging from lowest (1) to highest (5). The indicators may be combined into an overall score for the pasture, or left individually.

Key Indicators:

- Percent Desirable Plants
  - Does the pasture have the kind of plants that livestock will graze readily?
  - Undesirable plants include woody species, noxious weeds, toxic plants, etc.
- Percent Legume by Dry Weight
  - Average amount of legumes present during the growing season
  - If the proportion is too high, especially if they have bloat potential, consumption can be detrimental to ruminant grazing
- Plant Cover
  - Percentage of soil covered by plants
  - A dense stand (high stem count) is desirable to ensure the best forage growth and intake
  - Look for green leaf canopy or live vegetative basal area cover percentage, include dormant forages
- Plant Diversity
  - Diversity maintains the most consistent forage supply
  - One species doesn't crowd the others out
  - Mixed species pastures are often more profitable, but over six species doesn't assure higher productivity
  - Monocultures can be quite productive, so

this is not an "end all, be all" indicator

- A "dominant species" is one that makes up at least 15% of the pasture biomass
- Plant Residue
  - Too much dead material reduces growth and intake
  - Less than 25% of the standing forages should be dead or dying
  - Thatch increases the chance of fungal diseases and prevents shoot and seedling emergence
  - Soil cover is important to reduce erosion
  - Percentage of ideal cover is not exact but in most cases should be greater than or equal to 60%
- Grazing Utilization
  - Too close, frequently grazed pastures often cause loss of plants and ground cover
  - Low stocking rates allow animals to selectively graze and can cause residue buildup
  - Assign a value based on the proportion of the pasture grazed closest and the height at which it's grazed
  - Compare that height the minimum stubble heights recommended for maintaining desired forages
- Livestock Concentration Areas
  - Usually occurs near feeding gates, water, mineral or salt, and shade
  - May have reduced vegetative cover, increased bare ground and concentrated animal waste
  - Assess the size of these areas
- Soil Compaction
  - Compaction reduces a pasture's ability to infiltrate and use water
  - Roots can't access necessary water and nutrients if the soil is too compacted
- Plant Vigor
  - Desirable species should be healthy and growing when appropriate
  - Consider color, size of plants, rate of regrowth after harvest/grazing, and productivity
- Erosion

When assessing your pastures, you will also want to check soil fertility (pH in particular), assess the areas for insect and disease damage, uniformity of use.

If you'd like a copy of the official Pasture Condition Scoring Guide, contact your local livestock agent!

## Lameness in Horses

By: Katie Carter, Livestock Extension Agent with N.C. Cooperative Extension in Craven, Jones, and Pamlico Counties

Lameness is a major concern for horse owners. Once a horse becomes lame, what are the next steps that need to be taken on the road to recovery. The following information is adapted from a presentation of Dr Carrie Jacobs, DVM, DAVS-LA, Assistant Clinical Professor of Equine Orthopedic Surgery.

Lameness is a clinical sign of disease. Often it is a manifestation of inflammation which leads to pain. Lameness can also be a mechanical defect which shows through gait abnormality. There are numerous reasons that a horse can become lame, one being a horse's job. When asking a horse to do a job such as racing, jumping, and reining, we are asking the animal to do repetitive motion. Repetitive motion puts strain on joints, tendons, and ligaments. Another cause of lameness is an acute, single event injury. This could be a traumatic injury or a single event strain.

Once a horse has become lame, how can the lameness be diagnosed? First the lameness needs to be identified, this means what limbs are lame and the severity. Next, we need to localize the lameness or what area of the limb is contributing to the lameness. Evaluation of the structures will if the lameness is caused by an injury or an abnormality.

After the lameness has been identified, a physical examination needs to be done. A physical exam consists of observation, looking the horse over. When looking the horse over, we are looking for problems within the conformation, stance, and muscle mass. After taking in consideration conformation, stance and muscle mass, a hoof tester evaluation can be done. This identifies any pain or sensitivity in the hoof. Another part of the physical exam is palpation of the joints, tendons, and ligaments for any excess fluid, pain, or decrease of motion. Palpation of the cervical spine, thoracolumbar spine, and the sacroiliac regions are the next areas that are looked at. The cervical spine, thoracolumbar spine, and the sacroiliac regions are being recognized as primary causes or secondary contributors to lameness in horses. These areas are palpated for sensitivity and range of motion. Once the physical exam is done, next a lameness evaluation takes place. This includes observation of movement. Diagnostic analgesia or nerve blocking which is the best way to localize a horse's lameness. The goal to nerve blocking is to abolish lameness and to identify the specific area causing lameness. The final part to the lameness exam is imaging. Imaging includes radiographs, ultrasound, nuclear scintigraphy, computed tomography (CT), and magnetic resonance imaging (MRI). These are the best ways to see what is going on inside a limb.

There are many things that go into diagnosing lameness in a horse. If you want to hear more from Dr. Jacobs please contact Katie Carter, (252) 876-5606 for the full presentation or more information.



## Cattle Breed Classification for Livestock Competitions

By: Dan Wells, Livestock Extension Agent with N.C. Cooperative Extension in Johnston County

Having a good base knowledge of cattle breeds is important for youth involved in livestock competitions. Market steers, bulls and heifers are very common classes in judging contests, and will very commonly include reasons or questions about the class. It's important to know and understand about where these breeds come from, a bit about their breed character, and where they fit into the picture of the modern beef industry.

Oklahoma State University has an excellent webpage with information about many breeds of livestock at [afs.okstate.edu/breeds/](http://afs.okstate.edu/breeds/) This website lists dozens of breeds of cattle from around the world. The breeds you are likely to see in a livestock competition in the US will fall into three categories; *Bos Indicus* (American) cattle, and *Bos Taurus*, which are subdivided into British and Continental types.

The American or *Bos Indicus* breeds would include the Brahman breed and more recently developed composite breeds that include Brahman as a percentage of their breed makeup, such as Brangus, Beefmaster, Santa Gertrudis, Simbrah, etc. The Brahman breed was developed in the US from less than 300 Indian cattle that were imported between 1854 and 1926. The American Brahman Breeders Association was formed in 1924.

American breeds have greater tolerance of heat, parasites and disease than their *Bos Taurus* counterparts, and thereby offer greater production in subtropical climates. Their increased heat resistance is due to excessive skin that allows for greater radiation of heat, skin pigmentation that reflects more heat, and the fact that they have sweat glands, which *Bos Taurus* do not have. Many of these breeds also have lighter colored hair coats, such as the gray Brahmans, Beefmasters, and Santa Gertrudis, and this also helps with heat tolerance. In many markets of the US, American breeds are discounted due to the excess skin and reputed inferior carcass quality, although these breeds have made tremendous improvements in marbling and tenderness in more recent years.

*Bos Taurus* breeds are known more as maternal or terminal breeds, with positive traits such as marbling, yield, and greater milking ability than American breeds. These traits enable these breeds to produce well in temperate climates.

To understand how the *Bos Taurus* breeds are subdivided, you must understand a little bit about the continent of Europe. While the United Kingdom (England, Scotland, Ireland, Wales) are part of Europe, they are not part of the mainland portion of the continent. Therefore, breeds that originated on the Isles are called British Breeds, and those that originated on the mainland are called Continental Breeds. The attached map allows you to see how the English Channel and the Northern Sea separate the UK from the rest of Europe.

As the beef industry was developing in the US during the 1800's, the first cattle breeds that were imported to improve US beef were British breeds such as Hereford and

Angus. Although it's not such a large geographic area, there are quite a few breeds that were developed in the British Isles, including not only Hereford and Angus, but also Shorthorn, Devon, Galloway, White Park and others.

Continental breeds began to be imported to the US later than the British breeds, primarily in the 1970's when they were referred to as Exotics. In those days they were generally larger framed than the British breeds, although the frame scores of British breeds have trended higher in the last thirty years, as well. Continentals include breeds such as Gelbvieh, Charolais, Limousin, Chianina, Maine-Anjou and Simmental. These breeds are generally known for rapid weight gain, later maturity, and a high percentage of lean yield.

Crossbreeding British and Continental cattle has been an excellent strategy to achieve breed complementarity- where the strengths of one parent breed improves a disadvantage in the other parent breed. The British breeds tend to have better marbling, tenderness while the Continental breeds offer rapid growth and high product yield. This has led to the labeling of composites such as SimAngus, ChiAngus, Lim-flex (Limousin/Angus,) Balancer (Gelbvieh/Angus,) and Maintainers. You may ask- "are these considered British or Continental?" While I don't believe there's necessarily a right or wrong answer to that question, each of these composites are registered with their Continental parent breed registry- SimAngus are registered with Simmental, Balancer with Gelbvieh, etc. When it comes to shows, every breed makes its own rules there, as well. For example, Simmental shows purebred Simmental and then percentage Simmental, and that percentage could be Simmental mixed with essentially any other breed, so long as the animal is between 25 and 75% Simmental. That's a lot to try to unpack for each breed, but suffice to say there are generally rules in place for each registry in terms of what can be registered as a Limflex, Balancer, etc. That's really somewhat beyond the scope of what one would need to know for livestock Skillathon or judging, but interesting to mention.



## Highly Pathogenic Avian Influenza

By: Margaret Ross, Eastern Area Specialized Poultry Agent with N.C. Cooperative Extension

Highly pathogenic avian influenza (HPAI or “bird flu”) is a real threat to the poultry industry in North Carolina, the United States, and other poultry producing countries around the globe. Surveillance testing by the USDA has confirmed the presence of the virus in different species of migratory waterfowl in recent weeks. Confirmed positives have come from various states across both the Atlantic and Mississippi flyways. Additionally, there have been outbreaks in the United States in commercial turkeys, commercial broilers, and backyard flocks. There is a need for immediate action from all of those associated with poultry and the poultry industry.

*“These findings continue to support evidence that high path avian influenza is currently present in the Atlantic Americas migratory flyway,” said State Veterinarian Mike Martin. “Wild birds can carry this virus asymptotically and potentially spread it to domestic poultry. We strongly encourage all poultry owners to follow strict biosecurity measures for at least the next 30 days, which is the time frame these birds are anticipated to be migrating through the state.” Biosecurity measures include keeping your birds isolated from other people and animals in an enclosed environment. Bird owners should also keep their flock away from ponds where they might encounter migrating birds.* – N.C. Department of Agriculture News Release January 27th –

Producers, both big and small, should continue to practice proper biosecurity protocols to keep commercial and domestic flocks away from areas frequented by migratory birds, all waterfowl, and other wild birds. The main point here is that they do not need to have free access to the outdoors in a way that is unprotected. HPAI could wipe out an entire flock when infected. In addition to routine biosecurity protocols, other things to consider at this time include: relocating flocks away from all natural bodies of water, covering the top of any open or screened runs with metal and/or plastic to prevent wild bird droppings from falling into the bird area, and removing wild bird feeders or distancing them from any backyard flocks as much as possible. Also, if your birds are more confined than usual, consider adding forms of enrichment to discourage birds from pecking one another such as tree branches, cabbage, melons, pecking blocks, hanging aluminum pie pans, etc.

Please take a look at our HPAI educational resource page at <https://poultry.ces.ncsu.edu/2022/02/highly-pathogenic-avian-influenza-educational-resources/>. Share this information with other poultry keepers that you know as well. We all need to know the facts and be extra cautious during this time to protect our flocks and our industry. If you have any specific questions or concerns not addressed in this article, please don't hesitate to reach out to your local Poultry ASA, Margaret Ross, at [Margaret.Ross@ncsu.edu](mailto:Margaret.Ross@ncsu.edu) or contact the Sampson County Cooperative Extension office at (910) 592.7161.

