

Johnston County Center

## Livestock News

March/April 2021



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### Contact Us

NC Cooperative Extension  
Johnston County Center  
2736 NC Hwy 210  
Smithfield, NC 27577  
(919) 989-5380  
johnston.ces.ncsu.edu

*Dan Wells*

Dan Wells  
Extension Agent, Livestock  
dgwells@ncsu.edu

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### Johnston County Youth Livestock Show & Sale April 5-7

103 youth from across Johnston County are registered to participate in the annual Show & Sale. Entries consist of approximately 15 steers, 22 heifers, 9 market lambs, 65 market goats and 45 market hogs.

Due to COVID-19, spectators will not be allowed at the show. However, exemptions for livestock sales will allow the public to attend the sale on Wednesday night to support the youth. Those wishing to contribute to the sale without attending in person may contact the Extension Office to make arrangements to do so. The Buyers Meal will not be served this year.

The show will be live-streamed online by Square One Agri-Marketing at ([squareoneagrimarketing.com](http://squareoneagrimarketing.com)) and on the Johnston County Youth Livestock Facebook page.

Show times are:

Monday, April 5— Steer show at 5 followed by heifer show  
Tuesday, April 6— Market lambs at 12:30 and Market Goats at 3:30  
Wednesday, April 7— Market hogs at 11:00 and Sale at 6 pm

### Artificial Insemination School for Beef Cattle

WHEN: April 27, 28, 29 of 2021 from 8:30 a.m. to 4:00 p.m.

WHERE: Sampson County Livestock Facility: 93 Agriculture Place, Clinton NC 28328

WHO: NCCE Sampson County Center: Paul Gonzalez, Agriculture Agent, Livestock

The school will consist of three days of classroom instruction, hands on semen handling, and in cow insemination practice. Cost of the school is \$150.00 per participant. Make checks payable to Sampson County Cattlemen's Association and send along with a phone number and valid email to Paul Gonzalez, 55 Agriculture Place, Clinton, NC 28328. Class size will be limited to 20 people with a minimum of 10 to hold the school. Spaces will be

given to the first 20 paid participants. Checks must be received by COB April 2, 2021.

You can call and say you want to attend but until your check is received the space isn't yours!

COVID-19 safety precautions will be in place and must be followed to take part in the school. For more information contact [paul\\_gonzalez@ncsu.edu](mailto:paul_gonzalez@ncsu.edu) or 910-592-7161.

### 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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## **Animal Waste Management—Anaerobic Digesters**

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

Ashley Robins is the Dairy Area Specialized Agent for the state. She held a zoom training for anaerobic digester recently. Ashley had some very knowledgeable presenters and specialists talk about anaerobic digestion. The following information is adapted from one of her speakers, Dr. Mahmoud Sharara, assistant professor and extension specialist in Biological and Agricultural Engineering.

Dr. Sharara started his presentation by explaining what an anaerobic digester is. An anaerobic digester is a structure built and managed to break down organic material (without oxygen) to produce a valuable gas product (biogas).



Pictured above is an in-ground digester; one of few different designs of anaerobic digesters (AD). The digester cover is inflated, which means there is gas buildup underneath. The gas built up is biogas. In-ground digesters look a lot like a lagoon, but the two are designed and managed differently.

Dr. Sharara goes on to explain the microbial activity that takes place in an anaerobic digester. He compares the activity happening in the digester to swamps and lagoons or even cattle rumens. Organic material plus bacteria produces gas and residue. Within the AD, many different bacteria groups cooperate and break down organic material. Each group of bacteria has a very specific job within the AD. The process of breaking down the organic material and producing the biogas takes anywhere from 3-4 weeks.

Biogas is a gas mixture of everything the bacteria exhale as they break down material in the digester. The biogas is made up of water (4%),  $\text{NH}_3$  and  $\text{H}_2\text{S}$  (1%), carbon dioxide (35%), and methane (60%). The methane is a flammable gas and the usable part of the biogas, which is why we close up the AD to capture the methane.

Next, Dr. Sharara gives a comparison of biogas and renewable natural gas. They are not the same thing. The biogas needs to go through an upgrading process to become a renewable natural gas. In the upgrading process, methane goes from 60% to 96%, by removing the other gases from the mixture. The upgrading process is costly and requires expensive equipment.

Some things to watch out for when operating an AD are too much nitrogen or sulfur in the feeding material. This can kill the digester. Disinfectants or harsh chemicals used on the farm in large amounts can also harm the digester. Soil, dirt or debris, tears in the covers, pipes, and liner all can damage the digester. Solid accumulation needs to be handled and cleaned out roughly every 4 years or so. Also, a sudden amount of new material is harmful to the digester. These are all things to consider when operating an AD.

This was just a brief overview on Dr. Sharara's presentation in Ashley's Anaerobic Digestion Training. If you have any further questions, contact your local livestock agent and they can help you get in touch with Dr. Mahmoud Sharara, who will happily answer your questions.

## Considerations for Weaning Fall Calves

By: Anthony Growe, Livestock and Row Crops Extension Agent with N.C. Cooperative Extension in Richmond County

With spring around the corner, it's time for cattle producers to begin planning to wean last fall's calf crop. Cattle producers have the goal to keep calves healthy and growing throughout the entire weaning process while maintaining profitability. We all know weaning is a stressful experience for both calves and their dams and while we cannot totally alleviate stress, there are some management practices that can be used to help minimize it during the process.

### When to Wean

Several factors can influence when you may choose to wean your calf crop. Pasture availability, cow body condition, and market prices all play a role on choosing a weaning date. Beef calves that are nursing from cows are most commonly weaned between 5 to 9 months old but if forage is in good supply and the dam has a decent body condition, 3 or better, then it is usually best to wean when they are around the 7 to 9-month age range.

Timely weaning is important as it allows the gestating dam to recover before the next calving season. If forage is in short supply due to drought, it can be economical to wean calves early. Although you may have to front the cost to feed early-weaned calves, gestating cows are able to dry off, recover and focus energy on their pregnancy. Also, dry cows have lower nutrient requirements which reduces the need for feed supplementation if a lower quality hay is being fed. When a cow is in a good body condition, they have a more efficient pregnancy with less complications down the road.

Another factor that may influence your weaning time, are market prices and value-added sales. Adjusting weaning date or retaining calves may be necessary to take advantage of better prices at the stock yards. Value-added sales often have a specified number of days, usually a 45-day minimum, that calves must be weaned to prior to the sale date.

### Choosing a Location

When choosing a location to wean calves, make sure there is shade and fresh water available. Calves tend to have a greater water requirement during the weaning period. They are going to spend the majority of the first two days bawling and pacing along the fence that adjoins the cows' pasture. Placing a stock tank or trough with clean water near the fence line will encourage consumption.

Another consideration to make when choosing a weaning location is if the calves will be on pasture or in a dry lot. Pasture weaning has some economic benefit since calves can be turned out on growing forages. Feeding both hay and a protein supplement during weaning can be costly and will quickly reduce profits so grazing can help ease the cost of feed stored forages such as hay. Also, calves are more familiar with a pasture environment which is less stressful than keeping them in a dry lot. If calves are going to be fed in hay in a dry lot, pull hay samples and feed them based on the results of the analysis. If your analysis comes back deficient in protein or Total Digestible Nutrients (TDN), then consider adding a supplement to their diet. Your county Livestock agent can assist you with balancing a ration that meets the needs of your growing calves.

### Weaning Method

When choosing a weaning method, you have options that will affect the health of your calves. Traditional weaning involves moving calves to a new location where they cannot see, smell or hear their dams. This "out of sight out of mind" method can be somewhat stressful to newly weaned calves especially if they are moved long distances to an unfamiliar area.

Another weaning method is fence line weaning. Calves are weaned in a pasture or dry lot that has cross fencing (usually woven wire or electric high-tensile) separating them from the cows' pasture. Calves and their dams are able to see each other and even make some contact through the fence. Over the last 10 years, several universities have studied the effects weaning on weight gain and have found that calves who were weaned using the fence-line were significantly heavier than calves that were weaned using the traditional method. Researchers also observed that calves paced and bawled less in the fence-line weaning scenario. The largest drawback from fence line weaning is calves often crawl under the fence even if the fence is electrified. Although it's more expensive, high tensile woven wire will keep calves in the weaning area while still being in contact with their dams.

As you start planning to wean your calf crop keep in mind that the process can be stressful for both the dams and the calves. Refrain from introducing any additional stresses such as branding, tagging, vaccinating or castration during this period. Remember, overly stressed calves often become sick calves which require treatment.



## Winter Weed Control

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

You may think it's a bit too late to control those pesky winter weeds, but don't worry. Although right now it feels like spring will never get here, when it finally does, those weeds will turn green and grow quickly. While Oct-Dec is usually the "best" time to spray herbicides to control winter weeds, applying during the spring growth spurt, in February-April, can provide control as well.

The most important thing when considering weed control is to determine what exactly you are controlling. Do you have a major invasion of broadleaf weeds or grassy weeds? Do you have a mainly Bermudagrass pasture or a fescue one? Weeds in general prevent a pure stand, which can interfere with hay drying times and while grass weeds aren't commonly a health concern, it's just one more thing you have to consider.

Common winter weeds in our area include: buttercup, curly dock, henbit, chickweed, wild mustard, wild radish, and Italian ryegrass. The Agricultural Chemicals Manual is a useful tool in selecting the best herbicide; ALWAYS read the label and follow application instructions. For example, in dormant Bermuda (not actively growing), glyphosate and paraquat should not be applied except during extended periods of mild temps (60 F or more).

Several of the most common herbicides also have grazing and haying restrictions. It is important to read thoroughly. Identifying what weed, or class of weeds, is important to determine the best method of control. Here are a few examples of winter weeds and control methods:

### Curly Dock

- Identifying features: leaves grow mostly at the base of the plant, with curly or wavy margins, perennial, thick tap root
- Location: thrives in wet conditions and poorly drained areas
- Control: (depending on the label and what is in your pasture): Banvel, Cimarron Plus, Pastora, Weedmaster



### Buttercup

- Identifying features: leaves alternate, species can differ in shape and characteristics but all have yellow flowers, winter annual
- Location: thrives in weak or thin pastures
- Control: (depending on the label and what is in your pasture): Weedmaster, 2,4-D, GrazonNext, Cimarron Max, Pastora



### Henbit

- Identifying features: erect, annual, leaves are opposite, stems are square, flowers are pink-purple
- Location: found in hayfields, pastures and waste sites
- Control: (depending on the label and what is in your pasture): Weedmaster, Banvel, Cimarron Plus, 2,4-D



### Chickweed

- Identifying features: leaves are opposite, hairless and glossy. Flowers are white with 5 petals that are notched. Annual.
- Location: prefers poorly drained soils
- Control: (depending on the label and what is in your pasture): Banvel, Cimarron Plus, Cimarron Max, PastureGard, Pastora



Any suggestions given in this article, are purely suggestions based on the Ag Chemical Manual. Make sure you read the entire label and follow directions for specific instructions regarding your forage type and possible restrictions.

## Marketing Goats at Ethnic Holidays

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

Goat meat is the most widely consumed meat in the world, though not as common among Americans. Ethnic populations within the US sometimes go to considerable effort to find the type of meat they prefer, especially during their traditional holiday observances. Often this relates to the type of animal (size, gender, age, etc.) at slaughter. These peaks of demand can have locally important market impacts that producers can utilize to their advantage when making plans to market animals. The following is an explanation of certain Ethnic holidays of importance to the meat goat industry.

**Western or Roman Easter-** For this holiday, the preference is for fleshy, milk-fed kids with relatively light colored meat, 3 months old or younger. Kids weighing less than 20 pounds are generally disappointing to buyers due to low meat to bone ratios and high carcass drying losses. Kids gaining less than 10 pounds per month or 1/3 pound per day are generally not fleshy enough to be considered prime. Acceptable weights are 20-50 pounds with 30 pounds considered optimum for most buyers.

**Eastern or Greek Easter-** Similar animals preferred as for Western Easter. A slightly larger milk fed kid (around 35 pounds) is considered optimum.

**Start of Ramadan-** Date can vary by a day depending on the actual sighting of the moon over the US that year. Preference is for male and female kids with all their milk teeth (i.e. not older than 12 months.) Males can be intact or castrated. Overly fat kids are discriminated against. Optimum live weight is about 60 pounds but weaned kids from 45-120 pounds are accepted by different buyers.

**Eid al Fitr-** The Festival of the Breaking of the Ramadan Fast. Same type of animal preferred as for Start of Ramadan.

**Eid al Adha-** The Islamic Festival of Sacrifice. Preference is for yearlings (one set of adult teeth) that are blemish-free. Animals with broken horns, open wounds, torn ears or physically unsound generally do not meet the criteria. In some cases, castrated animals or lambs with docked tails are frowned upon.

**Christmas-** The Christmas market is for milk-fed kids. These types of kids are rare, because they must be produced by out-of-season breeding in May for October-born kiddings. Kids as light as 18 pounds are readily accepted and quality control is generally not as exacting as on Easter kids.

**Independence Day-** Goats for July 4<sup>th</sup> weekend are animals suitable for barbecue, generally cabrito kids or young bucks, does and wethers with 1 or no sets of adult teeth.

**Caribbean Holidays-** (Carnival, Carifest, Jamaican Independence Day, etc.) Optimal goats for Caribbean holidays are young, smelly 60-pound bucks. However, older animals of all sexes are often in demand and customers may prefer to buy them rather than pay the extra price for prime young bucks. The Chinese market for goat, according to Dr. Frank Pinkerton, is "limited to the six colder months. The preferred weight range is 60-80 pounds live, and goats in good health are required." The Hispanic market for goat is for 20-35 pounds liveweight milk-fed kids for carbrito, and large animals for seco de chivo.

Holiday	2021	2022	2023	2024	2025
Chinese New Year	Feb 12	Feb 1	Jan 22	Feb 10	Mar 1
Mawlid al-Nabi	Oct 18 -19	Oct 7-8	Sep 26-27	Sep 15-16	Sep 4-5
Western Easter	April 4	April 17	April 9	Mar 31	April 20
Eastern Orthodox Easter	May 2	April 24	April 16	May 5	April 20
Passover	Mar 28-April 4	April 15-23	April 5-13	April 22-29	April 12-19
Start of Ramadan	April 12	April 2	Mar 22	Mar 11	Mar 1
Eid al Fitr	May 12	May 3	April 22	April 10	Mar 31
Rosh Hashanah	Sep 6-8	Sep 25-27	Sep 15-17	Oct 2-4	Sep 22-24
Eid al Adha	July 19-23	July 9-10	June 28-29	June 16-20	June 6-10
Muharram	Aug 10	July 30	July 19	July 8	June 27
Chanukkah	Nov 28- Dec 6	Dec 18-26	Dec 7-15	Dec 25-Jan 2	Dec 14-22
Christmas	Dec 25 each year				



## **Pearl Millet: An Excellent Summer Forage for Horses**

*By: Brian Parrish, Agriculture Extension Agent with N.C. Cooperative Extension in Harnett County*

Even a small area tilled up and planted into Pearl Millet can help provide an excellent rotational grazing treat for horses during the summer. Pearl Millet is a warm season annual forage that grows for one season and then is killed by frost. Peak grazing months for Pearl millet are June, July, and August. It can be seeded broadcast at 20 – 25 pounds per acre or drilled at 15 – 20 pounds per acre with a planting depth ranging from ½ inch to 1 inches. The best planting dates for Pearl millet in the Coastal Plain are May 1 – May 15, with possible planting dates ranging from April 20 – June 30. Pearl millet is one of the most drought resistant of the summer grain crops and grows best in well-drained soils.

A soil test is always the best way to go, but a general fertilizer recommendation for pearl millet is to apply 400 lbs. of a complete fertilizer such as 10-10-10 at planting. Then follow up with 40 pounds per acre of Nitrogen after each grazing cycle / haying cycle except for the last. Total nitrogen per acre should not exceed 160 pounds per year.

Pearl millet can accumulate toxic nitrate levels when heavily nitrogen-fertilized and under stressful conditions such as drought, and wet pastures during cool cloudy weather. The reason high levels of nitrate in forage and hay should be avoided is because high nitrate levels can interfere with the animal's blood's ability to carry oxygen. I have grazed horses and cattle on pearl millet for many years with no nitrate problems, you just have to remember not to fertilize this grass heavily with Nitrogen, or you can create problems. One big advantage of Pearl Millet is that it does not produce hydrocyanic acids (like sorghums do), so poisonous prussic acid never occurs in pearl millet, making it a safe choice for horses to graze.

Pearl millet has good nutritive values (60 – 65 % digestible and 14 – 18% crude protein) if grazed when 12 – 24 inches tall. Pearl millet will produce between 3 – 4 tons of dry forage per acre. Typically, animals are turned in to graze when pearl millet has reached a height of 14 – 24 inches and removed when stubble height is 6 – 8 inches. Pearl millets can be classified into three categories:

dwarf (less than 4 feet), semi dwarf (4 – 6 feet), and Tall (6 – 8 feet). Dwarf varieties seem to be a better fit for grazing and hay, having smaller stems and the same number of leaves as taller varieties.

With many horse pastures damaged by the excessive wet conditions of 2020 and early 2021, pasture renovation or rejuvenation may be something to think about this year. Crabgrass and seeded types of Bermudagrass and Bahiagrass may be other summer forage options for horse owners to consider. For planting rates and best planting dates visit the Planting Guide for Forage Crops in North Carolina website at <https://content.ces.ncsu.edu/planting-guide-for-forage-crops-in-north-carolina>.



## Breaking Down Barriers to Participation in Livestock Programs

By: Jamie Warner, Livestock Extension Agent with N.C. Cooperative Extension in Montgomery County

A few years ago, a University of Tennessee graduate student conducted a research project focused on reasons that youth choose to or choose NOT to participate in 4-H Livestock Programs. The researcher used four focus groups to collect data for the study. Two of the focus groups contained 4-Hers currently involved in 4-H livestock projects and two of the groups contained population samples of 4-Hers that were NOT involved in livestock programs but were active with other 4-H program areas. Five themes emerged during the discussions as reasons to why young people get involved with showing livestock and other livestock programs: Family Support, Farming Background, Interest In and Love Of Animals, Friendship and Fun, and Life Skills Gained. Across the four groups, five issues also surfaced as barriers to participating in livestock programs. These issues were lack of Time, Resources, Work Ethic, Farm Background and Interest.

While, this study was conducted in Tennessee alone, the 4-H program in North Carolina has similar groups of young people. It is common for both 4-H and Livestock Agents to get questions about livestock programs and ways that they can get involved even when they do not have a farm or own animals. The need is there but the barriers in NC seem to mirror those found in the study mentioned above. How can current showmen help Agents, Specialists and Ag Teachers break down the most common barriers to participation in Livestock showing/programs?

It's true, there are only 24 hours in a day and a majority of those hours are already designated for other activities but by prioritizing your values and activities, you just might find that Livestock Programming ranks high on your list. Utilize time management skills like planning ahead, setting realistic goals, scheduling and practicing self-awareness of your limits to help you realize where you can find time for showing and caring for animals. Another helpful tip is to remember that the smaller the animal, the smaller the time commitment (usually). It doesn't take as much time to clean a rabbit hutch as it does to clean a barn. You don't need to halter break rabbits or poultry like you do small ruminants and cattle.

Lack of resources can also be alleviated by working with smaller animals because they normally do not require as much space to house or cost as much to purchase or feed. In some cases, if there is interest in larger species (i.e. Cattle), local producers will lease animals to showmen which, depending on the individual lease contracts, could relieve the sting of a large, upfront purchase payment and eliminate the need for permanent housing and fencing. For youth that enjoy livestock but not necessarily showing, there are other options like Skillathons, Quiz Bowls, Judging and Hippology. These activities

are fun and educational but do not require you to personally own animals.

Sometimes it is assumed that young people do not participate in Livestock projects because they lack a work ethic. While, this may be true for some youth, many have never been given the responsibilities or chores needed to prove that they DO in fact have a work ethic. Simply introducing adolescents and teenagers to livestock and agriculture tasks can give them the boost in confidence that they need in order to demonstrate their ability to perform and "stick with it". Work ethic is something that can be taught and should be modeled by adults often since most children learn by watching their family members, peers and agents/teachers.

While it's true that a majority of 4-Hers currently active in Livestock Projects are from a farm background, it should be stressed that you do not have to come from a farm to participate in Animal Programs. Those of us that have the pleasure of living on farms should think about educating our friends and others about the importance of Livestock as well as the availability of programs that are out there. Offer for them to come spend time with you on the farm, around the animals. Get them to help you feed, bathe and clip them. Teach them why you do things the way you do. Offer for them to come to a show with you and let them show your extra animals. Who knows, all of this might create an interest that they never knew they had.

Creating an interest in 4-H livestock projects could be as simple as informing others what they can get back from their participation. Besides learning life skills, becoming more responsible, honing public speaking skills and building new friendships, there are also opportunities to win scholarships and travel for competitions. Money and travel can be a big draw for those that are looking to expand their knowledge, education and understanding of how the world works beyond the limits of their small, rural communities.

It's often said that the average age of the American Farmer is around 58-years-old! IF, we expect young people to continue the agriculture legacy, laid down by the aging farmer, we as a group of Current Showmen, Current Farmers, Extension Agents, Agriculture Teachers, and Agriculture Advocates need to come together to educate those around us and begin recruiting the "non-traditional" youth! It could be our child's "city friend", but regardless of WHO it is, let's work with the NC Department of Agriculture, NC Cooperative Extension, High School Agriculture Programs and Industry Associations to create a LOVE of Livestock and Agriculture. That's the only way that the industry we love will continue to grow and flourish.



## Protecting Your Backyard Flock from Disease Through Biosecurity

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

One of the tips I give my poultry producers most often is to “just watch your birds.” You can learn so much about your flock, their health, and their behaviors simply by watching them for a few minutes every day. You can quickly notice if there is a sick bird, or if you may have a bigger problem in your flock such as disease. Oftentimes, it can be expensive to find out what’s running through your flock if you have a problem, so it’s a great idea to learn some clinical signs of disease while “watching your birds” to recognize and diagnose problems in your flock.

Chickens can show different types of symptoms when they are sick. They can exhibit disease systems that correlate with their body such as: swelling or discolored combs and wattles, cloudy and draining eyes, discharge from the nasal passages, drooping wings, discolored feet and legs, or scales and physical injuries to the feet and legs.

Other symptoms can be found in the bird’s behavior. Do they have a slow or difficult walk or gate? Are they eating normally as well as drinking plenty of water? You can also watch their activity level. You want chickens to “do chicken things.” Do you notice any coughing or sneezing in your flock? Are they having difficulty breathing, or are they panting or gasping for air? Do you notice a color, frequency, or consistency change in their feces, as well as the presence of blood or mucus?

If you suspect you have disease in your flock, have multiple birds die, or are unsure of the cause of a bird’s death, the best way to confirm what is going on is to immediately send the deceased bird to the Rollins Animal Disease Diagnostic Laboratory that is a part of the North Carolina Department of Agriculture in Raleigh, NC. Their website is <http://www.ncagr.gov/vet/ncvdl/> and their phone number is 919.733.3986.

Prevention is the biggest way to help keep disease out of your flock. Biosecurity means to limit your disease challenges by properly managing your farm and flock. Here are some tips on how to put a good biosecurity plan in place at your farm: good husbandry – clean water, feed, shelter, and daily management. Sanitation – cleaning and disinfecting equipment and housing. Nutrition – feeds must meet bird’s need for energy, protein, vitamins and minerals, and will change as they grow. Size and palatability are important and clean water must be available at all times. Drinkers must provide enough space and capacity for all your birds. Shelter – should provide protection from the sun, wind, and rain as well as proper spacing. Shelters should be safe from predators as well as

meet temperature requirements and be able to handle the manure load. Sanitation – cleaning debris and dust from surfaces, proper selection of equipment and materials, disinfection of equipment and pens, and proper manure treatment are key to keeping disease out of your flock.

The goal of biosecurity is to stop the spread of disease, including bringing problems in or sending problems out to your neighbors. Diseases are spread through contact or close proximity to a host or vector. A vector is any organism that transfers pathogens from one host to another. Typically, people are the most dangerous vectors due to mechanical transfer on our clothing, shoes, equipment, and vehicles. Always wash your hands after you work with your birds as well as shower and change clothes before visiting other poultry producers and before returning to your own flock. Using boot covers and a dedicated set of clothing and shoes can also cut down your disease risk. Avoid mixing species and ages of birds and buy from only trusted and clean sources. Quarantine all new birds for at least two weeks before you mix them with the rest of your flock. Limit visitors to your farm and disinfect all equipment when moving from one farm to another. Work youngest birds to oldest and always work sick birds last. Wash and sanitize equipment after you use it. Remove and dispose of mortality properly and promptly – within 24 hours by law. Isolate birds you believe to be sick. Rodent control is also very important. They are vectors for many diseases and destroy your equipment and feed. Control insects including parasites and prevent contact with wild birds.

If you have any questions about how to put biosecurity practices into place on your farm, you can contact your local Cooperative Extension Office and speak with the livestock agent or myself at [Margaret.Ross@ncsu.edu](mailto:Margaret.Ross@ncsu.edu).

