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**Contact Us**

NC Cooperative Extension  
Scotland County Center  
231 E. Cronly St  
Laurinburg, NC 28352  
(910) 277-2422  
scotland.ces.ncsu.edu

Randy Wood  
County Extension Director  
randy\_wood@ncsu.edu

**Pasture Health Field Day for Horse Owners**

**Friday, May 5, 1:00 - 5:00 pm**

**Carolina Horse Park, 2814 Montrose Rd, Raeford, NC 28376**

Join the livestock agents from Cumberland, Hoke, and Moore Counties for a hands-on field day. The topics include:

- Rotational grazing with a temporary fencing demonstration
  - Types of hay available
  - Hay feeding management
- Understanding a forage analysis
  - Soil health
  - Weed identification

To register, use the link below or contact Liz Joseph, [liz\\_joseph@ncsu.edu](mailto:liz_joseph@ncsu.edu) or 914-489-5330.

Registration link: <https://go.ncsu.edu/horsepastures>

**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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## Composting Turns Swine Lagoon Sludge to Landscape Products

By: Dr. Mahmoud Sharara, Waste Management Extension Specialist

Submitted by: Kaelyn Mohrfield, Livestock Extension Agent, N.C. Cooperative Extension, Lenoir and Greene Counties

The use of brand names and any mention or listing of commercial products or services herein is solely for educational purposes and does not imply endorsement by North Carolina State University or our partners, nor discrimination against similar products or services not mentioned.

The process provided here is only an example of an approach to create value-added products from swine lagoon sludge.

Swine lagoon sludge is challenging to use as a soil amendment because of its high phosphorus (P), zinc (Zn), and copper (Cu). These minerals can stress growing crops and increase nutrient losses. One way to overcome this challenge is through composting. Sludge composting relies on bacteria to break down sludge after mixing with carbon-rich material (such as wood chips and peanut hulls). The product (Compost) is a stable soil amendment that can be used in various applications. This process eliminates odor and pathogens and reduces the concentration of P, Zn, and Cu. Many North Carolina swine producers already rely on composting to manage on-farm mortality. Few, however, have used composting to manage swine lagoon sludge and create a valuable product. In the following article, we briefly review a commercial composting facility in Eastern North Carolina (Mirimichi Green) that apply the composting process to convert swine lagoon sludge to a commercial landscaping product used on turf, golf courses, and ornamental plants to promote growth.

### Lagoon Sludge Composting

The composting facility receives sludge that has been bagged and dewatered using a chemical polymer. The dewatering process results in a sludge that contains around 20% solids. After the hauling trucks unload the sludge (Figure 1), it gets mixed with cotton gin waste, wood and leaf residue, and peanut hulls to achieve moisture content between 50% to 60%. The mixture is then formed into large static piles to initiate the composting process.

Within two days, the piles heat up to temperatures over 130°F. According to permitting requirement by the North Carolina Department of Environmental Quality (DEQ), this facility type needs to maintain the temperature in the pile at or above 131°F for at least 15 days to reduce pathogens and eliminate flies and other vectors. The permit also requires

keeping a daily record of temperature at different points in the pile during composting. Compost thermometers, with a 3ft or 4ft long stem, are typically used to measure temperatures inside the piles. The composting pile is turned every 1 to 2 weeks or when core temperature starts to drop. Turning the pile is critical to introduce oxygen to aerobic bacteria and to make sure it is uniformly composted. Afterwards, the mixture is left to cure for months to ensure it is completely stabilized.

### Compost Stabilization and Processing

After curing, this facility operators form the compost into windrows. This step stabilizes the mixture further and drives off residual moisture before processing. A composting row turner is used to turn and aerate each row (Figure 2). The windrow temperatures are slightly above ambient temperature which is a sign of a stabilized compost. With frequent turning, the mixture gets progressively dryer which helps during the screening process.

This particular facility creates a commercial product that requires more processing steps. These include biochar addition, prilling, screening, and commercial bagging. These steps ensure the product has a uniform particle size (Figure 3) and can be easily applied using common applicators. These processes require expensive equipment and facilities which can be a barrier to individual operators. Aggregating sludge from several farm to a central facility helps spread out the cost for establishing a similar composting facility.

The company indicated the finished product is currently marketed across the U.S. through more than 1,000 distributor locations. The prilled compost is used for landscaping and lawn-care, including on golf courses and football and baseball fields (NFL, MLB).

Swine lagoon sludge is a challenge to manage due to its high content of minerals and metals. Composting helps overcome this issue through mixing it with a low-minerals and carbon-rich residue. An added benefit here is the low-pathogen and odor properties which allow a wider product distribution beyond the farm. Establishing similar facilities requires developing a process that align with permit requirements, and establishing distribution arrangements to market the finished product to end-users.

## Managing Fire Ants in Working Facilities and Pastures

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

It is never fun to feed a hay bale that has been sitting on the field edge all winter only to find that it's infested with fire ants or find yourself standing in a mound while processing calves. Warmer temperatures are here which means fire ants have become active, persistently building their nests that can interrupt day to day operations on the farm. Cattle will avoid eating hay bales loaded with fire ants which contributes to significant hay wastage and large fire ant mounds can interfere with hay production by damaging equipment.

According to Mississippi State University, permanent pastures can have fire ant densities ranging from 50 to more than 200 mounds per acre. At these densities, fire ant mounds interfere with both cattle and human performance and health. Additionally, fire ant-infested hay cannot be shipped to fire ant-free areas which limits the area in which hay can be marketed or sourced.

### Individual Mound Treatments

If you have a heavily utilized area on your farm, such as a watering or feeding location, that has an ant issue you can make individual mound treatments. Drenching individual mounds can be time consuming but provides quick results since the products essentially kill ants on contact. Insecticides such as permethrin can be mixed with water to drench the mounds. One drawback is that mound drenches do not always provide 100 percent control and surviving ants may rebuild mounds nearby. Be sure to read the product label for appropriate mixing rate and any restrictions that may be required.

### Using Baits

You can control fire ants in pastures and hayfields by using granular fire ant baits. Baits are insecticides that are labeled for fire ant management in pastures and hay fields. One drawback of using baits is that they work slowly and need to be applied preventively. Baits can be a little pricey and may range from \$10 to \$50 per acre, depending on the application rate and how many times you treat each season. If your goal is just to reduce the number of fire ant mounds in a pasture, one treatment may be enough. If you want to attempt to eradicate fire ant mounds around a common area such as a barn or working facility, you will need to treat more than once per year.

To treat a pasture or hayfield for fire ants you need to make sure the bait that is labeled for use around grazing animals and a spreader that will apply the bait properly.

Although these baits can be applied in pastures with grazing animals present, there may be a short waiting period before you can cut the hay, usually 1 to 7 days

depending on the product. Regardless of what product you choose, be sure to read and follow the label directions.

Fire ant baits are designed to be slow acting. The worker ants find the bait granules when they are out foraging, take them back to the colony, and feed them to their young. If fast-acting insecticides were used in the baits, they would kill the foraging workers before they could carry the bait back to the mound to feed their brood. With hydramethylnon, you will begin to see results in two to four weeks, but it can take two to three months to see the full effects of a growth regulator product, such as methoprene or pyriproxyfen.

You can apply fire ant baits anytime during the growing season, but spring is the best time. Wait until soil temperatures warm in the spring and fire ants are actively foraging. You can use potato chips or a piece of hotdog to check for foraging activity. Scatter a few chips in the area and come back to check on them in 20–30 minutes. If fire ants find the chips in this time, they are considered active enough to find the bait.

A single bait treatment applied in the spring will help reduce fire ant numbers. If you want better control, a second and even a third treatment will be required. A general rule of thumb is to apply baits around Easter, Independence Day and then Labor Day. The fall treatment (Labor Day) can help reduce the number of mounds present the following spring.

Fire ant baits have a very low application rate (around 1 to 2 pounds per acre!). If you only have a small area to treat, you can use a hand-operated spreader to apply fire ant baits. Hand held seeders designed to spread small seeds also will work, if properly calibrated. But if you plan to treat large pastures or hayfields, you will need a power-operated spreader that can be calibrated to apply such a small amount of bait.

Herd Seeder Company and Spyker Spreaders are two companies that make spreaders specifically designed to apply fire ant baits. This type of bait spreader is driven by a small electric motor and can be mounted on a tractor, ATV, or other vehicle. These can be purchased through farm supply stores or online.

Fire ants pose a risk to both human and animal well-being and can disrupt normal farming operations. A spring application of baits can reduce fire ant populations where animals and workers may be at risk of getting stung. If you have any questions about fire ant management, please contact your local Extension office.

## Seven Things to Consider Before Purchasing Goats/Sheep

By: Taylor Chavis, Livestock Extension Agent with N.C. Cooperative Extension in Robeson County

Over the last several months, I have received quite a number of calls from folks that want to start raising meat goats. Meat goats are hardy animals and one of my favorite animals to have on farm. Below I want to share seven things to consider before purchasing goats. These seven things to consider could also apply to raising sheep.

**1. Determine the stocking rate.** The stocking rate is the amount of goats or sheep and is dependent on the amount of pasture or area for the goats/sheep to graze. A general rule of thumb is 6-8 goats/acre and 4-6 sheep/acre. This of course will depend on management strategy and if other animals are present.

**2. Fencing.** Do you have adequate fencing? Fencing is critical for raising goats. There is an old saying, "If it won't hold water, it won't hold a goat." I can attest to that. Goats are one of the harder animals to keep contained. It takes about 700 volts of electricity to control short-hair breeds of cattle, pigs, and horses. It takes about 2000 volts of electricity for long-haired breeds of cattle, sheep, and goats. There are several fence options. High tensile fencing, woven wire, cable wire, and barbed wire are a few options each with advantages and disadvantages. Woven wire is a commonly used fence option as a permanent fence with 3 strands of electric wire running on the inside to keep goats in. Woven wire usually comes in squares of 6X6 or 6X12. 6X6 can be a problem for horned goats as they sometimes get their horns caught in the smaller squares.

**3. Shelter.** Goats are pretty hardy animals and most of the time only require shelter during periods of severe weather and during the kidding (lambing) season. Goats will continue to forage during periods of warm, rainy weather. Shelters should be sturdy and dry. There are lots of different options that can be used for shelters, hutches, barns, old poultry houses, etc. Keep in mind that it doesn't have to be fancy, just functional.

**4. Feed.** Feed is usually the largest expense. Goats are browsers and prefer to eat above their head, unlike sheep that like to graze close to the ground. Goats need lots of roughage in their diet as they are ruminant animals. Concentrate feed should be supplemented when forage or hay that animals are eating does not provide the correct amount of nutrients for the goat. Producers may have to supplement feed during gestation and lactation to keep the doe in ideal body condition. Hay may also need to be fed during the winter when not much is growing. Both

cool and warm season annuals can be planted to extend the grazing season.

**5. Minerals.** Minerals should be kept dry and available at all times for goats to free choice all year round. Producers can also provide trace mineralized salt blocks year round. If you have both goats and sheep on farm be careful to feed a sheep mineral as copper in goat mineral can be toxic to sheep. You can provide additional copper to goats but needs to be kept up high to prevent sheep from getting it.

**6. Water.** The forgotten nutrient. It is essential for goats to have fresh water at all times. Water is the cheapest feed ingredient. Water needs will vary across the herd and during different weather seasons.

**7. Parasite management.** Meat goats (primarily Boer breed) are susceptible to *Haemonchus contortus* worms, also called Barber Pole worms. South-eastern USA has warm, humid weather, the ideal conditions to help the Barber Pole worm complete its life cycle and thrive. If you are purchasing Boer goats, think about cross breeding to Kiko or St. Croix to breed some resistance into the herd. FAMACHA is a tool that can be used to selectively deworm to decrease worm resistance. Dewormers should be kept on hand to use when needed.

If you have any questions, please feel free to contact your local livestock agent.



## **Pearl Millet: A Versatile Summer Annual Forage**

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

Pearl millet produces some really good summer grazing with peak production months of June, July, and August. It can be seeded broadcast at 20 – 25 pounds per acre or drilled at 15 – 20 pounds per acre at a planting depth of ½ inches. Heavier seeding rates work well for hay production, producing fewer tillers and finer stems which helps cut down on hay drying times. The stem size is the problem with pearl millet hay, if you do not have a hay conditioner to crush the stems expect long curing times. The large stems also allow rainwater to run through round bales when stored outside which causes bales to lose quality quickly. To protect quality the bales, will need to be stored under a shelter or tarped. 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 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 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 the poisonous prussic acid does not occur in pearl millet, making it safe for livestock and horses to graze in all weather conditions. 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 stalks and the same number of leaves as taller varieties.



## Livestock Water Requirements

By: Paul Gonzalez, Livestock Extension Agent with N.C. Cooperative Extension in Sampson County

When folks consider getting livestock, they immediately think of what it will eat. They then think about water for the animals. The concern is usually do they have some. A lot of people don't think about do they have enough and is it good enough. Unfortunately, we can't just think, "water is water".

Water is necessary for regulation of body temperature, growth, reproduction, lactation, digestion, lubrication of joints, eyesight, and as a cleansing agent. Therefore, clean, quality water is essential to good performance. Of course, an animal will drink whatever water is available if it must but think about what is in the water. If, for example, the cattle are drinking out of a water hole, they are probably wading in the water hole too. This means they are urinating and defecating in the water too. What do you think that does for water quality? Therefore, a water source that cannot be entered, or at least has limited entry access is more suitable. Also, animals that have access to clean water and "dirty" water will still consume the dirty water.

The next thing to consider is the water composition. Water varies in the amount of dissolved solids, salts, it contains. Certain levels of solids will cause a decrease in consumption. High enough levels can be toxic to the animals. In addition, levels of certain compounds in the water though not high enough to be toxic on its own, can be increased to a toxic level when the same compound is present in a feed source. An example being water high in nitrate level and then feeding some hay that has a high nitrate level. Either one alone may not be a problem but the two together reach a toxic level. Other compounds that affect water quality include microbial population, pH, and pesticides. Therefore, having a sample from the water source analyzed periodically is a good management practice.

Finally, be sure animals have access to adequate amounts of water. A 1,200 pound lactating cow in summer will drink 15 to 25 gallons of water per day. In the winter she will drink from 8 to 12 gallons. Also, if the temperatures have been very cold and then rise, she will increase consumption by 50 to 100%. A bred females and

bulls will drink 5 to 8 gallons in the winter and 12 to 20 gallons in the warmer months. Growing cattle will consume about the same amount as bred females and bulls. Sheep and goats will drink 2 or 3 gallons a day and growing lambs and kids .5 to 1.5 gallons a day depending on size. Hogs will drink .5 to 6 gallons per day and horses 5 to 15 gallons per day. These values should be considered when choosing a tank or trough for water. It should be large enough to supply about 25 to 50 % of your expected daily needs at one time. Also be sure the flow or supply to the tank is sufficient to fill the tank in a timely manner. Most cattle will only drink for a short time and then move off again to graze or rest. If some show up to an empty tank, they will leave without consuming enough, or possibly any, water. Your water tanks should be thoroughly cleaned, or at least "disinfected" regularly as well. One side note here, a local company is now making and selling four by four (approximately 280 gallons) cement water tanks. I won't give the name here to avoid promoting one company over another but if you are interested in that type of tank, give me a call.

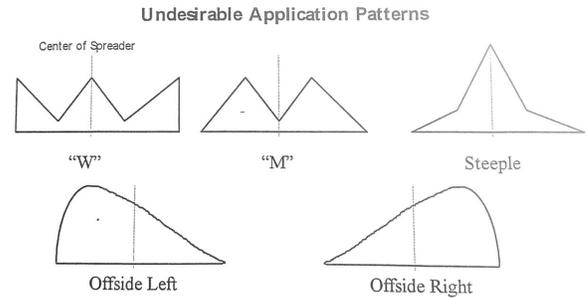
Water is an essential and often overlooked nutrient for livestock. However, water should be a top concern to achieve proper animal performance. Livestock owners should consider both quality and quantity when deciding water needs. Remember too that the water should be in a spot that will prevent freezing and heating. Water temperature should be between 40 and 65 degrees. Livestock will not consume enough water if it is very hot or very cold.



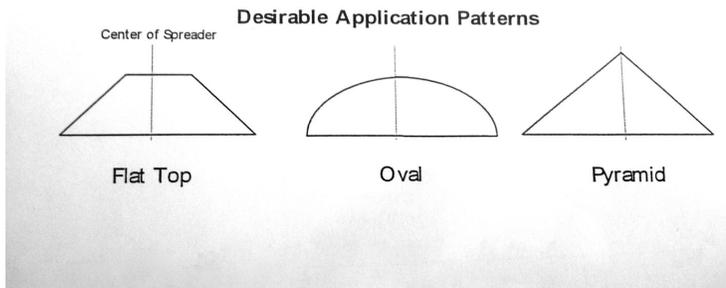
## Make Sure Your Litter Applications Are on Target

By: Richard Goforth, South Central Area Specialized Poultry Agent with N.C. Cooperative Extension

Proper calibration of spreaders ensures your crop receives the intended amounts of nutrients so it has the best chance to succeed and it protects water quality by eliminating over application reducing the chances for nutrient runoff and leaching. Spreader calibration is essential for accurate application rates of poultry litter and other solid animal manures or fertilizers. Calibration not only helps make sure you are applying at the correct rate but will also address poor spread patterns reducing or eliminating striping from excess or deficient nutrients in your field. Every spreader has a different pattern and overtime that pattern may change from wear and tear on equipment. Determining the spread pattern of a unit allows operators to adjust the equipment to improve the pattern and or make allowances for any deficiencies during application by adjusting several factors. The swath spacing, travel speed, gate opening, and feeder rate can all have an effect on spreader patterns and can be adjusted to improve a more uniform application. Because particle size and weight are variable in solid fertilizers the distribution of material in the spreader swath will always be somewhat uneven across the swath but by understanding the pattern, spacing of spreader passes through a field can be adjusted to create a much more uniform distribution. By overlapping passes at the right intervals, a more even distribution can be achieved when the spreader produces any of these patterns.



If you would like to learn more about spreader calibration please watch this video link of a calibration demo <https://www.youtube.com/watch?v=3ftmXcYZzKs&feature=youtu.be> or contact your county livestock or Area Specialized Poultry agent. In addition to answering questions, they also have access to calibration kits available for loan to assist producers to complete a proper spreader calibration. This link <https://content.ces.ncsu.edu/weight-area-method-spreader-system> will also provide a publication with formulas and more details on adjustments to improve spreader patterns for even application rates.



Some spreader patterns alert us to equipment issues that can be adjusted or improved by repairing or replacing worn spinners, bearings, gates and dividers. When we see patterns with heavy deposits directly behind the spreader this often indicates the spinners are too close or too far from the gate allowing litter to fall directly behind the spreader. There also may be an issue with the gate opening or speed of the feeder belt or chain that is dumping to much litter on the spinners at one time. If patterns show heavier distribution to one side of the spreader that may indicate a worn or bent spinner issue or a divider that is not distributing litter equally to the spinner or spinners. The pattern examples below are problematic because they do not allow even distribution by overlapping at the correct interval.



Striping from uneven litter application

## Youth Livestock Opportunities with No Animals Required!

By: Tracy Blake, Livestock Extension Agent with N.C. Cooperative Extension in Montgomery County



Spring show season is in full swing and youth with fall projects are already preparing for the upcoming season, but what about youth who don't have the option to raise and show livestock? There are great opportunities for youth from all backgrounds to participate in livestock or poultry events through the 4-H skillathon, quizbowl, & judging programs!

### **Skillathon**

Youth ages 8 and up are eligible to participate in teams of 3-4. This livestock event requires knowledge of cattle, swine, sheep, & goats. There are 4 contest components; a written test of basic knowledge/quality assurance, an identification section on breeds, equipment, etc., evaluation of hay, wool, or meat, and a team problem such as a breeding scenario, keep cull class, etc.

### **Quizbowl/Avianbowl**

Livestock quizbowl is available to youth 11 and up while avianbowl (quizbowl all about poultry) is open to youth 8 and up. Youth form teams of 3-4 and compete in a Jeopardy style knowledge contest with buzzers.

### **Judging Contests**

Youth 8 and up may participate in teams of 3-4. Livestock and poultry judging are two favorite contests amongst 4-H youth because they get to interact with live animals at the show. Livestock judging includes cattle, swine, sheep, & goats, while poultry judging includes chickens, turkeys, and eggs. Youth judge their classes and then prepare several sets of oral reasons to explain why they placed the classes the way they did.

### **Why Participate?**

Participation in these contests promotes decision making, confidence, and public speaking that are valuable life skills. Youth who participate in 4-H livestock contests increase their knowledge of STEM (science, technology, engineering, and math) and tend to pursue careers in this field. Youth also gain a better understanding of where their food comes from and the value of farming and agriculture.

### **For more information about 4-H Youth Livestock or Poultry Programs Visit:**

<https://youthlivestock.ces.ncsu.edu/>  
<https://poultry4hyouth.ces.ncsu.edu/>

### **Upcoming Opportunities**

- Jammin June (Skillathon & Quiz Bowl Contest):** Fri Jun 16  
Chatham County Agriculture & Conference Center
- Livestock Skillathon & Judging Clinics:** Tue Jun 27 - Wed Jun 28  
E. Carroll Joyner Beef Education Unit, Raleigh
- State 4-H Livestock Contests:** Wed Jul 26 - Fri Jul 28  
E. Carroll Joyner Beef Educational Unit, Raleigh
- 4-H Avian Bowl & 4-H Poultry Judging:** Tue Jul 18 - Wed Jul 19  
NC State Campus, Raleigh