Livestock News

Johnston County Center — May 2017

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For any meeting in this newsletter, 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

Youth Livestock Show & Sale

One hundred twenty-four youth from across Johnston County participated in the annual Youth Livestock Show & Sale April 10-12. There were six steers, thirteen heifers, eighty market hogs, sixty-seven market goats, and twenty-five market lambs entered in competition, which marked the fortieth year since the Johnston County Livestock Arena opened in 1977. The sale grossed over $147,000.00

Winners for the market show included:

Species	Grand Champion	Reserve Champion
Steer	Marcy Price	Schyler Crocker
Heifer	Justin Wood	Marcy Price
Market Lamb	Kadence Overby	Schyler Crocker
Market Goat	Rachel Murphy	Jack Wroughton
Market Hog	Marcy Price	Marcy Price

Showmanship winners were:

Beef	**Novice**	**Junior**	**Senior**
Grand Champion	Katelyn Pilkington	Kadence Overby	Justin Wood
Reserve Champion	Lanie Strickland	Schyler Crocker	Marcy Price
Market Lamb	**Junior**	**Intermediate**	**Senior**
Grand Champion	Lydia Crocker	Kadence Overby	Travis Anderson
Reserve Champion	Lincoln Mozingo	Schyler Crocker	Caroline Corbett
Market Goat	**Junior**	**Intermediate**	**Senior**
Grand Champion	Jack Wroughton	Kadence Overby	Travis Anderson
Reserve Champion	Anna Claire Wells	Wayne "Luke" Adams	Rachel Murphy
Market Hog	**Junior**	**Intermediate**	**Senior**
Grand Champion	Daniel Beasley	Connor House	Marcy Price
Reserve Champion	Carter House	Kaleb Byrd	Travis Anderson

Scholarships were presented to: Travis Anderson, Marcus Chavis, Luke Thompson, Caroline Corbett, Marcy Price, Cullen Brown, Cassidy Goodwin, Brady Philyaw, Christina Parrish, Caleb Thompson, Sarah Allen and Logan Massengill.

Russell & Elaine Wood were inducted into the Johnston County Agriculture Hall of Fame. They are the owners of Wood Angus Farm in Willow Springs.

Managing Sludge

By: Eve Honeycutt, Livestock Extension Agent with N.C. Cooperative Extension in Lenior and Greene Counties

Most owners of swine operations may wait until there is a major sludge accumulation problem before thinking about sludge management. Planning in advance will help avoid a costly clean out. You should know that sludge is dependable, deceitful, and manageable. You also have a lot of options for sludge removal.

Sludge is dependable

As long as the farm is in operation, sludge will accumulate. There are a few formulas that can allow a farm owner to estimate how much sludge accumulates over a given period of time, but reality tells us that all farms accumulate sludge at different rates. This can change with management, chemicals used for washing houses, and rainfall.

Sludge is deceitful

Every year I perform several dozen sludge surveys for farmers in my two counties. I always want them either in the boat or at least present on the bank so they can see the areas where sludge accumulates in their lagoon. I always encourage farmers to do their own sludge surveys before they hire anyone to remove sludge from their lagoon. Sludge can move in the lagoon depending on the weather and it does not collect evenly across the bottom. When preparing to physically remove sludge, you need to know where the majority of it is in the bottom of your lagoon.

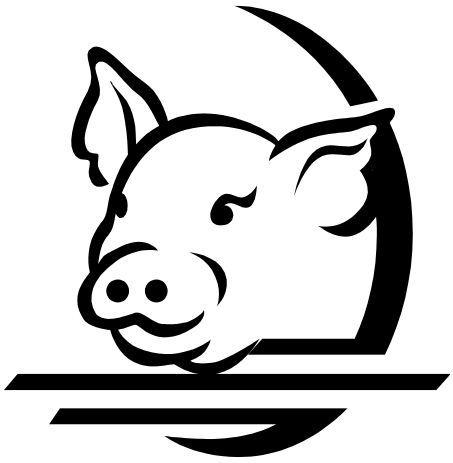
Sludge is manageable

Understanding how sludge is formed and how your lagoon functions is important for good farm management. The solid parts of the waste naturally settle to the bottom and your permanent storage (below your stop pump/bottom peg) is where lots of good bacteria live. These good bacteria naturally decompose your solids. As they decompose the solids, they emit carbon dioxide (the bubbles you see) and their presence turns the water purple. When the balance of these bacteria is out of whack, they can't do their job properly. You should maintain your lagoon so that there is always water up to the bottom peg. This water and the solids beneath it allow the bacteria room to flourish and do their job. Sludge management works together with responsible liquid management.

Your options for removal

In your last newsletter, Becky provided detailed information on using sludge bags, or geotextile tubes, to physically remove sludge. Additionally, you can consider agitating the lagoon and pumping the slurry into honey wagons for land application on nearby fields. Some farms have opted for using products that are promoted by companies to decompose sludge faster and require no physical removal. I have also written several slurry plans for farmers to use as a management tool. Pumping slurry out occasionally will keep the sludge from becoming a major problem all at one time. Your permit requires you to maintain less than 50% of the total volume free of sludge. The permit does not say that if you get above that 50% threshold that you have to remove it all at one time.

Before you make a definite plan for sludge removal, check with your company for recommendations. Your local Extension Agent can also recommend sludge removal companies in your area. Additionally, be sure the company you choose has some way to guarantee results and has good refer-



Hay Directory

North Carolina Department of Agriculture's Hay Alert is at http://www.agr.state.nc.us/hayalert/. Producers can

Managing Fertility in Hay Fields

By: Zack Taylor, Agriculture Extension Agent with N.C. Cooperative Extension in Lee County

I often hear corn growers mention the common rules of thumb with fertilizing their crop. Most know that they need about 1 pound of nitrogen for every bushel they expect to produce. Soil test give them an idea of how much phosphorus and potassium they will need, and some growers may make adjustments depending on their yield potential. I use corn as an example because we often think of corn as a high nutrient demanding crop, but did you know that hay generally requires more nutrients to produce a healthy crop?

Think about it, in a corn crop, except in the case of silage, we are only removing the grain, and any nutrients stored in leaves and stalks are returned to the soil. In hay though, we remove a majority of the plant, returning very little back to our soils. Few of us really think about how many nutrients hay can remove. It is time to start putting more thought into our hay fertility programs.

When was the last time you pulled a soil test on your hayfield? Do you take them regularly, or only when there is a problem? NCDA recommends sampling every 3 years on a sandy soil, or 4 on a clay soil, so that nutrient levels can be monitored and pH can be maintained at optimum levels. All too often, we only pull samples when there is an issue, and only make phosphorus or potassium applications at that time instead of making regular applications to replace the nutrients as they are being removed with each cutting.

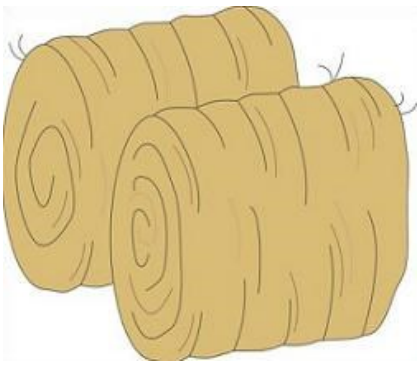
So just how many nutrients are being removed? In general, we can expect a coastal Bermuda hay to remove about 50 pounds of nitrogen (N), 10-13 pounds of phosphorus (P), and almost 40-50 pounds of potassium (K) for every ton harvested. Another way to think about this is that P and K uptake will be in a 1 to 4 ratio, so 4 pounds of K are removed with every 1 pound of P.

Let's look at an average crop in our area. If we look at a Dothan loamy sand here in Lee County, we are looking at a realistic yield expectation (RYE) of 6 tons per acre of coastal Bermuda hay. This means that in this field, coastal Bermuda hay has the potential to remove 300 pounds of N, 78 pounds of P, and 300 pounds of K per acre. In order to remove those kinds of nutrient amounts from soil through a corn crop, we would have to grow 1,110 bushels of corn per acre! That is more than double the world record corn yield, and almost 10 times the average yield in North Carolina! Are you replacing nutrients at those levels on your farm?

Before making these types of applications, always take time to pull a soil sample. Remember, nitrogen is not tested for in soil samples, so application rates will be based on your RYE. The example I gave was based on a soil in Lee County, but your RYE can be found online for each soil type and county online at yields.soil.ncsu.edu. You can also adjust these numbers if you know the average yield potential of your fields. Fortunately, many of our soils have sufficient phosphorus levels, and often little phosphorus needs to be applied. Potassium has the potential to build up in soils, but it will leach, so yearly applications are generally recommended. Knowing what is in the soil and only applying necessary nutrients will save you money.

Manure sources can often supply us with adequate levels of phosphorus, but nitrogen and potassium will need to be supplemented. Nitrogen applications should be split and applied after each cutting. Potassium applications can be applied once at the beginning of the season, but on a sandy soil it is recommended to split into at least two applications. Phosphorus does not readily move in the soil profile, so it can be supplied with one application at the beginning of the season if needed. Micro nutrients like calcium, magnesium, and sulfur will also be removed, but in general they can easily be supplied in sufficient amounts with manure.

Finally, don't ignore the liming recommendations on your soil test report. Target pH for Bermudagrass is 6.0. When pH is too high or too low, nutrients may not be available to the crop even when supplied at proper lev-



Don't Overlook Disposition When Selecting Your Cows

Everybody loves a good mean cow story. Talk to any cattle farmer for long and inevitability the conversation will turn to a cow that would chase a truck out of the pasture when she had a newborn calf at her side, or an old open cow that was too crazy to get on the trailer. For generations, most cattle farmers have put up with a lot of bad tempered cattle. The reasons are numerous; She raises too good a calf, she is fine as long as you don't get in the pen with her, that fence needed fixing anyway. The list goes on and on. The truth is that we as cattle farmers are hurting ourselves when we let really bad tempered cattle remain on the farm. In the last two years, I have known three cattle farmers who were seriously injured by their cows. In all cases, these were experienced cattle farmers who simply let their guard down and got hit when they were not expecting any trouble. While there will not be a time in the near future when we will be able to overcome hundreds of years of instinct and prey animal behavior, there are some management and selection practices we can put into place to help keep our cattle herds more docile and less likely to be a conversation piece at the next cattlemen's BBQ.

There are two reasons to actively manage for easy handling cattle. The first one is the obvious safety factor that I discussed before. Nobody enjoys working cattle from the top rail of the corral. The second reason is that it is well documented that bad tempered cattle are less profitable.

There have been several studies that repeatedly show two areas where excitable cattle perform poorly when compared to calmer cattle: reproduction and carcass quality. In several studies where brood cows and heifers were observed and scored for disposition, the poor (crazier) scoring cattle almost always had a much lower pregnancy rate. These same type of studies not only showed this to be true for artificially bred cattle, but somewhat surprisingly for natural mating's as well.

Similar research has been conducted on steers in feedlot situations where carcass quality was tracked after slaughter. These studies conclusively show that quieter steers had a significant advantage in tenderness and yield quality over their more excitable counterparts.

The physiological reason for this is the hormone Cortisol. Cortisol is a hormone that is produced by the body when cattle get scared and the "fight or flight" reflex takes over. Cattle that are naturally bad tempered or frighten easily whenever you get too close to them have been shown to produce this hormone in greater quantities. The negative effect of this hormone in the body is that it represses reproduction functions and decreases tenderness in the muscle. This is why there is a true negative relationship between profitability and wild cattle.

So how do we actively manage our cows to improve their disposition?

Start by realizing that disposition is very heritable. When we look at the heritability (the genetic ability of a particular trait to be passed from one generation to the next) of disposition, it is a very heritable trait. I have seen crazy cows have equally crazy calves time and again. Not only is this a genetically inherited trait like color and horns, but it is also a learned behavior as well. Cows that will throw their heads up and run when you enter the pasture will very often take their calves with them. Before long the calves will do this everytime, even after weaning. This cycle often repeats itself over and over. Disposition is so heritable that many cattle breed associations will list disposition scores on potential herd bulls. This leads us to the first step in improving our cattle attitudes. Identify highly nervous cows and give them a free ride to the stockyard.

How to Identify Problem Cows

Several systems have been created to help cattle farmers identify and track bad cattle behavior. You can make this process as simple or as in-depth as you want. I myself think there are 4 key areas where bad tempered cattle are easy to spot.

- Pasture behavior - does a cow let you approach reasonably close in a pasture setting without exhibiting nervous behavior or fleeing?
- Sorting Pen/Corral behavior- do they act moderately calm when they are in a smaller corral or pen and allow you to sort them out of a group?
- Chute behavior- do they go into a working chute or alley without significant issues? Do they stand quietly while they are in the chute? Do they exit the chute in a somewhat quiet manner or do they exit and run?
- Newborn calf behavior- This is often the Achilles heel of a lot of cows. How protective are they when they have a newborn calf at their side?

This is the most debated behavior pattern amongst cattle farmers as to what degree of aggression they are willing to put up with when a cow calves. Some farmers do not put up with any aggressive behavior at all. Some farmers are willing to let pretty much anything go as long as they have a healthy newborn calf nursing on them. There is no doubt though, that if a cow is ever going to be mean, this will probably be the time. Most cow-calf farmers will generally tolerate a moderate amount of aggressive/protective behavior for a few weeks after calving, but will also expect this to subside as the calf gets older.

Safe Grazing for Horses

By: Kelly McCaskill, Livestock Extension Agent with N.C. Cooperative Extension in Moore County

Whether you have a horse that is prone to founder or are just unsure if a certain weed in your pasture is safe for your horse to nibble on, spring and summertime grazing can be a little nerve-racking for horse owners. There are several things to keep in mind for safe grazing for your horses.

When a horse suffers from certain metabolic conditions, unmanaged grazing can be detrimental to their health. A horse suffering from Cushing's, insulin resistance or other metabolic conditions often needs to limit their intake of carbs, specifically non-structural carbohydrates(NSC) i.e. sugar, to keep their symptoms under control. Plants store their energy in the form of sugar, so grazing when the plants' energy stores are at their lowest is a good way to keep NSC consumption to a minimum. The time of day, time of year and type of grass should be taken into consideration before turning your horse out.

Grasses use sunlight to create carbohydrates (photosynthesis) and store them to use as energy for growth overnight. This means the NSC content is highest in the evening since they are storing energy to be able to keep growing overnight. Typically the best time of day to turn out an at-risk horse is early in the morning since at this point the grass should have used up most of its energy stores overnight and has not had a chance to make more yet. This can vary with the time of year and environmental conditions; if the grass is in a drought situation, excessive heat or an overnight freeze, then growth is slowed, therefore less energy is used and the grass will have a higher than usual NSC content in the morning. Even something as subtle as cloudy conditions can affect how much NSC is made by slowing the process of photosynthesis, decreasing how much sugar is made.

Due to the major variance between time of day and time of year, it is very hard to get an accurate NSC measurement in grasses. A forage analysis will only give you a snapshot of that exact point in the day/season so it is not a truly accurate representation of what your NSC levels are. However, the results of NSC content on a hay analysis are pretty accurate once the hay is cured and baled, so you can and should have your hay analyzed for general nutrient composition as well as NSC content. Hay tends to be lower in NSCs than fresh forage, but grass can continue to photosynthesize for several hours after being cut from the stem, leaving nowhere for the sugar to go but to remain in the cut grass so the sugar levels may be higher than expected. It's always smart to have your hay analyzed in any case, especially if you are purchasing it from someone else, but if you have a horse where NSCs are of concern, you should definitely get an analysis that includes NSC content.

The type and variety of forage you are growing will also affect how much NSCs are being stored in your grass. Cool season grasses, such as Orchard, Timothy or Ryegrass are typically higher in NSCs than warm season grasses such a Bermuda. Annuals are usually higher than perennials, but just like the difference that weather conditions can make, there can be a significant variance between varieties of the same type of grass. It is unclear as to exactly what the effects of legumes in the diet of an at-risk horse are, so they should be grazed with caution. You should always work closely with a veterinarian to determine what feed and what NSC content is safe for any horse with a metabolic disorder.

Even if your horse is not considered "at-risk", pasture weeds are always of concern for horse owners. While most weeds we find in our pastures are benign there are a few baddies that should be removed from anywhere that a horse may have access to them.

Some common but poisonous weeds to look out for this time of year are horsenettle, bracken fern, Johnsongrass, buttercup and pokeweed. Another common source of grazing related health issues is wilted leaves from certain trees. Red maple, red oak and cherry all have toxic effects if wilted leaves are ingested. You should regularly walk your pastures to look for any potentially poisonous species. If you have any of the trees that are potentially poisonous near your paddocks, make sure to check for any downed limbs after a storm that your horses would be able to access. Although some horses may ingest poisonous plants out of curiosity, making sure they

Low-Stress Weaning for Lambs and Kids

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

Weaning is a stressful time for all parties involved. Lambs and kids need to figure out how to live without their mommas and does and ewes need to let go and dry off. This is a time that should be planned out carefully to avoid unnecessary stress.

The best time to wean depends a number of different factors. Most kids and lambs are weaned at 60 to 90 days with some producers waiting until the kids and lambs are four to six months old. It is better to plan when to wean based on weight, not age. It is recommended to wait to wean until the lambs/kids are at least 2.5 to 3 times their birthweight.

Preparation for weaning should start two weeks before the intended weaning date. During this time you will be preparing both the kids/lambs and does/ewes. The goal is to have as little stress at weaning as possible. The first thing you will want to do is get your weaning facilities prepared and move all of the animals there. This will allow the kids/lambs to become familiar with their new surroundings while their dams are still with them. The fencing should be in good shape and secure. Kids/lambs should have easy access to waterers and feeders. If you do not plan on castrating, it would be a good idea to have separate pens for males and females once weaning has occured. This will help prevent unwanted breeding and will allow you to feed the two groups to meet their specific nutritional requirements. Intact males grow faster than wethers and doelings/ewe lambs, increasing their energy requirements.

The kids and lambs should also be introduced to grain during this two week period. By time they are weaned they have to be consuming enough forage and grain to replace the nutrients their mother's milk was providing. Most kids and lambs should be familiar with eating forage and grain that their dams are eating by two to four weeks old so this should not be a hard transition. Creep feeding is often implemented during this time, which allows the kids/lambs access to the feed they will be consuming once they are weaned, allowing their systems to get adjusted. It is recommended to use a feed that is lower in starch to prevent enterotoxemia (over eating disease). Vaccinations, dewormers, tagging, and castration should be done at least two weeks prior to or after weaning to decrease the amount of stress at weaning.

Coccidia are protozoa found naturally in the intestinal tract. If an animal is put under stress, the population can increase rapidly, making weaning a prime time for coccidiosis. Feeding a medicated feed with a coccidiostat in it can help prevent this from happening. It is also a good idea to check kids/lambs raised on pasture for internal parasites. The stress of weaning can also cause issues even if the animals have relatively low levels of worms. Blanket deworming is not normally recommended but could be used during this time. Administer a combination of two or more drugs from different drug classes sequentially to ensure an effective treatment. Using dewormers from different drug classes will help reduce the chance of drug resistance and boosts the effectiveness of the treatment.

The dams also have to get prepared for weaning. Several days prior to weaning, remove any grain from their diets and, if possible, put them on a lower quality forage. This sudden drop in nutrients will decrease milk production. The dams should remain on the lower quality forage until their udders shrink and they dry off. During this time you will want to look for any signs of swelling or redness, as this could be mastitis. Throughout this process if any of the dams seem to be extremely uncomfortable some milk can be removed from the udder, but don't remove it all because this will continue to stimulate milk production.

When weaning day arrives, move the dams and keep the kids/lambs where they are used to being. This can help reduce stress. Fence line weaning is a technique many cattle producers use that has been shown to help reduce stress. The dams and kids/lambs are still able to see each other, but not be together. Eventually the dams will get hungry and thirsty and venture off.

Weaning can be a stressful time, but following these recommendations can help reduce those stress levels. Consult with your veterinarian if you have any questions on timing or doses for vaccinations and dewormers. If you have any other questions, contact

Livestock Skill-a-Thon: What is it?

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

Livestock Skill-a-Thon and Quiz Bowl
There are numerous opportunities that youth can participate in that are livestock related. I want to highlight the Livestock Skill-a-Thon competition and the Quiz bowl.

Livestock Skill-a-Thon

The Livestock Skill-a-Thon requires youth to be involved and gain new knowledge about livestock. Youth without animals can even participate. Youth must be between the ages of 9-18. There are two divisions, junior and senior division. The junior division is for kids 9-13 and the senior division is for ages 14-18. The objective of the Livestock Skill-a-thon contest is for youth to learn to identify and understand the proper use of tools and equipment that are related to animal husbandry, learn to identify feed stuffs and how they contribute to a balanced ration, learn to identify breeds of livestock and understand their origin, learn to identify meat cuts, along with the correct species, and teach youth to work together in problem solving techniques. The Livestock Skill-A-Thon consist of three parts: identification, written test, and group problems. The Livestock Skill-A-Thon also allows the kids to evaluate the quality of wool and hay. The skill-a-thon awards the top individual and team overall in junior and senior division and also the top 10 overall individuals in the junior and senior division. The North Carolina State 4-H Livestock Skill-a-thon team will be selected from the high senior team and top 10 senior individuals.

IDENTIFICATION
The identification component of the skill-a-thon contest requires kids to identify breeds, feeds, meat, and tools. Major species are goats, sheep, cattle, and pigs and any breed, meat, feed or tool related to those major species can be used for kids to identify. Pictures of various breeds are used, but meat, feed, and tools are present for the kids to look at. Youth are asked to identify between 10-20 breeds, 10-20 meats, 10-20 feeds, and10-20 equipment/tool identification.

WRITTEN TEST
The written test is made up of 15-30 multiple choice questions that cover a range of topics about the major species. Nutrition, reproduction, anatomy, diseases, marketing are topics that can be addressed. Kids work on their own to determine the best answer. Examples of multiple choice questions may include, “An intramuscular shot is given in the ____?” or “If the withdrawal period for an antibiotic is two weeks, how long must you wait before marketing a pig that has been treated (according to the label) with the antibiotic?”

GROUP PROBLEM
The group problem is the last part of the skill-a-thon. It consists of three or four kids around the same age that work together on a problem. Each group is given 20 minutes and the problem can address anything related to the major species. Scenarios and how to complete a task may be used for the team problem.

The skill-a-thon contest is a combination of team work and individual work and allows almost all children to be recognized in the area of the contest in which they shine. There will be a Skill-a-thon Clinic at the NCSU Beef Education Unit in Raleigh on June 27. The State 4-H Skill-a-Thon contest is July 20, 2017 in Raleigh.

Quiz Bowl

The objective of the quiz bowl, also called Stockman’s Bowl is to offer an opportunity for youth interested in livestock to display the knowledge they have gained in a competitive and friendly atmosphere. The quiz bowl offers a junior and senior division. The junior division is for ages 9-13 and the senior division is for ages 14-18. Participants in the quiz bowl are asked a number of questions that can pertain to anatomy, breed identification, conformation and judging, demographics and marketability, diseases and health, economics, equipment identification, feeds and nutrition, forages, genetics, history and evolution, husbandry, biosecurity, housing, meat identification, reproduction, showmanship, terminology, waste management, and other topics that could relate to the major species of goat, sheep, cattle, and swine. The quiz bowl is set up like a game panel with a moderator, set of questions, and a team of 3 to 4 members. Participants are given buzzers and the first to buzz in has the opportunity to answer the question. Teams are ranked on the basis of points and the top three junior and top three senior divisions receive ribbons.

Being Energy Efficient in your Poultry Houses

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

Article adapted from Mississippi State publication "Reducing Energy Costs in Poultry Houses"

Over the years, energy efficiency has ramped up and people are more aware of their energy usage. Power companies have also started offering incentives to be more energy efficient. The poultry industry is also thinking along the same line. Here are some ways to help reduce your energy costs associated with your poultry houses:

Insulate your Houses- Your poultry houses and equipment should be well maintained and in good working order. If you need to, you may modify them to stop excessive heat loss. It is also important to insulate your poultry houses. Be vigilant of and quickly repair insulation that birds, rodents, or insects may destroy or damage.

Seal Curtains- Be sure to repair any curtain holes and rid of cracks between your houses and your curtains. Cracks may reduce the ability to properly control your ventilation. The entire sidewall opening must be covered, as well as curtains should fit close to the wall. Bottoms of curtains should be sealed with a tack-strip. You can reduce uncontrolled air entry by installing pocket flaps over curtain tops and ends.

Stop Air Leaks- Drafts can be prevented by sealing wall cracks and air leaks. You can seal cracks with expanding polyurethane foam. Foam expands as it dries, so do not over apply.

Vapor Barrier- Protect against moisture saturation by installing a vapor barrier on the warm side of insulation. Also, seal damage and tears to exposed vapor barriers.

Maintain Control Devices- Check and clean timers and thermostats for accuracy. Be sure to replace them if they cannot be repaired.

Weather-strip Openings- All door openings should be weather-stripped to prevent air entry when doors are closed.

Properly Ventilate- Work diligently to be sure your ventilation is in sync with the production needs of your birds, as well as house conditions. Keep a watch for excess litter moisture which requires additional energy.

Eliminate Temperature Layers- Mixing fans can be used to circulate air and help maintain a uniform temperature at all levels. If air is not circulated, different temperature layers can form. Warmer air will be near the ceiling. Houses with tall ceilings will create more temperature layers.

Control Wasting Water- Ventilating properly helps reduce litter moisture. It is also important to repair waterer and water line leaks. Additional heat is required by faulty/leaky water systems.

Timely Ventilation- During the warmest times of the day, it may be necessary to increase the ventilation rate to control moisture in the house and in the litter. As the temperature of the house increases, the evaporation of moisture increases greatly.

Fan Replacement- Always replace fans with the most energy efficient ones that work for your house needs. Be sure to have access to a replacement fan motor and consider maintenance and service type questions when deciding on your replacement fans.

Maintain Equipment- Shutters and fans should be cleaned on a regular basis. Lubricating motors and pivot joints is important, after shutters and fans have been cleaned. All unused fan openings should be covered and sealed with curtain material or plastic sheeting.

There are also many other areas of concern when considering poultry house energy efficiency. It is important to keep accurate records of your electric, gasoline, gas, and diesel fuel meters on a monthly basis.