Get the Livestock News to your E-mail!

If you would prefer to receive this bi-monthly publication via email, now you can. Your e-mail address will be kept secure and will not be seen by others receiving the emails. Elected to receive the newsletter by e-mail will reduce our postage costs and reduce the amount of paper in your trash. To get the newsletter via e-mail, simply send me an email at dan_wells@ncsu.edu with Newsletter in the subject. If you still wish to receive a paper copy, no action is needed, you will continue to receive it. The current newsletter is also available online at harnett.ces.ncsu.edu Just click on Animal Agriculture. If you have questions please call me at 910-893-7532.

March 18-Beef Quality Assurance (BQA) Training
Anyone interested may attend this training. After the training session, producers who wish to be Beef Quality Assurance certified will need to complete a test and pay the $15 three-year certification fee. Those who are not members of the NC Cattlemen’s Association will also need to purchase a one-year NCCA membership for $25. For more information or to register call 910-893-7532.

March 23 - Clinton Feeder Calf Sale
The sale will be at 7 pm at the Sampson County Livestock Facility. Cattle should be brought to the facility for grading, penning, etc., on March 23rd between 7 am and 4 pm. For more information, call Paul Gonzalez at Sampson County Extension at (910) 592-7532.

March 30 - Beef Marketing Meeting
There will be a beef marketing meeting on Tuesday, March 30th at 7 pm at the Harnett County Office. The meeting will be a webcast and include speakers on graded state sales, preconditioning, truckload lots, and cull cow marketing. There will also be a panel discussion about marketing options. This meeting is geared towards farms of all sizes and possible marketing arrangements that any producer can join. To register, call 910-893-7532.

April 15-Horse Program
This program will be on horse hoof anatomy and shoeing. Farrier Loren Griggs will be the guest speaker. Anyone interested is welcome. Please call 910-893-7532 to register.

April 21-Small Ruminant Parasite Management, Smart Drenching and FAMACHA certification
This event will be held at the Center for Environmental Farming Systems (CEFS) in Goldsboro from 8:45 to Noon. Participants will learn about the biology of the gastrointestinal nematodes, a quick review of dewormers, and how to integrate smart drenching, FAMACHA and pasture management for more effective control. New alternatives being researched will also be discussed. A hands-on session will be held to teach participants how to use the FAMACHA card as an effective tool. Producer’s fees for the training can be reimbursed by a grant through NC A&T State University. Call 910-893-7532 for more information.

Disclaimer - The use of brand names and any mention or listing of commercial products or services in this publication does not imply endorsement by North Carolina State University nor discrimination against similar products or services not mentioned.
## Animal Waste Management
By: Becky Spearman, Livestock Extension Agent with NC Cooperative Extension in Bladen County and James Parsons, Area Poultry Extension Agent with NC Cooperative Extension

### Security on farms
Swine and poultry farmers in North Carolina have faced one of the wettest winters on record. This has resulted in higher than normal lagoon levels and more stockpiled poultry litter than normal. Producers are unable to pump lagoons or apply litter as planned.

There have been reports of trespassers on swine and poultry farms recently. The trespassers are looking at lagoons, sprayfields, and poultry litter storage areas for potential water quality problems. Cameras are always at hand in attempts to document real or perceived potential problems.

Farmers are encouraged to keep gates, barns, and buildings locked. Also let employees and family members know so they can be on the lookout for suspicious people. Post "No Trespassing" notices on your property. This may boost your right to prosecute. Producers should be on good terms with the Sheriff’s Department. If you apprehend a trespasser, do not threaten or use physical force. Don’t put your own personal safety at risk. Develop a good relationship with neighbors and watch out for each other.

With all this said, it is extremely important that swine and poultry farmers implement all best management practices in managing animal waste. Make sure all bio-security plans are in place including no trespassing signs at farm entrances. Remember, you are being watched.

### We Care Program
In 2008, the National Pork Producers Council and the National Pork Board launched an initiative to demonstrate that American pork producers are dedicated to producing safe, nutritious pork products for a hungry world. The logo represents the areas that producers commit to - Animal Care, Environment, Food Safety, Health, and Community.

### DID YOU KNOW? Facts from the We Care website
- **At the beginning of 2009, there were nearly 67 million pigs in the U.S. herd.** Of those, 62% were in Corn Belt States and another 15% were in North Carolina, the single largest pork producing state.
- **Pork is the world’s most consumed meat.** As popular as pork is in America, it is not the United States, but China, that is the number one producer and consumer of fresh pork in the world.
- **The U.S. is the world’s largest pork exporting country.** Overall, pork exports increased to $4.8 billion in 2008 with sales to Japan, the top importer of U.S. pork and pork variety meats, topping $1.5 billion.
- **The pork industry supports agriculture in America.** Annually, the industry consumes 10 percent of the total U.S. corn crop (1.4 billion bushels) and 10 percent of the total U.S. soybean crop (283 million bushels).

### Forage Management Tips
*From Production and Utilization of Pastures and Forages in North Carolina.*

#### March
- Fertilize cool-season grasses to increase production.
- Dig weed free bermudagrass sprigs and plant them before growth begins. Consider using a herbicide.
- Control winter annual weeds in dormant bermudagrass with herbicides, burning or grazing pressure.
- Watch for grass tetany as rapid grass growth and cool, wet weather prevails-supplement with high mag mineral.
- Scatter manure from areas where animals congregate.

#### April
- Fertilize cool-season grasses if not already done.
- Watch for symptoms of grass tetany.
- Fertilize warm-season grasses when dormancy breaks.
- Establish hybrid bermudagrass unless irrigation is available.
- Plant crabgrass and switchgrass. Plant seeded varieties of bermudagrass at the end of the month.
- Graze cool season grasses down to 2-4”. Harvest for hay if growth is too rapid to maintain grazing pressure.
- Completely graze or harvest winter annuals before grazing other pastures.
Establishing Bermudagrass Pastures and Hayfields
By: Dan Wells, Livestock Extension Agent with NC Cooperative Extension in Harnett County. Some information excerpted from Bermudagrass Management in North Carolina and Production and Utilization of Pastures and Forages in North Carolina

Bermudagrass is a very important forage in North Carolina. It is well adapted to well-drained, sandy soils and grows rapidly in hot, humid weather. There are several varieties of bermudagrass that fit into various production scenarios. Regardless of the variety chosen, careful planning is necessary to ensure a successful stand. This article will discuss some of the important things to consider when planning to establish bermudagrass.

There are both seeded and hybrid varieties of bermudagrass available. The hybrid varieties, which must be established by transplanting sprigs (stolons or runners) generally are capable of producing higher yields than common or seeded varieties. Some of the seeded varieties include Ranchero Frio, Mohawk, Cheyenne and Wrangler. Hybrid varieties adapted to North Carolina include Coastal, Tifton 44, Tifton 85, Midland 99, Ozark and Goodwell. Coastal is the oldest of these varieties and many people incorrectly refer to all bermudagrass varieties as “Coastal.”

Recent research has been conducted in North Carolina on seeded varieties of bermudagrass. Refer to the article by Becky Spearman on page 4 about this research. For more information about hybrid varieties visit the NC Crop Improvement Association website at www.nccrop.com and click on “Variety Information.”

Regardless of the variety to be planted, the first step is to get a soil sample. Incorporate the necessary amounts of lime, phosphorous and potassium, and then thoroughly prepare the seedbed. The soil should be prepared early and then allowed to settle or cultipacked or rolled before planting. Loose soil is a problem when planting any kind of grass. With seeded varieties, it is very easy to plant small grass seeds too deep in loose soil, which will not allow for good germination and emergence. Sprigs planted in loose soil will dry out quickly and loose viability. To determine the firmness of the soil, a good rule of thumb is to walk across and look at your footprints. Your footprint should be no deeper than ½ inch, or the soil needs to be firmed.

When planting hybrid bermudagrass, it is important to use certified sprigs. Certified producers have their nursery fields regularly inspected to check for noxious weeds and to ensure that the variety being sold is the variety advertised. For sources of certified sprigs, contact your extension agent or visit the NC Crop Improvement Association website mentioned above and click on “Seed Producers.”

The best method for establishing hybrid varieties is to dig and transplant dormant sprigs in February or March. It is possible to transplant sprigs later, but soil moisture and weed pressure tend to be greater in later plantings and will require more management to result in a successful stand. Sprigs should be planted as soon as possible after digging, especially if planting later in the spring after dormancy breaks. Drying time and air temperature have a great impact on the survival rate of transplanted sprigs.

Sprigs may be planted several ways, but the depth at which they are planted is extremely important. Dormant sprigs can be completely covered with up to 2 inches of soil and will penetrate as long as the soil surface does not form a hard crust. Non-dormant sprigs should not be completely covered. Ideally, they should be planted vertically or semi-vertically with a half-inch to an inch of the sprig exposed. It is possible to plant sprigs with a mechanical transplanter such as a tobacco setter, plant sprigs in furrows and cover lightly with a cultivator, or broadcast sprigs and cover them with a disk with its blades set to cover lightly. If sprigs have been disked in, it is important to firm the soil around the sprigs with a cultipacker. There are also sprigging machines that carry a bed of sprigs and drop them in furrows, cover them and cultipack in a single pass. Some sprig producers rent these machines with purchased sprigs or offer turn-key service establishing bermudagrass.

Weeds must be controlled while bermudagrass is being established. Use of a pre-emergent herbicide can be beneficial. Mowing young stands of bermudagrass can help control weeds and also force the grass to spread. If the grass was sprigged in rows, it is possible to use a field cultivator between the rows until the grass spreads. Contact your extension agent or consult the NC Agricultural Chemicals Manual for labeled herbicides.

If all the necessary phosphorous and potassium were applied during seedbed preparation, then add 30 to 40 pounds per acre of Nitrogen when the grass begins to grow. 6 to 8 weeks later add another 30-60 pounds of Nitrogen per acre.
Sprigged hybrid bermudagrass is a commonly planted grass in Southeastern NC. In recent years, superior varieties of seeded bermudagrass have come on the market. The superior varieties are not the same as common bermudagrass which is considered a weed in many situations. Establishment of seeded varieties is very critical. When purchasing seed, check to see what is in the variety and if it is a blend. Avoid pure sources of Giant or common bermudagrass. Research in other states shows that the yields of true seeded varieties are similar to most hybrids.

Recommendations are to plant when the soil temperature is 65°F or higher at a 4” depth (late April or early May). Field preparation, seeding rate, seeding depth, soil fertility, and pH are critical parts of the process. Weed competition is a major challenge because there is no labeled control for the establishment year of seeded bermudagrass. It is recommended to avoid fields with heavy weed competition such as crabgrass, goosegrass, and nutsedge. Use glyphosate or paraquat to create a weed-free seedbed.

If planting seeded bermudagrass in a swine sprayfield, the Interagency Nutrient Management Committee (INMC) recommended that RYE database assign superior seeded varieties the same yield for Nutrient Management Plans.

There has not been a lot of research on seeded varieties in NC. In 2007, two trial plots were established in Bladen and Jones County. The Bladen plots were planted on May 24th with a Brillion seeder. The plots were 25’ x 70’. Yield date was taken in 2008 and 2009 and the preliminary data is below. The preliminary statistics show that there is no differences (p=0.10) except for Wrangler. Other varieties were used in the Jones County plots.

The table below is harvest yields in tons.

<table>
<thead>
<tr>
<th>Variety</th>
<th>2009 bermuda</th>
<th>2009 total</th>
<th>2008 bermuda</th>
<th>2008 total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheyenne</td>
<td>3.9</td>
<td>6.6</td>
<td>1.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Mohawk</td>
<td>4.0</td>
<td>6.4</td>
<td>2.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Ranchero Frio</td>
<td>4.1</td>
<td>6.7</td>
<td>1.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Wrangler</td>
<td>2.2</td>
<td>5.3</td>
<td>1</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Variety 2009 bermuda 2009 total 2008 bermuda 2008 total
Cheyenne 3.9 6.6 1.4 3.6
Mohawk 4.0 6.4 2.1 3.7
Ranchero Frio 4.1 6.7 1.6 3.5
Wrangler 2.2 5.3 1 3.0

The chart below is 2009 harvest yields in pounds.

Two new herbicides labeled for use in pastures and hayfields

**Prowl H2O** has a supplemental label for use in established bermudagrass pastures and hayfields for preemergent control of annual grasses. Prowl H2O is a BASF herbicide. The active ingredient in Prowl H2O is pendimethalin. It is only labeled for use in dormant Bermuda. The supplemental label has a rate range of 1.1 to 4.2 quarts per acre per season. Split application timing is 1/2 rate at onset of dormancy followed by 1/2 rate prior to spring greenup. It will provide excellent control of crabgrass and goosegrass and fair to good control of sandbur. If applied correctly, this treatment will provide season-long control of crabgrass and goosegrass even with heavy populations. Some restrictions include do not apply in standing water and do not exceed 4.2 quarts per acre per year. Haying restrictions are 60 days and grazing restrictions are 45 days. Always read the label before using herbicides. Information provided by Fred Yelverton, NCSU Weed Specialist.

**Chaparral** is a newly labeled herbicide from Dow Agrosciences. Chaparral provides control of Bahiagrass and a wide spectrum of other broadleaf weeds including horse nettle, ragweed, spiny amaranth, dandelion, wild carrot, ironweed, goldenrod, biennial thistles and bitter sneezeweed. It is labeled for use in permanent grass pastures, but some precautions may apply. The active ingredients are aminopyralid and metsulfuron. The labeled rate is 1.5 to 3.3 ounces per acre and consult label for recommended application times. There is no grazing or haying restrictions for any class of livestock or horses, but label precautions do apply to manure management from animals that have been fed hay treated with aminopyralid products. Always read the label before using herbicides. Information from brochure and website at www.ChaparralHerbicide.com.
Beef cattle vaccination programs are one of the most inexpensive investments you can make in the health of your herd. Rarely does a single vaccination cost more than a couple of dollars, yet they give us years of protection against a multitude of diseases. Following are common diseases that cattlemen should be concerned with:

**Blackleg** is one of several diseases referred to as Clostridials. Clostridials are caused by soil born bacteria. These bacteria spores can live for many years in the soil until they are in a suitable environment, such as in an open wound of an animal or even ingested. The bacteria act rapidly once they are no longer dormant. Rapid breathing, depression and a very distinctive swelling on a leg, shoulder or flank of the animal are frequently observed. Death occurs shortly after these signs appear. Blackleg is one of the most feared diseases among cow-calf producers as this disease is almost 100% lethal. Although all animals can be affected, calves that are 2-12 months of age seem to be the most prominent victims.

Fortunately, vaccinations (usually in a blend for multiple strains, such as a 7 way Clostridial) are very effective. The biggest thing to remember with Blackleg vaccinations is that suckling calves that are vaccinated before 6 months of age will need to be revaccinated a few months after the initial vaccination before they are fully protected.

**BVD (Bovine Viral Diarrhea - Types I & II)** has come under much debate lately as the disease that has been giving the most trouble around the US. Clinical signs of this disease can include diarrhea, fever, coughing and a “humped-up” appearance. Other than visual clinical signs however, BVD infections can cause a multitude of reproductive problems including continuously open females, abortions and birth defects in calves, usually in the head, spine or eyes.

The biggest issue with BVD infected herds is that very often there will be infected animals in a herd that will never show any outward signs of infection. These are referred to as carriers. Carriers will intermittently shed antibodies throughout their life which will continuously infect healthy animals throughout the year, causing a continuous cycle of outbreaks.

BVD can be eliminated by a combination of two approaches. The first step is a comprehensive vaccination program. The second step is to test every animal on the farm to identify and then eliminate any carriers. A simple tissue sample is all that is needed to perform this test. If you need further information on this screening process contact your local extension office.

**IBR (Infectious Bovine Rhinotracheitis)** is a sexually transmitted disease that once it is in an animals’ system will cause serious respiratory disorders. It can also cause abortions in pregnant cattle. As with BVD, it is also possible to have non-symptomatic carriers in a herd.

**PL3 (Parainfluenza Type 3)** is a virus that mainly affects the respiratory system. It is usually seen in animals that are infected by other diseases, such as IBR or BVD.

**Leptospirosis (usually referred to in a vaccine as 5-way Lepto)** is a bacterium born disease. Once cattle are infected they can pass the infection to other cattle. It is also possible that infections can come from wildlife, such as deer, dogs or rats. Lepto affects the kidneys and blood supply of the animals. Bloody urine is one of the most commonly seen symptoms. As with other diseases, abortions by infected animals are not uncommon.

**Bovine Respiratory Syncytial Virus (BRSV)** is a viral respiratory disease that tends to affect calves more so than mature cows. Signs include a multitude of respiratory problems including nasal discharge, rapid breathing, and salivaition.

**Haemolytica** is a common name of a series of bacterial agents that cause respiratory infections. Usually these infections are seen with pneumonia or other respiratory diseases. Haemolytica infections are rarely seen alone, but as a secondary symptom of calves that are under stress, such as in weaning or while being shipped. This is why Haemolytica infections are often referred to as “shipping fever”.

**Pinkeye** is an infection of the eye. Although rarely fatal, severe infections can cause distress, lack of milk production, lack of weight gain and even blindness in severe cases. Pinkeye tends to be associated with breeds that lack pigmentation around the eye, such as “pink nosed” Charolias, Simmentals and Herefords. Infections usually are observed with a weeping eye discharge. Flies and sunlight also increase the effects of the infection. Pinkeye can be treated with antibiotics and in severe cases an eye patch. Vaccinations for pinkeye are relatively new, but the results of their effectiveness have been somewhat mixed.
What Horse Owners Should Know about Feed Supplements: Part II
By: Elena Eller, Livestock Extension Agent with NC Cooperative Extension in Moore County

Last month’s article defined nutraceuticals and feed supplements, and touched on some issues associated with quality and safety of these products. Remember that with the absence of published safety data, there is a risk of a nutraceutical, a combination of nutraceuticals, or the combination of an approved drug with a nutraceutical causing adverse reactions. It is also important to consider that even if a product is generally safe, it may inadvertently cause harm to the animal if it is being used in lieu of drug therapies proven to be effective treatments. This month’s article presents some issues related to the effectiveness of these products.

Popular press magazines available at local feed stores are full of promotions for supplements that are intended to increase health and performance, several of which are backed by well known trainers and competitors. Yet many of these products have no scientifically valid data to support their intended function. And some products, although continually promoted and highly utilized, actually have been shown not to be effective.

Establishing data relating to the effectiveness of a nutraceutical is typically much more difficult than establishing safety. The most important studies to be conducted when evaluating products that are given orally are absorption and bioavailability studies. If the product cannot be absorbed from the gastrointestinal tract, there is no way for it to reach the target tissues and thus it cannot be effective. Often this basic principal is ignored, although it should be the first question addressed. Consequently, in vitro studies (that is, studies performed in a laboratory, not in a live animal) provide valuable information but should not necessarily be taken as evidence of efficacy unless absorption and bioavailability studies have also been conducted. Additionally, care should be taken when studies are purely subjective in nature and/or performed in a non-controlled setting. It is important to determine whether other changes occurred at the same time treatment with the nutraceutical began, such as additional drug therapies or environmental changes. Something as straightforward as time and normal healing processes may actually be responsible for a response attributed to a nutraceutical product.

Relieving pain due to arthritis and improving joint health are probably the most common uses of nutraceuticals in the horse industry. Orally fed supplements have quickly gained popularity for the treatment of osteoarthritis (OA) as they are easy to administer and perceived as safe. Although some studies claim beneficial effects of these products, when we look closer at the research conducted, we find that many of the results are either 1) purely subjective in nature or 2) based on in vitro studies that report positive effects using doses of these substances that are very likely to be unattainable by oral supplementation. When considering results from the absorption studies for these products, we find a different result. Using glucosamine (a popular joint supplement) as an example, in vitro studies show that high amounts of glucosamine (approximately 25 mg/ml) can have a positive effect on joint cartilage. However, when given orally glucosamine is rapidly converted to glucose and fructose derivatives in the body, or used for other biosynthetic processes in the gastrointestinal tract and/or liver resulting in low bioavailability. From absorption studies we learn that very little (in actuality probably not any) orally supplemented glucosamine actually makes it into the bloodstream, thus there can be no effect on the target joint. Relating results from in vitro studies to what can be realistically achieved in an animal is a common problem in determining the efficacy of many nutraceuticals. When you critically evaluate these products, it turns out that a large number of commercially available feed supplements do not actually have the effect that they claim to have; however a small number of nutraceutical agents have shown promise.

A relatively new orally dosed product reported to relieve the inflammation and pain due to arthritis is omega-3 (n-3) long chain polyunsaturated fatty acids (PUFA). Unlike other supplements popular for affecting joint health, studies show n-3 fatty acids such as eicosapentaenoic acid (EPA) and doco-hexaenoic acid (DHA), are absorbed into the bloodstream when supplemented in the equine diet. Furthermore, preliminary studies conducted with horses have shown that these products have the potential to decrease biochemical indicators of inflammation in horses with existing arthritis.

All of us want our horses to look and perform their best. But even if a nutraceutical is deemed safe (which is ultimately most important), problems with quality assurance often times can leave us with products that contain far less, and in some cases none, of the active ingredient. Furthermore, when safety and quality issues are combined with lack of efficacy data, and the ever increasing supply of products, we are left with a seemingly impossible task. We should not blindly accept these products, nor should we completely disregard their potential without critically examining the scientific basis for inclusion in medical therapies and nutritional programs.

For further reading on this subject:
Coccidiosis is the most common cause of diarrhea in young goats between the ages of 3 weeks and 5 months. This is especially true when goats are housed in confinement. We’ve been troubleshooting a lot of situations lately where farmers think that their goats are having problems with Barber Pole Worm, when in fact a quick fecal exam reveals that the problem is really occurring from the parasite coccidia.

These coccidia destroy the intestinal cells of goats, which cause diarrhea, and other signs of the disease coccidiosis. Nearly all adult goats carry coccidia in their intestines. The eggs pass in their feces and hatch in the environment. The kids then pick up coccidia from the manure, feed, or water. Eggs in small numbers, may not be a problem. Young, sick, and stressed goats are more susceptible to coccidiosis than others. Weaning is a really stressful time for kids.

When a coccidiosis outbreak begins within a herd, only good sanitation practices and isolation of sick animals will stop the spread of it. Coccidia eggs are resistant to many disinfectants and they can survive in the environment for over a year. As long as coccidia eggs are in a moist, dark environment, they can survive unless temperatures drop below freezing. A bit of good news is that goats that survive coccidiosis develop a degree of immunity to future coccidia problems.

Signs of coccidiosis other than diarrhea include, a decrease in feed intake and weight gain, loss of appetite, fluid feces containing mucus and blood, persistent straining in attempt to pass feces, rough hair coat, dehydration, and in some cases death in as short as 24 hours. Scarring and damage to the lining of the intestines following treatment or recovery may result in permanently unthrifty and stunted goats because the ability of these goats to absorb food is impaired.

Diagnosis is based on history/signs, microscopic examination of feces, and post-mortem analysis. Presence of coccidia eggs in the feces of normal goats indicates that the goats are infected, but not necessarily diseased. Coccidia eggs are found in the feces of most goats, even healthy ones.

You might be asking yourself how to minimize the risk and/or to prevent coccidiosis? Good husbandry practices are the best preventive measures against coccidiosis. Regular removal of manure and wasted feed, not feeding on the ground, designing feeders and water systems that minimize fecal contamination, providing a clean source of water, cleaning water tanks and feeders regularly, making sure that watering systems do not leak and that sufficient sunlight enters buildings are examples of such husbandry practices. If goats are kept on solid floors during the winter, maintaining clean and dry bedding is important.

On farms where coccidiosis problems keep recurring, you might want to consider treating the herd preventively. Several choices are available depending on the situation: 1. Using feeds containing a coccidiostat: Feeds containing decoquinate (brand name Deccox®) are available commercially and US FDA- approved for prevention of coccidiosis in non-lactating goats. Another coccidiostat, monensin (brand name Rumensin®), is also US FDA-approved in feed for prevention of coccidiosis in non-lactating goats. Lasalocid (brand name Bovatec®), another coccidiostat, has US FDA approval for sheep but not goats. 2. Drenching goats with an oral dose of amprolium solution (Corid® - 9.6%). This drug is not approved by the US FDA for use in goats, you must work with a Veterinarian to get an extra label. 3. Alternatively, adding amprolium (Corid®) to the drinking water. During treatment, it is important to limit the water supply of the goats and to make sure that they do not have access to any other water source. Be aware that adding amprolium (Corid®) to the drinking water does not assure that all animals will receive an appropriate dose of amprolium.

There are 2 recommended ways to treat goats when they show signs of coccidiosis: 1. Drenching them orally with amprolium (Corid® -9.6%) for 5 consecutive days. This is an extra-label use, as amprolium is not US FDA-labeled for goats, and a veterinarian needs to prescribe its use. Some animal health specialists advise giving animals injections of thiamine hydrochloride when treating goats with amprolium to prevent a deficiency. 2. Sulfa drugs (sulfadimethoxine) such as Albon® are most effective in the early stages of acute infections when coccidia are multiplying rapidly. Sulfa drugs may not cure coccidiosis but are often given to infected goats to prevent secondary infections such as bacterial enteritis. This is also an extra-label use, as sulfadimethoxine is not US FDA-labeled for goats, and a veterinarian needs to prescribe its use.

Coccidia are very host specific. Therefore, the species of coccidia that infect goats only affect goats. Coccidia found in birds, cattle, dogs, and rabbits will NOT infect goats. For some coccidia, there may be some cross-infection between sheep and goats. If you have any questions about coccidia or other parasites, call your local Livestock Agent.
Regulations pertaining to dry poultry litter operations have undergone numerous changes over the past 15-20 years. Because of these changes, I felt it would be good to get the latest summary of regulations from the Division of Water Quality. The summary as provided by Keith Larrick, Supervisor of Animal Feeding Operations Unit with the Division of Water Quality, is presented below. I strongly encourage all poultry producers to do the very best you can to adhere to these regulations.

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

1. All dry litter operations over 30,000 birds are required to develop and maintain a Waste Utilization Plan. An example plan and copies of the required reporting forms are available at [http://www.enr.state.nc.us/DSWC/pages/guidance_docs.html](http://www.enr.state.nc.us/DSWC/pages/guidance_docs.html). The waste plan must contain a list of fields that will be used for land application, the crops that will be grown, and the maximum application rate of each field.

2. Litter shall not be stockpiled within 100 feet of perennial streams or wells.

3. Litter shall not be left uncovered for more than 15 days. Note: even if the requirements of #2 and #3 are met, it is still the responsibility of the hauler to make sure that there is no discharge to waters of the State.

4. For land application, a setback of 25 feet from perennial streams must be maintained. However, land applicators should be aware of setbacks from all ditches and intermittent streams. Runoff of litter due to improper land application can lead to discharges which can result in violations or enforcement actions.

5. Litter shall be applied at rates that do not exceed the agronomic rate of the receiving crop. The rates may be based on NCDA&CS soil test recommendations or NRCS Standards (realistic yield expectations). For more information on realistic yield expectations, contact a technical specialist with the Cooperative Extension Service, NRCS, NCDA&CS, or your local Soil and Water Conservation District.

6. Litter shall be sampled as close to the time of application as practical, but at least within 60 days of the land application event. If manure is given or sold to a 3rd party, it is still the responsibility of the generator to conduct the waste analysis, and provide a copy to the 3rd party hauler/farmer. The State average N content for dry litter as shown in the *North Carolina Agricultural Chemical Manual* published annually by NCSU may be used to calculate application rates in lieu of individual waste analysis; however, waste analysis is still required.

7. An annual soil analysis is required for all fields that receive litter using the standard soil fertility analysis, available from NCDA&CS.

8. Recordkeeping for dry litter poultry. All records shall be kept for three years, including but not limited to:
   - Soil test and waste analysis results
   - Land application records
   - Records of litter sold or given to a 3rd party. For litter that is given to a 3rd party, the following information must be maintained: amount of litter removed, date litter was removed, and name, address, and phone number of the manure hauler.

9. Lime shall be applied to fields as specified by the Soil Test Report to assure suitable conditions for crop growth.

10. Litter application must be stopped on a field if copper and zinc soil concentrations reach an Index level of 3,000. As a proactive measure, waste generators should begin seeking alternate fields if the level exceeds 2,000.

11. When litter is given to a 3rd party, the following requirements apply:
   - Recordkeeping requirements in #8 above.
   - Copy of the current waste analysis must be provided to the 3rd party
   - Provide a copy of these guidelines to the 3rd party.

For dry litter operations that give away/sell all litter to a 3rd party or hauler:
- If the 3rd party applies litter to land that is owned by the litter generator, then that land must be included in the litter generator’s Waste Utilization Plan.
- If the 3rd party hauls all litter away, and applies it to other 3rd party fields, then the litter generator does not need to have fields listed in the Waste Utilization Plan. In this case, a plan is still needed. The plan would be similar to the format suggested in #1 above, but it would just state that all litter is hauled away.