

Inside This Issue

- 1 Important Information
- 2 Animal Waste Mgmt.
- 3 Managing Winter Weeds in Bermudagrass Hayfields
- 4 What is BQA and Why Should You Be Doing It?
- 5 Virginia Tech Forage-Based Ram Evaluation
- 6 Money-Saving Tips for Horse Management
- 7 13th Annual Union Co. Poultry Equipment Show
- 8 Performance Data for Judging Sheep and Goats

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NC State Extension works in tandem with N.C. A&T State University, as well as federal, state and local governments, to form a strategic partnership known as N.C. Cooperative Extension.

Interactive Pesticide Training March 12

2 hours of Credit in every category except "V"

Johnston County Cooperative Extension is inviting all commercial and private applicators, dealers, consultants and public ground operators to attend an Interactive Pesticide Training class. This two-hour class will be held at the Johnston County Livestock Arena on Thursday, March 12 from 10 am to noon. The arena is located at 520 County Home Rd, Smithfield. Please bring your pesticide license with bar code to this class. Call Tim Britton at (919) 989-5380 for more information about this class.

Pesticide and Household Hazardous Waste Disposal April 25

Need to clean out the barn, the chemical storage building, pantry or underneath the sink? On Saturday, April 25 Cooperative Extension in partnership with Johnston County Solid Waste and NC Dept. of Agriculture & Consumer Services will hold a Pesticide and Household Hazardous Waste Disposal Day. The event will take place at the Johnston County Livestock Arena from 8 am to 1 pm. For a list of acceptable items, call the Extension Office at (919) 989-5380 or look on our website johnston.ces.ncsu.edu under "Events."

Youth Livestock Show & Sale April 13-15

The Youth Livestock Show & Sale will be at the Livestock Arena. Steers and heifers will show April 13 beginning at 5:30 pm. On April 14, Lambs will show at 1 pm and goats at 4 pm. The hog show will be April 15 at 9 am and the sale will begin at 6 pm that evening. One hundred-twenty nine youth from across Johnston County will be participating. For more information contact the Extension Office at (919)989-5380 or visit johnston.ces.ncsu.edu and look under "4-H Youth Development" or seach @jcyouthlivestock on Facebook.

Soil Sample Fees

Soil samples currently cost \$4 per sample. The pay period will end on March 31. Soil samples are free April through Thanksgiving.

Hay Directory

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

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

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Animal Waste Management

New Permit Requirements

By: Amanda Hatcher, Livestock Extension Agent and County Director, N.C. Cooperative Extension in Duplin

One of the new permit requirements for the state swine permit effective October 1, 2019 is the annual report form. This form is available online at:

<https://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/animal-feeding-operation-permits/reporting-forms>

The form is under "Reporting Forms" and is listed as the "Annual Report Form (State General Permit)". You can also contact your Extension office for a copy.

The annual report form is due to DEQ April 1, 2020, which is intended to be a summary of 2019. The permit will require this form every year during the life of this permit. Here are some items from your records to have handy when completing this form:

- Your farm's nutrient management plan (including any optional acreage or any sludge plans)
- Completed IRR forms for any crop cycles that were **completed** in 2019
- Any other nitrogen applied to fields in your nutrient management plan
- Your most recent soil analysis
- Manure sold or given away
- Annual average stocking rate (your stocking/mortality records will be helpful on this)
- Freeboard/rainfall records
- Your facility number

In addition, the current permit also requires you to submit a rainbreaker form. This form is a checklist of whether you will have a rainbreaker on irrigation equipment or whether you will commit to having someone at the farm at all times while irrigating who will cut off the pump if precipitation starts. The rainbreaker form can be found online at the same link as the annual report form. The Rainbreaker Form is found under "Reporting Forms" and is listed under "Rainbreaker Form (State General Permit)". You can also pick up the Rainbreaker Form at your Extension office.

Other changes on the permit include:

- Making changes to your plan may involve only submitting the change to DEQ or in addition, it may require prior approval by DEQ. Contact a technical specialist prior to making changes.
- A trigger was added to the permit for phosphorus limitations on the soil test. If your phosphorus index (P-I) is 400 or higher, you will have to run PLAT, a tool used to estimate the risk of phosphorus loss. Depending on your risk level after running PLAT, you may have to use a phosphorus based rate or you may have to remove that high phosphorus field from your plan. PLAT results will be good for 5 years.
- In the last permit, a rule was put in place to stop irrigation a certain period of time after a tropical system warning is issued. In the current permit which began October 1, 2019, you must stop irrigation within 12 hours of a National Weather Service issue of Hurricane Warning, Tropical Storm Warning, or Flood/Flash Flood Watch associated with a tropical system for the county where your farm is located. Check www.weather.gov for immediate updates for weather.
- Hay that has been irrigated on must be removed from the field within 24 months of harvest.
- If you go below stop pump you must follow the NRCS standard listed in the new permit. It can be found on Pages 7 and 8, Condition II. 29.
- Lagoon level markers must be certified every 5 years by someone who can determine land elevation.
- Rather than monthly records on stocking and mortality, you are now required to maintain weekly records on these.
- Specifically for farms with lagoons in the 100-year flood plain, upon receiving notification from DEQ, you will be required to install groundwater monitoring wells.
- Records must now be maintained for five years starting October 1, 2019.
- Annual reports will be due April 1 of each year for the previous year's records. For example, the 2020 Annual Report will be due April 1, 2021.
- Rainbreaker forms will be due October 1, 2020.

Managing Winter Weeds in Bermudagrass Hayfields

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

Like most warm-season grasses in North Carolina, bermudagrass turns brown in the fall when temperatures begin to drop. This period of dormancy is when the grass focuses its energy to the roots which allows it to survive through the colder months. In the spring, cool season weeds can compete with bermudagrass as it breaks dormancy and affect hay quality and yield. Hay buyers do not want to feed a bale of mystery weeds to their livestock so weed management is crucial for hay producers.

Winter weeds, such as curly dock or red sorrel, are an indicator of undermanaged hay fields and can be managed over time with a soil test and fertilization plan. Even after proper management, liming, and fertilizing, some weeds seem to persevere in the field. If treated early, many of our winter broadleaf weeds can be managed with dicamba or 2,4-D.

One winter weed that will not be controlled with a broadleaf herbicide is annual ryegrass. This cool season annual grass, commonly confused with cereal rye, is often used for grazing livestock in the winter but can become a top competitor in bermudagrass hayfields. Unlike cereal rye, annual ryegrass persists well into May which is a critical time for bermudagrass growth. Research conducted at NC State has shown that heavy ryegrass infestations can reduce the first bermudagrass cutting by 40 to 50 percent due to competition for light, water and nutrients. This yield reduction alone justifies a need for producers to manage ryegrass in their hay fields.

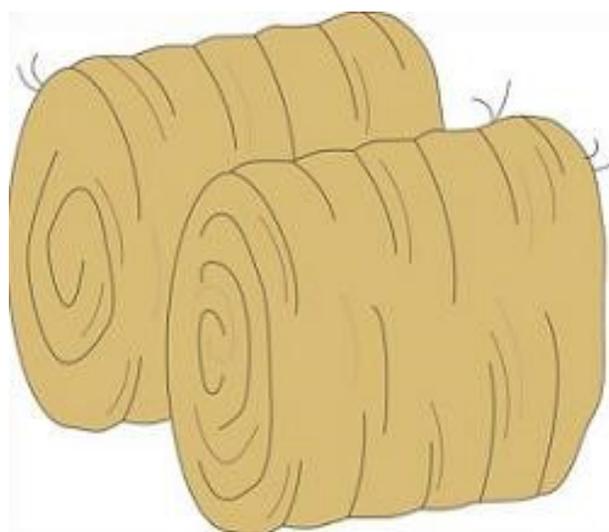
For ryegrass control, a non-selective herbicide like glyphosate or paraquat is typically used while the bermudagrass is dormant. This method has good results as it controls the ryegrass in addition to several other weeds. It is important that the grass is in fact dormant! A non-selective sprayed on growing bermudagrass could cause severe damage. Our periods of warm temperatures in the winter can cause bermudagrass to break dormancy and as we approach warmer months, our time window to safely apply glyphosate or paraquat to bermudagrass is narrowing.

Sometimes I get the question, "What if my bermudagrass has already come out of dormancy?". There are few options to manage annual ryegrass once bermudagrass begins growing. Some producers will actually bale the ryegrass for hay. For ryegrass to have nutritive value, this must be done before seed head formation, usually in mid-April. After baling, an application of 1.5 oz per acre of Pastora herbicide will help minimize any ryegrass regrowth. Just be sure you're not applying Pastora to a bahiagrass field! Pastora can severely damage bahiagrass. After your Pastora

application, fertilizing to soil test recommendations will give your bermudagrass a good start to the growing season.

Believe it or not, early spring is also a good time to manage our warm season annual grasses, such as crabgrass and field sandbur (sandspurs). Although crabgrass serves as a great forage for grazing, when cut for hay, it cures much slower than most bermudagrass varieties. When moist crabgrass is baled up with bermudagrass, it can mold making the bale less desirable. An application of 2 quarts per acre of pendimethalin (Prowl H2O, Satellite Hydrocap, etc.) in late February or early March will suppress crabgrass, foxtails, and some broadleaf weeds. Crabgrass will germinate when soil temperatures reach 55 degrees Fahrenheit so it's important to be timely in our applications. Once crabgrass or other weeds germinate, pendimethalin will have no activity on those that are emerged. Another application of pendimethalin after the first hay cutting will also help suppress any late-germinating crabgrass.

An effective weed management strategy should be implemented for any hay operation. Unmanaged weeds can compete with desirable forages, and reduce yield and quality. If you have any questions about weed management in your hayfields or pastures, please contact your local Extension office for assistance.



What is BQA and Why Should You Be Doing It?

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

The Beef Quality Assurance (BQA) program is nothing new on the cattle scene, but there are still a large number of producers unsure of what it entails and how it can benefit them. The BQA program is a set of research-based, best management practices that cover all aspects of cattle husbandry. The program requires producers to go through training on the recommended practices and then take a short test to receive their certification. The BQA certification allows producers to sell their cattle at value-added sales. These sales show an average of \$16.80 more per head according to a recent study from Colorado State University. Although the monetary value is a good incentive to participate, that is not the only reason you should consider adopting BQA practices on your farm; following the BQA guidelines can greatly improve your overall production.

The BQA curriculum includes recommended practices in nutrition and feeding management, herd health such as vaccinations and deworming, travel and much more. The practices are recommended for two main reasons; improved herd health and increased consumer confidence. The main driver behind this program is to produce a quality product from the time when the calf hits the ground until it is a cooked steak on the consumers' plate. The practices that we may not think much about on our end such as castration, vaccination or trailering, can have a huge impact on that final product that we see in the grocery store or restaurant. At a time when agriculture is under a microscope by people that a lot of times don't understand agricultural practices, it is more important than ever to do things the right way.

BQA value-added sales have a specific set of requirements in order to sell your cattle. These requirements vary some from sale to sale and from state to state, but they all have a very similar structure. These sales are typically specific to feeder calves, so they will usually have a size minimum, ex. 400 lbs. They will have husbandry requirements such as castrating bull calves by 90 days of age, weaning calves for a minimum of 45 days prior to sale and certain vaccines that must be given and then boosted, in the BQA recommended way. You get a premium at these sales for doing these practices because you are setting your calves up for success when they leave your farm. If you skip just one of these practices it can

increase the chance of death loss of those cattle as well as decrease overall meat quality. Our buyers know this and are willing to pay more for animals that they have confidence in. We all know the saying "It only takes one

bad apple to spoil the bunch" and this is certainly true for cattle sales; it only takes one producer with subpar practices to tarnish the reputation of NC Cattle producers on a national level.

Determining whether BQA is right for your production requires you to take a look at your overall operation. Most of the requirements involve having to restrain your cattle at least once, so handling facilities are necessary. If you do not have facilities on your farm, many extension offices or local farm stores have chutes and panels for rent. However, if you think you are going to be in the cattle game for a while, your own handling facilities are something you will want to invest in. You should also consider your pasture arrangement. Do you have an area where you can wean your calves? Do you have enough pasture to rotate properly for good parasite management? Lastly you will want to look at your current management practices. Do you have a defined breeding season? Although not a requirement of BQA sales, having a defined calving season, therefore a uniform crop of calves is the smartest and most profitable way to be involved in the value-added sales. If you have any of these management hurdles, don't let it discourage you from adapting BQA practices, it is just something to be aware of and to work towards improvement.

If you have any questions about getting BQA certified, BQA practices or value-added BQA sales near you, contact your local Livestock Extension Agent.

Virginia Tech Forage-Based Ram Evaluation

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

Sheep producers are finding new ways to combat parasites, and put dollars in their pockets with some help from the Virginia Tech Southwest Virginia Agricultural Research and Extension Center. The center, located in Glade Spring, Virginia, is home to the Southwest Virginia Forage based Ram Test.

The ram test, now in its seventh year, is the only program in the U.S. evaluating rams through a forage-based performance test designed specifically to quantify post-weaning growth and parasite resistance. The test provides a mechanism for which ram lambs can be evaluated among their peers from other flocks in a standardized environment. It also results in an offering of outstanding ram lambs for sale with a vast amount of production data collected.

This year there are 115 rams on test, with 30 consignors from 10 states participating. Since its inaugural year in 2012, the test has evaluated nearly 800 rams, of which 177 of the top performers have been marketed through the sale. Several of these rams are now having progeny come back to the test for evaluation, and allowing researchers to validate data findings from previous years. Rams from previous sales have been sold to producers in 15 states nationwide, as far north as Wisconsin, and as far south as Florida and Texas.

“Internal parasites are among the leading health concerns for sheep, and potentially pose dramatic economic losses for many producers, especially those in the Mid-Atlantic and Southeast regions of the U.S. where forage-based production is an ideal management system for livestock,” said Scott Greiner, Virginia Cooperative Extension sheep specialist and professor of animal and poultry science. “The value-added research and data collected on these rams is a huge asset to both seed stock and commercial producers around the country making selections for their breeding program.”

Chris and Mandy Fletcher of Abingdon, Virginia know first-hand the value of having this data available on their rams. The Fletchers have pur-

chased a new ram from the test sale every year from 2013 to 2017, and have had lambs from their own flock evaluated every year. Having data from the 70 day trial period helps make their selection based on growth and parasite resistance much more reliable for new breeding sires and assists with management and culling decisions for their flock. “Each year our genetics and parasite resistance have improved. We haven’t had to deworm our mature ewes in over 4 years,” said Chris. He added that growth, parasite resistance, and survivability of their lambs have greatly improved by utilizing the test data and new breeding sires.

The Virginia Tech’s Southwest Ag Research and Extension Center Ram Test also provides education to producers at its annual field day and sale. Researchers and Extension specialists from Virginia Tech provide information on a variety of management and nutrition topics.

For more information about the program as well as field day and sale visit the website at: <https://www.apsc.vt.edu/extensionandoutreach/Sheep-Extension/sheep-programs/swarec-ram-test.html>

Source: VA Tech Forage Based Evaluation.

Money-Saving Tips for Horse Management

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

While it's impossible to avoid vet bills completely, proper care and nutrition of your horse can result in less vet visits and healthier animals. Pasture management is key to this, and is regularly covered in this newsletter. I thought I'd take a slightly different approach and offer a couple preventative care tips for your horse that may save you some money in the long run.

The first piece of advice is to get an annual wellness exam for your horse. Yes, this costs money, but if your horse is checked regularly, you can catch problems earlier and nip them in the bud. Waiting or putting off these exams can result in more complicated or more progressive problems and/or diseases. Do not cut corners on your annual vaccinations either, even if your horse stays at your barn 100% of the time! There are a few core vaccines that your horse must have including: Eastern Equine Encephalomyelitis (EEE), West Nile, rabies and tetanus.

Another suggestion is to have your horse's teeth checked. Senior horses or those with already established mouth problems need to be checked regularly. If your horse has teeth problems, they won't be able to chew properly and may not be getting all the nutrition they need from the hay, grain, pasture or supplements you're providing. Colic chances increase with improper mastication and digestions as well! Sedation is often necessary for a dental exam, so that the examination can be as thorough as possible. Equipment involved includes a mirror, endoscope, and a mouth speculum. Enough sedation is used for the horse to stay awake and be alert, while also being relaxed.

A fecal egg count, to determine worm load, is important for horse management. This test measures the amount of parasite eggs in your horse's manure sample, and can tell you how effectively your dewormer is (or isn't) working. On average, most people deworm horses every 6 months. If you have horses that are higher shedders (their fecal egg counts come back at 200-500+ eggs per gram of manure), you may have to deworm more frequently to control the worms. Pasture rotation and not grazing pastures too closely can

help with this as well!

An equine nutritionist can save you a lot of money in the end, because they can help determine if your horse's diet is working like it should. It may be that you're overfeeding your horse with costly grain, and they may not need such a high quality supplement for what their work load is. Good quality pasture and forage usually provide all the necessary calories, protein, and macrominerals your horse needs; supplements are often used to supply those key microminerals, including copper and zinc. Vitamin E and omega fatty acids are also often in low quantities in dried forages. Knowing what to feed your horse and how much, is key to managing them properly.

These were just a few basic tips that may help you save money in horse management. You may already know all this or practice them all, but a reminder is always a good idea. As always, contact your veterinarian for any disease diagnosis. Contact your local Extension agent with any questions regarding pasture management, basic nutrition, and general horse management.

13th Annual Union County Poultry Equipment Show

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

The 13th annual Union County poultry equipment show will be held on Wednesday April 1st. The show has become a huge hit with growers, service personnel, and vendors and is a can't miss event for anyone involved in poultry production in South Central North Carolina.

Area poultry agent Richard Goforth teamed up with Poultry Equipment Plus in Marshville to start the equipment show which features about 45 vendors each year representing equipment, supply and service providers used by all sectors of the industry. Our vendors have been pleased with the turnout and interest the show generates and many have told us that this is the best show they attend outside of the International Poultry Exhibit held in Atlanta each January.

The Union County Agriculture Center provides the ideal accommodations for such an exhibition with a large conference center equipped with a garage door and high ceilings that allows combine size equipment to be displayed. For several years the equipment show has been held in conjunction with the NC Broiler Supervisor Short Course; which provides training on current topics to Broiler service personnel. This provides an opportunity for company service techs to experience the show with one trip.

The show runs from 2:30 -7:30pm. In addition to heavy Hors d'oeuvres and dinner there are also lots of door prizes and vendor giveaways. Poultry Equipment Plus, the primary sponsor, rewards their customers with additional drawings. The show provides a chance to talk to company representatives directly and compare products and services all in one place.

If anyone is interested in being a vendor please contact Mathew Mills at Poultry Equipment Plus or Richard Goforth. We hope to see you there!



Performance Data for Judging Sheep and Goats

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

Most 4-H and FFA livestock judging contests will include some number of classes that have performance data provided for the contestants. This data includes actual information about the animals in the class, such as birth dates, actual weights at birth or weaning, or genetic results or predictors, such as Codon 171 test results or EPD's. This data serves as an aid to objectively evaluate the performance and/or breeding value of the animals in a class. It is usually, but not always, accompanied by a scenario. The scenario would provide information such as where the farm is located that these animals are being selected for; whether this operation is looking to produce future breeding females or market animals, or both; and information about the farm's feed and labor resources, how it markets animals, etc. Due to space limitations, I will focus the balance of this article on sheep and goat data, and focus on the types of data more commonly seen in youth contests in our region.

Ideally, the data that is provided matches the phenotypic quality of the animals. In other words, it's really easy to use performance data when the good animals have good numbers. Very frequently, contest organizers will "make up" performance data on the spot to match the data to the animals, as a means of reinforcing the official placing of the class and serving to avoid confusion during the contest, since it is designed to be a learning experience. Sometimes, however, the class may have the animals' actual data, especially classes of purebred breeding animals. In a case like this, it's quite possible that an animal with great visual quality may not have great numbers. When that happens, it's important to evaluate the animals as a whole, a sum of their genotype and phenotype. I advise young livestock judging participants to look at a data sheet and scenario right before evaluating the animals. They should take note of the outliers that either do or do not fit the scenario well, then evaluate the class phenotypically with that in mind. It's also important to remember that performance data can be mentioned in a set of reasons, and most alert officials will want to hear some explanation of this data from contestants.

Two of the first pieces of data that are likely to be given for sheep or goats are Birth Type and Rearing Type, with the data points being S for single, TW for twin, and TR for triplet. These are commonly written together with forward slash between them. For example, TR/TW would indicate an animal that was born as a triplet and raised as a twin. Often the two data points would be the same, such as S/S, TW/TW, or TR/TR. But it's possible for one of a set of twins or triplets to be stillborn or not survive long, or one of a set of triplets could be removed from the dam to be grafted onto another or bottle raised. Generally, the TW birth type is preferred because moderate twins are more profitable than large singles, and the birth of triplets often results in extra labor because most does and ewes have two functional teats.

Adjusted weights are often given for sheep and goats, such as 60-day, 90-day, or 120-day weights. The 60-day weight is similar to beef weaning weights, and the 120-day weight is more similar to beef yearling weights. It's even possible to see 150-day, 180-day or even 360-day weights for these animals at a contest. Regardless of which interval is stated, it will be the same for the entire class of livestock and the point is that higher weights are preferred. Animals that are heavier at a given age are assumed to reach market weight at a younger age, requiring less feed and yielding greater return to the farm. Pay attention especially to animals that

were raised single, but have low 60-day weights. This indicates that a single grew slower through the nursing phase even with the benefit of receiving all of the dam's milk, and that poor growth would be assumed to be caused by poor genetics for growth. Conversely, an animal that was raised as a twin or triplet but has high weights has achieved that level of growth in spite of competing for the dam's milk, indicating greater genetics for growth.

That's about all the data one is likely to see for goats. Performance testing and breeding values of sheep have been much more widely researched than those for goats, although efforts are ongoing to increase the data for both species. Sheep may be presented with all the data above and the following.

Codon 171 genotypes are used to indicate the genes that an animal carries at that particular genetic location. While there are at least four gene types in sheep, the two common ones are Q (susceptible to Scrapie) and R (resistant to Scrapie.) Each sheep will be listed with a pair of these alleles, so the possibilities are QQ, QR and RR. It is important to remember that QQ or QR does not mean that the animal has or will have Scrapie; the Q gene is simply more susceptible to Scrapie *if it ever contacts the disease-causing agent*. Thus, the preferred genotype is RR, because that animal can only pass Scrapie-resistant genes to its offspring. On the other hand, an animal with the QQ genotype can only confer susceptible genes to its offspring, so that genotype is considered a serious fault, with the QR-labeled animal receiving a moderate fault. Scrapie resistance in goats is being researched, and is somewhat different than for sheep. So, we may see similar data for goats in the future, but it's not seen now.

Another piece of data commonly given for sheep is the Spider genotype. Spider is a severe genetic abnormality most often seen in Suffolks and occasionally in Hampshires. Animals born with this abnormality have severely deformed or splayed legs, facial defects, tight rib cages and very light muscling. They frequently are stillborn or die soon after birth. The gene types are SS, Ss, and ss (Spider.) The heterozygous (Ss) animals are not affected because the dominant gene masks the spider gene. I've never seen a sheep labeled ss in a contest, because they generally do not survive long and certainly would not be considered for breeding if they did. The homozygous dominant (SS) is much preferred, with the carrier animals (Ss) receiving a serious fault in placing.

Number of Lambs Born is sometimes included for sheep, as well as Pounds of Lamb Weaned. Each of these numbers is generally preferred to be higher, rather than lower, although one could argue that selecting for higher Number of Lambs Born could skew selection towards triplets or even quadruplets. In short, each of these data points are indicative of a dam's maternal traits; the ability to reproduce and rear offspring.

There are also data for the weight, length and grade of fleece in sheep. But these are not commonly seen in our contests since most sheep production is geared solely toward meat production with the fleece commonly being a waste by-product. Dwarfism is also a developing concern with black-face sheep breeds, and hairy lamb gene in Southdowns, so it's possible that these genotypes could be included in judging contests in the future.