

Cap-and-Trade and Greenhouse Gas Markets, 101

By Michelle Proctor, Senior Information Specialist

Cap-and-Trade is a catchy phrase that most people are familiar with but few understand what it actually means to agriculture. Ray Massey, University of Missouri Extension Commercial Agriculture Program economist, will “explain it all to you” via a recently published MU Guide available by internet access.

“Most production processes create by-products as well as the intended product,” says Massey. “When a by-product is found to have a negative consequence to the environment, it is considered a pollutant. Reducing the amount of pollutant is deemed necessary to improve or preserve environmental quality.”

The government can use performance standards, taxes, or cap-and-trade markets to reduce the quantity of pollutant released into the environment. “Under a cap-and-trade system,” Massey explains, “the government imposes a cap on the amount of pollutant that is allowed to be released and then either gives or auctions off the right to emit the pollutant through a market (i.e., the Chicago Climate Exchange, CCX) where polluters trade their allowances in the hope of reducing the cost of complying with the regulation.”

The idea behind a cap-and-trade system is that pollution reductions will occur at the least possible cost because polluters can choose how to reduce their level of emissions. If it is cheaper for them to institute

activities or build facilities that reduce their emissions, they will do that.

“However,” notes Massey, “if it is cheaper for them to pay some other company to reduce its emissions beyond their required cap, then they can use those reductions to satisfy the government mandate for their reduced emissions. Government regulations specify the acceptable level of emissions, the market determines the most efficient way of obtaining that level.”

Soil management emits an estimated four percent of Greenhouse Gases (GHG) as opposed to one percent from manure management. Each pound of fertilizer applied to cropland has the potential to be a pollutant, but not every pound actually becomes one. Release of GHGs from fertilizers is dependent on factors such as weather and growing conditions after the fertilizer is applied.

If GHG emissions from soil management were to be targeted, it would likely be by targeting reductions from fertilizer manufacturers. Of course any costs the manufacturer incurs to reduce GHG emissions would be added to the cost farmers pay for the fertilizer.

It is likely that the only cap that can be easily applied to agriculture is manure management because it is a “point source” of pollution, meaning that it is easy to locate the exact source of emissions.

In most cap-and-trade scenarios, all entities that are subject to a cap on their emissions are also allowed to sell credits—any emissions that are below their allowance. “Another, less certain, source of credits is polluting entities that are not subject to the cap. Because it is unclear which sources will be subject to the cap, it is unknown ahead of time which sources will be permitted to sell credits,” Ray Massey says. “Usually, the quantity of credits supplied by uncapped entities is limited to a percentage of the total allowable emissions.”

Different markets have different rules for who will be capped and who can supply credits. The Regional Greenhouse Gas Initiative (RGGI) in the eastern U.S. establishes a mandatory cap only on electric power plants. However, the RGGI allows landfills and manure storage structures that destroy methane emissions to provide credits to the capped electric power plants.

Agriculture is interested in participating in a cap-and-trade system as an offset provider. However, many environmentalists do not think that current agricultural offsets meet the standards of being additional, measurable, permanent and verifiable. The difference in opinion means that agriculture’s participation in a cap-and-trade system depends on the political process by which future GHG legislation is enacted.

EPA Greenhouse Gas Monitoring Rule Finalized

By John Lory, Ray Massey and Joe Zulovich, Commercial Agriculture Program

USEPA is under court order to address greenhouse gas emissions under the Clean Air Act. In a first step to that process, the Environmental Protection Agency (EPA) released the final version of Mandatory Reporting of Greenhouse Gases Rule on Monday September 21, 2009. USEPA acknowledged that this rule is a preliminary step to instituting a “cap and trade” approach to regulating greenhouse gas emissions in the US.

The rule seeks to monitor greenhouse gas emissions from facilities that emit more than 25,000 metric tons of carbon dioxide equivalents every year. This reporting threshold will include 85% of the emitting sources according to EPA statistics.

Most farm sources of greenhouse gases were not included in the rule. Greenhouse gas emissions from activities such as tillage, rice production, burning of agricultural land, nitrogen fertilization and enteric fermentation of cows (belching of methane) were not included in the rule.

The one farm source included in the rule was methane and nitrous oxide emissions from manure

storage facilities. Farms with large manure storage facilities, particularly anaerobic lagoons could be required to report to EPA under the new rules.

- Operations with an annual average inventory of confined animals of fewer than the following number of animals will not need to report: 29,300 beef cows, 3,200 mature dairy cows (not including calves and heifers), 34,100 swine, 723,600 layers, 38,160,000 broilers and 7,710,000 turkeys.
- Operations with an average annual inventory of confined animals greater than or equal to these numbers will need to calculate their annual greenhouse gas emissions based on USEPA mandated equations. If the result is greater than 25,000 metric tons then they will need to report to USEPA.

Inventory will be assessed as the sum of emissions from storages on contiguous, or adjacent land. Affected operations will first need to report emissions from calendar year 2010 by March 31, 2011. USEPA is planning on providing a calculation tool on the web to

help facilitate determining if your operation will need to report under these rules.

The Commercial Agriculture Program submitted comments to USEPA in June 2009 addressing technical problems with manure storage reporting requirements and trying to make the rule more feasible for farmers. We contended that the state of the art for estimating methane emissions from manure storages is based on lookup tables for emission factors so there was little new information obtained by requiring farmers to report.

USEPA did eliminate the requirement requiring affected farmers to sample fresh manure monthly consistent with our recommendations. We still contend that there are significant errors in how USEPA will calculate methane emissions from anaerobic lagoons.

For more information on the final rule see the USEPA website at <http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>.

Commercial Agriculture Administration and Staff

Rex E. Ricketts, Coordinator
S102 ASRC, 573/882-4553
RickettsR@missouri.edu

Pat Guinan, Climatologist
103 ABNR, 573/882-5908
GuinanP@missouri.edu

Katrina Turner, Administrative Assistant
S102 ASRC, 573/882-0378
TurnerKa@missouri.edu

John Travlos, Systems Administrator
326 Mumford Hall, 573/882-4827
TravlosJ@missouri.edu

Michelle Proctor, Senior Information Specialist
S102 ASRC, 573/884-6596
ProctorMi@missouri.edu

Health considerations for newly weaned calves

By Dr. Craig Payne, Beef Veterinarian



Herding cows and calves for weaning at Barnitz Farms, Dent County



Cow-calf pair

Weaning is a stressful event. Proper facility design as well as handling animals quietly and calmly can significantly reduce stress in cattle.

Processing of calves should include both a sound vaccination program, and internal and external parasite control. The vaccination program should begin prior to weaning or within 24 hours of weaning.

A prudent vaccination program usually includes IBR, BVD (type I & II), BRSV, PI3, and a 7-way Clostridial. However, a local veterinarian should be consulted when setting up a vaccination protocol. Your veterinarian will have knowledge of the predominant diseases in your area and can design a health program that is tailor made for your operation.

Take time to read vaccine labels and determine whether the product should be administered subcutaneously (SQ) or intramuscularly (IM). If the vaccine gives the option of both, choose the SQ route. Always give injections in the neck region and remember to change needles every ten head. Change needles more frequently if it develops a burr or becomes dirty.

Consumers have every right to expect their meat to be free of injection blemishes and these simple standards will significantly reduce the incidence of injection site blemishes.

It is not uncommon to hear of operations that are having poor results with their vaccination programs. There are numerous explanations for the failures but generally a failure at the ranch level is due to improper vaccine handling and administration.

The key is to make sure the vaccines are properly stored at all times. Vaccines are degraded when frozen or when exposed to heat or sunlight. Keeping vaccines cool and shaded from sunlight until they are administered to the animal is critical. Some vaccines, such as modified live vaccines (MLV), begin to lose effectiveness once they are mixed. The standard recommendation is to mix only the amount of vaccine you can use within one hour.

Calves should be observed twice daily during the weaning period. Animals showing signs illness such as nasal discharge, rapid breathing, head or ears down,

depression, or an elevated body temperature should be separated from the group and kept in a hospital pen. Once separated, you can begin an effective treatment program as outlined by the veterinarian working with you.

Proper treatment for any disease begins with using the correct antibiotic at the correct dosage for the proper length of time. In order to ensure that you are meeting these requirements, a close working relationship with a veterinarian is essential.

Consumers expect their beef products to be safe and free from drug residues. Producers must ensure that products coming from the farm meet the customers' demands. Avoiding drug residues starts with using antibiotics according to label directions and/or closely following the directions given to you by your veterinarian. In addition, it is essential to identify and record which animals were treated so that you are assured they have met the required antibiotic withdrawal period before they are marketed.

You Can't Manage What You Don't Measure...Evaluating Herd Productivity and Calf Performance

By Dr. Bob Weaber, Animal Breeding and Genetics Specialist

Weaning time is a great opportunity to evaluate the productivity of your cowherd and each cow in it. Herd level measurements are computed using actual performance data.

A common measure of cow-calf herd productivity is the weaning weight per cow exposed. Simply take the sum of all calf weaning weights and divide by the number of cows you exposed to bulls during the 2008 breeding season plus the number of purchased pregnant cows or bred-heifers. This measure takes into account



conception rate, calf survival at birth, calf survival to weaning, and calf weights.

For herd level evaluation, you do not need individual calf weights; draft weights of all the calves will work fine. Other useful measures that will point out management strengths or areas for improvement, include conception rate of cows exposed, calf survival rate (at birth and weaning, as a percentage of cows calving), and percent calf crop weaned.

Mature cow weights adjusted for body condition score can provide valuable information to producers for allocation of supplemental nutrition or forage allocation in management intensive grazing systems.

Individual calves and their dams may be evaluated for maternal and growth performance using adjusted weaning weights. To compute an adjusted 205-day or weaning weight you'll need individual calf birth dates, weaning weights, and each calf's dam's age in addition to the weaning date. Both age-of-dam and age-of-calf contribute considerable variation to calf weaning weight.

To make fair comparisons among calves and dams, you'll want to adjust these factors out using the adjusted weaning weight formula. The resulting adjusted 205-day weights are a reflection of the genetics of the calf for growth, the maternal ability of its dam, and the management and nutritional environment in which the calf was raised. While not a pure measure of genetic

merit, adjusted weaning weights do give a general indication of the performance of a calf and its dam relative to herd mates.

A handy computer spreadsheet is available to compute adjusted weights and ratios using the Beef Improvement Federation guidelines. You can download the "Adjusted Birth, Weaning and Yearling Weight" spreadsheet at: <http://agebb.missouri.edu/commag/beef/downloads.htm>. Visit the Beef Improvement Federation Guidelines for more instructions on computing adjusted weaning weights and herd performance evaluation: <http://www.beefimprovement.org/library/O6guidelines.pdf>.

Once you've evaluated the performance of your cattle consider bridging to an economic analysis. A useful benchmark measure of economic performance is breakeven price, which is reported in dollars per hundred weight. Breakeven price is the point where profit or losses begin. It is a function of all fixed and variable production costs divided by the total number of hundred weights of calf you produced. More sophisticated farm/ranch level economic performance maybe computed, but that's a topic for another day.

For more information on evaluating herd productivity and calf performance, contact Dr. Bob Weaber at 573 882-5479 or weaberr@missouri.edu.

Receiving cattle: management and nutrition

By Michelle Proctor, Senior Info. Specialist

"When cattle arrive at a new facility such as a feedlot, backgrounding lot, or stocker operation, the first month after weaning is considered the receiving period," says Dr. Justin Sexten, University of Missouri Commercial Agriculture Program, beef nutritionist.

The first 28 days following cattle arrival or weaning represent the greatest feeding period management challenge due to performance, illness, and death loss uncertainties.

Because of weaning or shipping stress, the receiving program goal is to get the calf to consume two percent of its body weight as soon as possible.

Before developing a nutrition program for receiving cattle, producers should develop a location suited to encourage feed and water intake. "When calves arrive or are moved to a new location, they begin by walking the fence line," warns Sexten.

"Placing water sources and feed bunks along the perimeter of the pen will aid calves in discovering feed and water. Freshly weaned calves may have never eaten from a bunk or drank from a water tank, so they will not seek out these structures. Placing feed and water along the fence line not only aids in discovery but will minimize constant walking around the perimeter."

Provide adequate space in bunk feeding systems to ensure that all calves have access to feed. Sexten recommends 18 to 22 inches of linear bunk space per head if calves are fed once a day. Calves fed twice daily require 9 to 11 inches of bunk space per head. Adequate bunk space during receiving prevents dominant calves from over-eating and allows timid cattle to start on feed.

To help familiarize calves to bunk feeding when starting cattle on feed, offer hay in the feed bunk rather than a separate hay feeder. Feed receiving diets on top of the hay during the first week to encourage feed intake. Also, consider feeding two or three times each day at regular hours to encourage intake and observe cattle frequently.

"Remember, the goal is for the calf to consume two percent of body weight. Dry matter intake during the first seven days will range from 0.5 % to 1.5% of body weight. During the second seven days, use 1.5% to 2.5% of body weight as your goal," advises Sexten. "By the 15th to 28th day, calves should consume 2.5% to 3.5% of their body weight."

Calves prefer whole grain to cracked or ground feed. Develop the diet to minimize dust and use palatable feed ingredients. Receiving diets should contain 15%-17% protein. Protein level can be reduced as cattle increase feed intake. "Ideally, 50% to 60% of protein should be bypass protein. Distillers grains and Brewers grains are two common feed ingredients with greater than 50% bypass protein," says Sexten.

Mineral requirements increase during receiving due to stress. Once cattle consume 2% of body weight, mineral and vitamin requirements decrease to normal levels.

"Receiving management represents the most important period in the life of a weaned calf. Getting it off to a good start can prevent health problems later in the feeding period," says Sexten.

For more information on management and nutrition of receiving cattle, contact Dr. Justin Sexten at 573 882-8154 or sextenj@missouri.edu.

2009 Beef Tour demonstrates large animal composting

By Michelle Proctor, Senior Information Specialist



John Hoehne, with help from Rex Ricketts, gives pointers for on-farm animal composting

University of Missouri Extension Commercial Agriculture Program's 2009 Beef Tour was held in Dent, Phelps and Crawford Counties on August 29. The tour offered an opportunity for producers to visit several types of cattle operations and pick up advice on how to best manage their own.

The 13th annual Tour attracted nearly 300 people. Tour stops included a high stock density operation, a managed intensive grazing system, a backgrounding operation, a silvopasture facility, and a Hereford seed-stock operation.

A cow composting demonstration by University of Missouri Extension Commercial Agriculture Program, agricultural engineer, emeritus, John Hoehne, illustrated how inexpensive, and most relevant—odorless, composting dead animals can be.

On-farm cow composting has become an important issue since rendering plants no longer pick up dead livestock. Hoehne showed producers how to build a shallow pit, layer it with at least one foot of sawdust, enclose it securely on three sides—Hoehne used concrete highway bunkers—to contain runoff from wind or rain, and cover the animal with sufficient sawdust to leave no parts of the carcass exposed.

Hoehne recommended a sawdust "envelop" of 18 to 24 inches covering the carcass. "That will give you a start towards to the target C:N ratio of 25:1. This will help ensure that odors do not escape," said Hoehne.

"You want heat-loving (thermophilic), oxygen-using (aerobic) bacteria to do the decomposition work

for you," said Hoehne. "Some moisture, but not too much or all the pore spaces will fill with water and the bacteria won't do their job. They will drown and you will be stuck with odors."

Hoehne told viewers to plan on a minimum of 200 cubic feet of sawdust per 1,000 pounds of carcass. He recommended puncturing the abdominal cavity after laying the animal on the sawdust base, but prior to covering the carcass with the remaining sawdust.

Hoehne recommended using a thermometer to monitor the internal temperature of the composting site (110° to 150° F). He cautioned producers to monitor the site to ensure that the proper balance of air and moisture are present.

Hoehne also recommended not turning the animal for one year, and to be prepared to add additional sawdust as the carcass settles.

"When the decomposition is complete," Hoehne said, "you will be left with some large bones and a soil-like product."



Missouri Livestock Symposium to be held December 4-5 in Kirksville

By Bruce Lane, University of Missouri Extension Livestock Specialist



Rex Ricketts, director of MU Extension Commercial Agriculture Program and Bruce Lane NE Region Livestock Specialist



Friday evening ceremonies at 2008 Livestock Symposium



Exhibitor's booths at 2008 Livestock Symposium

Known for its nationally and internationally recognized speakers, great trade show, and big-time entertainment, the Missouri Livestock Symposium continues to attract serious livestock producers from throughout Missouri and beyond. Last year, according to Missouri Livestock Symposium planning committee chair Garry Mathes, the Livestock Symposium drew 2,125 people from 78 of Missouri's 114 counties, and 17 states.

One reason for the success of the Missouri Livestock Symposium is that the program features big names in the industry. Speakers are selected for their ability to connect in a practical way with their audience. "We work very hard at selecting people that have important messages to convey and that can do so in a way that producers can clearly understand," said Mathes.

The 2009 Missouri Livestock Symposium will be held December 4-5 at the Kirksville Middle School. There is no charge to attend the Symposium and no registration is required. The Symposium also serves a free beef meal on Friday night and a free Governor's Style Luncheon on Saturday noon. Tickets are required for country music artist Steve Holy's performance, which will close out the annual event this year.

Friday's evening program will feature Mike Adams of AgriTalk, results of the Classic Tractor Contest, presentation of the Livestock Person of the Year, and the Agriculture Educators Lifetime Achievement Awards. University of Missouri Extension Commercial Agriculture Program veterinarian, Dr. Craig Payne will speak on "Agriculture Under Attack".

On Saturday, in addition to the all day trade show,

there will be educational programs for horse enthusiasts, beef cattle producers, sheep and meat goat producers, forage producers, and owners of stock dogs. There will also be programs on renewable energies and consumer topics that have broad appeal.

Dr. Norm Scott of Cornell University (NY) will share information about how small cities and rural communities can become energy independent. Dr. Patrick Westhoff, Co-Director of the Food and Agricultural Policy Research Institute, will update producers on the Farm Bill and its implications for producers.

In the "Around the Farm and Home Section," the Executive Director of the Beef Culinary Center in Denver, Colorado, Chef Dave Zino, will give beef cooking demonstrations. Horticultural topics include companion planting and raised bed gardening, managing vineyard nutrition, grapevine diseases and their control. Seminars on the art and history of quilting will again be featured.

Dr. Michael Goldschmidt of the University of Missouri will talk about energy savings for the home and farm. Dr. Robert Pierce, also of the University of Missouri, will tackle the topic of controlling nuisance animals around the farm and home.

In all, over 30 speakers from coast to coast will be on hand to share their knowledge with producers on relevant and timely topics. Complete details and information about the Missouri Livestock Symposium may be viewed at missourilivestock.com or by calling Garry Mathes at (660) 341-6625, Bruce Lane at (660)665-9866, or emailing Bruce at lanen@missouri.edu and putting MLS in the subject line.

Estate planning for farm families Part II Starting your Will

By Vern Pierce, PhD, JD, Assoc. Extension Professor of Ag Law, Business, & Economics

Taking the steps to develop a Will that will be honored after your death can start with a simple outline of how and when you want your property distributed and whom you wish to care for any minor children. We will go through more detail of the choices you can make in these areas in future articles.

Sample Wills are available at office supply stores, on line, and even at legal reference websites like Legalzoom.com. Be careful! these "samples" cannot provide any supporting legal advice and usually just have you fill in blanks in the middle of the legal text they provide. The problem comes when you don't have a full understanding of the implications the parts they are providing for you—that's why they are so cheap. You are just getting a sample template that works for the average person—of course there is no average person. So the best way to make your Will is too outline what you want, understand some of the basics and then take that to a lawyer.

There is a difference between making a Will and making a Will that will be enforced. To make a valid Will, you must be of sound mind and body. You have probably heard this many times, each time with a different definition. The fact is that in Missouri there are two simple tests the court will look at to determine if you were of sound mind and body when you wrote your Will. A person is considered to be of sound mind if, at the time she executed her Will, she knew:

1. the nature and extent of her property interests (what she owns); and
2. if she knows the "natural objects of their bounty"—her spouse, children, grandchildren, etc.

One common misconception is that alcoholism means a person is not of sound mind and body. This is not necessarily the case. If she meets the standards set out in the two rules listed above she will be considered to have been of sound mind when she executed the Will.

Your Will must be written, preferably typed, not verbal. Telling someone what your wishes are will generally be ignored by the courts after you die. Your Will must be signed by you in the presence of two disinterested witnesses (people who are not receiving anything in the Will). They must sign the Will signifying they have witnessed your signature and can later, give their opinion of whether you met the "sound mind and body" test mentioned above.

You should also consider whom you wish to be the executor of your estate—the person you want to manage the distribution of your assets and carry out the final wishes that you set out in your Will. The executed copy (signed by the testator in the presence of the witnesses followed by their signatures) of the Will should be stored in a secure place.

You do not have to send the Will to any government agency or even an attorney to be properly executed, although it is a good idea to have the attorney that helped you write the final version keep it at her office or in your safe or safe deposit box.

Do you have other questions relating to family farm estate planning? Contact Vern Pierce at piercev@missouri.edu or 573 882-8229.

MU's Bradford Research Center hosts several field days during the summer

Reid Smeda, MU Professor of Plant Sciences, lectures on identification of weeds that plague crop fields at the Bradford Research Center



Pat Guinan, MU Extension Climatologist, explains the automated monitoring weather station at the Pest Management Field Day at Bradford Research Center



Peter Scharf, MU Extension Professor of Plant Sciences, demonstrates the effects of P&K Management for Grain Crops on soil

Fall Application of Lime cost-effective in correcting the pH of acidic soil

By Rebecca Gants, Senior Information Specialist, West Central Region

BLUE SPRINGS, Mo. – Liming is an inexpensive way to boost crop yields in fields with overly acidic soils, said a University of Missouri Extension agronomy specialist.

"A soil pH of 6.0 to 6.5 is optimum for most crops in Missouri," said Travis Harper, a University of Missouri Extension agronomy specialist.

Soil pH affects the availability of soil nutrients to plants. An increase in soil acidity (lower pH) reduces the amount of available phosphorous in the soil while increasing the amount of available aluminum and hydrogen. At a pH of 4.5, available aluminum and hydrogen are at toxic levels, he said.

To counter these effects, an application of lime can reduce soil acidity. Liming increases the activity of organisms responsible for nitrification and nitrogen fixation and improves the overall condition of the soil.

"MU research indicates that increasing the pH of a soil from 4.5 to 6.0 through liming can increase soybean yield by as much as 15 percent," Harper said. "Given the benefits of liming, and the fact it is one of the cheapest products farmers add to the soil, there should be no reason the pH levels of Missouri agricultural soils don't fall within the ideal range."

A soil test, available through local MU Extension centers, can measure soil pH and indicate the amount of lime necessary to neutralize soil acidity.

The amount of lime to apply is expressed in terms of "effective neutralizing material" (ENM). All lime sold in Missouri is tested for purity and fineness, the two

factors that determine the ENM of a lime product.

"For example, a soil test may indicate that a soil is acidic and needs 1,200 ENM to increase the pH," Harper said. "If lime from a dealer is 400 ENM per ton, the farmer would need to apply three tons to correct the soil pH."

The main disadvantage with lime is that it can take a long time to correct soil acidity, especially if it's not properly incorporated. MU research indicated it would take 10 to 14 years for surface-applied lime without incorporation to raise the soil pH to a depth of 6 inches. All applied lime should be incorporated for maximum effectiveness.

Even with incorporation, it may take several months for lime to correct soil pH. For this reason, don't apply lime in March in an attempt to correct the soil pH for a crop you are going to plant in April.

"An ideal situation would be to take a soil sample right after harvest, then apply and incorporate the recommended amount of lime that fall," Harper said. "There should be sufficient correction in soil pH by the following spring to have a positive impact on crop growth."

The MU Extension guide "Liming Missouri Soils" (G9102) is available online at extension.missouri.edu/publications/DisplayPub.aspx?P=G9102. For information about MU Extension soil and plant testing services, see soilplantlab.missouri.edu/soil/.

The Missouri Corn Stalk Nitrate Test Challenge

By John Lory, Division of Plant Sciences and Commercial Agriculture Program.

Did you do a good job predicting nitrogen need for your corn crop last spring? Did you over apply? Under apply? Or get your rates just right? The stalk nitrate test is a powerful tool for assessing the fertilizer nitrogen decisions in a corn field.

Research from Iowa and other states has calibrated nitrate concentration in the corn stalk with the nitrogen status of the harvested corn crop. Nitrate concentrations above 2000 parts per million are indicative of a crop that had excess nitrogen; nitrate concentrations below 700 parts per million are indicative of plants that had marginal nitrogen supply (250-700 parts per million) or were clearly nitrogen deficient (<250 parts per million).

How to sample fields

- The optimum window of opportunity for collecting samples is from ¼ milk stage to up to three weeks after black layer formation.
- Use a set of hand shears or loppers to remove an eight-inch segment of corn stalk from the corn plant. The top cut should be 14 inches above the ground; the bottom cut six inches above the ground.
- Get a stalk segment from at least 15 randomly selected plants from the field or subfield you are sampling.
- Place the samples in a paper bag for shipping to the lab for analysis. Do not freeze the sample. Samples held more than 24 hours before shipping should be refrigerated.

Many fields will be past the optimum sampling window when this article is published in mid October. You can sample fields past three weeks after black layer if there has not been a large rainfall event that could leach nitrate out of the stalks after harvest.

Also, if you are cutting stalks after harvest, be sure you are still removing a section starting six inches above the ground and providing an eight-inch sample. A sample from closer to the ground will give an artificially high reading.

The Missouri Corn Stalk Nitrate Test Challenge

My program is working with the University of Missouri Soil Testing Laboratory to promote use of this test in Missouri. Typical analysis cost for the test is \$12 per sample. We will analyze up to 10 samples from any Missouri farm at the MU lab at no cost if you submit the requested information on the form when you submit the sample.

Send samples to Attention Stalk Nitrate Test Challenge, 23 Mumford Hall, University of Missouri Soil Testing Lab, Columbia, MO 65211 or MU Delta Regional Soil Testing Lab, 147 State Hwy T, Portageville, MO 63873.

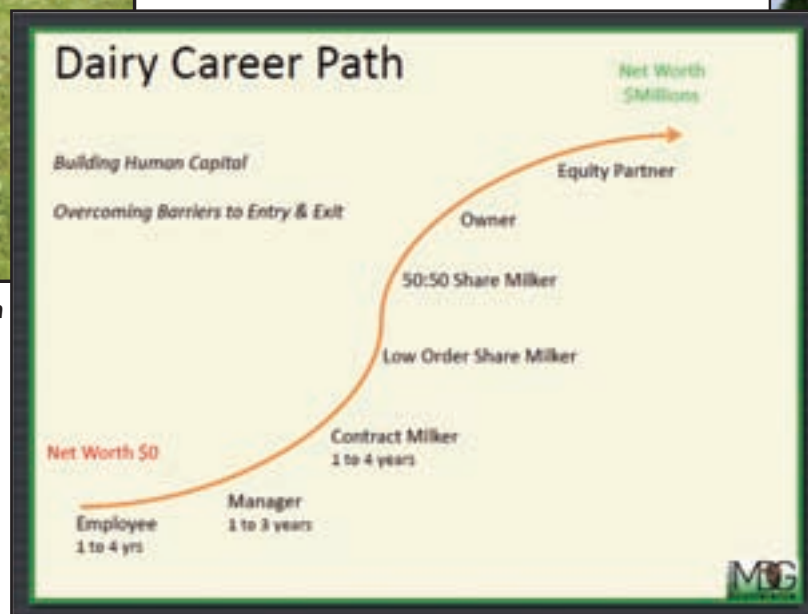
Visit the Corn Stalk Nitrate Challenge website at http://nmplanner.missouri.edu/tools/Stalk_Nitrate_Challenge.asp for more information and to download copies of the reporting form. Phone Shane Ferguson at 573 884-6311 to have a form(s) mailed to your home.

Sharemilking, an opportunity for Missouri's Dairy future

By Michelle Proctor, Senior Information Specialist



Sharemilker's home on premises at Wilson Springs Dairies, Carthage, MO, owned by Grasslands Consultants, LLC



Joe Horner answers questions on sharemilking at the Southwest Center Field on September 11

"The conventional definition of management is getting work done through people, but real management is developing people through work."

Joe Horner, University of Missouri Extension Commercial Agriculture Program, dairy economist, quoted a famous banker, as he explained the concept of Sharemilking to hundreds of participants gathered in Joplin for the Missouri Dairy Grazing Conference in July.

Horner believes that the future of some Missouri dairies may lie in the adoption of a career path similar to the traditional New Zealand system, involving sharemilking leading to ownership.

Sharemilking historically began in Scotland and was imported into New Zealand in the late nineteenth century. The concept of sharefarming is not new in the United States either. Farmers have been sharecropping for centuries. Beef cow share leases are common in the United States. Sharemilking contracts probably achieved such success in New Zealand's dairy industry because clean, robust contracts are simpler to create with grazing dairies than with confinement dairies.

In the traditional New Zealand Dairy Career Path a potential dairyman begins as an employee, proceeds to manager, contract milker, 20% low order sharemilker, 50% sharemilker, dairy owner, then to an equity partner in a larger dairy.

A 20% low order sharemilking arrangement is one where the owner provides the assets while the sharemilker provides all labor and perhaps some management. The milk check and some key operating expenses are shared 80% to the owner, 20% to the sharemilker.

The next step would be to move up to a 50% arrangement where the sharemilker purchases the herd and equipment. The milk check and some key operating expenses are split 50:50 between the landowner and sharemilker.

Contracts are not limited to dividing the milk checks exactly 80:20 in the low order arrangement or 50:50 in the higher order. The key is to divide the proceeds according to the contribution.

For some dairymen, the next step up the ladder to farm ownership may mean selling the herd and machinery to another sharemilker and using the cattle and machinery proceeds as a down payment toward owning a farm, giving the next sharemilker an opportunity to populate the new farm with his cattle.

Jeff Hayes served as a panelist at the Missouri Dairy Grazing Conference discussing his experiences as a sharemilker. Jeff found out about the Grasslands Consultants career program by word of mouth. He interviewed, was hired, and began as a manager.

Jeff spent four years learning about dairying and grass farming before becoming Grassland's first American sharemilker in January 2008. He currently milks 550 crossbred cows on a seasonal pasture based dairy near Wentworth, Missouri. Grasslands Consultants LLC has three other similar sharemilkers on other farms in Southwest Missouri.

The final stage of dairy ownership is known as the equity partnership. In this agreement, a group of investors, large or small, pool their resources to provide equity for a larger dairy farm. Building a new dairy farm requires a significant amount of capital. Equity partnerships allow more money to be pooled, thus allowing a larger operation to be created. Larger operations may be able to achieve economies of scale for the farm.

"A key strategy in forming a successful equity partnership is to involve people with different skills. One investor might be very good at cow health and management, another at forage management, and a third might be best at finances," Horner says. By bringing this sort of a group together as an equity partnership, the operation can benefit from each set of unique skills.

On September 11, at the University of Missouri Southwest Center Field Day in Mt. Vernon, Horner asked, "Given today's financial realities, how can we create a viable dairy pathway for the next generation? How can we overcome the 'Dairy Dilemma'?"

To solve the 'Dairy Dilemma' we must enable older dairymen to retire without losing their lifetime's accumulation of dairy specific investments. We must also enable potential young dairyman to get an ownership foothold in the industry, even if they don't have the equity necessary to create a minimally viable sized dairy."

Sharemilking provides an opportunity for potential young dairyman who cannot find financing to start dairying. The lump size equity necessary to leverage and create a minimal sized dairy is beyond the reach of most people in their 20s and 30s.

Sharemilking helps dairy owners find and keep

motivated workers. It gives an incentive to older dairymen to reinvest in their facilities after age 50 because they know the dairying business can continue generating returns after their looming retirement. It allows those who want to remain connected to the dairy business an opportunity to stay involved without having to bear all the financial risk or labor.

Horner recommends written contracts. "Discuss and work out all the physical and financial responsibilities of each participant before entering into an agreement." The University of Missouri Extension Commercial Agriculture Program has created a website to help dairymen learn about sharemilking and other steps on the dairy career path.

The sharemilking website is available at: <http://agebb.missouri.edu/dairy/grazing/sharemilking/index.htm>.

MU also maintains a site called Missouri Dairy Business Opportunities, <http://agebb.missouri.edu/dairylink/opportunities/>, for linking potential dairy producers with established dairy producers.

Are pasture based dairy operations one key to the future for the Missouri dairy industry?

Cutting feed costs by growing high energy pasture requires new management skills, but can help the dairy produce lower cost milk. In the Winter Commercial Ag News, the dairy focus team will illustrate why dairy farmers may want to look in this direction, and offer insight to developing successful management practices.

Release of the first ever National Swine Nutrition Guide in 2010

By Dr. Marcia Shannon, Swine Nutritionist

The purpose of the National Swine Nutrition Guide is to enhance the understanding of basic swine nutrition, feeding principles and related management issues. State-based guides traditionally served this purpose, but due to the attrition of qualified swine extension specialists trained to write or update such documents, most of the previous guides cease to exist. This effort will not replace the need for an updated Nutrient Requirements of Swine published by the National Academy of Science; work is being done to keep that opportunity alive.

The National Swine Nutrition Guide is a practical bulletin containing nutrient recommendations that are based upon the requirements established by the 1998 NRC and research results published since with an appropriate safety margin. The Fact Sheets resulting from this project will be published electronically in the Pork Information Gateway (PIG), and in hard copy by the US Pork Center Excellence for use by personnel who work with pork producers. More information can be found at www.usporkcenter.org.

Beginning in January, educational training sessions will be administered by the authors of the guide. These training sessions will focus on the use and application of the National Swine Nutrition Guide. They will include an overview of the guide's nutritional recommendations, demonstration of the computer software for least-cost ration formulation, and cover critical points of each factsheet.

There will be six different training sessions at the following dates and locations:

Indianapolis, IN – January 2010

Pullman, WA – February 5

Kansas City, MO – February 17

Greenville, NC – February 2010

Sioux City, IA – March 5

Owatonna, MN – March 11

These training sessions are open to any producer, educator or industry personnel interested in obtaining one-on-one information and a copy of the guide. Please contact Dr. Marcia Shannon at carlsonm@missouri.edu or 573-882-7859 if you are interested in attending the training session in Kansas City, MO.



Days of Yore... now most Missouri swine facilities operate as CAFOs, to ensure bio-security protocols.

2009 MU Swine Institute set for Nov. 10

Featured speakers include MU athletics director Mike Alden

By Michelle Proctor, Senior Information Specialist

The University of Missouri Extension Commercial Agriculture Program's 2009 Swine Institute will take place Nov. 10 at the Courtyard by Marriott in Columbia.

This year's theme is "Looking for the Rainbow," a reference to last year's theme, "Weathering the Storm." The program will address economic issues affecting the Missouri swine industry and provide management advice to help producers in these challenging times.

Institute topics will include market outlooks, the evolution of the swine industry, tips on hot-button issues in the industry, and strategies to help producers monitor and manage with more efficiency.

Presenters include MU Extension economist Ron

Plain and the Commercial Agriculture Program swine focus team; Melvin Brees of the Food and Agricultural Policy Research Institute; and Teng Lim of Purdue University, who will report on the EPA's national air-monitoring program.

The Swine Institute begins at noon with a luncheon featuring MU Director of Athletics Mike Alden. The event adjourns at 5 p.m.

For registration information, contact Erica Lovercamp at 573-882-9552 or lovercamp@missouri.edu. For additional details on event programming and other inquiries, contact Katrina Turner at 573-882-0378 or turnerka@missouri.edu.

An Update on Influenza A H1N1 Research in Pigs

H1N1 will not pose a food safety risk for consumers

By Beth Young, DVM, MU Extension Commercial Ag Program Swine Veterinarian

Novel influenza A H1N1 continues to circulate among the human population. As the winter flu season approaches, there is speculation that the number of human cases of influenza A H1N1 in the USA will increase.

This new influenza strain is not known to be circulating among pig populations in Missouri or anywhere else in the USA. To date, all 114 swine samples submitted to the National Animal Health Laboratory Network for novel H1N1 testing have been negative. However, if increased numbers of human cases of influenza should occur this winter, the risk of pig herds in the USA becoming infected with the novel influenza A H1N1 virus will also increase.

While the ease with which this particular strain of the virus is spread between people and pigs has yet to be determined, researchers have demonstrated that this new influenza strain can be transmitted relatively easily from pig-to-pig.

If the disease is inadvertently introduced into a swine herd, it is likely that it would quickly spread between animals and become established in the herd. Normal bio-security measures have been intensified as pork producers take extra steps to protect their herds and reduce exposure risks.

Fortunately, the clinical signs of influenza that have been reported in pigs experimentally infected with the novel influenza virus are similar to those seen in typical cases of swine influenza. Signs include fever, runny nose and eyes, coughing, decreased activity, and lack of appetite. The clinical signs produced by the new influenza strain appear to be no more severe than those produced by other strains of swine influenza virus. There are no reports of pigs dying from the disease.

Typical swine influenza viruses do not contaminate pork, nor are they transmitted to people through the consumption of pork products. Researchers with the Agricultural Research Service (ARS) recently confirmed this fact about the novel H1N1 virus.

Pigs were experimentally infected with the same strain of the new influenza virus that was isolated in

people in California. Five days after being infected, samples were collected from various tissues of the pigs and tested for the presence of live influenza virus. Live influenza virus was only found in the respiratory tracts (nose and lung) of the infected pigs while none was found in their muscles or internal organs.

This experiment shows that this new strain of influenza behaves similarly to typical swine influenza strains and will not contaminate the meat of infected pigs. **In the event that novel H1N1 influenza does become established in American pig herds, it will not pose a food safety risk for consumers.**

Scientists with the ARS also examined whether the immunity produced in response to exposure to swine influenza viruses known to be circulating in American pigs would provide protection against the novel H1N1 strain in pigs. Their results suggested that pigs that have developed immunity through past exposure to typical swine influenza strains may not be protected against the novel H1N1 strain.

Results also suggested that commercial swine influenza vaccines currently available for use in pigs in the United States may not provide protection against the new influenza strain. To facilitate the development of new influenza vaccines for pigs that would provide protection against the new strain, the USDA has made a "master seed virus" available to veterinary vaccine manufacturers. This eliminates the need for each manufacturer to develop and test their own master seed virus and thus will decrease the time needed to create a new vaccine. However, a date for the release of a commercially available novel H1N1 influenza vaccine for pigs has not been set.

In the meantime, producers can reduce the influenza risk to their herds by maintaining strict bio-security protocols. The number of visitors to the herd should be kept to a minimum. People entering the pig barn should shower and/or change out of their street clothes. Anyone working with pigs is encouraged to get a flu shot. Under all circumstances, anyone that has flu-like symptoms should not be allowed into the barn.

Focus Team Contacts

BEEF TEAM

Joe Horner
Beef/Dairy Economist
(573) 882-9339
HornerJ@missouri.edu

Carol Lorenzen
Meat Scientist
(573) 882-2452
LorenzenC@missouri.edu

John Lory
Environmental Nutrient
Management Specialist
(573) 884-7815
LoryJ@missouri.edu

Ryan Milhollin
Project Manager
(573) 882-0668
MilhollinR@missouri.edu

Robert Weaber
Animal Breeding &
Genetics Specialist
(573) 882-5479
WeaberR@missouri.edu

Craig Payne
Veterinarian
(573) 882-8236
PayneCa@missouri.edu

Justin Sexten
Beef Nutritionist
(573) 882-8154
SextenJ@missouri.edu

CROPS TEAM

Ray Massey, Team Leader
Crops/Swine Economist
(573) 884-7788
MasseyR@missouri.edu

Joe Henggeler
Irrigation Specialist
(573) 379-5431
HenggelerJ@missouri.edu

John Lory
Environmental Nutrient
Management Specialist
(573) 884-7815
LoryJ@missouri.edu

Eugene Stevens
Soils Specialist
(573) 379-5431
StevensE@missouri.edu

Laura Sweets
Plant Pathologist/
Entomologist
(573) 884-7307
SweetsL@missouri.edu

DAIRY TEAM

Joe Horner
Dairy/Beef Economist
(573) 882-9339
HornerJ@missouri.edu

John Lory
Environmental Nutrient
Management Specialist
(573) 884-7815
LoryJ@missouri.edu

Ryan Milhollin
Project Manager
(573) 882-0668
MilhollinR@missouri.edu

Scott Pook
Veterinarian
(573) 882-6359
PookS@missouri.edu

James Spain
Animal Scientist
(573) 882-6452
SpainJ@missouri.edu

Barry Steevens
Animal Scientist
(573) 882-3459
SteevensB@missouri.edu

Joe Zulovich
Structures Engineer
(573) 882-2731
ZulovichJ@missouri.edu

Matt Waldron
Dairy Nutritionist
(573) 882-6354
WaldronM@missouri.edu

SWINE TEAM

Joe Zulovich, Team Leader
Structures Engineer
(573) 882-2731
ZulovichJ@missouri.edu

John Lory
Environmental Nutrient
Management Specialist
(573) 884-7815
LoryJ@missouri.edu

Ray Massey
Agricultural Economist
(573) 884-7788
MasseyR@missouri.edu

Ron Plain
Agricultural Economist
(573) 882-0134
PlainR@missouri.edu

Tim Safranski
Genetics/Reproductive
(573) 884-7994
SafranskiT@missouri.edu

Marcia Carlson Shannon
Swine Nutritionist
(573) 882-7859
CarlsonM@missouri.edu

Beth Young
Veterinarian
(573) 882-8812
YoungBet@missouri.edu

MEATS TEAM

Bryon Wiegand, Team Leader
Fresh Meat
(573) 882-3176
wiegandb@missouri.edu

Ronnie Alewel
Association of Meat
Processors
(660) 747-8261
ralewel@iland.net

Andrew Clarke
Processed Meats
(573) 882-2610
ClarkeAD@missouri.edu

Jason Jennings
Association of Meat
Processors
(573) 848-2229
jasonjpm@sbcglobal.net

Carol Lorenzen
Fresh meat
(573) 882-2452
LorenzenC@missouri.edu

Joe Zulovich
Facilities Design
(573) 882-2731
ZulovichJ@missouri.edu

LEGAL EDUCATION

Vern Pierce
Associate, Extension
Professor of Ag Law, Business
& Economics
(573) 882-8812
YoungBet@missouri.edu

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5102 Animal Sciences Research Center
University of Missouri
Columbia, MO 65211
573/882-0378

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Winter Events, 2009-2010

2009

November

- 10 Swine Institute, Columbia
- 20 Show-Me Select Heifer Sale, Joplin
- 28 Show-Me Select Heifer Sale, Kingsville

December

- 4-5 Missouri Livestock Symposium, Kirksville
- 5 Show-Me Select Heifer Sale, Fruitland
- 5 Show-Me Select Heifer Sale, Green City
- 11-12 MO Cattle Industry Annual Convention & Trade Show, Springfield
- 12 Show-Me Select Heifer Sale, Palmyra
- 12 Show-Me Select Heifer Sale, Mountain Grove

2010

February

- 6 MU Ag Alumni Association, Ag Unlimited, Columbia
- 10 Missouri Pork Expo, Columbia
- 22-26 Dairy Profit Seminars-
"Strategies for Financial Recovery" in five cities

Cool 2009 summer may crack top 10 on record

By Robert Thomas, Information Specialist

Missourians are breaking out fall sweaters early as one of the coolest summers on record wraps up.

"The 2009 three-month summer period ranked as Missouri's 12th coolest summer", said University of Missouri Extension climatologist Pat Guinan. "July ranked as the second coolest, and August came in as the seventh coolest on record. Records began in 1895."

"A northwest-flow upper-air pattern during much of July and parts of August dominated the Midwest," he said. "This flow led to frequent cool-air intrusions from Canada and extended periods of below-normal temperatures across Missouri."

Summer rain also was abundant, averaging above normal statewide in June, July and August.

"I cannot recollect two consecutive growing seasons in Missouri when essentially every county has been drought-free," said Guinan.

Sufficient moisture and cool

temperatures over much of the summer mostly benefited agriculture, with the majority of the corn and soybean crops in good to excellent condition, according to the Missouri Agricultural Statistics Service.

Irrigation required for corn test plots also is lower this year, down at least 75 percent, according to Tim Reinbott, superintendent of the Bradford Research and Extension Center, near Columbia. Reinbott feels the cool weather has delayed corn maturing by as much as three weeks.

"There are some concerns about the potential for an early frost hurting late-planted crops, but cool summers do not increase the likelihood of an early fall frost," said Guinan.

As cool summer temperatures prevailed across the Midwest, record-warm ocean temperatures occurred in July and excessive heat afflicted the western U.S. and Texas.