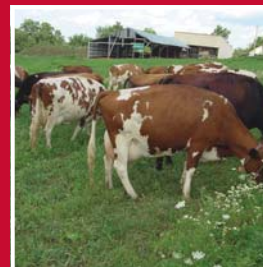


# FIELD & FEEDLOT



ISU EXTENSION—NORTHWEST REGIONS

## Extension Web Sites

### Ag Decision Maker

<http://www.extension.iastate.edu/agdm/>

### Beef Center

<http://www.iowabeefcenter.org/>

### Manure Management

<http://www.agronext.iastate.edu/immag/>

### Pork Center

<http://www.ipic.iastate.edu/>

### ISU Extension Dairy Team

<http://www.extension.iastate.edu/DairyTeam/>

## Fall Soil Fertility Thoughts

*By Joel Dejong, ISU Extension Field Agronomist*

As we complete fall harvest, we need to think about getting our fields ready for the next year. When we hauled a crop off of the field, we also hauled quite a few pounds of nutrients with it. We know that the crop needs nutrients to produce abundant yields, but crops don't really care if those nutrients come from the soil or from fertilizer – as long as an adequate supply comes from either or a combination of both.

That is why we recommend soil testing, which is often done in the fall after the crop has been harvested. Soil tests give us information about the odds of getting a return on investment if we apply fertilizer to the farm the next year. Phosphate and potash are two of the nutrients that the soil can store for future crop growth. We soil test to find out about how much is in storage, and then we can use that information to determine if we need to apply more for the next year. Research at ISU has shown that when soils test in the "very low" category, the expected percentage of times we would get a yield increase from adding fertilizer would be 80% of the time. Yes, even in the very low category we don't see a yield increase every time – but the odds are pretty good! When a soil test comes back in the "low" soil test category, we expect that we will get our money back, and maybe more, about 2/3 of the time. When in the "optimum" or medium soil test category the odds of getting a significant yield response drop to 25% of the time. However, in most cases, we encourage replacement of P and K for what we removed with the crop – I consider this the cost of doing business on those fields. The odds of a significant yield response in the "high" soil test category drop to 5% of the time, and very high is less than 1% of the time. Therefore, ISU doesn't recommend adding fertilizer when in these last

two soil test categories because we don't get a good return on our investment until we need the contribution from the added fertilizer – which won't be in the near future. Soil test about every 4 years to monitor changes over time, and then reconsider application rates.

When soil tests are in the very low and low soil test categories ISU recommends applying more than what was removed by the previous crop. The basic recommendation for the "optimum" category is to replace what has been removed. To see more details about ISU recommendations, and discussion of these issues and more, get a copy of the publication "A General Guide for Crop Nutrient And Limestone Recommendations in Iowa" from your local Extension office. It costs \$2.50. Or, find it free on-line at <http://www.extension.iastate.edu/Publications/PM1688.pdf>.

Note that when we harvest entire plants we greatly increase the amount of phosphate and potash we are removing with the crop. A bushel of corn removes .375# of phosphate (P2O5) and .3# of potash (K2O). If you remove it as silage, these numbers jump to an equivalent per bushel removal rate of .55 (P2O5) and 1.25 (K2O). Cornstalk bales remove about 5.9# of phosphate and about 25# of potash per ton of cornstalks – however, if it rains a couple of times after combining, a lot of the potash can leach out of the cornstalks before baling. Soybeans remove .8# of P2O5/bushel, and 1.5# K2O/bushel. Alfalfa removes about 12# phosphate and 40# potash per ton harvested.

As an example, if you grew 180 bushels of corn this year, you removed about 68# of phosphate per acre, and about 54# of potash. If you had it removed as silage, the removal rates were 100# and 225# respectively. 60 bushel beans saw 48# of P2O5 and 90# of K2O leave the field in the wagon. And six tons of hay removes 75# and 240# of those two nutrients. Do your soil tests indicate that there are still adequate amounts for future production – or do you need to add fertilizer? If maintaining your soil test levels, are you keeping up with the increased removal rates from these higher yield levels we are achieving?

I suggest that every year you sit down after harvest and consider how many pounds of each of these nutrients your crop removed this past year. Use that information, along with soil test information, to make those determinations on how you will spend your fertilizer dollars for 2011.

## Cow-Calf Opportunities

By Beth Ellen Doran, ISU Extension Beef Program Specialist

Profitability in cow-calf production hinges on two factors – feed cost and market price for the feeder calf. I would encourage cattle producers to look at two upcoming opportunities involving both factors.

**Forage Testing Project for Iowa Producers** – Frequent rains this year made hay baling extremely difficult and have resulted in over-mature hay, rain-damaged hay and poor yields in some areas. To address this, the ISU Beef Team has developed a forage testing and cattle feeding project to assist producers in managing poor forages and to prevent potential calving problems.

1. The initial phase of the project, which is collecting and testing the forages this fall, involves several steps: Interested producers should contact Beth Doran at 712-737-4230 or [doranb@iastate.edu](mailto:doranb@iastate.edu) to enroll in the project as there is limited project funding. The emphasis is on weather-impacted hays and silages, but there may be testing of other non-traditional forages on an individual basis.
2. Producers will need a hay probe to collect samples. Samples must be cored samples, not grab samples. There will be four hay probes throughout the NW area, and we will work with you to borrow one or you may wish to contact your local feed supplier or nutritionist to see if they have a probe you can borrow. To learn more about forage sampling, ISU has a new publication “Forage Sampling and Sampling Equipment” at [www.extension.iastate.edu/Publications/PM1098B.pdf](http://www.extension.iastate.edu/Publications/PM1098B.pdf) or there is a video located at [www.wonderhowto.com/how-to-sample-forage-for-nutritional-analysis-21793/](http://www.wonderhowto.com/how-to-sample-forage-for-nutritional-analysis-21793/)
3. The producer will bring the samples to the County Extension Office for processing. This includes completing a forage information form, mailing form and payment. Grant funds will pay 50% of the analysis cost on a maximum of three forage samples per producer. The cost of analysis for the producer will be \$6.19 per sample for hay and silage samples and \$8.55 per sample for other non-traditional forages.
4. The County Extension Office will bag, package and mail the samples to Dairyland Laboratories for analysis. Postage and handling are covered by grant funding.

Phase two involves a couple of steps:

1. Forage analysis will be returned to Beth Doran and the cooperating producer.
2. The producer may wish to work with Beth or their local nutritionist for assistance in balancing rations for cattle performance.
3. The producer might also use the test results to prove losses under the Farm Service Agency’s Supplemental Revenue Assistance Payments (SURE) Program.

Phase three consists of:

1. Winter meetings discussing forage nutrient values and rations.
2. A second year of testing, pending potential funding.

**Adding Value to Your Feeder Calves** – Last year, the ISU Beef Team surveyed ten Iowa auction market managers about what practices they felt added the most value to feeder calves. They indicated that practices adding the greatest value were pre-conditioning and vaccination with veterinary certification; using superior cow herd genetics; and marketing at special feeder sales.

A 2006 Iowa Beef Center study researched the value of third-party certification claims. Calves that were certified vaccinated and weaned 30 days had a premium of \$6.12/cwt compared to un-weaned, un-vaccinated calves. Hence, the Iowa pre-conditioned green- and gold-tagged programs are one way producers can add to feeder cattle value. Be sure to check out the dates for the special sales you plan to consign to and get started early on your weaning and vaccination program.

So, what is age and source verification (A/SV) worth to the cow-calf producer? Studies conducted by Montana State University in 2007 indicated a \$2.13/cwt premium for A/SV calves (weighing 600 pounds and sold via video auction). Cattle Fax analysis of video auctions in 2009 revealed a \$3.47/cwt premium for steer calves that were A/SV for fall delivery. Thus, A/SV is another way to add value to your feeder calves, but this program requires on-site audits, paper trails and third-party audits by a process verified provider.

These studies show that third-party certification programs are supported in the market place. However, the cow-calf producer will need to conduct specific management and record-keeping practices to qualify their calves for these programs.

## ISU Dairy Research Update

By Leo Timms, ISU State Dairy Specialist

Adapted By Chris Mondak, ISU Extension Dairy Program Specialist

“If you build it, they will come and the new ISU Dairy Farm is no exception,” says Leo Timms, ISU State Dairy Specialist based on campus. Dr. Timms was a key player in the project that resulted in a new ISU Dairy Farm complex. He reports that the new dairy facility has been a “springboard for excellent teaching and extension efforts, and a hub for dairy research.” Below is a list of the ISU people involved with dairy research, and a brief listing of projects underway or planned for the near future.

**Key to codes used below: AS= Animal Science dept; CVM= College of Veterinary Medicine**

**Dr. Lance Baumgard**, nutritional physiology (AS)

- Transition cow metabolism / Heat stress
- Effect of supplemental zinc on health / performance
- Heat stress / adipose metabolism (joint w/Spurlock)

**Dr. Don Beitz**, nutritional physiology (AS)

- Improving milkfat composition by marker selection
- Altering milk fat composition through dietary means

- Feeding lactobacillus/ propionibacteria: effects on health/ performance / immune system

**Dr. Jesse Goff, DVM**, nutritional physiology (CVM)

- Transition cow nutrition / metabolism
- Enhancing postpartum uterine health / immunity

**Dr. Pat Gorden, DVM**, dairy production medicine (CVM)

- Using genetic tools / tests to evaluate clinical mastitis
- Dairy ventilation / air quality studies

**Dr. Kayoko Kimura**, dairy physiology (CVM)

- Effect of green tea extract on neutrophil function
- Characterization of mastitis using endotoxin model

**Dr. Bruce Leuschen, DVM**, dairy production med. (CVM)

- Assessing passive immunity transfer
- Evaluation of weaning strategies on calf performance

**Dr. Suzanne Millman**, animal welfare / behavior (CVM)

- Pain tests/ analgesic during calf disbudding
- Evaluation of weaning strategies on calf performance

**Dr. Jan Shearer, DVM**, dairy physiology / welfare (CVM)

- Digital dermatitis / lameness models (joint w/Gorden, Leuschen, Millman, Elliot (NADC), Timms)

**Dr. Diane Spurlock**, molecular genetics (AS)

- DNA collection from ISU Dairy herd
- Metabolic activity of dairy adipose tissue
- Genetic regulation of energy balance in dairy
- Regulation models of lipolysis and adipose utilization

**Dr. Leo Timms**, dairy physiology (AS, CVM)

- Teat health / conditioning using lactating teat dips
- Development / evaluation of dry cow sealant dips
- Evaluation of non-antibiotic mastitis therapies
- Evaluation of separated manure solids for bedding

**Dr. Howard Tyler**, dairy physiology, (AS)

- Fermented soy products for calf starter diets
- Factors affecting suckling behavior in newborns
- Models to evaluate gut passive immunity transfer

**Dr. Paul Plummer and Dr. James West, DVMs** (CVM)

- Formic acid for treatment for colostrum / waste milk

Links to see more about programs and projects at ISU Animal Science Department, or the ISU College of Veterinary Medicine:

- <http://www.ans.iastate.edu/species/dairy/>
- <http://vetmed.iastate.edu/vdpam>

## Planning for this Fall's Manure Application

*By Kris Kohl, ISU Extension Ag Engineer Program Specialist*

The soybeans are coming out of the field and the next operation will be the manure application.

Test your manure this fall to be sure you are putting on the proper amount. The rainy summer and changes in livestock diets have led to lower than normal manure nutrient levels. They should be tested prior to this fall's application so that rate adjustments can be

made. If the farm is under a manure management plan, the results should be recorded on pages two and three of the manure management plan prior to application. The most common complaints from the public are small spills on the road that splash up on cars and the odor from the applications. Be sensitive to these concerns and act quickly to address any complaints.

This fall, when you are preparing for the manure application, put together a mini spill kit to reduce the impact of a possible spill. The mini spill kit should include:

- 1 sand shovel
- 1 roll of duct tape
- 1 utility knife
- 1 roll of 6 mil plastic 10 feet by 25 feet
- 1 list of contact number of people who can help in time if crisis

When a spill occurs, tile intakes are often the route that the manure flows into that get into waters of the state. The plastic and duct tape can be used to seal the tile intake. The shovel can be used to seal the edges of the plastic. Because liquid manure flows at nearly the speed of water, which is about 5 feet per second, it can travel nearly one mile in an hour and a half. By this time, it has often entered a tile line or the water.

The days are short to get manure hauled so many farmers will need to apply at night. Make sure all equipment lights are working. Use fields adjacent to the livestock facilities for night time hauling when more things seem to go wrong.

Keep a list of individual cell numbers of people to contact fast. The Sheriff and DNR should also be contacted and the DNR must be contacted within 6 hours of a spill. The DNR 24hr spill number is 515-281-8694

### Safety while pumping

When we agitate liquid manure it gives off gasses from decomposition of the volatile solids. The hazard gases are hydrogen sulfide methane and ammonia. Allowing the agitation jet to break the surface of the manure greatly increases the release of these hazardous gasses. Many swine farmers have lost pigs when this happens. ISU recommends the following to reduce the risk while pumping:

1. Do not break the surface with the agitation jet.
2. Do not agitate pits until there is two feet of air space below the slats.
3. During pumping, make sure manure jets are pointed down and away from pillars in the pit or the back wall.
4. Maintain the ventilation at 50% to capacity during agitations.
5. Turn off propane to the building to reduce fire explosions.
6. Never enter a building when you are agitating a pit, pigs are worth over 100 dollars your life is priceless.

Have a safe and productive manure application season this fall.