FIELD & FEEDLOT



NORTHWEST AREA EXTENSION JUNE 2007 ISSUE

Checking Corn & Soybean Fields in June

By Paul Kassel, ISU Extension Crop Field Specialist

Check corn populations. Check corn populations for each hybrid or every field. Take a tape measure and count the plants in the following distance. This will give you plant population in thousand plants per acre. Take stand counts from the same planter unit each time – to eliminate stand count differences from planter unit variations.

Row spacing	*Distance to measure*
36 inch	14 ft 6 in.
30 inch	17 ft 5 in.
20 inch	26 ft 1 in.

Look for these items:

- Stand counts for differing planting rates
- Plant spacing
- Doubles, skips
- Variation in plant development
- Insects that cause stand reduction (cutworms, grubs, wireworms)

This is a good activity to do in June because you likely can remember any planting problems you experienced at planting time. Items like seed size, seed weight and seed treatment may affect planter performance. Notes that you make this time of year can be helpful when you make seed selection for the next season.

This is also a good time of the year to evaluate the performance of insecticide seed treatments – if you find that you have had cutworm, grub or wireworm problems.

Consider late spring Nitrogen tests. The late spring nitrogen test (LSNT) can be useful to confirm nitrogen (N) levels or nitrogen needs. Fields with manure applications where the N content was in question, areas with excessive rainfall, or fields where N rates were questionable may be good candidates for the LSNT. See http://www.agron.iastate.edu/soiltesting/LSN.pdf for more info.

Check soybean plant populations. Recent research has shown that a final plant population of 100,000 seeds per acre is adequate for maximum soybean yields. Check soybean plant populations using the following info.

Row spacing, in.	One plant per foot of row equals:
36	15,000
30	18,000
20	26,000
15	35,000
10	52,000
7	75,000

Measure out three foot of row, count the plants and figure the stand count from there. Compare planted seeds per acre to the final plant population.

This is a good time of year to check:

- For soybean cyst nematode (dig a few plants)
- For soybean disease – like damping off, rhizoctonia and fusarium root rots
- For iron deficiency chlorosis resistance

Useful web sites for ISU information:

See http://www.agronext.iastate.edu/corn/ for the latest corn production information from Roger Elmore and Lori Abendroth. Sign up for e-mail alerts when new items and articles are published at http://www.agronext.iastate.edu/corn/showitem.php?id=42

See http://extension.agron.iastate.edu/soybean/ for the soybean production information from Palle Pedersen. Ask Palle a question on soybean production at http://extension.agron.iastate.edu/soybean/QAForm/Default.aspx

See http://extension.agron.iastate.edu/soilfertility/ for information on soil fertility topics.

On-Farm Composting

By Dennis DeWitt, ISU Extension Livestock Specialist and Kris Kohl, ISU Extension Ag Engineer Specialist

To Be Successful: Follow a few simple steps to successfully compost mortalities on your farm. Start with a few animals, a

compost thermometer, and gain some experience before building a facility. While most of our compost experiences have been excellent, several of our demonstration projects ended less than 100% successful.

Co-Compost Material: Sometimes referred to as carbon sources or bulking agents, these are used to cover the mortalities and provide a micro-environment for bacteria. The co-compost material should be readily available, inexpensive and free of pesticide residues. Some co-compost materials are poultry litter, turkey brooder litter, wood chips, wood shavings, ground corncobs, hoops bedding and/or corn stalks.

The Compost Process: The mortality is over 80% water by weight. Once the skin breaks, aerobic bacteria decompose the mortality using the water and protein from the dead animal and the carbon from the co-compost material to multiply rapidly. The co-compost material should provide air movement, yet insulate the compost process creating warm temperatures. The bacteria need temperatures above 50 degrees F to thrive, but start to die above 160 degrees F. The biologic multiplication of aerobic bacteria doubles with every 20 degrees rise in temperature. The process will be hot, fast and without obnoxious odors. The heat will kill flies and keep mice, rats and other varmints out of the compost.

Steps to follow:
1. Place 18 inches of co-compost material on the pad or bin floor.
2. Place mortalities in a single layer keeping them at least 6 inches from the edge.
3. Cover with co-compost material to at least an equal depth as the mortality.
4.Add additional mortalities in layers, repeating steps 2 & 3. Do not exceed a 6 foot depth.
5. The final cover should be made with unused co-compost material and at least 12 inches deep in the summer and 18 inches deep in the winter.
6. After five days, the compost thermometer should be used to make sure that the process is proceeding properly. The temperature should exceed 110 degrees F in the pile near the mortalities. The probe can be left in the pile to monitor progress. Record the temperature and date. If the temperature does not exceed 110 degrees F after ten days, call your Extension specialist for assistance.
7. When the temperature has dropped 10 to 15 degrees F below the highest temperature, the pile is ready to turn. This is about 30 days after the last mortality was added to the pile. Use a loader to turn the pile or move to a secondary bin. Then cover with 6 to 12 inches of unused co-compost material.
8. The temperature should rise to over 130 degrees F within several days of turning. After about 10 to 20 days, the temperature will drop off and the compost process is complete.
9. The completed compost can be reused as intermediate co-compost material if it is still dry enough and contains larger sized co-compost particles. The completed compost will appear very dark and fine textured and can be land applied like dry manure.

Will there be bones? The simple answer is yes. When the compost process is complete, all the soft flesh will be completely decomposed and many of the bones will be shattered, soft, and brittle; but some will remain. Most will shatter when they hit the manure spreader beaters. Those that remain are a source of calcium and phosphorus and are smaller than most rocks in the field. If bones bother you, gather them and place them in a pile with an equal amount of fire wood. Then burn the fire wood. The bones will then completely be ash to powder.

For more information, contact Dennis DeWitt, ISU Extension Livestock Field Specialist, Spirit Lake, 712-336-3488 or Kris Kohl, ISU Extension Ag Engineer Field Specialist, Storm Lake, 712-732-5056 or your ISU Specialist.

Issues Related to Feeding of Distillers Dried Grain with Solubles to Swine

By Dave Stender, ISU Extension Swine Field Specialist

First, an understanding that Distillers Dried Grain (DDG) and Distillers Dried Grain w Solubles (DDGS) are not the same is important. The ethanol plant typically adds the solubles back into the DDG, the nutrient content of each have similar nutrients, but in varying amounts. The solubles portion is usually more valuable as swine feed because of higher fat levels. Ethanol plants can add variable amounts of solubles to the DDG.

One reason higher levels of DDGS is not fed to hogs is variability – the distillation process is not exactly the same at each plant and therefore the byproduct is highly variable in both nutrient content and digestibility (dependent of the heat in the drying process). Some feed formulators are hesitant to go over 10% inclusion rate because of this variability. Higher inclusion rates are possible with more precise nutrient values, but the cost to analyze the sample for digestibility and nutrient content has been costly relative to the value of the feed.

The second primary reason for not using higher levels of DDGS in hog feed is the corn oil. When you make a 17 pound bushel from a 56 pound bushel, you concentrate the nutrients (except starch) by a factor of about 3. Corn normally has about 3% fat (corn oil) and DDGS has about 10% corn oil. It is the corn oil that gives DDGS about the same energy value of corn. While it is corn oil that makes DDGS a valuable feed for pigs, too much corn oil is not good for bacon fat quality. Corn oil consumption is directly related to soft bacon fat. Research is ongoing to determine the maximum DDGS that can be fed and still have acceptable bacon. So far inclusion rates up to 20% are not thought to be a problem for belly fat quality.

If you use book values (again variable) the thumb rule for adding 10% DDGS to a ton of feed:
Nutrionally 200 lbs of DDGS and 3 lbs of limestone provide the same amount of nutrients as 178 lbs corn, 19 lbs of *46% SBM*, & 6 lbs dicalcium phosphate.

The nutrients in DDGS are good nutrients for swine feed. The higher fiber in DDGS may improve gut health, and the phosphorus is highly digestible. It is true that the amino acid content is similar to corn and not well matched to growing swine requirements; however synthetic amino acids make this less of a problem. Synthetic lysine is reasonably priced and other amino acids are becoming more competitively priced.

Like corn oil, other ingredients are also triple the level compared to corn such as fiber, protein, minerals and unfortunately mycotoxins (if present). Some swine producers do not like to use DDGS because of the mycotoxin potential; however, the ethanol plants don't accept moldy corn because it does not work as well in the distillation process. Generally DDGS is good feed, if there is a mold problem in a region, producers will want to test for mycotoxins in DDGS.

Flowability issues in DDGS have been related to micron size, moisture and cool down time before shipping. Once again there is variable between plants. As more plants come on line, pork producers are going to need to look at feeding increasing levels of DDGS. For more information contact Dave Stender at (712) 261-0225. A simple cost calculator is available on the web at the Iowa Pork Industry Center: www.ipic.iastate.edu

Dairy Cattle Reproduction Systems Update

Report from 2007 U of Minnesota Dairy Health Conference
By Chris Mondak, ISU Extension Dairy Field Specialist

Paul Fricke, University of Wisconsin Extension Specialist in Dairy Cattle Reproduction, presented a 3 hour overview to veterinarians, summarizing current trends and recent research in dairy cattle breeding systems. Below is a summary of key points:

Voluntary Waiting Period – Previous industry recommendation to plan 1st breeding post-calving at 40 -45 DIM is too early according to recent research. Dr. Fricke reported that 70 DIM is now the recommended target date for 1st breeding post-calving, and results in 32% conception rate rather than 28% for early VWP. Researchers are finding that cows are likely to not be ovulating yet at 40 – 50 DIM, and that by 70 DIM, fewer cows are anovular, resulting in the better conception rate.

Improving Conception 1st Breeding- After summarizing data on the numerous synchronization programs now commonly used on dairy farms (Ovsynch, Co-Synch, ReSynch, Pre-Synch), Fricke states that his review of the research indicates that conception rate is 29% for Ovsynch and 43% for PreSynch/Ovsynch combination, leading him to favor use of a combination PreSynch/Ovsynch program for cows' 1st breeding postpartum. Assuming use of 70DIM as target 1st breeding date, the PreSynch/Ovsynch schedule would start cows on the schedule when they are approximately 50-56DIM. This is the timeline of action steps in this synchronization plan:

PGF (14 days) PGF (12-14da) GNRH (7da) PGF (2da) GNRH (16 hrs) AI Breeding
Approx 50 DIM — Approx 70 DIM

Identifying Open Cows After 1st Breeding – Can You Preg Check Too Early? – Fricke reported results from recent field trial research performed on commercial dairies to investigate best time to check cows for pregnancy after 1st breeding. The primary goal of pregnancy checking is to identify those cows that are still open, and to take actions to re-enroll them into a synchronization program to re-breed them as soon as possible. In his trial, cows were scheduled to be examined for pregnancy via ultrasound on either Day 19, Day 26, or Day 33 post-breeding. The results showed that delaying pregnancy exam and initiation of ReSynch to Day 33 was better than the earlier checks and synch re-start at Day 19 or Day 26. Fricke explained that there is normal pregnancy loss early in pregnancy (10-11% is normal):

"Pregnancy loss diminishes the benefit of early pregnancy diagnosis in lactating cows in 2 ways. First, because of the high rate of pregnancy loss that occurs early, the magnitude of pregnancy loss detected is greater the earlier after TAI (timed AI) that a positive diagnosis is made. Thus, the earlier that a pregnancy is detected after TAI, the fewer non-pregnant cows are identified to which a management strategy can be implemented to resynchronize them. Second, and more important, cows diagnosed pregnant earlier after TAI have a greater risk for subsequent pregnancy loss compared to cows diagnosed later after TAI. If left identified, cows diagnosed pregnant early after TAI that subsequently loose that pregnancy reduce reproductive efficiency by extending the interval from calving to the conception that results in full-term pregnancy."

Plans are in the works to invite Paul Fricke to NW Iowa to meet with producers and dairy practitioners in small group sessions to focus on discussing practical reproduction programs for dairy farms. In the meantime, if you would like to direct a reproduction program question to Dr. Fricke, you may reach him at pmfricke@wisc.edu. For more information about his presentation given at the Dairy Health Conference, contact Chris Mondak at cmondak@iastate.edu.