

FIELD & FEEDLOT

IOWA STATE UNIVERSITY EXTENSION AND OUTREACH—NORTHWEST REGION

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BUILDING A #STRONGIOWA

Swine Water Treatment Issues

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Websites for your Reference:

Ag Decision Maker

www.extension.iastate.edu/agdm/

Iowa Beef Center

www.iowabeefcenter.org/

Manure Management

www.agronext.iastate.edu/immag/

Iowa Pork Center

www.ipic.iastate.edu/

ISU Extension and Outreach Dairy Team



Dave Stender, Swine Specialist
dstender@iastate.edu || 712-225-6196

When you water medicate a group of pigs, how confident are you that the treatment levels are adequate to cure the sick animals? How variable is the dosage from one animal to the next? As the Food and Drug Administration initiates new rules regarding antibiotic usage and veterinarian oversight, these questions become more important. With a reduced number of antibiotics available and increasing oversight, cost and requirements, it is that much more important to supply an effective dosage to sick pigs.

One study was presented at the Iowa State University Swine Disease Conference by Paisley Canning, DVM. The objective of her study was to monitor the consistency of the dosage of a water medication called Aivlosin® at the label dose of 50 ppm. She individually penned the 60 pigs and took daily water samples. Over five days of the treatment, she took necropsy samples with six pigs per group 10 times starting at 48 hours after treatment and sampling every 12 hours to 96 hours post-treatment. At 96 hours, she sampled 6 pigs per group every six hours until 120 hours of Aivlosin® treatment (5 days). The samples measured Aivlosin® drug levels in the plasma, lung, synovial fluid (lubricating joint fluid) and the water.

The conclusion of the sampling was that large variation was happening and some pigs were not receiving a dosage of medicine. There was a large range in dosage, for example the six pigs sampled at 72 hours had plasma concentrations of the medication ranging from 0 to 10 ng/ml. Pigs sampled with no trace of medication in the plasma is a problem, which happened again at 84, 96 and 108 hours into the treatment. The paper summarized that the medication had irregular dosing intervals and that sometimes the drug was gone because of short half-life (drug becomes inactive, broken down quickly).

Two factors are involved with proper dosing medication in water to pigs: first, how much water is the pig drinking and second, what is the concentration of the medication in the water flow. Daily water intake measured showed surprisingly large variation, group average intake varied from 3.9 to 5.2 liters per day; however individual pig intake varied up to 4.3 liters per day between high and low intake for that group. The average water disappearance was 4.57 liters, the standard deviation was 1.0 liters with a range of 6.36 liters between the high and low water intake pigs.

A conclusion from the paper was that if water intake range is large (in this sample of pretrial water intake range was 6.36 liters on an average 4.57 liter intake), then the dose range will be large as well. Water intake range was very wide.

The second factor in final dosage to the pig is the concentration of the medication in the water flow. Measured on day 3, the water concentration ranged from 51 to 61 ppm. So the variation in water concentration combined with the variation in pig water intake leads to the large variation in individual pig dosage levels, some pigs not having any medication in the plasma, and some getting more medication dosage than needed.

Ironically, on average the water concentration and daily dose were on target for each day, but the huge standard deviation and range in dose was the problem for individual pigs. Average was not helpful.

(continued on page 2)

Cover Crops & Farmers — A Unique Opportunity



Beth Doran, Beef Program Specialist
doranb@iastate.edu || 712-737-4230

The majority of articles about cover crops refer to their use in row crop or cow-calf production systems. But, cover crops may benefit other farmers. This is the objective of a three-year research project being conducted at two Iowa State University Research and Demonstration Farms near Newell and Castana. The purpose of the project is to explore the potential of cereal rye as a cover crop and the primary feedstuff for grazing stocker cattle.

There may be unique opportunities for grazing stocker cattle on a cover crop, depending on the type of agricultural producer. For instance, stockers and cereal rye can offer the crop producer a chance to quickly “get in” and “get out” of the cattle business while capturing the agronomic benefits of a cover crop. Granted, there may be a fencing cost, but temporary electric fence is a lower-cost alternative to permanent fencing. The key is to train the cattle to electric fence prior to turnout.

For stocker operators, cover crops offer a chance to extend the grazing season. One technique that is working well for these producers is to harvest corn silage and follow this with the drilling of cereal rye. When planted this way, it may be possible to get some grazing in the fall. And, the advantage of using cereal rye is that it will overwinter and provide the earliest spring grazing compared to other cover crops.

A common question is “Won’t the grazing of cover crops compact the soil and reduce the yield of the following crop?” We are looking at this and taking soil samples to determine what changes might occur in soil structure and soil fertility. These measurements include soil bulk density at 0-6 and 6-12 inches and soil pH, organic carbon, nitrogen and nitrate-nitrogen at both soil depths. Other measurements include grazing days and cattle performance.

There are six important considerations if you want to integrate cover crops into your cropping system – the crop grown prior to the cover crop, the cover crop itself, the crop to be grown following the cover crop, the animal that will graze the cover crop, crop insurance regulations and the weather. We are learning about all of these as this project continues into its second year.

If you have an interest in cover crops and cattle production, I encourage you to stay tuned. We are in the process of scheduling an April field day at Newell and a summer field day at Castana. Come join us – we would like to show you what we have/are learning and, of course, we are eager to hear your comments!

New Publications and Tools — The following publications may be accessed at www.extension.iastate.edu/agdm/:

- Livestock Planning Prices (B1-10) January 2017
- Monthly Cattle Feeding Returns (B1-36) January 2017
- Suggested Closing Inventory Prices for 2016 Records (C1-40) January 2017

The BRANDS nutritional software program for beef cattle has been updated to reflect new nutritional guidelines for beef cattle! For details about this software, check out www.iowabeefcenter.org/brands.html.

Swine Water Treatment Issues *(continued from page 1)*

The final thoughts from the paper summary:

- These individually housed pigs have large variation;
- Conjecture was made that with group-housed pigs there is more water competition than with individually-housed pigs, and the likelihood of a sick pig consuming adequate water to get the proper medication dosage within a competitive group is much lower than the injection method.

Consider injectable treatment for a subset of the sick, weaker pigs that may not be eating or drinking enough to receive an effective dosage of medication from mass treatment in water (feed is likely to have intake variability issues as well). It may be easier to mass dose the entire pen; however this data shows that individual injectable treatment of sick pigs is much more likely to deliver the correct dosage of medication for effective treatment of the disease.

Another problem common to water medicated systems is the stock bucket and the water lines. Restricted water lines will impact the amount and medicated dosage of water delivered to pigs. A pipe restriction can be as simple as a smaller pipe connected to the medicator. Another problem common over time is sludge buildup in the pipe. Many of the products used over the years have some insolubility problems, interacting with ions (ions are charged atoms or small charged ‘molecules’ called polyatomic ions, examples include Sodium, Calcium, Chlorine, Sulfur, Ammonia, Carbonate and Hydroxide) in the waters. The result of medications bonding with ions is precipitation of the product and crystallization buildup inside the pipe. Over the years depending on various factors, it is possible/likely that the pipe will become restricted, sometimes severely.

A suggestion is to check your water lines. One possibility is to use a waterproof endoscope to see inside water lines and look for restrictions. An example of this technology can be found on Amazon.com for less than \$100. It runs with an app and will enable you to do live viewing and recording.



Photo courtesy of Evan Keop.

Early Spring, Time for Asparagus



Margaret Murphy, Horticulture Educator and Regional Food Coordinator
mmurphy@iastate.edu || 712-472-2576

Asparagus is a hardy perennial that emerges in early spring. Its welcomed green spears help us greet the beginning of another growing season. Believed to be native to central Asia, asparagus is now grown throughout much of the world. It has been cultivated for over 2,000 years.

If you are like me, you may have thought about growing your own asparagus but have never gotten around to it. Well early spring is the best time to plant. Asparagus requires little care and can produce crops for 15 years or more, if given the right conditions. To ensure a long, productive life, you need to place it in the right spot. Choose a fertile, sunny site with good drainage. It grows in almost any type of soil but does not tolerate poorly drained soils or extreme acid soils.

Asparagus can be grown by seed but it is best to start with one year old crowns. Crowns are generally planted in shallow furrows. How deep to set the crowns will depend on the soil type. Planting depths range from 8 to 10 inches for light, sandy soils and about 6 inches for heavier soils. Space the crowns 8 to 12 inches apart in the row and space rows about 4 to 5 feet apart. Spread the roots out on the bottom of the furrow with the buds pointing upward. After planting, fill the furrow with soil. Traditionally, gardeners cover the crowns with a few inches of soil and then gradually fill the remainder of the trench as the plants grow. However, this is not necessary.

Asparagus is dioecious meaning it produces a separate male and female plant. Many new cultivars are male-hybrids as male plants live longer and are generally more productive. Garden experts from ISU Extension and Outreach recommend several male-hybrid cultivars for Iowa including 'Jersey Giant', 'Jersey Knight' and 'Jersey Supreme'.

To grow asparagus, patience is required. It needs to be well established before you can begin to harvest the spears. Avoid harvesting in the first growing season or the second. In the third and following years, you can harvest up until mid-June. Harvesting beyond this point can reduce the crop for next year. To harvest, cut spears at the soil surface when they are 6 to 8 inches long. You can also snap the spears off at the base.

After gathering the last crop of the season, let the asparagus tops grow to take on a fern-like appearance. Do not cut back the foliage while it is still green. This top growth provides food that the plant needs for next year's crop. The tops can be trimmed back in late fall once they have turned brown although gardeners often leave the dead tops over the winter to capture and hold snow. This helps insulate the crowns through the winter. Remove the dead tops before new growth begins in the spring.

New Herbicide Technology



Paul Kassel, Field Agronomist
kassel@iastate.edu || 712-262-2264

The Roundup Ready 2 Xtend soybean trait was deregulated in 2015. Export approval of the grain from Roundup Ready 2 Xtend (RR2X) soybean trait was approved in 2016. Recently, Xtendimax and Engenia were approved for application to soybeans with the Roundup Ready 2 Xtend soybean trait. Xtendimax and Engenia are both dicamba formulations. The following are some questions and answers regarding this new herbicide technology.

What weed control benefits will dicamba herbicides bring to soybean production?

(1) The use of dicamba in soybean will allow the use of a herbicide with a new sight of action for soybean (called group 4). Group 4 herbicides are new to soybean production but are not new for corn. (2) The use of dicamba in soybean production will allow farmers to better control weeds that have developed resistance to glyphosate, HPPD herbicides (Callisto, others) and PPO herbicides (Flexstar, Cobra, others). (3) Dicamba will be most effective as a postemergence herbicide but will provide some soil residual for pre-emergence control of weeds.

What we know.

(1) Dicamba will be useful to control waterhemp that has developed resistance to glyphosate. (2) Dicamba will provide good control of waterhemp in RR2X soybean, but it will not be a silver bullet. (3) Dicamba will provide good control of other weeds that are difficult to control. The use of dicamba will offer improved control of giant ragweed, marestail and winter annual weeds compared to current herbicide programs.

What are the concerns?

(1) One of the major concerns with the widespread use of dicamba is the threat of herbicide drift. (2) Soybeans – that are not RR2X – are very sensitive to dicamba drift. (3) Vineyards, vegetable crops, fruit crops and native plants are also sensitive to dicamba. (4) Widespread use of dicamba for several weeks in early summer may or may not create widespread dicamba drift injury to sensitive crops/plants.

What actions will be taken to prevent dicamba drift injury to sensitive crops and plants?

(1) The Xtendimax and Engenia labels will be written to minimize dicamba drift potential. The EPA wants to assure that every action is taken to minimize the production of fine spray particles that are prone to drift. (2) The labels of each of these products will specify which spray nozzles can be used. (2) The labels will list specific tank mix partners and spray additives that can be used. The use of unapproved tank mix herbicides or additives may contribute to the production of spray particles that may drift. (3) Unsprayed buffers will be used if sensitive crops or plants are located downwind. Buffers will not be used if sensitive crops and plants are located upwind. (4) The Xtendimax label will specify that wind speeds do not exceed 15 MPH during application and are not less than 3 MPH.

IOWA STATE UNIVERSITY

Cooperative Extension

Iowa State University Cooperative
Extension Plymouth Co. District
251 12th St SE
Le Mars, Iowa 51031

Non Profit
Postage and Fees Paid
Permit No. 268
Le Mars, IA 51031

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IOWA STATE UNIVERSITY

Extension and Outreach

FEBRUARY ISSUE 2017

PLYMOUTH COUNTY

CONFINEMENT MANURE CERTIFICATION

February 23, 2017 - 1:30 PM
Le Mars Convention Center

PRIVATE PESTICIDE TESTING DATE IN LE MARS

The IDALS test is offered from 10 AM to 2:00 PM on February 28, 2017 at the Le Mars Convention Center

REMAINING PRIVATE PESTICIDE TRAININGS

March 7, 2017 -1:30 PM
March 7, 2017 -7:00PM
Le Mars Convention Center

OTHER EVENTS:

Feb 14	Commercial Ag, Weed, Insect and Plant Disease CIC
Feb 22	Seed Treatment CIC
Feb 23	Confinement Manure Applicators Training - Le Mars Convention Center
Feb 27	NW Iowa Young Farmers Group—Dr. Chad Hart guest speaker
March 1	Ornamental and Turfgrass CIC
March 7	Commercial Manure Applicators Certification - Plymouth County Extension and Outreach
March 8	Certified Handlers CIC
March 23	Wildlife and Tree Meeting - Plymouth County Extension and Outreach