

# FIELD & FEEDLOT



NORTHWEST AREA EXTENSION

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## Relevant Soybean Production

By Paul Kassel, ISU Extension Field Agronomist

Palle Pedersen, ISU Extension agronomist has done research on some relevant soybean production items from 2003 to 2007. The following is a short summary of some of that research. This research can also be accessed at <http://extension.agron.iastate.edu/soybean/topicpage1.html>

**Planting Dates** - Research at several locations in Iowa has shown that soybean yields are maximized when planted in late April/early May. We might delay that a little in northern IA and suggest planting dates of very late April to mid-May. Soybeans respond to early planting the most when the yield potential is the highest. Likewise, early soybean planting dates are not as beneficial when yield potential is limited by poor drainage, soybean cyst nematode, and/or high pH soils. Research has shown a yield decrease of 0.25 bu/a per day when soybean planting is delayed from early May to late May.

**Planting Rates** - Consider a shift to lower planting rates. Recent research has shown that a planting rate of 125,000 to 140,000 seeds per acre will result in a final plant population of around 100,000 plants per acre. The research has shown that a final plant population of 100,000 is adequate to maximum yields. Consider reducing planting rates by 5,000 to 10,000 seeds per acre if you are uncomfortable making a big reduction in your planting rates in one season.

**Fungicide Seed Treatments** - Consider fungicide seed treatments as an insurance treatment for problem fields. Fungicide seed treatments usually do not produce any large yield responses, unless there are a lot of seed and root rotting organisms in the soil that greatly reduce plant populations. Therefore, fungicide seed treatments usually do not pay their way on all your soybean acres since widespread root rot is difficult to predict.

**Insecticide Seed Treatments** - Seed treatments (like Cruiser) that prevent early season bean leaf feeding may be a benefit on very early planted soybeans. Do not expect insecticide seed treatments to help much with the control of mid to late season insects like soybean aphids.

**Row Widths** - Research from 2004 to 2006 in three central Iowa locations has shown a yield increase of 4.5 bu/a when row width

is narrowed to 15 inches from 30 inches. This research is being done with a split row 'corn/soybean' planter. Seed placement and planting depth is fairly precise with this kind of planter. Therefore, a long term goal might be to change to a planter that can plant 15 inch row soybeans and 30 inch row corn.

**Other Soybean Management Ideas** - Use the following websites to access soybean yield test data. The following websites have information from Iowa, South Dakota, Nebraska and Minnesota.

- <http://www.croptesting.iastate.edu/soybeans/reports.php>
- <http://agbiopubs.sdstate.edu/articles/EC775-07.pdf>
- <http://varietytest.unl.edu/Soybean/2007.html>
- <http://www.maes.umn.edu/08VarietalTrials/soybean.pdf>

Soybean variety selection is a very important part of soybean management. Information from the 2007 Iowa Crop Performance tests (northwest district) shows that variety selection can make a difference of 6.9 bu/a in the SCN resistant test to 5.3 bu/a in the non-SCN resistant test.

## Separation Distances for Land Application of Manure

By Beth Doran, ISU Extension Beef Field Specialist and Angie Rieck-Hinz, Department of Agronomy, Iowa State University

Most confinement site producers are aware there are separation distance requirements for the land application of liquid manure, but many open feedlot operators are not in tune with these requirements.

If you land-apply manure from an open feedlot, regardless of size, you are required to maintain a separation distance of 200 feet from the following designated areas: sinkholes, abandoned wells, cisterns, drinking water wells, designated wetlands, and water sources. You also must maintain a separation distance of 800 feet from a designated high quality water resource.

There are only two exemptions from these requirements. The first exemption is that if you apply manure near one of these designated sources and the manure is incorporated or injected on the same date (by midnight of the day applied), the separation distance is 0 feet.

The second exemption is that if you maintain a buffer of 50 feet of permanent vegetative cover surrounding the designated area, the separation distance is 50 feet around the designated area. You may not apply manure in the vegetative buffer.

Finally, if you have an unplugged ag drainage well or a surface intake that drains to an ag drainage well, you must always maintain 200 feet of separation distance around these designated areas. If you incorporate or inject manure on the same day (by mid-night) next to the unplugged ag drainage well or the surface inlet to an ag drainage well, the separation distance is 0 feet.

It is important to remember that although many surface waters are not classified as water sources or high quality water resources, if you apply manure next to these surface waters and you have runoff from land application, you will be responsible for any water quality violations caused by the runoff. This is also true, even if you follow the above separation distances as required and runoff to surface waters still happens.

You should determine if your farm is adjacent to a designated wetland, water source or high quality water resource as defined by DNR. Map these areas out on an aerial photo and designate where you can and can't apply manure. Be sure to communicate this to your employees who apply manure. The thing to remember is to implement all separation distances when applying manure near a designated area and to be careful not to cause runoff from land application of manure whether you are near a designated source or any surface water.

For a copy of the DNR's fact sheets on land application separation distances, including definitions of designated wetlands, water sources and high quality water resources and a list of high quality water resources, please see the following publications:

DNR 113 Separation Distances for Land Application of Manure  
<http://www.iowadnr.gov/afo/files/sepdstb4.pdf>

DNR 117 High Quality Water Resources  
<http://www.iowadnr.gov/afo/files/hqwr2.pdf>

## Nine NW Iowa Counties Offering Bio-Security Training in the Area

*By Jerry Weiss, ISU Extension Swine Field Specialist*

The nine northwest Iowa counties of Palo Alto, Pocahontas, Monona, Buena Vista, Ida, Clay, Dickinson, Sac and Woodbury are hosting seven Bio-Security Training meetings for the public in late February and March of 2008. The meetings are a partnership training effort of Emergency Management Agencies and Iowa State University Extension in each of the 9 counties.

The focus of the training meetings are to better prepare ag producers in the event of a bio-emergency crisis, information related to the agriculture disease investigation process, IDNR carcass disposal plans and an overview of the incident command

system. The question of 'what happens if my neighbor's farm is quarantined because of an outbreak of foot and mouth disease' will be addressed.

Speakers during the training sessions will be Dr. Patrick Webb, Iowa Pork Producers; Al Grigg, County Extension Education Director for ISU Extension in Lyon and Osceola Counties; Bruce Spence, Fire Service Field Staff Instructor; and a staff member from the DNR. Each meeting site will serve a meal at the beginning of the training session with the program content starting one-half hour from the advertised start time.

The schedule, locations and start times for the trainings include:

- February 28, VFW Hall, Emmetsburg, 11:30 a.m.
- February 29, Blencoe Community Hall, Blencoe, 11:30 a.m.
- March 4, AEA meeting room, Storm Lake, 11:30 a.m.
- March 17, Rec Center, Ida Grove, 11:30 a.m.
- March 18, Milford Community Center, Milford, 11:30 a.m.
- March 20, Iowa State Bank Basement, Sac City, 11:30 a.m.
- March 27, Merville Area Comm. Center, Merville, 6:00 p.m.

Grain farmers, livestock producers, veterinarians, ag-business personnel, law enforcement, emergency response volunteers, public officials, school officials, public health officials, medical providers and other interested citizens are invited to attend.

To register for the training session in your area contact your County Extension Office. Registrations are due 5 days prior to the meeting to allow for an adequate meal count and meeting materials. There is no cost to attend the training sessions. The trainings are being funded through grant resources secured by Region 3 Homeland Security Emergency Management.

For additional information, contact Iowa State University Extension or the Emergency Management offices in any of the nine counties hosting these informational training sessions.

## The New Black Gold

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

The prices of nitrogen and fuel have increased fertilizer costs. Currently fertilizer cost have about doubled in only two years. This has made manure a more valuable commodity that some call black gold. Many crop producers are seeking sources of manure that will save them on the higher fertilizer cost. Many livestock producers are selling their manure for the first time. Many questions arise in trying to determine the value and who is responsible. While there are many unique agreements, the main questions are:

1. What will be next year's crop response?
2. What are the legal requirements for selling manure in Iowa?
3. What are the financial arrangements?
4. How much compaction will occur?

In the rest of this article, I will try to address each of these concerns.

## 1. What will be next year's crop response?

Next years crop response will depend on the kind of manure and how it was spread. Next years response should equal or exceed the equivalent fertilizer response. To achieve these results, the manure must be tested. Standard N, P, K analysis will cost \$25 to \$40 depending on the lab. Ammonia testing will cost an additional \$10 to \$15 but provides more useful data. A recent swine manure study in Lyon County confirmed again that nearly all of the nitrogen is available the crop season following the application. Table 1 shows current recommendations for availability of various manures.

<u>Species</u>	<u>1<sup>st</sup> year</u>	<u>2<sup>nd</sup> year</u>	<u>3<sup>rd</sup> year</u>
Swine	100%	0	0
Beef	30 - 40%	10%	10%
Dairy	60%	30%	10%
Layer	70%	20%	10%
Turkey & Chicken	65%	25%	10%

If ammonia is tested then the normal rule for all manure is that all of the ammonia plus about one-half of the remaining nitrogen is available. For P & K we assume that it will act about the same as commercial fertilizer.

On the question about nitrogen loss to the air, we have all smelled some of that loss. The maximum loss table provides the amount that can be lost.

	<u>% loss</u>
Direct Injection	2%
Broadcast & incorporate within 24 hrs.	5%
Broadcast & incorporate after 24 hrs.	20%
Broadcast liquid - no incorporation	25%
Broadcast dry - heavy incorporation	30%

While these losses are the maximum, we normally use them to insure that the crop will never suffer.

## 2. What are the legal requirements for selling manure in Iowa?

If the livestock operation is large enough to require a manure management plan, then soil testing, soil erosion, written agreements, and calculations must be done to add the field to the manure plan. This must be done before selling the manure. Also, the person applying the manure must be certified to haul manure in Iowa. For poultry manure sold under fertilizer code 200a, the livestock operation must sell manure through a manure broker and pay a tonnage fee to Iowa Department of Land and Stewardship (IDALS). Small producers who do not have manure plans and do not fall under 200a, are exempt from the regulations. They are allowed to sell their manure as long as they do not cause pollution.

## 3. What are the financial arrangements?

Selling manure in Iowa is a relatively new arrangement. In the past, it was typically free in the pit, with crop producers paying all handling and application expense. Today more agreements are written to look similar to fertilizer agreements, in which the livestock

farmer supplies available NPK to the crop farmer's land for an agreed upon percentage of what it would cost to go to the Co-op. Because the cost of energy is a main cost in fertilizer and manure hauling, these agreements offer the flexibility needed to have a long term agreement even when energy prices fluctuate wildly.

Agreements often value the manure on December 1, at the nearest fertilizer location to the farm field and the crop farmer pays 60% to 90% of what the equivalent fertilizer would cost. Manure samples are taken about 1/2 way through the hauling period to establish the nutrient content, and discounts for application loss are established. The savings in using manure are typically \$25/acre to \$50/acre less than commercial fertilizer. The price paid to the livestock farmer is typically \$10 to \$20 an acre over all costs if the field is reasonably close to the source.

## 4. How much compaction will occur?

Soils in Northwest Iowa are fairly resistant to compaction if the manure is applied when the soils are dry and fit. When soils are wet, compaction is an issue that can cause yield losses up to 20%. A good rule is that the soil under the tires should not sink in more than about 1 1/2 inches when the tank or manure spreader passes over it. If compaction is going to occur, most agreements provide that the crop farmer has the right to delay the application until the soil conditions are suitable. Most early crop growth problems come from surface compaction which is associated with tire pressure. Tractor and flotation tires are often 35 psi or less while truck tires are often 65 to 80 psi. Single axel spreaders often have greater potential to cause compaction than multiple axel spreaders.

End rows that have been driven over multiple times often require tillage to reduce the impact of manure spreading. This is an exciting time to watch the change from manure being considered a liability to becoming the new black gold.

