Dealing with a Wet Spring when you have a Manure Management Plan

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The wet weather in the State of Iowa this spring has many livestock and crop producers concerned about nitrogen availability from fall applied manure. For animal producers with a Manure Management Plan (MMP), there are ways to address this concern.

First, producers should review their fall application rates and determine if the maximum allowable nitrogen application rate was applied. Additional nitrogen, up to the rate allowed by the MMP can be applied without any field testing.

Secondly, state law allows for additional nitrogen application, even if the maximum allowable rate was applied in the fall, if recommended by the Late Spring Nitrate Test as described by Iowa State University publication CROP 3140, Use of the Late-Spring Soil Nitrate Test in Iowa Corn Production. This test involves taking soil samples when corn is 6-12” tall and provides recommendations based on the concentration of nitrate in the soil at that time.

Any additional nitrogen applied must be documented in the facility’s application records for five years. If the Late Spring Nitrate Test is the basis for additional nitrogen application, those soil samples must also be included in the records.

The MMP regulations also allow for a change in the crop planned for a field due to wet weather, even if it would result in application of nitrogen above the allowed nitrogen rate for the new crop. For example, if manure was applied in the fall for a planned corn crop, but due to wet conditions soybeans are planted instead.

Lastly, the law limiting application of manure for a soybean crop to 100 lbs. N per acre does not apply after June 1 of each year. Therefore, if a confinement producer needs to apply manure to a field that will be planted to soybeans after June 1, it can be based on the nitrogen uptake of the soybean crop (i.e. 3.8 lbs. N/bushel) and the optimum crop yield for the field.

Should a confinement owner have any questions about this information, contact your local DNR field office:

Contact Information for IDNR Field Offices

Field Office # 1 - Manchester (563) 927-2640
Field Office # 2 - Mason City (641) 424-4073
Field Office # 3 - Spencer (712) 262-4177
Field Office # 4 - Atlantic (712) 243-1934
Field Office # 5 - Des Moines (515) 725-0268
Field Office # 6 - Washington (319) 653-2135
Sidedressing Manure

In this month’s Manure Scoop we take a look at sidedressing manure. We discuss how it may impact storage management, nitrogen management, and look at equipment options. If you are sidedressing manure, get in touch with us because we want to hear what you are doing.

![Figure 1. Manure sidedressing using a dragline application method. Photo credit: Dan Andersen, Iowa State University Extension and Outreach](image1)

Celebrate Iowa Commodities

May is National Egg Month. Leading the nation in egg production, Iowa is home to nearly 55 million laying hens. In addition to producing 16 billion eggs, these hens produce manure that is an ‘eggcellent’ source of nitrogen, phosphorus, and potassium.

May also means it’s Beef Month. Iowa has a large ‘steak’ in the cattle industry, ranking 7th in the US. Iowa’s cattle production. These farms help protect water quality by utilizing pastures for production, growing perennials for forages, and investing in practices that help them use manure as a resource and help keep Iowa’s waters safe and clean. Looking at the Iowa Nutrient Reduction Strategy, you’ll find things like grazed pastures reduce nitrogen loss by 85% and phosphorus loss by 59%, while perennials like alfalfa can reduce nitrogen loss by 42% if it’s used for two years in an extended rotation. If you’d like a refresher on the value of beef cattle manure, take a look at this post from The Manure Scoop and watch our video, Iowa’s Feedlot Producers Protect Water Quality to see how cattle farmers are investing in ways to protect water quality.

![Figure 2: The Iowa Nutrient Reduction Strategy includes grazed pastures as a method of reducing nitrogen and phosphorus loss. Photo credit: Melissa McEnany, Iowa State University Extension and Outreach](image2)

In June, grab a cold glass of milk or an ice cream cone and celebrate Dairy Month. Over the years, genetics improvements in dairy cows have increased milk production, but how did that effect manure production? Take a look at this post at The Manure Scoop, find out how dairy manure production has changed.
Figure 3: While today’s dairy cow produces more milk than ever before, manure production has not seen the same increase.

Late Spring Nitrate Test in Manured Fields

To reach the goals set by the Iowa Nutrient Reduction Strategy, consider utilizing split fertilizer application. Split fertilizer application can increase nutrient efficiency and reduce nutrient loss. Additionally, there is less investment in the field if forced to replant to soybeans after weather-related losses or planting delays. This may allow time to gather additional information about the year’s market and growing conditions. The cost of making a second fertilizer application trip across the field and potential for rainy weather are deterrents of spring nitrogen application.

Often, when switching to split application, the general plan is to apply 50-60% of the nitrogen recommendation in the fall or early spring, and then to sidedress the remaining 40-50% into the growing crop. An alternative approach is to determine the sidedress amount using the Late Spring Nitrate Test (LSNT). The LSNT is a nitrate only soil test. It should be done when the plant is 6-12 inches in height; this allows for spring nitrogen losses or gains to be reflected. Soil samples are taken at a depth of 12 inches. The test provides information on plant-available nitrogen concentrations in the soil before the plant begins rapid uptake of nitrogen.

Research recommends 25 ppm of nitrate-nitrogen in the top 12 inches of soil to produce maximum yield; however, the interpretation of the results vary with cropping system, manure history, and even weather conditions prior to and after sampling. One of the challenging parts of using the LSNT is determining the "critical" soil nitrate concentration you are trying to achieve.

<table>
<thead>
<tr>
<th>Soil Test ppm NO3-N</th>
<th>Recommended N Rate Normal Rainfall</th>
<th>Excess Rainfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>11-15</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>16-20</td>
<td>0-30</td>
<td>0</td>
</tr>
<tr>
<td>&gt;20</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In manured fields, a "critical" soil nitrate-nitrogen concentration of 15-20 ppm is recommended. This is lower than non-manured fields because manure application provides additional organic matter that will be mineralized after the time of soil sampling and becomes available to plants later in the season. Using the results, calculate the amount of nitrogen that would be recommended to sidedress. The formula for calculating nitrogen application is

\[
\text{Recommended N Rate} = \begin{cases} 
0 & \text{if the soil test was greater than 20 ppm} \\
(20 \text{ ppm - soil test nitrate}) \times 8 & \text{lbs. of N/acre to apply.}
\end{cases}
\]

Alternatively, Table 1 provides a way to select a sidedress nitrogen application rate. In this table, excess rainfall would be May precipitation that exceeded 5 inches; normal rainfall should be used for other cases.

As with any new fertility management program, first-time users are encouraged to experiment with the test in small areas before using it to guide fertilization on all their fields. As with most recommendations, this test is intended to maximize profits when used across many years and sites, not to give the "perfect" rate in a specific year.

For more information related to using the LSNT, please see ISU publication CROP 3073 *Nitrogen Fertilizer Recommendations for Corn in Iowa*. More information on best management practices for...
reducing nutrient loss from agriculture can be found in SP 0435A *Reducing Nutrient Loss: Science Shows What Works*

**Events**

June 6-8, 2018  
Des Moines, Iowa  
**World Pork Expo**

June 7, 2018  
Altoona, Iowa  
**RUSLE2 Workshop**

June 8, 2018  
Ames, Iowa  
**ISU Dairy Farm Open House**

June 21, 2018  
Dubuque, Iowa  
**Iowa-Wisconsin Silage Conference**

June 28, 2018  
Ames, Iowa  
**Iowa Swine Day**

August 15-16 2018  
Brookings, South Dakota  
**Manure Expo**