Record keeping is important for a variety of reasons:

- To ensure that the manure management plan is being followed,
- To enhance our ability to remember past actions,
- To help make management decisions, and
- To ensure regulators that the operation is not violating any state or federal laws.

Good records are easy to keep and will provide the information you need without collecting any extraneous information. For confinement operations with manure management plans, IDNR rules require records to be kept. They must be made available to IDNR for inspection upon demand.

**NITROGEN RECORDS**

Most manure management plans are based on nitrogen balance because nitrogen is the main manure nutrient with known environmental concerns. Excessive applications of nitrogen from any source adversely affect groundwater. On the other hand, plants deficient in nitrogen produce lower yields. Using the available technology to control nitrogen application will prevent both extremes.

The plan for new buildings is based on book values for manure nutrients or similar historical records. University studies have shown that the nutrient content of manure varies greatly during the start-up year, depending on weather conditions and how much water is added to the pit.

After the building is used for several years, the nutrient content tends to stabilize, unless there is a problem such as a broken water line. A good representative manure test for nutrient content provides the necessary documentation to adjust the application rate for an individual storage unit.

The law allows application of additional nitrogen if late spring soil nitrate tests are performed or plant tissue testing is conducted. Additional nitrogen may be applied up to the recommended level indicated by the test results. These test records should be kept in the manure plan to document this decision.

**LAND APPLICATION RECORDS**

The law requires that applicators record the date, field location, manure application rate, and acres covered for each land application. The signature of the person recording the information adds credibility to the record.

Weather conditions also are important records; they affect certain spreading results and are hard to remember. For example, wind direction and velocity during spreading can influence where an odor plume will travel. Furthermore, weather conditions change over short periods of time, so the more frequently they are recorded, the more accurate the record will be.

**FIELD SKETCHES**

A sketch of the field and pertinent land features can also be a useful part of the record. It can help explain problems such as nitrogen deficiency or compaction and can be used to determine the measures needed to correct them. Your field sketch should include:

- A north arrow,
- The shape of the field,
- Residence houses,
- Landscape features such as wells, rivers, lakes, and surface intakes that require surface manure application separation distances,
record keeping

- The spread pattern (up and down rows, across, or diagonal), and
- The location of the field gate.

SAMPLE RECORDS

The following (record keeping pages 3-8) are examples of records forms that can be used to show compliance with a manure management plan. The data provided is for demonstration only. Note that the field sketch form has been left blank.
<table>
<thead>
<tr>
<th>DATE</th>
<th>FIELD LOCATION</th>
<th>ACRES SPREAD</th>
<th>RECOMMEND RATE, GALS./ACRE</th>
<th>ACTUAL RATE, GALS./ACRE</th>
<th>TOTAL GALS. APPLIED</th>
<th>APPLICATION METHOD</th>
<th>DATE RECORDED</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/21</td>
<td>Field 1, Anderson's 80'</td>
<td>78.4</td>
<td>3,164</td>
<td>3,000</td>
<td>229,200</td>
<td>Knifed in</td>
<td>10/22/98</td>
<td>John Doe</td>
</tr>
</tbody>
</table>
## WEATHER DATA

**CROP YEAR ________**

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>FIELD LOCATION</th>
<th>ESTIMATED TEMPERATURE</th>
<th>RELATIVE % HUMIDITY</th>
<th>WIND SPEED MPH</th>
<th>WIND DIRECTION</th>
<th>CLOUD CONDITION</th>
<th>SOIL CONDITION</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/21</td>
<td>10:20</td>
<td>Field 1, Anderson's 80'</td>
<td>62</td>
<td>30</td>
<td>8-10</td>
<td>S</td>
<td>Sunny</td>
<td>Dry</td>
<td>John Doe</td>
</tr>
<tr>
<td>FIELD</td>
<td>CROP YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>______</td>
<td>______</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## TESTING RESULTS

<table>
<thead>
<tr>
<th>CROP YEAR</th>
<th>DATE</th>
<th>% MOISTURE</th>
<th>N lbs./1,000 Gal.</th>
<th>P₀₂ lbs./1,000 Gal.</th>
<th>K₀ lbs./1,000 Gal.</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>10/1</td>
<td>96</td>
<td>30</td>
<td>38</td>
<td>22</td>
<td>John Doe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Manure Inventory

<table>
<thead>
<tr>
<th>Year</th>
<th>Pit No.</th>
<th>Pit Type</th>
<th>Pit Location</th>
<th>N</th>
<th>P₂O₅</th>
<th>K₂O</th>
<th>Date of Application</th>
<th>Available Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Round</td>
<td>S. of buildings</td>
<td>50</td>
<td>38</td>
<td>22</td>
<td>10/20</td>
<td>350,000</td>
</tr>
</tbody>
</table>

### Conversion Formulas

- Cubic feet $\times 7.48 = \text{Gals.}$
- Parts per million (ppm) x 0.00034 = Lbs./1,000 gals.
- Percent $\times 83.4 = \text{Lbs./1,000 gals.}$
- $P$ (phosphorus) $\times 2.27 = \text{P}_2\text{O}_5$
- $K$ (potassium) $\times 1.20 = \text{K}_2\text{O}$

*Note: If lab report uses parts per million (ppm), use the conversion table provided to calculate lbs./1,000 gals.*
### FIELD APPLICATION INVENTORY

**TOTAL MANURE AVAILABLE _______GALLONS**

<table>
<thead>
<tr>
<th>DATE</th>
<th>FIELD NO.</th>
<th>ACRES</th>
<th>RATE</th>
<th>N</th>
<th>P$<em>{2}O</em>{5}$</th>
<th>K$_{2}O$</th>
<th>TOTAL APPLIED GALS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/20</td>
<td>1</td>
<td>76.4</td>
<td>5,000</td>
<td>150</td>
<td>114</td>
<td>68</td>
<td>229,000</td>
</tr>
</tbody>
</table>

**Note:** If lab report uses parts per million (ppm), use the conversion table provided to calculate lbs./1,000 gals.

**COMMON CONVERSIONS**

- **MULTIPLY**
  - Cubic feet $\times$ 7.48 = Gals.
  - Parts per million (ppm)$\times$ 0.00834 = Lbs./1,000 gals.
  - Percent $\times$ 83.4 = Lbs./1,000 gals.
  - P (phosphorus) $\times$ 2.27 = P$_{2}O_{5}$
  - K (potassium) $\times$ 1.20 = K$_{2}O$

- **BY**
- **TO GET**