



## INSTRUCTIONS FOR FILING ANNUAL FERTILIZER APPLICATION REPORT

This report form serves two purposes: (1) Lines 1-15 are designated to be completed before applying fertilizer.  
(2) The information below Line 15, Field Data, **to be completed after harvest.**

**Completed report due December 31.**

Fertilizer Application Report forms are encouraged in Phase I and required in Phase II and III Management Areas.

Because the nitrogen application must be done by a certified operator, the report form asks for the name of the certified operator (this person decides the amount of nitrogen to be applied). The Landowner needs to be certified only if he/she is the person responsible for making the nitrogen management decisions. Use the address of the certified operator. One person per operation needs to be certified.

**Line 1 "Soil Sample Identification Number"** This number will be provided by the testing laboratory.

**Line 2 "Acres Represented..."** The number of acres in the sample area. You may not use more than 40 acres per sample. Only four samples can be listed on one form. If your irrigation well serves a field larger than 160 acres, please use an additional form and indicate somewhere on both forms that you are doing so.

**Line 3 "Residue Nitrogen...Lbs found to 3 feet"** These are the results of the soil tests before any nitrogen application. Results should be reported in "pounds per acre." If your lab reports in parts per million (ppm), you can convert that reading by multiplying the numbers in ppm by the factor of .3 and then multiplied by the soil depth sampled. (Example: 5 ppm x .3 x 36 inch soil depth = 54 lbs/acre) If the 3 foot sample depth is divided into 2 or more layers, then calculate the layers separately and add together for the total 3 foot depth. (Example: 5 ppm x .3 x 8 inch soil depth = 12 lbs/acre, and 5.7 ppm x .3 x 28 inch soil depth = 48 lbs/acre for a total 3 foot soil sample of 60 lbs/acres.) See Table 6.

**In this section on FERTILIZER DATA use the "Current Year" column for the crop year being reported.**

**Line 4 "Water Nitrate Results..."** Irrigation water samples are required from ground water irrigation wells only. Water samples can be obtained during the irrigation season, with the results to be used for the crop to be planted in the following year. Water samples should be collected at about the same time each year and list the results from the testing laboratory in parts per million (ppm). If you use more than one well to irrigate your field, a water sample is required from each well and use an average of those results on Line 4. If your field is not irrigated or is irrigated with surface water only, enter "N/A" on this line.

**Line 5 "Crop Planted"** List the crop planted for the year being reported.

**Line 6 "Yield Goal"** A reasonable yield goal can be determined by using the average of the yields for the past five years and adding five (5) percent.

**Line 7 "Total Nitrogen Needed..."** Can be calculated in pounds per acre from information available from crop consultants, Extension Educators or NRD employees. (For corn this is approximately 1.2 # of N per bushel.) See Table 1.

**Line 8 "Nitrogen Available from Water"** Multiply the number in ppm used on Line 4 ("Water Nitrate Results...") by the conversion factor of .23, and then multiplied again by inches of irrigation water applied (Example: 14 ppm x .23 x 12 inches = 38 Lbs N per Acre) or use Table 2.

**Line 9 "Residual Nitrogen Available in..."** Is the average of soil samples (taken for the field) listed on Line 3.

**Line 10 "Organic Material",** percentage, from soil sample. Soil organic matter is a major soil component. Mineralization transforms organic nitrogen into ammonium, which the crop can use during the growing season. See Table 3.

**Line 11 "Nitrogen Available from Past Crop..."** is probably ZERO unless the previous crop was alfalfa or beans. Contact the Extension Education, crop consultant, agronomist, fertilizer dealer or follow NebGuide G87-829 "Fertilizer Nitrogen Best Management Practices." See Table 4.

**Line 12 "Nitrogen Available from Manure Samples..."** for manure applied in past two years. Use lab results from manure test or see Table 5. Contact LPNNRD, if assistance is needed, to figure your nitrogen and phosphorous amounts from manure. If no manure has been applied in past 2 years, enter "NA" on this line.

**Line 13 "Total Nitrogen Available"** These are the credits from Lines 8, 9, 10, 11, and 12.

**Line 14 "Nitrogen Recommendation..."** Is the total from Line 7 (Total Nitrogen Needed for this year's crop) minus Line 13 (Total Nitrogen credits available).

**Line 15 "LPNNRD Guideline"** This is a summary line of the calculations determined above. (If line 14 is less than 50 pounds, you may use 50 pounds as recommendation)

The remaining section, **FIELD DATA**, of the form needs to be completed after harvest. The certified operator is required to sign and date the form. The report(s) is **due in the Lower Platte North NRD office by December 31.**

# Lower Platte North NRD Handout to be Used with the Fertilizer Application Report

<b>Table 1</b>		<b>Nitrogen required per unit of production</b>	
		<b>Crop Planted</b>	<b>Estimated Nitrogen Required</b>
		Corn	1.2 lb nitrogen / bushel
		Wheat	2.0 lb nitrogen / bushel
		Grain sorghum	1.0 lb nitrogen / bushel
		Potato	varies with variety used
		Grass pastures	40 lb nitrogen / ton
		Brome grass hay	35 lb nitrogen / ton

<b>Table 2</b>		<b>Crop available nitrogen in irrigation water</b>							
<b>Water Applied (inches)</b>		<b>Nitrate-nitrogen in water (ppm)</b>							
		5	10	15	20	25	30	35	40
		<b>(lb of nitrogen added per acre)</b>							
6		7	14	20	27	34	41	48	54
9		10	20	30	41	51	61	72	82
12		14	27	41	54	68	81	95	109
15		17	34	51	68	85	102	119	136
20		23	45	68	91	114	136	159	182
25		28	57	85	114	142	170	199	227

<b>Table 3</b>		<b>Minimum estimated nitrogen contributed to the crop from mineralization of soil organic matter</b>	
		<b>Soil Test Organic Matter (%)</b>	<b>Nitrogen Contributed to Crops From Mineralization (lb/acre/yr)</b>
		1	14
		2	28
		3	42

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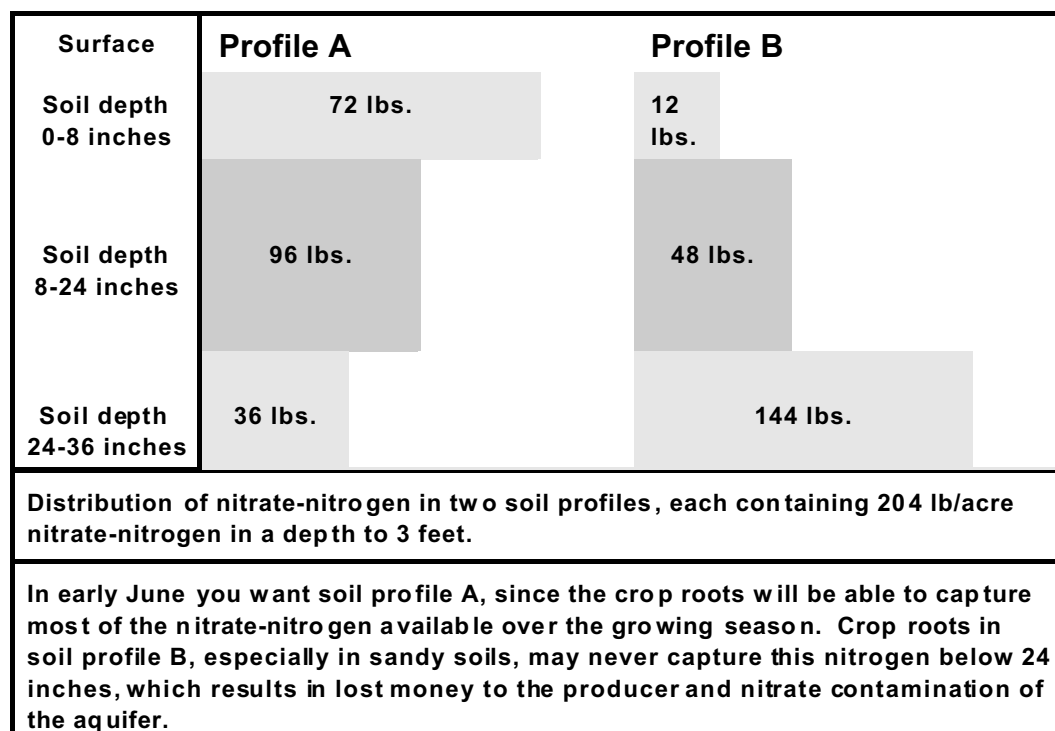
<b>Table 4</b>		
<b>Estimated nitrogen credit when the previous crop is a legume</b>		
<b>Legume Crop</b>	<b>Medium &amp; Fine Textured Soils (lb/acre nitrogen credit)</b>	<b>Sandy Soils (lb/acre nitrogen credit)</b>
Alfalfa 70 - 100% stand (More than 4 plants per sq ft)	150	100
Alfalfa 30 - 69% stand (1.5 to 4 plants per sq ft)	120	70
Alfalfa 0 - 29% stand (Less than 1.5 plants per sq ft)	90	40
Sweet clover & Red clover	80% credit allowed for alfalfa	80% credit allowed for alfalfa
Soybean	45	45
Dry edible beans	25	25

<b>Table 5</b>	
<b>The amount of available nitrogen expected from application of organic resources</b>	
<b>Source</b>	<b>Available Nitrogen Fumished to the Next Crop</b>
Beef feed lot manure	4-5 lb/ton
Dairy cattle manure	3 lb/ton
Sheep manure	5 lb/ton
Poultry manure	15 lb/ton
Swine manure	10 lb/ton
Plant compost	3-5 lb/ton
Meat processing waste	1-6 lb/1,000 gal
Sewage sludge	2-3 lb/ton
Swine slurry	2-10 lb/1,000 gal
Beef slurry	2-10 lb/1,000 gal
Dairy slurry	2-6 lb/1,000 gal
These amounts include ammonium and nitrate in the material plus nitrogen mineralized from the material after application.	
If manure was applied the previous year, then use half of the values listed in this table for this years' crop.	

# Lower Platte North NRD Handout to be Used with the Fertilizer Application Report

<b>Table 6</b>		<b>Nitrogen fertilizer rate reduction for residual soil nitrate</b>	
		<b>Residual Soil Nitrate-nitrogen * (ppm)</b>	<b>Reduction in Nitrogen Fertilizer Needed by Crop (lb/acre on nitrogen)</b>
		1	11
		3	32
		6	65
		9	97
		12	130
		15	162
		18	194
<p>* Average ppm in at least the top three feet. The University of Nebraska uses 3 ppm soil nitrate if no soil test is available.</p>			

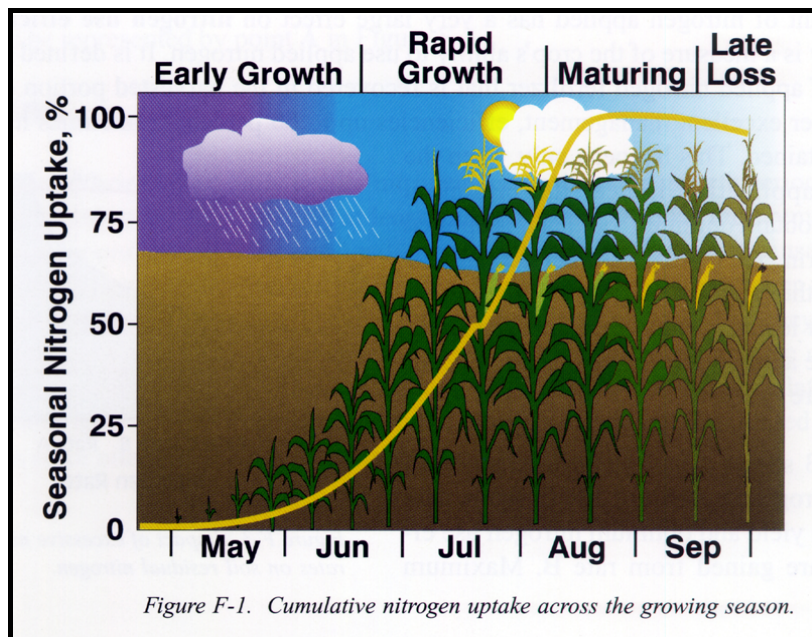
## Additional Information Useful in Fine-tuning Nitrogen Efficiency



## Additional Information Useful in Fine-tuning Nitrogen Efficiency

Conversion rates of ammonia at different soil temperatures	
At 75 degrees F.	100% conversion in 2.5 weeks
At 50 degrees F.	20% conversion in 3 weeks
At 50 degrees F.	100% conversion in 12 weeks
pH, moisture and plant residue will also affect conversion rate	

Nitrogen use efficiency according to timing of application	
Highest  to  Lowest	Sprinkler applied during rapid growth
	Sidedress just before rapid growth
	Post-plant incorporated
	Pre-plant incorporated
	Fall application for next year's crop



The majority of the tables and graphs used above were taken from the University of Nebraska's publication "Managing Irrigation and Nitrogen to Protect Water Quality," EC98-786-S.

**Lower Platte North Natural Resources District  
 Cost-Share Request for Domestic Well Sample Kits  
 (Available for Domestic Wells in Phase II Ground Water Quality Areas)**

- This sample kit request form is only for domestic wells located in Phase II Ground Water Quality Areas of the Lower Platte North NRD. (Please mark the approximate location of your domestic well on the map below.)
- The domestic well kit will include a test for nitrate and bacteria.
- Sample kit cost-share is available for two kits per well, each calendar year. If you have a household water treatment system, this will allow you to sample before and after the treatment unit to see if it is working properly.
- There is a \$10 charge for each kit requested (please submit fee along with this form).

Submit cost-share request to: Lower Platte North NRD, P.O. Box 126, Wahoo, NE 68066.  
 \*sample kits will be mailed out in batches, after a certain number of requests have been received\*  
 (Questions may be referred to LPNNRD at 402-443-4675)

# of Sample Kits Requested: \_\_\_\_\_ x \$10 = \_\_\_\_\_ (amount enclosed)

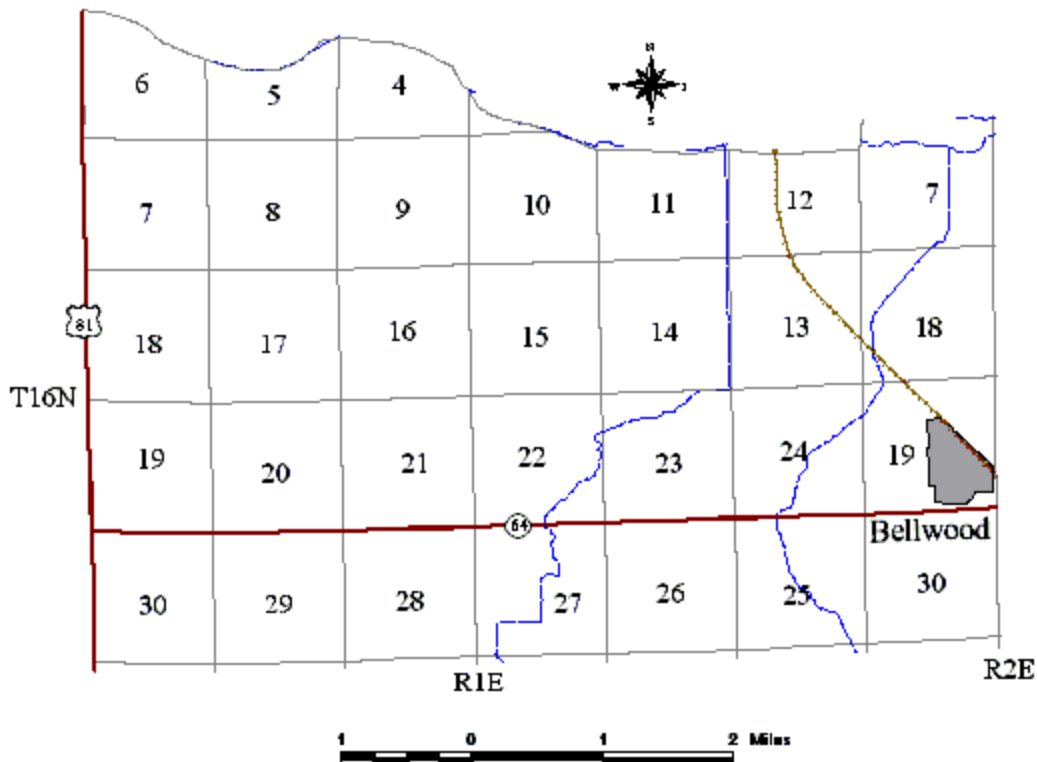
Ship Requested Kit(s) To:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Town, State, Zip: \_\_\_\_\_

**Bellwood - Phase II Ground Water Quality Area**



**Lower Platte North Natural Resources District**  
**Cost-Share Request for Water Well Nitrate Sample Kit**  
**(For Irrigation-Municipal-Industrial Wells Only)**

- This sample kit request is not for Domestic wells.
- There is a \$5 charge for each kit requested (please submit proper fee with this form).
- Please make sure that your well(s) are located in the LPNNRD before requesting sample kits. (\*Samples collected outside of the LPNNRD will not be processed and the fees may not be refunded\*)
- For irrigation, municipal and industrial wells, the LPNNRD Ground Water Management Area requirements include that a water sample for nitrate be taken and submitted to the LPNNRD once every 4 years in Phase I and once each year in Phase II. (See map on other side to determine if your well(s) are in a Phase I or Phase II area.)

Submit cost-share request to:

Lower Platte North NRD  
P.O. Box 126  
Wahoo, NE 68066

\*Questions may be referred to the LPNNRD (402) 443-4675\*

# of Sample Kits Requested: \_\_\_\_\_ x \$5 = \$ \_\_\_\_\_ (amount enclosed)

\*Sample kits will be mailed out during the summer months\*

Ship Requested Kit(s) To:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Town, State, Zip: \_\_\_\_\_

# Soil Sampling Procedures

***The following Soil Sampling Procedures are taken directly from NebGuide G91-1000-A, Guidelines for Soil Sampling.***

The best guideline for determining fertilizer needs is a reliable analysis of a soil sample that is representative of the field. Soil test values are no better than the soil samples you collect. Proper soil sampling procedures must be followed to obtain meaningful test results for fertilizer decisions.

## **Most Desirable**

1. *Collect one sample for each 20 acres* (or less for small fields). This will give a good measure of the average nutrient status in the field. Divide large fields into areas of 20 acres or less to obtain a good measure of variability. By knowing the variability in a field, fertilizer application can be adjusted accordingly.
2. *Determine cores per sample.* Collecting 15-20 cores for the surface sample and six to eight cores for subsurface samples per 20 acres usually will give reliable mean values for the sampled area.

When cores are collected in a grid pattern and a nutrient level map of the field is to be developed, individual cores should be kept separate and analyzed individually. Although the procedure will require more time and will increase the cost of analysis, it provides more information. This procedure will give a picture of the nutrient variability in the field and will provide a reliable estimate of the nutrient means for the area sampled.

3. *Set sampling depths.*
  - a. Use surface samples to eight inches for all tests.
  - b. Use subsurface samples to 48 inches (72 inches for sugar beets) for nitrate-nitrogen.
4. *Division of cores by depth.*
  - a. Surface sample: 0-8 inches.
  - b. Subsurface sample: 8-24 inches.
  - c. Deep surface sample: 24-48 inches.
  - d. Additional depth for sugar beets: 48-72 inches.

This division of each sample will provide information for all nutrients. Fertilizer recommendations for nutrients other than nitrogen are based on the surface sample. An estimate of nitrate-nitrogen available in the root zone for plant use is based on the total amount measured in the samples. The distribution of nitrate-nitrogen by depth tells where the nitrate-nitrogen is in the root zone. This is helpful to estimate the relative effectiveness of the nitrate-nitrogen in the soil as influenced by depth and the chance of loss from leaching.

## **Acceptable**

1. *Collect one sample for each 40 acres.* The average nutrient status can be determined with acceptable accuracy; however, less than ideal measurement of field variability is obtained.
2. *Determine cores per sample.* Acceptable measurement of the average nutrient status can be obtained with 10-15 surface cores and six to eight subsurface cores taken from a field area of 40 acres. More variation in mean values from year to year is expected when areas larger than 20

acres are included in a sample unless more cores are taken.

For gravity irrigation fields, four to five subsurface cores per 20 acres will generally give more usable estimates of soil nitrate-nitrogen than will six to eight cores per 40 acres, provided the field is divided into upper, middle, and lower portions.

3. *Sampling depths.*

- a. Use surface sample to eight inches for all tests.
- b. Use subsurface samples to 36 inches, except for sugar beets, for nitrate-nitrogen.

4. *Division of cores by depth.*

- a. Surface sample: 0-8 inches.
- b. Subsurface sample: 8-36 inches.

This division of each sample will allow testing of surface sample for all nutrients and subsurface samples for nitrate-nitrogen. If the sample is not divided by depth, then only the nitrate-nitrogen test can be interpreted.

*A sample representing soil from the soil surface to three feet deep is acceptable for a nitrate-nitrogen test; however, this procedure has severe limitations.* It is difficult to obtain a representative sample when using this approach. Variations in soil moisture content and soil density by depth may result in collecting different amounts of soil from different depths. This will bias the test results.

Uniformly mixing a large mass of soil is difficult. The sample obtained may not be representative of the area sampled; consequently, there is greater risk of predicting soil nitrate-nitrogen contents that are too high or too low.

The use of one sample to represent the total depth sampled may give the average nitrate-nitrogen content in the sample area but does not provide information on distribution in the soil. When the nitrate-nitrogen is concentrated near the surface, a total depth sample will underestimate the soil nitrogen effectiveness. If the nitrate-nitrogen concentration is near the bottom of the sampled depth, effective nitrogen may be overestimated.