



**Feeling the Squeeze:
Manage Nutrients Efficiently to Offset High Fertilizer Prices**

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The projected high fertilizer prices, especially nitrogen (N), should encourage you to manage nutrients on your farm as efficiently as possible. The goal this year should be to reduce input costs

to ammonium or nitrate, simpler forms that plants can take up. To add to the complexity, all these processes vary greatly depending on rainfall, temperature, soil moisture, and other conditions. So nitrogen availability can be quite varied in different fields or in the same field in different years.

This is where the Pre-Sidedress Nitrate Test (PSNT) comes into play. The PSNT measures nitrate, the main form of nitrogen taken up by plants, shortly before the big demand for N by the corn crop in midsummer. The amount of nitrate at that time also serves as an indicator of the potential for N release during the rest of the season. If the PSNT calls for additional N fertilizer, you can apply it as a sidedress or topdress application. This is the best time to apply N fertilizer on most soils in Vermont to maximize the efficiency of uptake by corn and to minimize losses of N. The test is available through UVM and costs \$8.00. Results will be returned within 24 hours of receiving the sample.

2) Take All The Credit You Can:

The next time you apply manure can reduce fertilizer costs. The nutrient content of the average Vermont liquid dairy manure is displayed in table 2. Since manure nutrient content can vary considerably from farm to farm it is best to sample the manure on your farm to make the best estimate of application rate.

Total N	Ammonium-N	Organic-N	P ₂ O ₅	K ₂ O
-----lbs per 1000 gallons-----				
25	12	13	8	20

Table 2. Nutrient content of average Vermont liquid dairy manure.

Availability of N from manure will not be 100% like that of synthetic fertilizers. Therefore, even though the manure test indicates there is 25 lbs of N it will not all be immediately available for plant uptake. Manure nitrogen is divided into two fractions ammonium-N and the stable organic-N fraction. The organic-N is released over a longer period of time (years). The ammonium-N fraction of manure is generally equivalent to fertilizer N. Ammonium-N from manure can volatilize quickly from the soil surface and be lost into the atmosphere. Loss of ammonium-N can be prevented by incorporation of manure into the soil. Table 3 shows that immediate incorporation can increase N availability considerably.

Table 3. Availability of ammonium-N from spring/summer or fall applied manure.

Time to incorporation via tillage	Liquid manure (5 - 10 % dry matter)	
	Spring/Summer	Fall
-----% available-----		
Immediate (1 hr)	95	35
< 8 hr	70	25
1 day	55	25
2 days	50	20
3-4 days	45	20
5-7 days	40	15
> 7days or not incorporated	40	15

Table adapted from Jokela et al., 2004. Nutrient recommendations for field crops in Vermont. University of Vermont Extension.

Finally, you should evaluate the potential to modify your cropping system to reduce the need for supplemental fertil