Liquid Manure Nutrient Credit Work Sheet

Department of Agronomy **PM-49** **Nutrient Management**

This work sheet is used to calculate the amount of crop available nutrients to credit warm season crops in the year of manure application. For liquid manure, most laboratories report the amount of nutrients on a thousand gallon or acre-inch basis (pounds nutrient per 1,000 gallons or acre-inch) while solid manure is normally reported on an as-received moisture basis (pounds nutrient per ton). Once the amount of manure nutrients available for the crop is estimated and the amount of nutrients required for the crop production system is determined then the amount of manure to uniformly apply can be calculated. This work sheet and more information can be found in *Estimating Manure Nutrient Availability*, MF-2562.

Liquid Manure Example

Liquid Swine Manure Analysis		**Management Information**
Total N – 4 lbs/1,000 gal		P Soil Test - High
Organic N – 2 lbs/1,000 gal	Ammonium N – 2 lbs/1,000 gal	Knife Injected Manure Application
Total P_2O_5 – 3 lbs/1,000 gal	Total K_2O – 3.4 lbs/1,000 gal	Maintenance P Application Desired

1. Estimate 90% of ammonium available to crop – 10% loss (from Figure 2).
   2 lbs ammonium N/1,000 gal × 90% = 1.8 lbs available NH_4-N/1,000 gal
2. Credit 30% of organic N available in year of application (from liquid manure work sheet)
   2 lbs organic N/1,000 gal × 30% = 0.6 lbs available organic N/1,000 gal
3. Total organic N credit and ammonium N credit for total N credit
   1.8 lbs ammonium N + 0.6 Lbs organic N = 2.4 Lbs total available N/1,000 gal
4. Credit 100% of total P_2O_5 available (high, very high soil P test – from Figure 1)
   3 lbs P_2O_5/1,000 gal × 100% = 3.0 lbs available P_2O_5/1,000 gal
5. Credit 85% of total K_2O available (from work sheet)
   3.4 lbs K_2O/1,000 gal × 85% = 2.9 lbs available K_2O/1,000 gal

Liquid Manure Nutrient Crediting Work Sheet

Example

	Manure Lab Results	×	Nutrient Availability Factor	=	Plant Available Nutrients
	(lbs/1,000 gallons)			*(lbs/1,000 gallons)*	
Organic N	2.0	30%	Available In Year Of Application	0.6	Organic N
NH_4^+-N	2.0	90%	NH_4^+-N Availability Factor From Fig. 2	1.8	NH_4^+-N
Total N	4.0			2.4	Sum Of NH_4^+N & Organic N
Total P_2O_5	3.0	100%	50% for Very Low to Low P Soil Tests 100% for Medium to Very High P Soil Tests	3.0	Available P_2O_5
Total K_2O	3.4	85%	Potassium Efficiency Factor	2.9	Available K_2O

Your Farm

	Manure Lab Results	×		Nutrient Availability Factor	=	Plant Available Nutrients
	(lbs/1,000 gallons)				*(lbs/1,000 gallons)*	
Organic N	_____		30%	Available In Year Of Application	____	Organic N
NH_4^+-N	_____		____	NH_4^+-N Availability Factor From Fig. 2	____	NH_4^+-N
Total N	_____				____	Sum Of NH_4^+-N & Organic N
Total P_2O_5	_____		____	50% for Very Low to Low P Soil Tests 100% for Medium to Very High P Soil Tests	____	Available P_2O_5
Total K_2O	_____		85%	Potassium Efficiency Factor	____	Available K_2O

Figure 1. *Phosphorus Management Model for Kansas Crop Production and Manure Management*

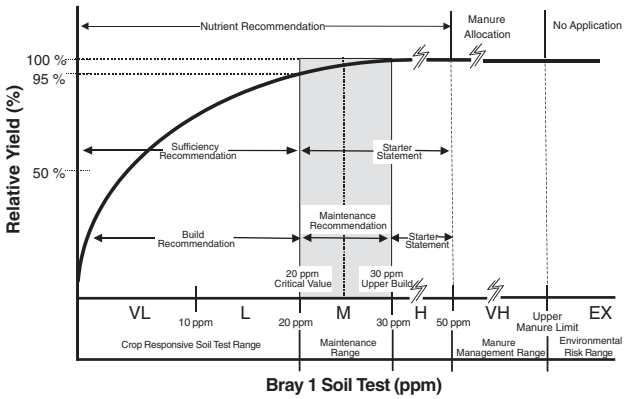
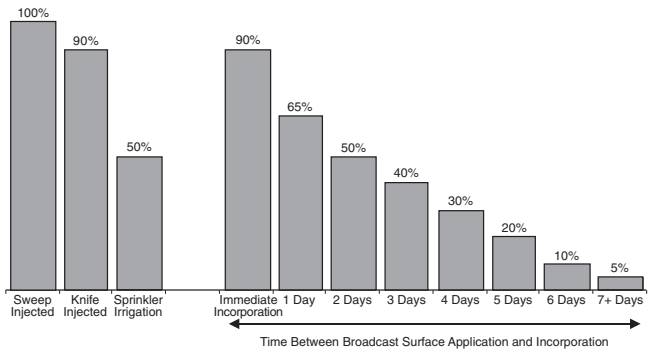


Figure 2. *Percent Of Inorganic Nitrogen Available To Crops For Various Manure Management Systems*



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