# 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<br>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<br>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*

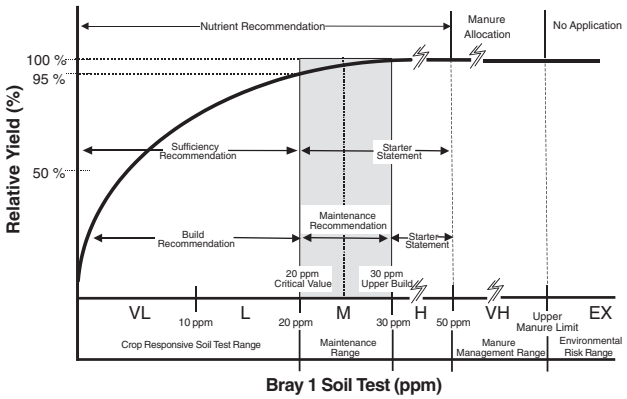
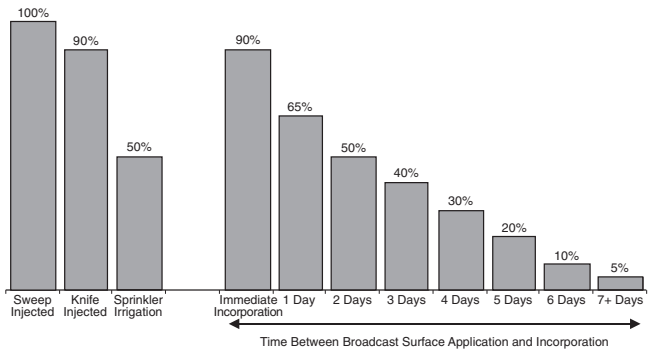



***Figure 2.*** *Percent Of Inorganic Nitrogen Available To Crops For Various Manure Management Systems*

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