



Estimating Plant Available Nitrogen (PAN) in Manure

Manure _____

1. Total nitrogen (N) content

- Expressed as percent (%)
- Obtain value from the manure analysis.

2. Ammonium nitrogen (NH₄-N) content

- Expressed as %
- Obtain value from the manure analysis.

3. Organic nitrogen content

- Expressed as %
- Subtract ammonium nitrogen (NH₄-N) content (#2) from total nitrogen (N) content (#1).

4. Manure mineralization factor

- Expressed as a decimal.
- Refer to the *Infocard*.

5. Available organic nitrogen

- Expressed as %
- Multiply organic nitrogen content (#3) by the manure mineralization factor (#4).

6. Ammonium conservation factor

- Depends upon incorporation practices.
- Refer to the *Infocard*.

7. Available ammonium nitrogen

- Expressed as %
- Multiply ammonium nitrogen (NH₄-N) content (#2) by the ammonium conservation factor (#6).

8. PAN in manure

- Expressed as lbs/ton or lbs/1000 gallons.
- Add the available ammonium nitrogen (#7) to the available organic nitrogen (#5).
- Then, multiply by 20 for solid/semi-solid manure or by 83.7 for liquid manure

Agricultural Nutrient Management Program