MANURE APPLICATION: SPREADER CALIBRATION

The nutrients in manure are valuable; it does not make sense to waste them. To ensure your application rate maximizes crop yield but does not waste valuable nutrients, it is important to calibrate your spreader. The two calibration methods described below were used on the Rowe Dairy in Strasburg, Ohio as a demonstration at the 2009 Manure Science Review.

TARP METHOD:

1. Place a tarp or plastic sheet on the ground.
2. Apply manure with spreader.
3. Weigh collected manure.
4. Determine application rate as follows:
   - Divide the number of pounds of manure collected by the area of the tarp (in square feet).
   - The result will be the **pounds of manure per square foot**.
   - Multiply this number by 21.78 to give **tons per acre**.

   Example from Rowe Dairy:
   - Pounds of manure: 97 lbs. Tarp size: 8 ft x 8 ft.
   - Calculate:

     97 lbs / 64 sq ft = 1.516 lbs/sq ft

     1.4516 lbs/sq ft x 21.78 = 33 tons/acre

*IMPORTANT: The measurement should be repeated **3 times** and the results averaged to ensure a consistent application rate.*

Application rate: 33 tons/acre

Guessing is not the best option! MSR participant's estimates for two different application rates were highly variable and rarely accurate.

Application rate: 9.2 tons/acre

Application rate: 7.2 tons/acre

LOADS-PER-FIELD METHOD:

1. Determine the **weight of one load of manure** in tons.
2. Determine the **size of the field** in acres.
3. Count the **number of loads** applied to the field.
4. Multiply the number of loads (#3) by the weight in tons (#1).
5. Divide the total weight (#4) by the acreage of the field (#2).

*A **major drawback** of the loads-per-field method is that it is an "after the fact" calculation. You do not have the opportunity to make adjustments to your application rate for that field.*

Example from Rowe Dairy:

- Weight of load: Gehl 1315 Scavenger holds 6.8 tons (13,600 lbs / 2,000 lbs per ton).
- Size of field: 2 acres
- Number of loads: 6
- Total weight: 6.8 tons x 6 loads = 40.8 tons
- Tons per acre: 40.8 tons / 2 acres = 20.4 tons/acre

OTHER CONSIDERATION WHEN APPLYING MANURE NUTRIENTS

Pay attention to the distance the manure is being thrown during application. The heavier the application rate, the less distance the manure will travel from the spreader.

Heavy application rate: 33 tons/acre

Medium application rate: 9.2 tons/acre

Develop a nutrient management plan to guide you as to where, when and how much manure to apply. The **Nutrient Management Workbook** provides step-by-step instructions to assess the needs, sources and allocation of nutrients on your farm. Instructions for ordering and using the workbook are available at: https://agcrops.osu.edu/NMW.

Manure Science Review participants learn how to use the workbook to develop a nutrient management plan.