

# Manure Spreader Capacity

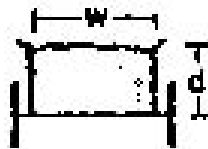
## Introduction:

Determining manure spreader capacity is one of the important aspects of manure management. Use the following datasheet to determine your spreader's capacity:

## For weight basis:

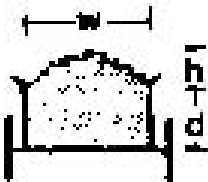
- Tons/load = volume × density ÷ 2000.
- Density = [wt. of 5-gal bucket full of manure – wt. of empty bucket] × 1.5
- Density varies between 55 (dry) to 62 (liquid) lb/cu ft.
- The more bedding in manure, the less dense the manure will be and the more water, the denser the manure.

To determine the volume, select one of the following spreader and then follow the calculations:



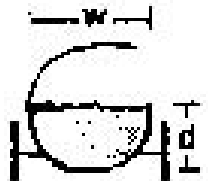
Box spreader (level load)

$$\text{Volume} = \text{length (l)} \times \text{width (w)} \times \text{depth (d)}$$



Box spreader (piled load)

$$\text{Volume} = \text{length (l)} \times \text{width (w)} \times \text{depth (d)} \div \text{staking height (h)} \times 0.8$$



Flail-type barrel

$$\text{Volume} = \text{length (l)} \times \text{width (w)} \times \text{depth (d)} \times 1.6$$

Determining manure spreader capacity is one of the important aspects of manure management.

**Example:** You have measured your box spreader (level load) and found its inside dimensions to be 12 feet long and 5 feet wide. An average depth of load is 4 feet high:

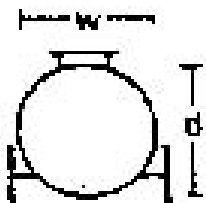
$$\text{Volume} = 12 \text{ ft} \times 5 \text{ ft} \times 4 \text{ ft} = 240 \text{ cu ft}$$

Your 5-gallon bucket weighed 3 pounds when empty and 42 pounds when filled with manure:

$$\text{Density} = (42 \text{ lb} - 3 \text{ lb}) \times 1.5 = 58.5 \text{ lb/ft}^3$$

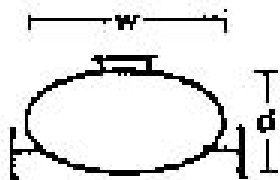
$$\text{Tons/load} = 240 \text{ (lb)} \times 58.5 \text{ (lb/ft}^3) \div 2000 \text{ (lb/ton)} = 7.02 \text{ ton}$$

For tank spreaders, you assume that the tank is not completely filled because of foaming. Therefore, you measure the volume and then multiply it by 80%:



Round tank spreader

$$\text{Volume} = \text{length } (l) \times \text{tank diameter } (d) \times \text{tank diameter } (d) \times 0.8$$



Noncircular tank spreader

$$\text{Volume} = \text{length } (l) \times \text{width } (w) \times \text{depth } (d) \times 0.8$$

For more information visit [www.umass.edu/cdl](http://www.umass.edu/cdl)

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