



CALIBRATION OF MANURE AND FERTILIZER SPREADERS

It is essential for economical and efficient crop production that spreaders be calibrated so that exact amounts of manure or fertilizers may be applied per acre. Plant nutrients need to be applied according to the individual crop requirements. Yields may be reduced with insufficient nutrients and excess nutrients can lead to accumulation in soils and water.

Materials needed for calibration of a spreader:

1. Plastic sheet or tarp the length that the spreader will cover. The sheet or tarp should be five to eight feet wide.
2. Bucket or weighing container
3. Scales

Calibration steps:

1. Spread the sheet or tarp across a smooth, flat area where manure can be applied.
2. Drive the spreader across the sheet or tarp at the speed to be used in the field. The spreader should be operating several yards before and after you reach the sheet or tarp to ensure an even manure flow. Record the speed, RPM and gear selection of the tractor.
3. Collect the material on the sheet or tarp and place in a bucket or weighing container. The weight of the empty container should be recorded first.
4. Weigh container with manure or fertilizer collected on sheet. The total amount of manure applied to the sheet is obtained by subtracting the weight of the empty container from the weight of the full container.
5. The above procedures should be repeated several times to get a reliable average weight.
6. The following equation may be used to determine manure application in tons per acre.

$$\frac{\text{lbs. of manure on sheet} \times 21.78}{\text{area of sheet (square feet)}} = \text{tons/acre}$$

The chart on Table 1 has been prepared for convenience. Refer to the chart to find tons/acre that you wish to apply per acre. You can find the pounds of manure applied to your sheet and then read across to find tons/acre for the size sheet you used.

This procedure is suitable for dry waste such as broiler and turkey litter. The procedure is modified slightly for wet manure (greater 20%). The entire sheet or tarp and weighing container need to be weighed first and then the sheet, wet manure and weighing container are weighed at the same time. The empty weight is subtracted to determine weight of manure applied. The remaining steps are the same.

Calibration of liquid manure:

Application rates for a liquid waste spreader can be determined by following the same calibration procedure for a boomless sprayer.

TABLE 1. Calibrating of Manure Spreaders

Size of Plastic Sheet			
Pounds of Manure Applied to Sheet	8' X 8'	10' x 10'	10' x 12'
	Tons of Manure Applied Per Acre		
1	0.34	0.22	0.18
2	0.68	0.44	0.36
3	1.02	0.65	0.54
4	1.36	0.87	0.73
5	1.70	1.09	0.91
6	2.04	1.31	1.09
7	2.38	1.52	1.27
8	2.72	1.74	1.45
9	3.06	1.96	1.63
10	3.40	2.18	1.82
11	3.74	5.40	2.00
12	4.08	2.61	2.18
13	4.42	2.83	2.36
14	4.76	3.05	2.54
15	5.10	3.27	2.72
16	5.45	3.48	2.90
17	5.79	3.70	3.09
18	6.13	3.92	3.27
19	6.47	4.14	3.45
20	6.81	4.36	3.63
21	7.15	4.57	3.81
22	7.49	4.79	3.99

Table 2. Estimating Manure Spreader Capacity

Spreader Size (Bushels)	Approximate Tons of Manure
75 - 75	1.5
90 - 100	2.0
125 - 125	2.5
180	3.5

* This circular was adapted from a publication prepared by Charles B. Ogburn and James O. Donald, Extension Agricultural Engineers, Alabama Cooperative Extension Service, Auburn University, Alabama.