

## Manure and Nutrient Quantity Calculation Activity Sheet

**1. Animal species and daily volume and weight of manure produced:**

Animal species	Volume cu ft/day	Weight lb/day
<b>Total daily accumulation</b>		

Multiply the total daily volume and total daily weight by the number of days of animal manure accumulation that will be collected. Note that this is only manure generated by the animals. Bedding material, if used, will add to these values.

**Total volume \_\_\_\_\_ (cu ft) X \_\_\_\_\_ days = \_\_\_\_\_ total accumulation**

**Total weight \_\_\_\_\_ (lbs) X \_\_\_\_\_ days = \_\_\_\_\_ total accumulation**

2. Calculate the amount of nutrients present in the manure. Actual manure test data would provide better estimates, but the values in the handout can provide a good estimate.

<b>Animal species</b>	<b>Nitrogen N lb/day</b>	<b>Phosphorus P<sub>2</sub>O<sub>5</sub> lb/day</b>	<b>Potassium K<sub>2</sub>O lb/day</b>
<b>Total daily accumulation</b>			

Multiply the total daily nutrient accumulations weight by the number of days of animal manure accumulation that will be collected. Note that this is only manure generated by the animals. Nutrients from bedding material if used will add to these values.

**Total N \_\_\_\_\_ (lbs) X \_\_\_\_\_ days = \_\_\_\_\_ total accumulation**

**Total P<sub>2</sub>O<sub>5</sub> \_\_\_\_\_ (lbs) X \_\_\_\_\_ days = \_\_\_\_\_ total accumulation**

**Total K<sub>2</sub>O \_\_\_\_\_ (lbs) X \_\_\_\_\_ days = \_\_\_\_\_ total accumulation**

There will be a reduction in the actual amounts of total nutrients due to losses that occur from management practices. However, these values represent an estimated fertilizer value for the manure, which may be used on your pastures, gardens, etc.

## Livestock Manure Production Tables

### Manure Production Of Animals

Type of Animal*	Dry Manure Production Values – As Excreted					
	N lb/day	P <sub>2</sub> O <sub>5</sub> lb/day	K <sub>2</sub> O lb/day	Volume cu ft/d	Weight lb/day	Percent Moisture
Beef (Cow)	0.33	0.27	0.31	1.02	63	88
Beef (Yearling)	0.30	0.23	0.24	0.89	55	87
Dairy (Dry)	0.36	0.11	0.28	1.32	82	88
Dairy (Lact)	0.45	0.16	0.31	1.29	80	88
Ducks	0.70	0.69	0.60	0.73	46	75
Goats	0.45	0.11	0.31	0.63	40	75
Heifers	0.31	0.09	0.29	1.37	85	89
Horses	0.28	0.11	0.23	0.81	50	78
Poultry (Layer)	0.83	0.71	0.41	0.96	61	75
Sheep	0.45	0.16	0.36	0.63	40	75
Swine (Gest)	0.19	0.14	0.15	0.44	27	91
Swine (Grow)	0.42	0.37	0.27	1.02	63	90
Turkeys	0.74	0.64	0.34	0.69	44	75

\*Each figure based on 1,000 lbs. of animal listed.

*Adapted from Agricultural Waste Management Field Handbook (210-AWMFH) 1992. USDA – National Engineering Handbook, Chapter 4, p. 8-17.*

### Characteristics Of Bedding Materials

TYPES OF BEDDING	Bedding lbs/cu ft	Mixed* lbs/cu ft	Percent Moisture
Compost	30	15	20-60
Cornstalks (shredded)	5	11	10-20
Legume hay (chopped)	7	13	10-15
Legume hay (loose)	4	9	10-15
Nonlegume hay (chopped)	6	12	10-15
Nonlegume hay (loose)	4	8	10-15
Sand	105	105	15-30
Saw Dust	11	16	10-20
Soil	75	75	15-50
Straw (baled)	5	9	5-15
Straw (chopped)	7	14	5-15
Straw (loose)	3	5	5-15
Straw-Oats (baled)	8	19	5-15
Straw-Wheat (baled)	6	13	5-15
Wood Chips/Shavings	9	18	10-20

\*Weight of bedding when mixed with manure.