

**SOLIDS WORKSHEET 1 - ESTIMATING NUTRIENTS GENERATED PER CONFINEMENT PERIOD**

Step 1. Nutrients Generated (As Excreted)															
Animal Type (See Table 1.1)	Number of Animals	x	Percent Waste as Solid <sup>a</sup>	x	Average Weight (lbs.)	÷ 1000	x	Confinement Period <sup>b</sup> (days/year)	=	Animal Unit Days	Table 1.1 Values	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
1.) _____	_____	x	_____	x	_____	÷ 1000	x	_____	=	_____	N P <sub>2</sub> O <sub>5</sub>	=	_____	_____	_____
										_____	K <sub>2</sub> O	=	+	_____	_____
2.) _____	_____	x	_____	x	_____	÷ 1000	x	_____	=	_____	N P <sub>2</sub> O <sub>5</sub>	=	_____	_____	_____
										_____	K <sub>2</sub> O	=	+	_____	+
3.) _____	_____	x	_____	x	_____	÷ 1000	x	_____	=	_____	N P <sub>2</sub> O <sub>5</sub>	=	_____	_____	_____
										_____	K <sub>2</sub> O	=	=	_____	_____
<b>Step 1 Total</b>											=	_____	_____	_____	
														(lbs)	
Step 2. Manure Generated (As Excreted)															
Animal Unit Days (from Step 1)	x	Manure/A.U. (See Table 1.1)	=	Volume of Manure											
1.) _____	x	_____	=	_____ cubic feet											
2.) _____	x	_____	=	_____ cubic feet											
3.) _____	x	_____	=	_____ cubic feet											
<b>Step 2 Total</b>											=	_____	_____	_____	cu.ft.
														1 + 2 + 3	
Step 3. Total Tons															
Step 2 Vol. of Manure	÷	See Table 1.1 Bedding Value	=	Total Tons											
1.) _____	÷	_____	=	_____											
2.) _____	÷	_____	=	_____											
3.) _____	÷	_____	=	_____											
<b>Step 3 Total</b>											=	_____	_____	_____	tons
														1 + 2 + 3	
Step 4. Weighted Nutrient Values Before Nutrient Losses															
Step 1	÷	Step 3 Total	=												
N _____	÷	_____	=												
P <sub>2</sub> O <sub>5</sub> _____	÷	_____	=												
K <sub>2</sub> O _____	÷	_____	=												
<b>Step 4 Total</b>											=	_____	_____	_____	(lbs/ton)

<sup>a</sup> The percent of the manure that is handled as a solid.

<sup>b</sup> Confinement period should be adjusted for animals that are only in confinement for a portion of the day. For example, if animals spend 16 hours on pasture and 8 hours in confinement, then the confinement period would be 1/3 of a day or 122 days/year.

**Table 1.1 Manure and Nutrients as Excreted Per 1,000 Pound Live Weight/Day**

Animal Type	Volume of Manure Per Animal Unit (cu.ft.)	Dry Matter Manure (lbs.)	Wastewater (gal/day)	Total Nitrogen (lbs.)	Total P as P <sub>2</sub> O <sub>5</sub> (lbs.)	Total K as K <sub>2</sub> O (lbs.)	Bedding
Beef (all cattle and calves) <sup>1</sup>	1	8.5	0	0.34	0.21	0.25	33
Dairy Cows <sup>1</sup>	1.4	12	5	0.45	0.21	0.35	33
Dairy Heifers <sup>5</sup>	0.9	8.5	5	0.27	0.11	0.14	33
Swine Lactating Sows w/litters <sup>6</sup>	0.96	11	2	0.52	0.41	0.35	33
Swine Gestating Sows, Boars, Gilts <sup>6</sup>	0.5	5.5	2	0.26	0.2	0.17	33
Swine Wean to Finish Pigs <sup>6</sup>	1.15	7.3	2	0.52	0.41	0.35	33
Swine Grow to Finish Pigs <sup>5</sup>	1.1	6.5	2	0.54	0.21	0.29	33
Poultry Caged Layer <sup>5</sup>	0.93	15	0	1.1	0.76	0.47	74
Poultry Caged Layer Pullet <sup>5</sup>	0.73	11.4	0	0.62	0.55	0.31	74
Poultry Litter Broiler <sup>2</sup>	1.4	22	0	0.96	0.64	0.65	74
Poultry Litter/Slats Breeder Layer <sup>5</sup>	0.93	16	0	0.84	0.69	0.36	74
Poultry Litter Breeder Pullet <sup>5</sup>	0.73	11.4	0	0.62	0.55	0.31	74
Poultry Turkeys (toms) <sup>3</sup>	0.57	8.8	0	0.53	0.37	0.3	74
Poultry Turkeys (hens) <sup>4</sup>	0.77	12.5	0	0.72	0.46	0.37	74
Horses <sup>5</sup>	0.82	7.6	0	0.25	0.11	0.14	32
Sheep and Lambs <sup>5</sup>	0.63	10	0	0.45	0.16	0.36	33
Goats <sup>5</sup>	0.65	13	0	0.45	0.25	0.37	33

<sup>1</sup> Adapted from 1999 ASAE Standards

<sup>2</sup> Adapted from NRCS Agricultural Waste Management Field Handbook, March 2008. Based on 2.6 lb. average weight and 48 days on feed

<sup>3</sup> Adapted from NRCS Agricultural Waste Management Field Handbook, March 2008. Based on 17.0 lb. average weight and 133 days on feed

<sup>4</sup> Adapted from NRCS Agricultural Waste Management Field Handbook, March 2008. Based on 7.6 lb. average weight and 105 days on feed

<sup>5</sup> Adapted from NRCS Agricultural Waste Management Field Handbook, March 2008.

<sup>6</sup> From Dr. Richard Coffey, Extension Swine Specialist and Director of the University of Kentucky Research and Education Center at Princeton