

Manure Production and Management Record Keeping Forms

The *Agricultural Operation Practices Act* (AOPA) sets out manure management standards for all livestock operations in Alberta. Under AOPA, confined feeding operations (CFOs) and anyone who handles **500 tonnes or more per year of manure must keep records** for a minimum of **five years** (Standards and Administration Regulation, Section 28).

The following tables contain average manure volumes and weights expected from typical livestock housing systems in Alberta. Actual volumes and weights could differ due to variations in housing systems, type of manure storage, amount of dilution or wash water, precipitation, bedding, mechanical drying and treatment. These variables should be taken into account and adjustments made where appropriate.

Note: The term **manure** in this document includes the livestock excreta, straw, other bedding material, litter, soil, wash water and feed in the manure. Composted manure has the same requirements as manure.

Solid Manure Production

Explanation: The following design volumes and weights are the average volumes expected from typical livestock housing systems in Alberta. Actual volumes and weights could differ due to variations in housing systems, type of manure storage, precipitation, and bedding. These variables should be taken into account and adjustments made where appropriate.

Category of Livestock	Type of Livestock	Daily			Monthly			9 Months			Yearly				
		lbs	kgs	cu. ft	lbs	kgs	cu.ft	tons	tonnes	cu.ft	cu. m	tons	tonnes	cu.ft	cu. m
Beef	Cows/Finishers 900 lbs+	13.1	5.9	0.32	390	180	9.6	1.8	1.6	88	2.5	2.4	2.2	117	3.3
	Beef Feeders < 900 lbs	8.4	3.8	0.21	250	110	6.2	1.1	1.0	56	1.6	1.5	1.4	75	2.2
	Feeder Calves < 550 lbs	3.3	1.5	0.08	100	50	2.4	0.5	0.4	22	0.6	0.6	0.54	29	0.8
Dairy	Tie Stall: Lactating Cow Only	139.7	63.5	2.66	4190	1900	79.7	19.1	17.3	728	20.3	25.5	23.1	970	27.5
	Loose Housing: Lactating Cow	146.3	66.5	2.78	4390	2000	83.5	20.0	18.2	762	21.3	26.7	24.2	1016	28.7
	Dry Cow	70.0	31.8	1.30	2100	955	40.0	9.6	8.7	356	9.9	12.8	11.6	487	13.4
	Replacements: Bred Heifers (breeding to calving)	60.5	27.5	1.16	1819	832	34.5	8.3	7.5	315	8.9	11.0	10.0	420	12.0
	Replacements: Growing Heifers (350 lbs to breeding)	42.9	19.5	0.82	1290	590	24.5	5.9	5.3	224	6.3	7.8	7.1	298	8.5
	Calves < 350 lbs	2.9	1.3	0.07	90	40	2.1	0.4	0.4	20	0.5	0.5	0.5	26	0.7
	Farrow to Finish*	86.4	39.3	1.74	2590	1180	52.3	11.8	10.7	478	13.3	15.8	14.3	637	18.0
Swine (* count sows only)	Farrow to Wean*	26.6	12.1	0.54	800	360	16.1	3.6	3.3	147	4.1	4.9	4.4	196	5.6
	Farrow Only*	21.3	9.7	0.43	640	290	12.9	2.9	2.6	118	3.3	3.9	3.5	157	4.4

Category of Livestock	Type of Livestock		Daily		Monthly		9 Months			Yearly					
			lbs	kgs	cu. ft	lbs	kgs	cu.ft	tons	tonnes	cu.ft	tons	tonnes	cu.ft	cu. m
Swine	Feeders/Boars	8.2	3.7	0.17	250	110	5.0	1.1	1.0	46	1.3	1.5	1.4	61	1.8
	Growers/Roasters	4.8	2.2	0.10	147	65	2.9	0.7	0.6	27	0.8	0.9	0.8	36	1.0
	Weaners	2.8	1.3	0.06	80	40	1.7	0.4	0.3	15	0.4	0.5	0.5	20	0.5
Poultry (per 100)	Chicken: Breeders	15.8	7.2	0.59	480	220	17.8	2.2	2.0	163	4.5	2.9	2.6	217	6.1
	Chicken: Layers (belt cage)	9.9	4.5	0.41	300	140	12.3	1.4	1.2	112	3.1	1.8	1.6	149	4.2
	Chicken: Layers (deep pit)	13.0	5.9	0.31	390	180	9.2	1.8	1.6	84	2.3	2.4	2.2	112	3.2
	Chicken: Pullets/Broilers	6.0	2.7	0.30	180	82	8.9	0.8	0.7	80	2.3	1.1	1.0	108	3.1
	Turkey: Toms/Breeders	19.8	9.0	1.28	590	270	38.5	2.7	2.5	351	9.8	3.6	3.3	468	13.2
Horses	Turkey: Hens	13.6	6.2	0.85	410	190	25.4	1.9	1.7	232	6.5	2.5	2.3	309	8.8
	Turkey: Broilers	11.0	5.0	0.51	330	150	15.3	1.5	1.4	140	3.9	2.0	1.8	186	5.3
	Ducks	11.9	5.4	0.44	360	165	13.4	1.6	1.5	122	3.4	2.2	2.0	163	4.5
	Geese	23.7	10.8	0.88	720	330	26.8	3.3	3.0	245	6.7	4.3	3.9	326	9.1
	PMU > 1000 lbs	45.8	20.8	0.92	1370	620	27.7	6.3	5.7	253	7.0	8.4	7.6	337	9.5
	Feeders > 750 lbs	15.2	6.9	0.46	460	210	13.9	2.1	1.9	127	3.5	2.8	2.5	169	4.8
	Foals < 750 lbs	4.6	2.1	0.14	138	63	4.2	0.6	0.6	38	1.1	0.8	0.8	51	1.4
	Mules	11.4	5.2	0.35	340	150	10.4	1.6	1.4	95	2.7	2.1	1.9	127	3.6
	Donkeys	7.6	3.5	0.23	230	100	6.9	1.0	0.9	63	1.8	1.4	1.3	84	2.4
	Ewes with Lambs	3.9	1.8	0.13	120	55	3.8	0.5	0.5	35	1.0	0.7	0.6	46	1.3
Sheep	Ewes/Rams	3.1	1.4	0.10	90	41	3.0	0.4	0.4	28	7.6	0.6	0.5	37	1.0
	Lambs	0.8	0.4	0.02	23	11	0.7	0.1	0.1	7	0.2	0.1	0.1	9	0.2
	Feeders	1.5	0.7	0.05	50	23	1.5	0.2	0.2	14	0.4	0.3	0.3	18	0.5
Goats	Meat/Milk (per ewe)	5.9	2.7	0.19	180	80	5.8	0.8	0.7	52	1.5	1.1	1.0	70	2.0
	Nannies/Billies	3.1	1.4	0.10	90	40	3.0	0.4	0.4	27	7.6	0.6	0.5	36	1.9
	Feeders	0.6	0.3	0.02	20	10	0.5	0.1	0.1	5	.02	0.1	0.1	6	0.2
Bison	Cows Bulls	7.3	3.3	0.18	220	100	5.3	1.0	0.9	49	1.4	1.3	1.2	65	1.9
	Elk	5.8	2.6	0.14	170	77	4.3	0.8	0.7	39	1.1	1.1	1.0	52	1.4
Cervid	Deer	2.9	1.3	0.07	90	40	2.1	0.4	0.4	19	0.5	0.5	0.5	25	0.7
	Feeders	6.6	3.0	0.14	200	88	4.0	0.9	0.8	37	1.1	1.2	1.1	49	1.4
Wild Boar	Sow: Farrowing	14.9	6.8	0.30	448	203	9.0	2.0	1.8	83	2.3	2.7	2.5	110	3.1

Liquid Manure Production

Explanation: The following design volumes and weights are the average volumes and weights expected from typical livestock housing systems in Alberta. Actual volumes and weights could differ due to variations in housing systems, type of manure storage, amount of dilution or wash water, precipitation, bedding, mechanical drying and treatment. These variables should be taken into account and adjustments made where appropriate.

Category of Livestock	Type of Livestock Liquid Manure Production	Daily			Monthly			9 Months			Yearly		
		gallons	litres	cu. ft	gallons	litres	cu.ft	gallons	cu. m (tonnes)	cu. ft.	gallons	cu. m (tonnes)	cu.ft
Dairy (* count lactating cows only)	Free Stall: Lactating Cow Only ¹	21.7	98.6	3.50	661	3000	106	5956	27.0	956	7934	36.0	1274
	Free Stall: Dry cow	9.5	43.0	1.50	284	1290	46	2593	11.8	416	3454	15.7	554
	Free Stall: Lactating with Dry Cows Only* ²	25.7	116.8	4.11	771	3504	123	7042	32.0	1126	9381	42.6	1500
Swine (*count sows only)	Farrow to Finish*	14.4	65.7	2.31	430	1950	69	3946	18.0	633	5272	24.0	844
	Farrow to Wean*	4.4	20.2	0.71	130	590	21	1206	5.5	194	1622	7.4	260
	Farrow Only*	3.5	15.9	0.56	110	500	17	959	4.4	153	1278	5.8	204
	Feeders/Boars	1.6	7.1	0.25	50	230	7	438	1.9	69	568	2.6	91
Poultry (per 100)	Growers/Roasters	0.9	4.2	0.15	29	135	4	257	1.1	40	333	1.5	53
	Weaners	0.5	2.3	0.08	20	90	2	137	0.6	22	183	0.8	29
	Chicken: Layers	6.0	27.1	0.95	180	820	29	1644	7.4	260	2174	10.0	348

¹ - Includes milking parlour wash-water of 30 L per lactating cow

² - Includes milking parlour wash-water of 30 L per lactating cow (zero milking parlour wash-water for dries)

Note: Dairy associated livestock is usually assumed to be solid manure production

The following table is an example of how a person might record information for manure or compost transfers. For more forms, go online to www.agric.gov.ab.ca (Search for "AOPA Record Keeping") or call 1-800-292-5697.

Transfer # _____

Manure or Compost Transfer Record Form (Standards and Administration Regulation, Section 28(3), (4))			
Date:		Type of manure:	
	Transferred From:	Removed by:	Received by:
Name:			
Address:			
Volume/Weight:			

Transfer # _____

Manure or Compost Transfer Record Form (Standards and Administration Regulation, Section 28(3), (4))			
Date:		Type of manure:	
	Transferred From:	Removed by:	Received by:
Name:			
Address:			
Volume/Weight:			

Transfer # _____

Manure or Compost Transfer Record Form (Standards and Administration Regulation, Section 28(3), (4))			
Date:		Type of manure:	
	Transferred From:	Removed by:	Received by:
Name:			
Address:			
Volume/Weight:			

Transfer # _____

Manure or Compost Transfer Record Form (Standards and Administration Regulation, Section 28(3), (4))			
Date:		Type of manure:	
	Transferred From:	Removed by:	Received by:
Name:			
Address:			
Volume/Weight:			

The following table is an example of how a person might record the required information for manure or compost application to land. For more forms, go online to www.agric.gov.ab.ca (Search for "AOPA Record Keeping") or call 1-800-292-5697.

***Note:** Table information in **bold lettering** means it is required by AOPA. Information that is not bolded is not required by AOPA, but is included to add clarity, especially for operations with more than one type of livestock.

Land Application Record* (Standards and Administration 28(5))

Owner		Legal Land Description		Field Name		Area of land	
Soil Test Records			Soil Texture		Soil Group or Farming Method		
Date	NO₃-N (0 - 60 cm)	E.C. (0 - 15 cm) (dS/m)	0 - 15 cm	15 - 30 cm			
Manure Receiving Record				Type of Manure or Compost	Volume or Weight	Estimated Available Nitrogen	
Date	Received From: Name + Address						
Manure / Nutrient Application Record		Incorporation Record		Manure Application Rate	Available Nitrogen Application Rate		
Date	Total Weight or Volume Applied	Date	Method				

Note: Soil test information used to determine application rates for each field must not be older than three years except for soil texture, which is a one-time analysis.