

Guidelines For Estimating
Swine Farrow-Wean to 5 kg Costs
Based On 600 Sows 13,804 Pigs Sold

Date: March, 2006

This publication is intended to provide a format and a set of guidelines for determining the cost of production for a swine farrow to 5kg enterprise. This operation is intended to represent the first stage of a three stage system. Adjustments will be necessary when applying these figures to your enterprise.

The assumptions on which the costs are based are outlined in the supporting pages. These assumptions were arrived at using the breeding stock, management practices, and facilities seen in modern, well managed swine operations of comparable size in Manitoba. Productivity and performance assumptions are based on information collected by department specialists, feed companies and other organizations. Where individual herd productivity and performance levels differ from those listed, adjustments will be required.

Accurate, up to date, production and financial records are essential for the effective application of these guidelines to an individual operation. Without such information accurate cost of production projections cannot be determined.

The guideline can be useful for comparison purposes. Comparison of costs at different levels of production can be made with other farms, the farm over a period of time or comparing the plan with the actual results at the end of the planning period.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local MAFRI office.

Farrow-Wean to 5 kg Pig Cost of Production

The following farrow wean to 5 kg cost of production budget is **based on the assumption that all feed is purchased.**

The budget also includes a land investment cost based on the assumption that 160 acres would be required for this size of operation, with 140 acres being rented out at \$25 per acre.

The rations illustrated in this budget are examples only. Individual farm conditions should be taken into account when formulating the diets. Producers need to know what the feed intakes of their animals are. Please consult with a nutritionist for diet formulation suggestions.

The Manitoba pork production industry profile is changing and this budget was specifically designed to address the need of producers who may want to analyze the cost of starting up or switching to a farrow wean 5 kg operation. Several companies are offering contracts with varying levels of guarantees. Producers need to accurately calculate their costs before they can properly make a decision.

600 Sow Farrow-Wean to 5kg Cost of Production Summary

March, 2006

A. Operating Costs	\$/Pig Sold	\$/Sow	Total Cost	Your Cost
1. Feed Costs:				
1.01 Sow Lactation Ration	\$2.51	\$57.76	\$34,648	_____
1.02 Sow Gestation Ration	\$7.47	\$171.88	\$103,116	_____
1.03 Boar Ration	\$0.41	\$9.43	\$5,660	_____
1.04 Creep Feed	<u>\$1.47</u>	<u>\$33.82</u>	<u>\$20,292</u>	_____
Total Feed Cost	\$11.86	\$272.89	\$163,716	_____
2. Other Operating Costs:				
2.01 Veterinary Medicine & Supplies:	\$1.27	\$29.22	\$17,531	_____
2.02 Maintenance & Repairs	\$0.36	\$8.28	\$4,969	_____
2.03 Hydro & Propane	\$2.42	\$55.76	\$33,450	_____
2.04 Insurance	\$1.38	\$31.79	\$19,072	_____
2.05 Manure Costs	\$1.13	\$25.97	\$15,582	_____
2.06 Office Supplies	\$0.09	\$2.00	\$1,200	_____
2.07 Marketing & Transport.	\$1.19	\$27.38	\$16,427	_____
2.08 Sow Replacement	\$3.46	\$79.61	\$47,762	_____
2.09 Boar Replacement	\$1.16	\$26.62	\$15,973	_____
2.10 Property Tax	<u>\$0.33</u>	<u>\$7.50</u>	<u>\$4,500</u>	_____
Subtotal Operating Costs	\$24.64	\$567.02	\$340,182	_____
2.11 Interest on Operating Costs	<u>\$0.31</u>	<u>\$7.24</u>	<u>\$4,343</u>	_____
Total Operating Costs	\$24.96	\$574.26	\$344,525	_____
B. Fixed Costs				
3. Depreciation:				
3.01 Buildings & Manure Storage	\$1.79	\$41.19	\$24,709	_____
3.02 Equipment	<u>\$2.78</u>	<u>\$63.97</u>	<u>\$38,375</u>	_____
Total Depreciation Cost	\$4.57	\$105.16	\$63,084	_____
4. Investment:				
4.01 Land Cost	\$0.12	\$2.67	\$1,600	_____
4.02 Buildings & Manure Storage	\$0.85	\$19.62	\$11,772	_____
4.03 Equipment	\$0.68	\$15.64	\$9,381	_____
4.04 Breeding Herd	<u>\$0.71</u>	<u>\$16.40</u>	<u>\$9,839</u>	_____
Total Investment Cost	\$2.36	\$54.33	\$32,592	_____
Total Fixed Costs	\$6.93	\$159.49	\$95,676	_____
C. Labour				
Wages, benefits and hired manager	\$7.12	\$163.83	\$98,284	_____
Total Cost of Production	\$39.01	\$897.58	\$538,485	_____
<hr/>				
Break-Even Price	\$/Pig			
Operating Cost	\$24.96			_____
Operating & Labour Cost	\$32.08			_____
Operating, Labour & Fixed Cost	\$39.01			_____

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user.

Farrow to 5 kg Pig Production Costs

1. This input table outlines the production assumptions used.
2. Buildings and equipment are valued at new cost.
3. Manure haulage is contracted out.
4. Gilts are purchased for herd replacement.

Indicators of Productivity

Sows	600
Boars	30
Litters/Sow/Year	2.35
Average Weaning Age (days)	20
Average Born Alive per Litter	11.10
Percent Pre-Weaning Mortality	10.0
Percent Post-Weaning Culls	2.0

Herd Profile	<u>Total</u>	<u>/Sow</u>	<u>/Litter</u>	<u>%Mortality</u>
Sows	600			
Boars	30			
Litters	1,410	2.35		
Pigs Born Alive	15,651	26.09	11.10	
Pigs Died, Pre-Weaning	1,565	2.61	1.11	10.0
Pigs Weaned	14,086	23.48	9.99	
Pigs Culled	282	0.47	0.20	2.0
Weaner Pigs Sold	13,804	23.01	9.79	

Feed Requirements and Costs

		<u>Purchased</u>	<u>Home-Mixed</u>
Sow Gestation Ration	2.3 kg/day	\$205.00	\$0.00
Sow Lactation Ration	6.0 kg/day	\$235.00	\$0.00
Boar Ration	2.5 kg/day	\$205.00	\$0.00
Creep Feed	1.0 kg/pig	\$1,300.00	\$0.00

Labour

Total Hours per 7-day week	135.0 hours/week
Wage (includes benefits & hired manager)	\$14.00 /hour

Sow Barn Capital Investment

	<u>Sq.Ft. ¹</u>	<u>\$/Sq.Ft.</u>	<u>Total</u>	<u>/Sow</u>	<u>Your Cost</u>
Buildings					
Gestation	16,200	\$18.80	\$304,560	\$507.60	_____
Farrowing	6,457	\$21.40	\$138,188	\$230.31	_____
Office & Loading	200	\$27.50	\$5,500	\$9.17	_____
Standby Generator			\$25,000	\$41.67	_____
Feed Mill (building only)			\$0	\$0.00	_____
Total Building Cost			\$473,248	\$788.75	_____
Equipment ¹					
Gestation		\$16.75	\$271,350	\$452.25	_____
Farrowing		\$22.00	\$142,062	\$236.77	_____
Fire Alarm System			\$3,000	\$5.00	_____
Feed Bins (4 bins)			\$10,000	\$16.67	_____
Feed Mill (equipment only)			\$0	\$0.00	_____
Total Equipment Cost			\$426,412	\$710.69	_____
Total Buildings and Equipment Cost			\$899,660	\$1,499.43	_____
Breeding Stock					
Value of Replacement Sow	\$350 /sow		\$210,000	\$350.00	_____
Value of Replacement Boar	\$1,200 /boar		\$36,000	\$60.00	_____
Total Breeding Stock Cost			\$246,000	\$410.00	_____
Land Value					
Land Investment	20 acres @	\$500	\$10,000	\$16.67	_____
Other Costs					
Site Preparation			\$30,000	\$50.00	_____
Manure Storage			\$38,000	\$63.33	_____
Total Other Costs			\$68,000	\$113.33	_____
Total Capital Investment			\$1,223,660	\$2,039.43	_____

¹ FOOTNOTE: The number of square feet allocated for buildings and equipment are approximations.

Cost per sow for buildings and equipment will vary around the province.

FOOTNOTE: 1 sq.ft. = 0.0929 sq.m; 1 sq.m.= 10.764 sq.ft.; 1 ft.= 0.3048 m

Feed Ingredient Costs

Ingredients	<u>Price/tonne</u>	<u>Your Cost</u>
Wheat	\$135	_____
Barley	\$120	_____
Corn	\$170	_____
Soybean Meal	\$290	_____
Canola Meal	\$165	_____
Peas	\$130	_____
Creep Premix	\$850	_____
Sow Micro Premix	\$3,000	_____
Grower Micro Premix	\$2,500	_____
Canola Oil	\$900	_____
Whey Powder	\$800	_____
Herring Meal	\$1,500	_____
Plasma	\$7,500	_____
Limestone	\$80	_____
Dical (16% Ca-21% P)	\$455	_____
Salt - 96%	\$125	_____
Phytase	\$11,000	_____
L-Lysine HCL	\$2,500	_____
L-Threonine	\$4,800	_____
DL-Methionine	\$4,500	_____
Oats - Steam rolled	\$400	_____
Processing Cost		_____
(Hydro,repairs/maintenance & insurance)	\$3.25	_____
Percent Weight loss due to processing	1.25 %	_____
Labour Cost	\$4.00	_____

Ration Formulas	Dry Sow (kg)	Nursing Sow (kg)	Boar Ration (kg)	Creep Ration (kg)
Wheat	259.00	568.70	233.64	0.00
Barley	539.00	200.00	539.00	0.00
Corn	0.00	0.00	0.00	139.75
Soybean Meal	0.00	196.00	0.00	116.59
Canola Meal	80.00	0.00	102.00	0.00
Peas	91.00	0.00	91.00	0.00
Creep Premix	0.00	0.00	0.00	0.00
Sow Micro Premix	5.00	5.00	5.00	5.00
Grower Micro Premix	0.00	0.00	0.00	0.00
Canola Oil	0.00	0.00	0.00	20.00
Whey Powder	0.00	0.00	0.00	100.00
Herring Meal	0.00	0.00	0.00	60.00
Plasma	0.00	0.00	0.00	58.00
Limestone	10.00	12.00	12.00	12.23
Dical (16% Ca-21% P)	11.00	12.00	12.00	9.43
Salt - 96%	3.50	5.00	3.50	3.50
Phytase	0.50	0.50	0.50	0.00
L-Lysine HCL	1.00	0.80	1.36	0.50
L-Threonine	0.00	0.00	0.00	0.00
DL-Methionine	0.00	0.00	0.00	0.00
Oats - Steam rolled	0.00	0.00	0.00	475.00
TOTAL (kg)	1,000.00	1,000.00	1,000.00	1,000.00

Feed Requirement and Cost Summary

	Amount	Ingredient	Ration	
Sow Gestation & Boar Ration:	(kg)	Price	Cost	Your Cost
		(\$ /tonne)	(\$ /tonne)	
Wheat	259.0	\$135.00	\$34.97	
Barley	539.0	\$120.00	\$64.68	
Canola Meal	80.0	\$165.00	\$13.20	
Peas	91.0	\$130.00	\$11.83	
Sow Micro Premix	5.0	\$3,000.00	\$15.00	
Limestone	10.0	\$80.00	\$0.80	
Dical (16% Ca-21% P)	11.0	\$455.00	\$5.01	
Salt - 96%	3.5	\$125.00	\$0.44	
Phytase	0.5	\$11,000.00	\$5.50	
L-Lysine HCL	1.0	\$2,500.00	\$2.50	
Total Dry Sow	1,000.0 kg		\$153.93	
Adjusted For Weight Loss		1.25 %	\$155.85	
Plus Processing Cost		\$3.25	\$159.10	
Plus Labour Cost		\$4.00	\$163.10	
Sow Lactation:	568.7	\$135.00	\$76.77	
Wheat	568.7	\$135.00	\$76.77	
Barley	200.0	\$120.00	\$24.00	
Soybean Meal	196.0	\$290.00	\$56.84	
Sow Micro Premix	5.0	\$3,000.00	\$15.00	
Limestone	12.0	\$80.00	\$0.96	
Dical (16% Ca-21% P)	12.0	\$455.00	\$5.46	
Salt - 96%	5.0	\$125.00	\$0.63	
Phytase	0.5	\$11,000.00	\$5.50	
L-Lysine HCL	0.8	\$2,500.00	\$2.00	
Total Nursing Sow	1,000.0 kg		\$187.16	
Adjusted For Weight Loss		1.25 %	\$189.50	
Plus Processing Cost		\$3.25	\$192.75	
Plus Labour Cost		\$4.00	\$196.75	

Creep Ration:

Corn	139.8	\$170.00	\$23.76	_____
Soybean Meal	116.6	\$290.00	\$33.81	_____
Sow Micro Premix	5.0	\$3,000.00	\$15.00	_____
Canola Oil	20.0	\$900.00	\$18.00	_____
Whey Powder	100.0	\$800.00	\$80.00	_____
Herring Meal	60.0	\$1,500.00	\$90.00	_____
Plasma	58.0	\$7,500.00	\$435.00	_____
Limestone	12.2	\$80.00	\$0.98	_____
Dical (16% Ca-21% P)	9.4	\$455.00	\$4.29	_____
Salt - 96%	3.5	\$125.00	\$0.44	_____
L-Lysine HCL	0.5	\$2,500.00	\$1.25	_____
Oats - Steam rolled	<u>475.0</u>	\$400.00	<u>\$190.00</u>	_____
Total Creep	1,000.0 kg		\$892.53	_____
Adjusted For Weight Loss		1.25 %	\$892.76	_____
Plus Processing Cost		\$3.25	<u>\$896.01</u>	_____
Plus Labour Cost		\$4.00	\$900.01	_____

Production Cost Worksheet

A. Operating Costs

Your Cost

1. Feed Requirements and Costs

1.01 Sow Lactation Ration

	20	days average weaning age	
x	2.35	litters/sow/year	
=	47.0	days lactation	
x	6.0	kg ration/day	
x	\$205.00	/tonne ration	
÷	1,000	kg/tonne	
÷	<u>23.01</u>	<u>pigs/sow</u>	
=	\$2.51	/pig sold	

1.02 Sow Gestation Ration

	365	days/year	
-	47.0	days lactation	
=	318.0	days gestation	
x	2.3	kg ration/day	
x	\$235.00	/tonne ration	
÷	1,000	kg/tonne	
÷	<u>23.01</u>	<u>pigs/sow</u>	
=	\$7.47	/pig sold	

1.03 Boar Ration

	365	days	
x	2.5	kg ration/day	
x	\$205.00	/tonne ration	
÷	1,000	kg/tonne	
x	30	boars	
÷	600	sows	
÷	<u>23.01</u>	<u>pigs/sow</u>	
=	\$0.41	/pig sold	

1.04 Creep Feed

	1.0	kg ration/pig	
x	\$1,300.00	/tonne of creep feed	
÷	1,000	kg/tonne	
x	26.09	pigs born alive/sow/year	
÷	<u>23.01</u>	<u>pigs/sow</u>	
=	\$1.47	/pig sold	

2. Other Operating Costs

2.01 Veterinary Medicine & Supplies

	\$7.25	/sow professional services	_____
+	\$22.00	/sow medication	_____
÷	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$1.27	/pig sold	_____

2.02 Maintenance & Repairs

	\$1,499.43	/sow building & equipment cost	_____
x	0.55	% repair & maintenance	_____
÷	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$0.36	/pig sold	_____

2.03 Hydro & Propane

	\$10,000	hydro	_____
+	\$23,450	propane	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$2.42	/pig sold	_____

2.04 Insurance

	\$899,660	buildings & equipment	_____
x	\$0.78	/\$100 capital	_____
÷	100		_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.51	/pig sold	_____

	\$246,000	breeding stock	_____
+	\$483,140	weaners	_____
x	\$0.88	/\$100 capital	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.46	/pig sold	_____

	\$1,200	business interruption coverage/sow	_____
x	600	sows	_____
x	\$0.78	/\$100 capital invested	_____
÷	<u>13,804</u>	<u>pigs sold</u>	_____
=	\$0.41	/pig sold	_____

=	\$1.38	/pig sold	_____
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2.05 Manure Costs

Haulage	19.0	litres/sow/day	_____
x	\$0.002	/litre	_____
x	365	days	_____
÷	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$0.60	/pig sold	_____

Odour control	\$7,300	total costs	_____
±	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.53	/pig sold	_____
Total =	\$1.13	/pig sold	_____
2.06 Office Supplies			
x	\$2.00	\$/sow	_____
±	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$0.09	/pig sold	_____
2.07 Marketing & Transportation & Board Levy			
	\$1.00	marketing & transportation	_____
±	<u>\$0.19</u>	<u>board levy</u>	_____
=	\$1.19	/pig sold	_____
2.08 Sow Replacement			
	180.0	kg/sow (cull weight)	_____
x	\$84.00	/100 kg live	_____
=	\$151.20	/sow value of cull	_____
	\$350.00	/sow value of replacement	_____
-	\$151.20	/sow value of cull	_____
=	\$198.80	net replacement cost	_____
x	40.00	% sow culling rate	_____
÷	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$3.46	/pig sold	_____
2.09 Boar Replacement			
	225.0	kg/boar (cull weight)	_____
x	\$60.00	/100 kg live	_____
=	\$135.00	/boar value of cull	_____
	\$1,200.00	/boar value of replacement	_____
-	\$135.00	/boar value of cull	_____
=	\$1,065.00	net replacement cost	_____
x	50.00	% boar culling rate	_____
x	30	number of boars	_____
÷	600	number of sows	_____
÷	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$1.16	/pig sold	_____

2.10 Property Taxes:

	\$4,500	total taxes	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.33	/pig sold	_____

2.11 Interest on Operating Cost:

Subtotal Operating Cost x Farrow-to-Farrow Period x % Interest
365 2

	365	days per year	_____
÷	2.35	litters/sow	_____
=	155	days farrow-to-farrow	_____
	\$24.64	subtotal operating	_____
x	155	days farrow to farrow	_____
÷	365	days per year	_____
x	6.0	% operating interest rate	_____
÷	<u>2</u>	<u>average</u>	_____
=	\$0.31	/pig sold	_____

B. Fixed Costs

3. Depreciation: $\frac{\text{Original Cost} - \text{Salvage Value}}{\text{Useful Life}}$

3.01 Buildings

	\$541,248	building cost (including earthen manure storage)	_____
-	\$47,325	salvage value (building only)	_____
÷	20	years useful life	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$1.79	/pig sold	_____

3.02 Equipment

	\$426,412	equipment cost	_____
-	\$42,641	salvage value	_____
÷	10	years useful life	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$2.78	/pig sold	_____

4. Investment:

$$\frac{(\text{Original Cost} + \text{Salvage Value}) \times \text{Investment Rate}}{2}$$

4.01 Land Cost

	\$10,000	land investment	_____
+	\$30,000	site preparation	_____
x	4.0	% investment rate	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.12	/pig sold	_____

4.02 Buildings

	\$541,248	building cost (including earthen manure storage)	_____
+	\$47,325	salvage value (building only)	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.85	/pig sold	_____

4.03 Equipment

	\$426,412	equipment cost	_____
+	\$42,641	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.68	/pig sold	_____

4.04 Breeding Stock

	\$246,000	value of breeding stock	_____
x	4.0	% investment rate	_____
÷	<u>13,804</u>	<u>pigs marketed</u>	_____
=	\$0.71	/pig sold	_____

C. Labour

	135.0	hours/week	_____
x	52	weeks/year	_____
x	\$14.00	/hour	_____
÷	600	sows	_____
÷	<u>23.01</u>	<u>pigs/sow</u>	_____
=	\$7.12	/pig sold	_____

Summary of Purchased Feeds Used

Number of Sows	600			
Total Pigs Fed	14,086			
	Total	Total	Total	Total
	per Year	per Month	per Pig	per Pig
	(tonnes)	(tonnes)	(kgs)	(lbs)
Dry Sow	438.84	36.57	31.15	68.68
Lactating Sow	169.20	14.10	12.01	26.48
Boar	27.38	2.28	1.94	4.28
Creep	14.09	1.17	1.00	2.20
Total	649.50	54.13	46.11	101.65

Summary of Home Feed Ingredients Used

	Total	Total	Total	Total
	per Year	per Month	per Pig	per Pig
	(tonnes)	(tonnes)	(kgs)	(lbs)
Wheat	0.00	0.00	0.00	0.00
Barley	0.00	0.00	0.00	0.00
Corn	0.00	0.00	0.00	0.00
Soybean Meal	0.00	0.00	0.00	0.00
Canola Meal	0.00	0.00	0.00	0.00
Peas	0.00	0.00	0.00	0.00
Creep Premix	0.00	0.00	0.00	0.00
Sow Micro Premix	0.00	0.00	0.00	0.00
Grower Micro Premix	0.00	0.00	0.00	0.00
Canola Oil	0.00	0.00	0.00	0.00
Whey Powder	0.00	0.00	0.00	0.00
Herring Meal	0.00	0.00	0.00	0.00
Plasma	0.00	0.00	0.00	0.00
Limestone	0.00	0.00	0.00	0.00
Dical (16% Ca-21% I	0.00	0.00	0.00	0.00
Salt - 96%	0.00	0.00	0.00	0.00
Phytase	0.00	0.00	0.00	0.00
L-Lysine HCL	0.00	0.00	0.00	0.00
L-Threonine	0.00	0.00	0.00	0.00
DL-Methionine	0.00	0.00	0.00	0.00
Oats - Steam rolled	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00
Total	649.50	54.13	46.11	101.65

For further information contact your local MAFRI office.

Prepared by:
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Policy Analyst

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Return On Assets (ROA)

Assumptions

Total Assets	\$1,458,328
Total Hogs Sold	13,804
Days to Market	20
Market Weight	5 kg/hog (live)
Market Price	\$34.00 /hog

Return On Assets Calculation	<u>\$/Hog Sold</u>	<u>% of Total</u>
Total Revenue	\$34.00	
Less Expenses		
Feed Costs	\$11.86	30.4%
Other Operating Costs	\$12.78	32.8%
Interest on Operating Costs	<u>\$0.31</u>	<u>0.8%</u>
Total Operating Costs	\$24.96	64.0%
Depreciation	\$4.57	11.7%
Interest on Investment	\$2.36	6.1%
Labour (Family & Hired)	<u>\$7.12</u>	<u>18.3%</u>
Total Expenses (Cost Of Production)	\$39.01	100.0%
Net Income	\$5.01	
Return on Assets (ROA)		-2.2%

Return On Assets (ROA) =	$\frac{\text{Net Income} + \text{Operating Interest} + \text{Investment Interest} - \text{Value of Unpaid}}{\text{Total Assets}}$
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Total Assets = Total Assets includes the buildings, equipment, land, manure storage and breeding stock valued at replacement cost.