

Guidelines For Estimating
Swine Hoop Shelter Finishing Costs
Based on marketing 11,527 pigs sold from 18 shelters

Date: March, 2006

This publication is intended to provide a format and a set of guidelines for determining the costs of production of a hoop shelter housing system for a finishing (23-113 kg) enterprise. The assumptions on which the costs are based are outlined in the supporting pages. Productivity and performance assumptions are based on information collected by department specialists, feed companies and other organizations. Adjustments will be necessary where individual productivity and performance levels differ from those listed.

A hoop shelter is a Quonset-shaped building with sidewalls made from wood planks and posts. Steel arches are fastened to the posts to form a hooped roof, which is covered by a UV resistant tarp (See Figure 1, Page 16). Most hoop structures have a deep-bedded earthen floor except for a concrete pad section containing the feed bin and waterer (See Figure 2, Page 16). These naturally ventilated structures are often sited in an east-west orientation in Manitoba to take advantage of our prevailing wind conditions.

Hoop shelters have been used for several years in Manitoba and have potential benefits for pigs and producers including: 1) they are low capital (fixed) cost facilities; 2) they are flexible, practical and can be used or adapted for other purposes; 3) hoop shelters provide an environment for pigs with bedding (usually straw) and allow for group interactions among pigs, and; 4) hoop shelters provide a working environment with lower levels of manure gases and a solid (straw based) manure handling system.

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.

Swine Hoop Shelter Finishing Cost of Production

The following 23-113 kg hoop budget is based on the assumption that **all feed rations are home mixed**. The budget also includes a land investment cost based on the assumption that 160 acres would be required for this size operation, with 140 acres rented out at \$25 per acre.

The budget includes an assumption that 1.5% of the market pigs are sold as lightweight pigs. It is assumed that when the lightweight pigs are sold, they will have a salvage value. Therefore, total marketing's are reduced by 1% to compensate for the lightweight pigs.

The budget also includes an assumption that this particular hoop shelter operation is "all-in, all-out" by shelter. Each shelter is designed to house 250 growing/finishing pigs. The budget includes an assumption that five hundred (500) pigs will be delivered on site every two weeks. This will provide enough 23-kg pigs to fill two shelters at a time. Marketing of pigs will also be completed on a two to three week schedule. Once the market pigs are all removed from a shelter, the manure pack is cleaned out and the shelter is re-strawed with 12 to 15 large (700 kg) round or square bales. A producer can expect to finish three batches (cycles) of pigs per year per hoop shelter.

The suggested space allocation for finishing pigs in a hoop shelter is 1.1 square metres (12 square feet) per pig.

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 the feed intakes of their animals. Pigs will consume approximately 10% more feed in a hoop shelter than in a confinement system during the winter (1 batch), whereas feed intakes will be approximately the same as in a confinement system for the remainder of the year (2 batches). Please consult with a nutritionist for diet information 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 hoop shelter 23-113 kg finishing 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.

Swine Hoop Shelter Finishing Costs Summary

March, 2006

	<u>\$/Pig Sold</u>	<u>Total Cost</u>	<u>Your Cost</u>
A. Operating Costs			
1. Feed Costs:			
1.01 Starter	\$13.16	\$151,703	_____
1.02 Grower	\$16.23	\$187,021	_____
1.03 Finisher	<u>\$18.45</u>	<u>\$212,674</u>	_____
Total Feed Cost	\$47.84	\$551,398	_____
2. Other Operating Costs:			
2.01 Weanling Cost	\$50.98	\$587,625	_____
2.02 Straw	\$2.48	\$28,543	_____
2.03 Veterinary Medicine & Supplies	\$1.65	\$19,000	_____
2.04 Maintenance & Repairs	\$0.52	\$6,049	_____
2.05 Hydro & Propane	\$0.09	\$1,000	_____
2.06 Insurance	\$0.90	\$10,389	_____
2.07 Manure Costs	\$2.86	\$33,000	_____
2.08 Office Supplies	\$0.10	\$1,185	_____
2.09 Marketing & Transport	\$8.37	\$96,477	_____
2.10 Property Tax	<u>\$0.09</u>	<u>\$1,000</u>	_____
Subtotal Operating Costs	\$115.88	\$1,335,666	_____
2.11 Interest on Operating Costs	<u>\$1.67</u>	<u>\$19,286</u>	_____
Total Operating Costs	\$117.55	\$1,354,952	_____
B. Fixed Costs			
3. Depreciation:			
3.01 Buildings & Manure Storage	\$2.91	\$33,487	_____
3.02 Equipment	<u>\$1.66</u>	<u>\$19,157</u>	_____
Total Depreciation Cost	\$4.57	\$52,644	_____
4. Investment:			
4.01 Land	\$0.14	\$1,600	_____
4.02 Buildings & Manure Storage	\$0.58	\$6,697	_____
4.03 Equipment	\$0.41	\$4,730	_____
Total Investment Cost	\$1.13	\$11,427	_____
Total Fixed Costs	\$5.70	\$64,071	_____
C. Labour			
Wages, benefits and hired manager	\$4.17	\$48,048	_____
Total Cost of Production	\$127.42	\$1,467,071	_____
Break-Even Price (carcass) ¹	<u>\$/100 kg</u>	<u>\$/cwt</u>	
Operating Cost	\$119.41	\$54.16	_____
Operating & Labour Cost	\$123.64	\$56.08	_____
Operating, Labour & Fixed Cost	\$129.43	\$58.71	_____

¹ Break-even Price = Cost per Hog Sold ÷ (Slaughter Weight (-shrink) x Dressing Percentage x Index)

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Swine Hoop Shelter Finishing Production Cost Assumptions

1. This input table outlines the cost of production for a finishing enterprise.
2. Buildings and equipment are valued at new cost.
3. Purchased feed is used.
4. Manure haulage is contracted out.
5. Livestock values are based on a market price for pork of:

\$127.00	/100 kg	110	Market Index
or: \$0.5761	/lb	80	% Dress
Premium/head		\$2.00	

Indicators of Productivity

	<u>Starter</u>	<u>Grower</u>	<u>Finish</u>	<u>Total</u>
Number of Pigs Purchased Annually	12000	11880	11761	12000
Average Beginning Weight (kg)	23	50	80	23
Average Ending Weight (kg)	50	80	113	113
Percent Mortality	1.0	1.0	1.0	3.0
Days on Feed	36	30	45	111
Feed Conversion Ratio	2.60	3.20	3.60	3.17
Number of Pigs (Ending)	11880	11761	11643	11643
Weight Gain/Pig (kg)	27.0	30.0	33.0	90.0
Feed Disappearance/Pig (kg)	70.2	96.0	118.8	285.0
Average Daily Gain (kg)	0.750	1.000	0.733	0.811
Average Number Pigs in Shelters	3991	3951	3911	3951

Productivity Profile

	<u>Total</u>	
Pigs Purchased	12,000	
Pigs Died	360	3.0 % mortality
Pigs available for marketing	11,643	
Less Light Weight Pig Adjustment	116	1.00 %
Pigs Sold at full market value	11,527	
Washing and restocking days	11	
Total Days to Market	122	
Turnover (365 / days to market)	2.99	
Pigs per shelter	250	
Shelters required (1 extra for overflows)	18	

Feed Requirements and Costs

	FCR *	kg/pig	Ration Cost	
			Purchased	Home-Mixed
Starter Ration	2.60	70.2	\$0.00	\$180.08 /tonne
Grower Ration	3.20	96.0	\$0.00	\$162.34 /tonne
Finisher Ration	3.60	118.8	\$0.00	\$149.18 /tonne

* FCR = Feed Conversion Ratio (Feed:Gain)

Labour

Total Hours per year **66.0** hours/week 3,432 hours/year
 Wage (includes hired manager) **\$14.00** /hour

Capital Investment¹

Based on 4,250 Pig Places

			<u>Total</u>	<u>/Pig Place</u>	<u>Your Cost</u>
Buildings					
Shelters	18 @	\$17,576	\$316,368	\$74.44	_____
Office & Loading	200 ft.²	\$27.50	\$5,500	\$1.29	_____
Standby Generator			\$3,000	\$0.71	_____
Feed Mill (building only)			\$10,000	\$2.35	_____
Total Building Cost			\$334,868	\$78.79	_____
Equipment					
Skid Steer loader			\$20,000	\$4.71	_____
Tractor			\$50,000	\$11.76	_____
Snow Blower			\$3,000	\$0.71	_____
Auto sorter (4 @ \$8,000)			\$32,000	\$7.53	_____
Storage Bins			\$30,000	\$7.06	_____
Feed Mill (equipment only)			\$80,000	\$18.82	_____
Total Equipment Cost			\$215,000	\$50.59	_____
Total Buildings and Equipment Cost			\$549,868	\$129.38	_____
Land Value					
Land Investment	20 acres @	\$500	\$10,000	\$2.35	_____
Rental Income					_____
Other Costs					
Site preparation (includes manure storage)			\$30,000	\$7.06	_____
Manure Storage			\$0	\$0.00	_____
Total Other Costs			\$30,000	\$7.06	_____
Total Capital Investment			\$589,868	\$138.79	_____

Feed Ingredient Costs

	<u>Price/tonne</u>	<u>Your Cost</u>
Wheat	\$135	
Barley	\$120	
Corn	\$170	
Soybean Meal - 47 %	\$290	
Canola Meal - 34 %	\$165	
Peas	\$130	
Creep Premix	\$850	
Sow Mico 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

	Starter Ration (kg)	Grower Ration (kg)	Finisher Ration (kg)
Wheat	532.56	372.39	220.04
Barley	183.30	268.60	408.35
Corn	0.00	0.00	0.00
Soybean Meal - 47 %	158.80	45.37	0.00
Canola Meal - 34 %	0.00	84.39	79.40
Peas	100.00	204.07	272.13
Creep Premix	0.00	0.00	0.00
Sow Mico Premix	0.00	0.00	0.00
Grower Micro Premix	3.00	3.00	3.00
Canola Oil	0.00	0.00	0.00
Whey Powder	0.00	0.00	0.00
Herring Meal	0.00	0.00	0.00
Plasma	0.00	0.00	0.00
Limestone	12.21	11.71	10.38
Dical (16% Ca-21% P)	4.85	5.38	2.84
Salt - 96%	3.50	3.50	3.50
Phytase	0.20	0.20	0.20
L-Lysine HCL	1.36	1.36	0.00
L-Threonine	0.09	0.00	0.02
DL-Methionine	0.13	0.03	0.14
Oats Steam Rolled	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	1,000.00	1,000.00	1,000.00

Feed Requirement and Cost Summary

	Amount (kg)	Ingredient Price (\$ /tonne)	Ration Cost (\$ /tonne)	Your Cost
Starter				
Wheat	532.56	\$135.00	\$71.90	
Barley	183.30	\$120.00	\$22.00	
Soybean Meal - 47 %	158.80	\$290.00	\$46.05	
Peas	100.00	\$130.00	\$13.00	
Grower Micro Premix	3.00	\$2,500.00	\$7.50	
Limestone	12.21	\$80.00	\$0.98	
Dical (16% Ca-21% P)	4.85	\$455.00	\$2.21	
Salt - 96%	3.50	\$125.00	\$0.44	
Phytase	0.20	\$11,000.00	\$2.20	
L-Lysine HCL	1.36	\$2,500.00	\$3.40	
L-Threonine	0.09	\$4,800.00	\$0.43	
DL-Methionine	<u>0.13</u>	\$4,500.00	<u>\$0.59</u>	
Total Starter	1,000.00 kg		\$170.70	
Adjusted For Weight Loss		1.25 %	\$172.83	
Plus Processing Cost		\$3.25	<u>\$176.08</u>	
Plus Labour Cost		\$4.00	\$180.08	
Grower				
Wheat	372.39	\$135.00	\$50.27	
Barley	268.60	\$120.00	\$32.23	
Canola Meal - 34 %	84.39	\$165.00	\$13.92	
Soybean Meal - 47 %	45.37	\$290.00	\$13.16	
Peas	204.07	\$130.00	\$26.53	
Grower Micro Premix	3.00	\$2,500.00	\$7.50	
Limestone	11.71	\$80.00	\$0.94	
Dical (16% Ca-21% P)	5.38	\$455.00	\$2.45	
Salt - 96%	3.50	\$125.00	\$0.44	
Phytase	0.20	\$11,000.00	\$2.20	
L-Lysine HCL	1.36	\$2,500.00	\$3.40	
DL-Methionine	<u>0.03</u>	\$4,500.00	<u>\$0.14</u>	
Total Grower	1,000.00 kg		\$153.18	
Adjusted For Weight Loss		1.25 %	\$155.09	
Plus Processing Cost		\$3.25	<u>\$158.34</u>	
Plus Labour Cost		\$4.00	\$162.34	

Finisher

Wheat	220.04	\$135.00	\$29.71	
Barley	408.35	\$120.00	\$49.00	
Canola Meal - 34 %	79.40	\$165.00	\$13.10	
Soybean Meal - 47 %	0.00	\$290.00	\$0.00	
Peas	272.13	\$130.00	\$35.38	
Grower Micro Premix	3.00	\$2,500.00	\$7.50	
Limestone	10.38	\$80.00	\$0.83	
Dical (16% Ca-21% P)	2.84	\$455.00	\$1.29	
Salt - 96%	3.50	\$125.00	\$0.44	
Phytase	0.20	\$11,000.00	\$2.20	
L-Threonine	0.02	\$4,800.00	\$0.10	
DL-Methionine	<u>0.14</u>	\$4,500.00	<u>\$0.63</u>	
Total Finish	1,000.00 kg		\$140.18	
Adjusted For Weight Loss		1.25 %	\$141.93	
Plus Processing Cost		\$3.25	<u>\$145.18</u>	
Plus Labour Cost		\$4.00	\$149.18	

Swine Hoop Structure Finishing Production Cost Worksheet

A. Operating Costs

Your Cost

1. Feed Requirements and Costs

1.01 Starter

	27.0	weight gain/pig	
x	2.6	feed conversion ratio	
=	70.2	kg ration/pig	
x	\$180.08	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	<u>11,527</u>	<u>pigs sold</u>	
=	\$13.16	/pig sold	

1.02 Grower

	30.0	weight gain/pig	
x	3.2	feed conversion ratio	
=	96.0	kg ration/pig	
x	\$162.34	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	<u>11,527</u>	<u>pigs sold</u>	
=	\$16.23	/pig sold	

1.03 Finisher

	33.0	weight gain/pig	
x	3.6	feed conversion ratio	
=	118.8	kg ration/pig	
x	\$149.18	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	<u>11,527</u>	<u>pigs sold</u>	
=	\$18.45	/pig sold	

2. Other Operating Costs

2.01 Weanling Cost

	\$57.61	market price	
÷	100	lbs/cwt	
x	1.7	formula factor	
x	50	lbs	
x	12,000	weanlings purchased	
÷	<u>11,527</u>	<u>pigs sold</u>	
=	\$50.98	/pig sold	

2.02 Straw

	12,000	number of pigs	_____
x	111	days on feed	_____
x	1.0	kg straw/pig/day	_____
x	\$15.00	per bale	_____
÷	700	kg/bale	_____
±	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$2.48	/pig sold	_____

2.03 Veterinary Cost

	\$1,000	professional services	_____
+	\$18,000	medication	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$1.65	/pig sold	_____

2.04 Maintenance & Repairs

	1.10	% of total capital investment	_____
x	\$549,868	total buildings and equipment cost	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.52	/pig sold	_____

2.05 Utilities

	\$1,000	hydro	_____
+	\$0	propane	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.09	/pig sold	_____

2.06 Insurance

	\$549,868	buildings & equipment	_____
x	\$0.78	/\$100	_____
÷	100	/\$100 capital	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.37	/pig sold	_____

	3,951	average # pigs in shelters	_____
x	\$140.00	average value	_____
x	\$0.88	/\$100	_____
÷	100	/\$100 capital	_____
±	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.42	/pig sold	_____

	\$40.00	insured value	_____
x	3,951	average number in barn	_____
x	\$0.78	rate /\$100	_____
±	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.11	/pig sold	_____

=	\$0.90	/pig sold	_____
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2.07 Manure Costs

	\$33,000	annual cost	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$2.86	/pig sold	_____

2.08 Office Supplies

	\$0.30	/pig place	_____
x	3,951	pig places	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.10	/pig sold	_____

2.09 Marketing & Transportation

	\$3.50	trucking-in	_____
+	\$3.70	trucking-out	_____
+	\$0.80	council levy	_____
+	\$0.12	grading charge	_____
+	\$0.25	insurance	_____
+	<u>\$0.00</u>	<u>Special fee</u>	_____
=	\$8.37	/pig sold	_____

2.10 Property Taxes

	\$1,000	taxes	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.09	/pig sold	_____

2.11 Interest on Operating Cost

	\$50.98	weaner cost	_____
x	122	total days to market	_____
x	6.0	% operating rate	_____
÷	<u>365</u>	<u>days/year</u>	_____
=	\$1.02	/pig sold	_____
	\$115.88	subtotal operating cost	_____
-	\$50.98	weaner cost	_____
÷	2	average	_____
x	122	total days to market	_____
÷	365	days/year	_____
x	<u>6.00</u>	<u>% operating rate</u>	_____
=	\$0.65	/pig sold	_____
=	\$1.67	/pig sold	_____

B. Fixed Costs

3. Depreciation

$$\frac{\text{Original cost - Salvage Value}}{\text{Useful Life}}$$

3.01 Buildings

	\$334,868	total cost	_____
-	\$0	salvage value	_____
÷	10	years useful life	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$2.91	/pig sold	_____

3.02 Equipment

	\$215,000.00	total equipment cost	_____
-	\$21,500.00	salvage value	_____
÷	10	years useful life	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$1.66	/pig sold	_____

4. Investment Cost

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

4.01 Land

	\$10,000	land investment	_____
+	\$30,000	site preparation	_____
x	4.0	% investment rate	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.14	/pig sold	_____

4.02 Buildings

	\$334,868	total cost	_____
+	\$0	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.58	/pig sold	_____

4.03 Equipment

	\$215,000	total equipment cost	_____
+	\$21,500	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$0.41	/pig sold	

C. Labour Cost

	3432	total hours/year	_____
x	\$14.00	/hour	_____
÷	<u>11,527</u>	<u>pigs sold</u>	_____
=	\$4.17	/pig sold	_____

Summary of Purchased Feeds Used
11,643 Pigs available for marketing (includes lightweights)

	Total per Pig Mkt (kgs)	Total per Year (tonnes)	Total per Month (tonnes)	Total per Pig Mkt (lbs)
Starter	0.00	0.00	0.00	0.00
Grower	0.00	0.00	0.00	0.00
Finisher	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	0.00	0.00	0.00	0.00

Summary of Home Mixed Feed Ingredients Used

	Total per Pig (kgs)	Total per Year (tonnes)	Total per Month (tonnes)	Total per Pig (lbs)
Wheat	99.28	1,155.87	96.32	218.86
Barley	87.17	1,014.86	84.57	192.16
Corn	0.00	0.00	0.00	0.00
Soybean Meal - 47 %	15.50	180.50	15.04	34.18
Canola Meal - 34 %	17.53	204.15	17.01	38.66
Peas	58.94	686.24	57.19	129.94
Creep Premix	0.00	0.00	0.00	0.00
Sow Mico Premix	0.00	0.00	0.00	0.00
Grower Micro Premix	0.86	9.95	0.83	1.88
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	3.21	37.43	3.12	7.09
Dical (16% Ca-21% P)	1.19	13.91	1.16	2.63
Salt - 96%	1.00	11.61	0.97	2.20
Phytase	0.06	0.66	0.06	0.13
L-Lysine HCL	0.23	2.63	0.22	0.50
L-Threonine	0.01	0.10	0.01	0.02
DL-Methionine	0.03	0.33	0.03	0.06
Oats Steam Rolled	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	285.00	3,318.26	276.52	628.31
Total	285.00	3,318.26	276.52	628.31

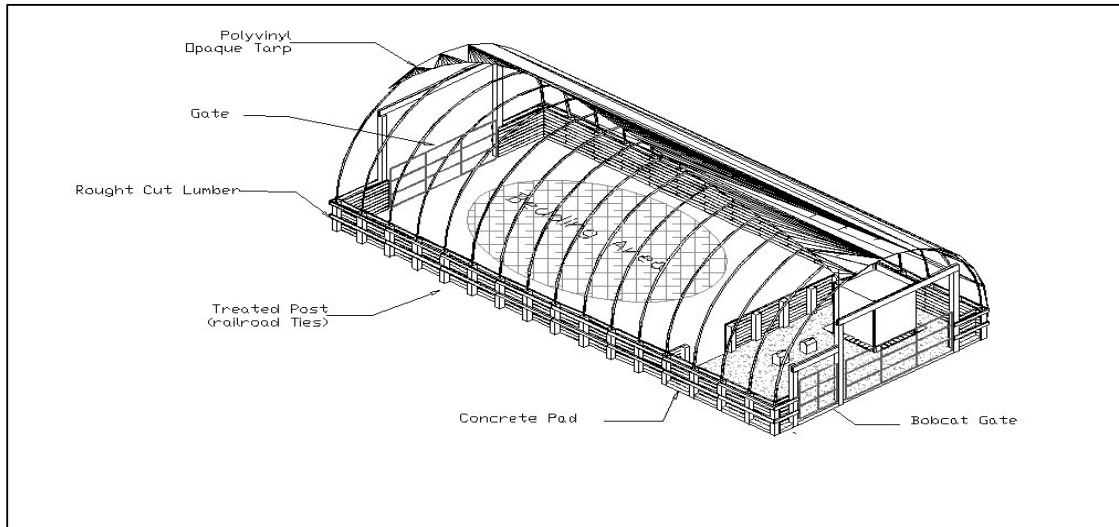
For further information contact your local MAFRI office.

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Figure 1 Common components of hoop structures



Estimated shelter costs for a 30 'x 102' structure

Tarp & hoops	\$6,890
End doors	\$648
4 Corner Panels	\$435
Feeder 6 x 6 x 6	\$1,768
Waterer (4-Hole)	\$980
Heater Cables	\$55
Concrete	\$1,500
Railroad Ties	\$800
Planking	\$1,000
<u>Labour</u>	<u>\$3,500</u>
Total	\$17,576

Figure 2 Common layout of a grow finish structure



Return On Assets (ROA)

Assumptions

Total Assets	\$589,868	\$56.83
Total Pigs Sold	11,527	
Days to Market	122	
Market Weight (shrunk)	111.9 kg/hog (live)	
Dressing %	80 %	
Carcass Weight	89.5 kg/hog carcass	
Market Index	110	
Market Price	\$127.00 /100 kg carcass	

Return On Assets Calculation

	<u>\$/Pig Sold</u>	<u>% of Total</u>
Total Revenue	\$125.03	
Premium	<u>\$2.00</u>	
Total	\$127.03	
Less Expenses		
Feed Costs	\$47.84	37.5
Feeder Cost	\$50.98	
Other Operating Costs	\$17.06	13.4
Interest on Operating Costs	<u>\$1.67</u>	<u>1.3</u>
Total Operating Costs	\$117.55	92.3
Depreciation	\$4.57	3.6
Interest on Investment	\$1.13	0.9
Labour (Family & Hired)	<u>\$4.17</u>	<u>3.3</u>
Total Expenses (Cost Of Production)	\$127.42	100.0
Net Income	(\$0.39)	

Return On Assets (ROA)

4.7%

Equation

$$\frac{\text{Net Income} + \text{Operating Interest} + \text{Investment Interest} - \text{Value of Unpaid Family and Operator Labour}}{\text{Total Assets}}$$

Total Assets

Definition: Total Assets includes the buildings, equipment, land, manure storage.

