Ontario Sheep

Economic Workbook

Accelerated Lambing Flock

We would like to thank and acknowledge the
Saskatchewan Ministry of Agriculture
and the Saskatchewan Sheep Development Board.
Their 2001 publication,
“Financial and Production Targets for Sheep Producers"
provided the basis for the template used in this workbook.

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Introduction

There is much speculation as to why the Ontario sheep industry is not seeing expansion at this time when market prices are very strong and demand for lamb is not being met with domestic production. Improvements in production efficiency and financial efficiency are goals most producers aspire to. Progress can be made by first evaluating your current status, and identifying those areas where improvements can be made.

This workbook outlines production and financial data for an accelerated lambing flock and the calculations needed to measure financial progress. Producers can use the formulas provided to review their own flock's financial situation.

The production costs included in the budget outlined in this workbook are estimates based on group averages of producers participating in the OSMA Financial Benchmarking Project, as well as a number of assumptions clearly outlined in the following pages. These assumptions are made based on management practices and facilities commonly recommended for use in this size of accelerated lambing operation. Good management is assumed with respect to feeding and flock health practices and programs. Adjustments in cost figures will be necessary where individual flock productivity and performance levels differ from those listed.

Acknowledgement to the Saskatchewan Ministry of Agriculture and the Saskatchewan Sheep Development Board is hereby given. Their 2001 publication *"Financial and Production Targets for Sheep Producers"* provided the basis for the template used in this workbook.

Assumptions:

1. This sheep enterprise budget is based on a "stand-alone" operation rather than a sub-enterprise of a larger farming business.
2. Breed selection is assumed to focus on prolificacy and out-of-season breeding ability, similar to Rideau, Dorset-Romanov, Dorset-Finn.
3. Ewe flock is accelerated on a three lambings in two-year program[1].
4. Ewe replacement rate is 18% to cover 15% cull and 3% ewe death loss.
5. Flock must generate enough income to at least cover annual salary of one person[2].
6. Flock size is maintained at 400[3].
7. Ewes are raised in confinement except when dry[4]. Ewes are grazed from weaning until six weeks pre-lambing.
8. Five percent (5%) of lambs are artificially reared.
9. Lambs are not grazed, but go directly to feeder barn after weaning.
10. Lambs are marketed at 105 pounds.

Methodology:

1. All feeds are valued using OMAFRA 2009 transfer values, or September/October current price.

2. Feed amounts are calculated based on typical feed requirements of 70 kg ewe maintained in good body condition.

3. Pasture – owned pasture is charged to the sheep at 30% of standing hay value.

4. Farm assets are valued as follows:

    a. Mature sheep – 2010 price for commercial, open ewes.

    b. Lambs valued at five-year average market price of 95 to 109 pound lambs.

    c. Buildings – size calculated based on Sheep Recommended Code of Practise standards for late pregnant & lactating ewes; drive through centre feed alley; cold housing with 25 percent insulated for lambing; includes lamb feeding barn – self feeding hoppers; industry average construction price and depreciated over 20 years;

    d. Machinery and equipment – for equipment used only for the sheep enterprise. Charges include annual depreciation, interest on investment and repairs.

    e. Interest charged on investment. Interest on the average investment in sheep, buildings, and sheep equipment is assessed at 2.1 percent (current five-year GIC interest rate).

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[1] Conception rates and prolificacy vary based on month breeding occurs (see Flock Profile table).
[2] Annual salary ($36,000) is calculated at 40 hours per week for 50 weeks at $18 per hour.
[3] OSMA Benchmark study restricted participation to those flocks with more than 300 ewes
[4] Barn space allocation is calculated using: 15 ft^2 per late pregnant ewe; 25 ft^2 per lactating ewe; and 8 ft^2 per weaned lamb – barn space to accommodate 2/3 ewe flock and the 2/3 lamb crop at any one time.

f. General – insurance premiums for fire, wind and liability; hydro; phone; building and fence repairs; and taxes apportioned to the sheep enterprise taken from 2009 OFMAP summary generated for OSMA Benchmark Study.

Accelerated Flock Profile

	Total	Your Farm
Number of Mature Ewes	320	
Number of Replacement Ewe Lambs	80	
Number of Rams	10	
Mating seasons	April 1 -30	
	August 1 -30	
	December 1 - 30	
Conception Rate – Mature Ewes[5]		
April (September lambing)	60%	
August (January lambing)	85%	
December (May lambing)	95 %	
Conception Rate – Ewe Lambs[6]		
December (May lambing)	85 %	
Prolificacy – Mature Ewes[7]		
September lambing	185%	
January and May lambing	220%	
Prolificacy – Ewe Lambs		
December	170%	
Ewe Mortality Rate	3%	
Ewe Cull Rate	15%	
Ram Cull Rate	20%	
Ram Mortality Rate	10%	
Lamb Mortality pre-weaning	12%	
Lamb mortality post-weaning	2%	
Lambs Marketed per year[8]	692	
Average Market Lamb Shipping Weight (pounds)	105 lbs	
Livestock Guardian Dogs (1 per 130 ewes)	3	
LGD Mortality Rate	12.5%	

[5] Conception rates used here are typical of those currently being achieved in accelerated lambing flocks

[6] Ewe lambs are retained from January and May lambing groups only. All ewe lambs exposed for first breeding in December and lamb in May. So, January born ewe lambs first lamb at 16 months of age, while May born ewe lambs first lamb at 12 months of age. January born ewe lambs enter the accelerated flock in August, while May born ewe lambs do not enter the accelerated flock until the December breeding to ensure mature ewe body weight and reproduction are not compromised.

[7] Production figures (prolificacy, mortality) derived from Sheep Flock Improvement Program (SFIP) 2009 annual report.

[8] Table 1 in Appendix provides detailed calculations.

Capital Investments	Total	Your Farm
Buildings		
Lambing and Lactation Barn[9]	$186,200	
Lamb Feeding Barn	$33,120	
Hay Storage[10]	$25,000	
Grain Storage	$7,850	
Handling Facility	$2,874	
Machinery and Equipment		
Tractor & Loader	$25,000	
Truck	$20,000	
Miscellaneous (wagon, tools)	$5,000	
Barn equipment[11]	$11,000	
Land/Pasture		
366 acres @ $1,490/acre[11]		
Fence 8,745 ft @ $2.65 /ft[12]	$23,175	
Water delivery system ($2,640 ft)	$1,350	
Breeding Flock		
Ewes	$98,200	
Rams	$6,000	
Livestock Guardian Dogs	$3,000	

Prices used in Workbook	Total	Your Farm
Market Price (dollars per pound)		
95 to 109 lb lambs – 5 yr avg. price ($ /lb)	$1.52	
2009 average price ($ /lb)	$1.61	
Cull ewes – 5 year average price ($ /lb)	$0.716	
2009 average price ($ /lb)	$0.715	
Wool ($ /lb)	$0.30	
Feed Prices ($/tonne unless noted)		
1st cut mixed hay[13]	$75.00	
2nd cut alfalfa hay[13]	$110.00	
Straw[13]	$55.00	
Corn (grown or purchased off field)[13]	$165.00	
Soybean meal 48%[14]	$430.00	
Sheep Supplement 34%[14,15]	$520.00	
Lamb Creep Feed 16%[14,15]	$300.00	
Lamb Milk Replacer (25 kgs)[14]	$69.00	
14:10 Mineral (25 kgs) [14]	$30.00	
Cobalt iodized Salt (25 kgs)[14]	$9.00	

[9] Only late pregnant and nursing ewes housed. Accommodate 2/3 flock at one time. Conventional construction.
[10] Assumed hay is stored inside.
[11] Source: 2009 OFMAP Sheep Summary.
[12] Souce: OMAFRA factsheet 08-035 Farm Fencing Systems
[13] Source: 2009 OMAFRA Feed Inventory and Transfer Values document.
[14] Typical feed mill prices during September - October, 2010.
[15] Includes coccidiostat.

Capital Investment

Buildings:		**Your Farm**
Lambing Barn (48' x 205') @ $17.5 /ft^2	$162,925	
Lamb Feeder Barn (40' x 105') @ $8 /ft^2	$33,120	
Hay Storage (50' x 100') @ $5 .ft^2	$25,000	
Grain Storage (6 bins)	$7,850	
Handling Facilities (portable chute and scales)	$2,875	
Total Building Cost	**$255,055**	

Machinery and Equipment:		**Your Farm**
Tractor and Loader (enterprise share)	$25,000	
Truck (enterprise share)	$20,000	
Miscellaneous Equipment: Wagon, Misc. Tools	$ 5,000	
Barn Equipment	$11,000	
Total Machinery Investment	**$61,000**	

Land/Pasture:		**Your Farm**
366 acres @ $1,490/ac.	$545,481	
Fence (105 acres) 8,745 ft @ $2.65 /ft	$23,175	
Water delivery system 2,640 ft	$1,348	
Total land/pasture investment	**$579,004**	

Breeding Flock:		**Your Farm**
Value Ewes$^+$ (328 x $250)	$82,000	
Value Ewe lambs (72 x $225)	$16,200	
Value Rams^{++} (10 x $600)	$6,000	
Total Breeding Flock Investment	**$104,200**	

$^+$ Value of breeding ewes can vary from $100/hd to over $300/hd depending on breed and quality.

$^{++}$Value of breeding rams can vary from $200/hd to over $1000/hd depending on breed and quality.

Livestock Guardian Dogs:		**Your Farm**
Value Dogs (3 x $1000)	**$3,000**	
Total Capital Investment	**$969,973**	**Your Farm**

Income

			Your Farm
1. Wool			
	400	number of ewes	x
+	10	number of rams	+
	410	**total breeding animals (j1)**	**=**
	$ 3.50	shearing cost/head	
	$0.25	packing cost/head	+
+	$0.15	bag cost/head	+
	$3.90	**total shearing cost/head (j2)**	**=**
	$ 0.30	value of wool/lb.	
x	6.5 lb.	wool/animal	x
	$ 1.95	**value of wool/head (j3)**	**=**
	($1.95)	net wool value/head (j3 - j2)	
x	410	total breeding animals (j1)	x
=	**($799.50)**	**Total wool sales/year (k1)**	**=**
2. Market Lamb Sales			
	692	slaughter lambs marketed[16]	
x	105 lb.	average weight	x
x	$1.52 /lb.	sale price	x
=	**$ 110,433**	**lambs sales/year (k2)**	**=**
3. Cull Ewe Sales			
	60	cull ewes	
x	150 lb.	average weight	x
x	$ 0.716 /lb.	sale price	x
=	**$6,444**	**cull ewe sales/year (k3)**	**=**
4. Cull Ram Sales			
	2	cull rams	
x	250 lb.	average weight	x
x	$0.716 /lb.	sale price	x
=	**$358**	**cull ram sales/year (k4)**	**=**
5. Breeding Stock Sales			
		# breeding lambs sold	
x		$ per head	x
=	**$xx**	**breeding stock sales/year (k5)**	**=**
Total sheep sales $ 116,435 /year (k1+k2+k3+k4+k5)			**=**

[16] See Table 1 in appendix for calculation

Livestock Purchased

Ram Replacement Cost		**Your Farm**
10 rams		
X	mortality and cull rate (30%)	x
=	3 rams replaced/year	=
@	$600 replacement ram value	@
X	3 rams replaced/year	x
=	**$ 1,800 annual ram replacement cost**	**=**

Ewe Replacement Cost		
400 ewes		
X	mortality and cull rate (18%)	x
=	72 ewes replaced/year	=
@	$225 replacement ewe value	@
X	72 ewes replaced/year	x
=	**$ 16,200 annual ewe replacement cost**	**=**

Operating (Variable) Costs

1.1 Ewe Feed Cost

- **Pre-lambing Ration**[17]

Grain		**Your Farm**
45 days/cycle		x
X	1.5 cycles per year	x
x	0.7 lb. corn/ewe/day	x
x	$165/tonne[18] corn	x
	$2.83 /ewe/year (a1)	=

Forage		**Your Farm**
45 days/cycle		x
X	1.5 cycles per year	
x	4.25 lb. 1st cut hay/ewe/day	x
x	$ 75 /tonne 1st cut hay	x
	$7.81 /ewe/year (a2)	**=**

- **Lambing/Lactation Ration**[19]

Grain		**Your Farm**
75 days/cycle		x
X	1.5 cycles per year	x
x	2.3 lb. corn/ewe/day	x
x	$165/tonne corn	x
	$15.50 /ewe/year (a3)	**=**

[17] Pre-lambing ration is fed for 45 days per cycle, with 1.5 cycles per year.
[18] To convert $/tonne to $/lb divide $/Tonne by 2,204.
[19] Lambing/lactation ration is fed for 75 days per cycle, with 1.5 cycles per year.

Forage		**Your Farm**
75 days/cycle		x
X	1.5 cycles per year	x
X	4.7 lb. 2nd cut legume hay/ewe/day	x
X	$ 110/tonne[15] 2nd cut hay	x
	$21.11 /ewe/year (a5)	**=**

- **Flushing, Breeding and Early Pregnancy Ration[20]**

Grain[21]		**Your Farm**
45 days/cycle		x
x	1.5 cycles per year	x
x	0.5 lb. corn/ewe/day	x
x	$165/tonne corn	x
	$ 2.53/ewe/year (a6)	**=**

Pasture[22]		**Your Farm**
107 days/cycle		x
x	1.5 cycles per year	x
x	pasture (equivalent to 4 lb. hay/ewe/day)	x
x	0.320	x
x	$ 75 /tonne 1st cut hay	x
	$7.86 /ewe/year (a7)	**=**

- **Weaning Ration**

Forage		**Your Farm**
7 days/cycle		x
x	1.5 cycles per year	x
x	2.8 lb. 1st cut hay/ewe/day	x
x	$ 75/tonne 1st cut hay	x
	$ 0.80/ewe/year (a8)	**=**

Total Ewe Feed Cost	**$ 23,376/year ($58.44 x 400)**	**=**

(a1+a2+a3+a4+a5+a6+a7+a8) x # of ewes

1.2 Ram Feeding Cost[23]

Pasture		**Your Farm**
185 days/year		x
x	pasture (equivalent to 6 lbs hay/ram /day)	x
x	0.320	x
x	$75 /tonne 1st cut hay	x
	$11.33/ram/year (b1)	**=**

[20] Flushing ration is fed for 14 days and breeding ration is fed for 30 days per cycle, with 1.5 cycles per year. Ewes are assumed to be pastured during flushing, breeding and early gestation.
[21] Grain is not fed during early gestation.
[22] Pasture cost is assumed to be equivalent to the price of standing hay (30% of baled hay price is used here).
[23] Rams are assumed to be pastured for 185 days per year.

Stored Forage			**Your Farm**
	180 days/year		x
	x 6 lbs 1st cut hay/ram /day		x
	x $75/tonne 1st cut hay		x
	$ 36.75/ram/year (b2)		**=**
Total Ram Feed Cost	**$480.80/year**	(b1+b2) x # of rams	=

1.3 Lamb Feed Cost

Lamb Milk Replacer			**Your Farm**
	5% (41) of lambs (817) reared on milk replacer		
	X 19.8 lbs	milk powder/lamb	x
	X $69/20 kg[24]	milk replacer	x
	= **$1,268.75 / year**	**(c1)**	**=**

Lamb Creep			
	# lambs 817 (assume 67% of pre weaning mortality occurs in first 10 days)		
	X 44 lbs	creep feed /lamb	x
	X $300 /tonne	creep feed	x
	= **$4,739.95 /year**	**(c2)**	**=**

Lamb Growing Ration (25% sheep supplement and 75% corn)			
	# lambs 773 (assume 50% of post wean mortality occurs at weaning)		
	X 115.7 lbs grower/lamb		x
	X $253.75/tonne grower		x
	= **$10,295.38 /year**	**(c3)**	**=**

Lamb Finishing Ration (20% sheep supplement and 80% corn)			**Your Farm**
	# market lambs (692)		
	X 143.3 lbs	finisher /lamb	x
	X $236 /tonne finisher		x
	= $10,614.28/year	**(c4)**	**=**

Replacement Ewe Lambs (75 lbs. to breeding) – grower			**Your Farm**
	# replacement ewe lambs (72)		
	X 1.0 lb	grower /lamb /day	x
	X $253.75 /tonne grower		x
	X average # days from 75 lbs. to breeding		x
	= $1,329.14 /year	**(c5)**	**=**

Replacement Ewe Lambs (75 lbs. to breeding) – forage			**Your Farm**
	# replacement ewe lambs (72)		
	X 4.0 lbs 1st cut hay/lamb/day		x
	X $75 /tonne 1st cut hay		x
	X average # days from 75 lbs. to breeding		x
	= $1,571.40 /year	**(c6)**	**=**

Total lamb feed cost (c1+c2+c3+c4+c5+c6) **$29,818 /year** **=**

[24] Multiply kilograms by 2.2046 to convert to pounds.

1.4. Salt and Mineral

Ewe Mineral Cost			**Your Farm**
365 days			
x	15	grams /day	x
x	#	ewes (400)	x
x	$29	/25 kg mineral	x
=	**$2,540.40/year (d1)**		=

Ram Mineral Cost			**Your Farm**
365 days			
x	20	grams /day	x
x	#	rams (10)	x
x	$29	/25 kg mineral	x
=	**$84.68 /year (d2)**		=

Ewe and Ram Salt Cost			**Your Farm**
365 days			
x	10	grams /day	x
x	#	ewes + rams	x
x	$8.80	/25 kg CoI Salt	x
=	**$526.77 /year (d3)**		=

Lamb Mineral Cost[25]			**Your Farm**
162 days			
x	10	grams /day	x
x	72	ewe lambs	x
x	$29	/25 kg mineral	x
=	**$135.02 /year (d4)**		=

Lamb Salt Cost[24]			**Your Farm**
133 days			
x	5	grams /day	x
x	773	lambs	x
x	$8.80	/25 kg mineral	x
=	**$180.64 /year (d5)**		=

Total Salt and Mineral Cost **$3,467.51 /year** (d1+d2+d3+d4+d5) =

3. Straw (Bedding) cost

Ewe Bedding			**Your Farm**
# ewes (400)			
X	0.75 lbs straw/ewe/day		x
÷	2204 lbs		÷
X	$55/tonne	straw	x
X	# days bedded	(212)	x
=	**$1,583.37**	**/year (e1)**	=

[25] Assumed mineral requirement for market lambs is met through grower ration and protein supplement. Mineral cost calculated for replacement ewe lambs from 75 pounds to breeding.

Ram Bedding				**Your Farm**
	# rams (10)			
	X	0.75 lbs straw/ram/day		x
	÷	2204 lbs		÷
	X	$55/tonne	straw	x
	X	# days bedded	(165)	x
	=	**$30.88**	**/year (e2)**	=

Lamb Bedding				**Your Farm**
	# lambs (773)			
	X	0.25 lbs straw/lamb/day		x
	÷	2204 lbs		÷
	X	$55/tonne	straw	x
	X	# days bedded	(133)	x
	=	**$640.31**	**/year (e3)**	=
Total Straw Cost	=	**$2,254.56**	**/year** (e1+e2+e3)	=

4. Vet, Medicine and Supplies

Deworming – ewes and rams (wormed once off pasture)[26]				**Your Farm**
	# ewes (400)			
	X	1 deworming/year		x
	X	dosage/ewe (2.5 mls ÷10kg x 70 kg)		x
	X	wormer cost/l ($0.08)		x
	=	**$560**	**/year (f1)**	=
	# rams (10)			
	X	1 deworming/year		x
	X	dosage/ram (2.5 mls÷10kgs x 70 kg)		x
	X	wormer cost/ml ($0.80 /ml)		x
	=	**$23**	**/year (f2)**	=

Vaccination Clostridial – ewes and rams				**Your Farm**
	# ewes + rams (410)			
	X	1.5 vaccinations/year		x
	X	dosage/ewe (2 ml)		x
	X	vaccine cost /ml ($29.95/240 mls)		x
	=	**$230.24**	**/year (f3)**	=

Vaccination Clostridial – lambs				**Your Farm**
	# lambs (773)			
	X	1 vaccination year		x
	X	dosage/lamb (4 mls and 2 mls)		x
	X	vaccination cost /ml		x
	=	**$578.65**	**/year (f4)**	=

[26] Lambs are not dewormed as they are not grazed but go directly to feeder barn.

Vaccination (other)[27]			**Your Farm**
	# animals vaccinated		
X	1 vaccination/year		x
X	dosage/animal		x
X	vaccination cost/ml		x
=	**$**	**/year (f5)**	=

Coccidiostat[28] - lambs			
	# lambs		
X	# days included		x
X	dosage/lamb		x
X	coccidiostat cost /kg		x
=	**$**	**/year (f6)**	=

Out-of-Season Breeding Cost			**Your Farm**
CIDR	$ 4.95/CIDR		
+	$4.88 hormone treatment (500 IU Pregnecol)		+
÷	1.5 cycles/year		÷
X	# ewes (328 mature ewes)		x
=	**$2,149.50**	**/year (f7)**	=

Miscellaneous Animal Health Products			**Your Farm**
	# sheep and lambs treated		
X	frequency of treatment/year		x
X	dosage rate		x
X	medicine cost/ml		x
=	**$56.91**	**/year (f8)**	=

Total Animal Health Cost = **$3,598.29** **/year** = (f1+f2+f3+f4+f5+f6+f7+f8)

5. Flock Identification and Management			**Your Farm**
Annual Tag Cost[29]			
	# lambs tagged (853)		
+	# lost tags replaced[30](8)		+
X	price /tag ($0.45)[31]		x
=	**$387.34**	**/year (g1)**	=

Performance Recording Cost[32]			
	Annual participation fees (SFIP, Genovis, LambPlan)		
=	**$150**	**/year (g2)**	=

[27] Calculate cost of other vaccines used (caseous, abortion, etc) using similar steps.
[28] This calculation **only required if** coccidiostat cost is **not already included** in the lamb creep and grower cost.
[29] Ewe flock assumed tagged.
[30] Assumed 2% tag loss.
[31] Canadian Sheep Identification Program (CSIP) has announced mandatory RFID tagging of lambs born after (and all sheep tagged) takes effect January 1, 2012.
[32] Cost of performance recording is not included in Flock ID and Management Cost.

6. Predation Control

Livestock Guardian Dogs			**Your Farm**
Annual Dog Replacement			
3 dogs			
X	mortality and cull rate (12.5%)		x
=	0.375 dog replaced/year		=
x	$400 replacement value		x
=	**$ 150 annual dog replacement cost (h1)**		**=**
Dog Feed Cost			
365	# days fed		
X	lbs fed/day (1.5 lbs)		x
X	number of dogs (3)		x
=	**$1,241.70 annual dog feed cost (h2)**		**=**
Dog Vet and Health Costs			
$30	rabies and parvo vaccine cost		
+	deworming (3 treatments/yr)	($25 x 3)	+
+	miscellaneous treatment /dog per year ($50)		+
X	number of dogs (3)		x
=	**$465 annual dog vet cost (h3)**		**=**
Annual Livestock Guardian Dog Cost (h1+h2+h3)	**$1,856.70**	**/year**	**=**

7. Other (stabilization and barn supplies)[33]

$3.25	/ewe x 400 ewes		=
=	**$1,300**	**/year**	**=**

8. Marketing[34] (754 head)			**Your Farm**
	transportation	$5.50 /hd	
+	commission and insurance	$4.75 /hd	+
+	OSMA license fee	$1.80 /hd	+
x	754 head		**x**
=	**$9,084.91 /year**		**=**

9. Custom Work/Equipment Rental[35]

$7.13	/ewe/year		
X	number of ewes (400)		x
=	**$2,852**	**/year**	**=**

10. Hired Labour[35]

$6.45 /ewe/year			
X	number of ewes (400)		x
=	**$2,580/year**		**=**

[33] Source OFMAP 2009 Sheep Summary.
[34] Per sheep marketed (includes lambs and culls marketed).
[35] Source OFMAP 2009 Summary – accelerated flocks.

11. Machinery and Equipment - Fuel and Oil[35]		**Your Farm**
$6.69 /ewe/year		
X number of ewes (400)		x
= $2,676 /year		**=**
12. Equipment and Equipment – Repairs[35]		
$7.15 /ewe/year		
X number of ewes (400)		x
= **$2860**		**=**
13. Motor Vehicle Expenses[35]		
$3.52/ewe/year		
X number of ewes (400)		x
= $1,408 /year		**=**
14. Building/Fence Repairs[35]		
$14.27/ewe /year		
X number of ewes (400)		x
= $5,708 /year		**=**
15. Heating Fuel[35]		
$0.70 /ewe/year		
X number of ewes (400)		x
= $280 /year		**=**
16. Electricity and Telephone[35]		
$7.94/ewe/year		
X number of ewes (400)		x
= $3,176 /year		**=**
17. Accounting, Office Expenses[35]		
$2.32 /ewe/year		
X number of ewes (400)		x
= $928 /year		**=**
18. Interest – Operating[36]		
$100,095 operating cost		
x 0.33		x
x 4 % operating interest rate		x
= **$1,321.33 /year**		**=**
19. Other Cash Variable Expenses[33]		
$6.61 /ewe/year		
X number of ewes (400)		x
= **$2,644 /year**		**=**

[36] Operating interest is charged at prime+1percent (4%) on 1/3 of operating expenses.

Fixed Expenses

20. Property Tax, Fire/Liability Insurance[35]				**Your Farm**
	$8.35/ewe			
	X number of ewes (400)			x
	= $3,340 /year			**=**
21 Lease and Rent Payments[35]				
	$0.83/ewe			
	X number of ewes (400)			x
	= **$332 /year**			**=**
22. Interest – Term[35]				
	$9.09/ewe			
	X number of ewes (400)			x
	= **$3,636 /year**			**=**

Non-Cash Fixed Expenses

23. Depreciation (*purchase price – salvage value)/years of useful life*

Building and Facilities

	$231,769	value		
-	$23,177	10% salvage value		-
÷	20	years useful life		÷
=	**$10,430**	**/year**	**(j1)**	**=**

Machinery and Equipment

	$61,000	value		
-	$9,150	15% salvage value		-
÷	12	years useful life		÷
=	**$4,321**	**/year**	**(j2)**	**=**

Fencing

	$23,174	value		
-	$1,159	5% salvage value		-
÷	30	years useful life		÷
=	**$734**	**/year**	**(j3)**	**=**

Watering System on Pasture

	$1,348	value		
-	$67.42	5% salvage value		-
÷	10	years useful life		÷
=	**$128**	**/year**	**(j4)**	**=**

Total Depreciation (j1+j2+j3+j4) = $15,612.38 /year =

24. Investment Cost ***(original value + salvage value) divided by 2 x GIC interest rate (2.1%)***

Building and Facilities

	$231,769	value		
+	$23,177	10% salvage value	+	
÷	2		÷	2
X	2.1	% GIC interest rate	x	
=	**$2,677**	**/year** **(k1)**	=	

Machinery and Equipment

	$61,000	value		
+	$9,150	15% salvage value	+	
÷	2		÷	2
X	2.1	% GIC interest rate	x	
=	**$764**	**/year** **(k2)**	=	

Fencing

	$23,174	value		
+	$1,159	5% salvage value	+	
÷	2		÷	2
X	2.1	% GIC interest rate	x	
=	**$255**	**/year** **(k3)**	=	

Watering System on Pasture

	$1,348	value		
+	$67.42	5% salvage value	+	
÷	2		÷	2
X	2.1	% GIC interest rate	x	
=	**$15**	**/year** **(k4)**	=	

Investment Cost on Non-depreciable Assets

Land and Pasture

	$545,481	value		
X	2.1	% GIC interest rate	x	
=	**$11,455**	**/year** **(k5)**	=	

Breeding Flock

	$104,200	value		
X	2.1	% GIC interest rate	x	
=	**$2,188**	**/year** **(k6)**	=	

Total Investment Cost (k1+k2+k3+k4+k5+k6) **=$17,327** **=**

25. Operating Management and Labour

	5	hours /ewe		
x	400	# ewes	x	
x	$18	/hour	x	
=	**$36,000**	**/year**	=	

Summary of Income and Expenses for an Accelerated Flock

Income		$ / Year	$ /Ewe /Year	Your Farm
1	Wool	($ 799.50)	($ 2.00)	
2	Market lamb sales (692)	$ 110,504.70	$ 276.26	
3	cull ewe sales (60)	$ 6,444.00	$ 16.11	
4	cull ram sales (2)	$ 358.00	$ 0.90	
2	- Livestock Purchased (3 rams)	($ 1,800.00)	($ 4.50)	
	Total Income	**$ 114,707.20**	**$ 286.77**	
Operating Costs				
1.1	Ewe Feed Cost	$ 23,375.91	$ 58.44	
1.2	Ram Feed Cost	$ 480.83	$ 1.20	
1.3	Lamb Feed Cost	$ 29,835.43	$ 74.59	
1.4	Salt & Mineral cost	$ 3,467.62	$ 8.67	
	Total Feed Cost	**$ 57,159.79**	**$ 142.90**	
3	Straw	$ 2,254.94	$ 5.64	
4	Animal Health & Breeding	$ 3,598.64	$ 9.00	
5	Flock Identification & Management	$ 387.57	$ 0.97	
6	Predation	$ 1,856.72	$ 4.64	
7	Other (Stabilization, barn supplies)	$ 1,300.00	$ 3.25	
8	Marketing, Transportation	$ 9,090.34	$ 22.73	
9	Custom Work, Equipment Rent	$ 2,852.00	$ 7.13	
10	Hired Labour	$ 2,580.00	$ 6.45	
11	Machinery & Equipment - fuel & oil	$ 2,676.00	$ 6.69	
12	Machinery & Equipment - repairs	$ 2,860.00	$ 7.15	
13	Motor Vehicle Expenses	$ 1,408.00	$ 3.52	
14	Building & Fence repairs	$ 5,708.00	$ 14.27	
15	Heating Fuel	$ 280.00	$ 0.70	
16	Electricity & Telephone	$ 3,176.00	$ 7.94	
17	Accounting, Office Expenses	$ 928.00	$ 2.32	
18	Interest -operating	$ 1,330.03	$ 3.33	
19	Other Cash Variable expenses	$ 2,644.00	$ 6.61	
	Total Variable Expenses	**$ 102,090.03**	**$ 255.23**	
Contribution Margin		**$ 12,617.17**	**$ 31.54**	
Fixed Costs				
20	Property Taxes, Fire & Liability Insurance	$ 3,340.00	$ 8.35	
21	Lease & Rent Payments	$ 332.00	$ 0.83	
22	Interest - Term	$ 3,636.00	$ 9.09	
23	Depreciation	$ 15,612.38	$ 39.03	
	Total Fixed Expenses	**$ 22,920.38**	**$ 57.30**	
	Total Enterprise Expenses	**$ 125,010.41**	**$ 312.53**	
	Net Enterprise Income	**($ 10,303.21)**	**($ 25.76)**	
24	**Investment Cost**	**$ 17,327.00**	**$ 43.32**	
25	**Return to Owner Labour**	**$ 36,000.00**	**$ 90.00**	

Concluding Remarks

As with most agriculture enterprises, profitability hinges on many factors, with management ability playing a significant role. Within this budget there are areas where efficiencies can be found. These include:

- Achieving above average prices for market lambs and cull animals.
- At least a portion of grain purchases at below average prices.
- Shorten days to market through feeding management.
- Feed cost savings through feeding management that improves feed to gain ratio.
- Increasing number of lambs marketed by lowering lamb mortality.
- Increasing number of lambs marketed by improving ewe reproductive performance through feeding and management.
- Increase number of ewes to fully realise economies of scale.

Appendix

Table 1. Flock Production Calculations

Number of Lambs Produced:

April Breeding

	# ewes exposed	328 mature ewes		
X	Conception rate	60%		x
=	# ewes lambing	197		=
X	fertility rate	185%		x
=	# lambs born	364 lambs born		=

December Breeding

	# ewes exposed	328 mature ewes		
X	Conception rate	95%		x
=	# ewes lambing	312		=
X	fertility rate	220%		x
=	# lambs born	689 lambs born		=

August Breeding

	# ewes exposed	328 mature ewes		
X	Conception rate	85%		x
=	# ewes lambing	279		=
X	fertility rate	220%		x
=	# lambs born	615 lambs born		=

December Breeding (Ewe Lambs)

	# ewes exposed	72 ewe lambs		
X	Conception rate	85%		x
=	# ewes lambing	61	=	
X	fertility rate	170%		x
=	# lambs born	104 lambs born		=

Total lambs born (over 2 years) = 364+689+620+104 = 1778 lambs

Lambs born alive per year = 1778/2 =889

number of lambs alive @ 10 days

	lambs born alive	889	
-	mortality to 10 days	8%	-
=	818 lambs alive @ 10 days		

number of lambs weaned per year

	lambs born alive	889	
-	mortality 10 days to weaning	4%	-
=	782 lambs weaned		

number of marketable lambs per year

	lambs weaned	782	
-	mortality post weaning	2%	-
=	764 lambs marketable		

number of replacement ewe lambs

	# ewes in flock (400)		
X	ewe death loss + ewe cull rate (3%+15%)		x
=	72 replacement ewe lambs needed		

number of market lambs sold per year

	# marketable lambs	(764)	
-	replacement ewe lambs kept	(72)	-
=	692 lambs marketed /year		

Table 2. 5-year (2005 – 2009) average prices, lambs and cull ewes

		($ /cwt)	Price Range ($ /cwt)	
	Avg volume	Avg $	Low	High
Lambs < 79 lbs	73,421	$183.78	$101.12	$307.24
Lambs 80 – 95 lbs	32,453	$158.08	$119.22	$223.10
Lambs 95 – 109 lbs	16,321	$151.73	$ 93.63	$213.15
Lambs > 110 lbs	6,997	$135.22	$ 51.70	$202.33
Ewes	33,551	$ 71.60	$ 37.63	$137.10

Table 3. Market Prices for Cull Ewes, by year, by month ($ /100 lbs)

Sheep												
	JAN	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
2000	69.77	74.87	73.50	52.30	58.44	53.05	59.54	60.73	64.55	63.60	67.98	72.61
2001	68.93	70.36	68.74	55.06	56.72	55.57	55.23	50.87	53.49	52.73	53.84	54.70
2002	58.72	53.80	49.98	42.51	41.37	34.81	41.62	38.99	42.46	43.79	47.67	58.18
2003	62.09	56.32	52.55	45.61	51.84	52.23	51.89	59.50	51.77	43.60	49.10	53.36
2004	55.71	54.82	51.80	56.68	47.17	42.65	45.78	43.03	45.12	40.27	45.98	54.30
2005	64.81	59.95	60.56	55.96	55.84	52.52	60.05	56.70	58.77	70.84	71.62	79.71
2006	87.66	84.37	93.25	82.67	71.61	71.22	87.56	85.88	85.97	83.74	87.20	95.80
2007	83.44	82.56	81.02	76.57	69.49	64.36	70.97	78.70	72.27	81.65	73.34	82.62
2008	74.62	74.72	69.30	58.72	61.34	59.83	61.57	70.42	70.17	65.47	67.35	73.32
2009	74.79	68.47	68.28	69.44	68.80	65.29	71.53	69.30	68.24	70.20	78.08	89.41

Table 4. Market Prices for Lambs 95 to 109 pounds, by year, by month ($ /100 lbs)

95 to 109 lb Lambs												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2000	121.81	124.12	138.84	136.87	143.51	124.87	115.70	116.15	115.92	114.96	131.87	135.14
2001	133.76	138.48	157.65	168.78	147.41	117.63	110.43	96.40	99.30	99.48	96.62	96.05
2002	112.41	128.85	125.11	111.25	103.57	95.94	105.86	103.47	105.05	105.92	114.45	114.97
2003	141.27	144.29	131.50	154.01	150.54	139.51	116.48	94.11	85.95	94.40	97.24	88.02
2004	105.20	91.49	75.15	120.45	123.71	99.93	106.17	96.41	90.96	94.36	99.47	114.60
2005	133.43	134.54	136.59	140.15	143.28	131.56	140.27	136.67	145.43	149.85	145.35	154.79
2006	168.29	164.40	159.10	153.38	164.50	161.71	143.21	142.24	149.91	142.58	151.49	161.00
2007	141.63	144.81	152.92	169.02	168.43	150.02	146.79	145.67	150.73	143.98	144.01	147.77
2008	140.04	154.84	154.60	148.82	170.58	173.28	154.55	149.97	150.95	142.57	142.21	151.87
2009	160.32	159.27	167.50	177.56	180.09	163.86	161.40	156.80	158.15	155.95	158.26	156.45

Table 5. Adjustment to Expenses for Change in Number of Lambs Marketed

(multiply by the difference in the number of lambs and either add to, or subtract from total variable expenses)

An additional 10% (69) lambs marketed	Dollars per lamb ($ /lamb)	Your Farm
Marketing (8)	$12.05	
Milk replacer (c1)	$1.55	
Creep feed (c2)	$5.80	
Grower (c3)	$13.32	
Finishing Ration (c4)	$15.34	
Salt (d5)	$0.23	
Bedding (e3)	$0.83	
Vaccine (f4)	$0.75	
Miscellaneous Health (f8)	$0.36	
Tag cost (g1)	$0.45	
Total per lamb adjustment	**$50.68**	
X # additional (or fewer) lambs	**69**	
Adjustment to Variable expenses	**$3,497.57**	
Average Price received per lamb	**$159.60**	
X # additional (or fewer) lambs	**69**	
Adjustment to Income	**$11,012.40**	

Table 6. Effect of Above Average Market Price

		Your Farm
2009 average price 95 to 109 lb lambs ($ /100 lbs)	$ 163.00	
2009 high price 95 to 109 lb lambs ($ /100 lbs)	$ 180.00	
Average of the two prices ($ /100 lbs)	$ 171.50	
Market price used in budget ($ /100 lbs)	$ 152.00	
Price difference ($ /100 lbs)	$ 19.50	
Number of lambs marketed	692	
Average Market weight (lbs)	105	
Adjustment to Income	$ 14,176.59	

Table 7. Adjustment to Budget if Ewe Lambs sold as Breeding Stock

	Dollars per lamb ($ /lamb)	Your Farm
Marketing (8)[37]	$10.25	
Finishing Ration (c4)	$15.34	
Salt (d5) 43 /133 days	$0.08	
Bedding (e3) 43 / 133 days	$0.27	
Total per lamb adjustment	$25.93	
X # ewe lambs sold for breeding[38]	124	
Adjustment to Variable expenses	($3,203.89)	
breeding price minus market price	$225 - $159.60	
Price difference	$65.40	
X # additional (or fewer) lambs	124	
Adjustment to Income	$8,079.54	

[37] Adjusted for OSMA license fee($1.80)

[38] Selected from top 50 % of ewe lambs after replacements selected