

Date: January, 2004

Guidelines For Estimating Timothy Hay Production Costs - For Export

This guide is designed to provide you with planning information and a format for calculating the costs of production for timothy hay for export. Also available, is an Excel spreadsheet that can be downloaded from the Manitoba Agriculture Food and Rural Initiatives website.

The cash input costs associated with growing a crop in Manitoba are substantial. It is extremely important for farm managers to do detailed calculations to select the optimum combination of crop inputs to maximize profits. Detailed planning is also necessary when estimating the amount of capital required to finance inputs, equipment and storage facilities. Therefore, producers are encouraged to substitute their own figures in the attached budget to develop their own cost of production for export timothy hay.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of the Manitoba Timothy 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 MAF Farm Management Specialist or Regional Forage Specialist.

The last few years in Manitoba, has seen the demand for timothy hay for export increase dramatically. Last year nearly 30,000 tonnes of hay was exported out of the province, mainly to Japan. Processors pay premium prices for quality which is a

province, mainly to Japan. Processors pay premium prices for quality which is a product that is celery green in colour and free of brown leaves.

Experienced producers have had success in producing a quality product. They have made all necessary commitments to satisfy the customer to produce a quality product. Innovative management has resulted in a higher percentage of good quality exportable hay being produced regardless of the weather. Manitoba has the potential to be a major player in this market.

Export Timothy Hay - Cost of Production Summary January, 2004

A. Operating Costs	Establishment Cost \$/acre	Annual Cost \$/acre	\$/tonne	Your Cost
1.00 Establishment Cost	n/a	\$20.12	\$8.90	
1.01 Seed (establishment) ¹	\$11.00	n/a	n/a	_____
1.02 Fertilizer	\$13.20	\$26.40	\$11.68	_____
1.03 Chemicals	\$18.00	\$12.00	\$5.31	_____
1.04 Field Fuel Costs	\$8.90	\$5.83	\$2.58	_____
1.05 Moving Costs	\$0.00	\$19.92	\$8.81	_____
1.06 Custom Costs	\$0.00	\$0.00	\$0.00	_____
1.07 Repair & Maintenance	\$4.59	\$17.53	\$7.76	_____
1.08 Insurance	\$1.36	\$0.25	\$0.11	_____
1.09 Miscellaneous	\$2.00	\$2.00	\$0.88	_____
1.10 Land Taxes	<u>\$6.50</u>	<u>\$6.50</u>	<u>\$2.88</u>	_____
Subtotal Operating	\$65.55	\$110.56	\$48.92	_____
1.11 Interest on Operating	<u>\$1.80</u>	<u>\$3.04</u>	<u>\$1.35</u>	_____
Total Operating Costs	\$67.35	\$113.60	\$50.27	_____
B. Fixed Costs				
2. Depreciation				
2.01 Machinery	\$26.09	\$26.09	\$11.54	_____
2.02 Storage	\$6.75	\$6.75	\$2.99	_____
3. Investment				
3.01 Land	\$16.00	\$16.00	\$7.08	_____
3.02 Machinery	\$6.38	\$6.38	\$2.82	_____
3.03 Storage	<u>\$3.30</u>	<u>\$3.30</u>	<u>\$1.46</u>	_____
Total Fixed Costs	\$58.52	\$58.52	\$25.89	_____
C. Labour	\$15.00	\$12.00	\$5.31	_____
Total Cost of Production	\$140.87	\$184.12	\$81.47	_____

1. The cost of establishing the crop, \$140.87, was spread over 7 years at \$20.12 per year.

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Timothy Hay

Assumptions:

Table 1. Operation Profile

Export

Number of Acres	600
Number of total acres	1,500
Price of Diesel (\$/litre)	\$0.48

<u>Timothy Yield</u>	<u>Year</u>	<u>tonnes/acre</u>
	1	0.8
	2	2.5
	3	2.5
	4	2.5
	5	2.5
	6	2.5
	7	2.5
	Total Yield	15.8
	Average Yield	2.26

A. Operating Costs

1.01 Seed

Seeding rate/acre (lbs)	2.0
Seed Cost (\$/lb)	\$4.00
Velmar	\$3.00

1.02 Fertilizer

Applicator rental **\$1.00 per acre**

<u>Seeding</u>	<u>Cost \$/lb</u>	<u>lbs/acre</u>
Nitrogen	\$0.330	20
Phosphate	\$0.280	20
Potash	\$0.150	0
Sulfur	\$0.260	0
Zinc	\$1.500	0

Cropping

	<u>Cost \$/lb</u>	<u>lbs/acre</u>
Nitrogen	\$0.330	60
Phosphate	\$0.280	20
Potash	\$0.150	0
Sulfur	\$0.260	0
Zinc	\$1.500	0

1.03 Herbicides

	<u>\$/acre</u>
Seeding	
Broadleaf Control	\$10.00
Wildoats	\$8.00
Cropping	
Broadleaf Control	\$12.00

1.04 Fuel Costs

Estimated fuel cost per acre of establishing crop	\$0.00
Estimated fuel cost per acre of annul crop	\$0.00

Diesel Fuel Cost \$/litre **\$0.48**

<u>Field Operation</u>	<u>Times Over</u>	<u>Width Feet</u>	<u>Speed MPH</u>	<u>Tractor HP</u>
Seeding				
Spray	1	90	10	150
Seeding	1	40	7	90
Cultivate	1	48	5	250
Cultivate	1	48	5	250
Fertilizer	1	40	8	150
Harrow Packer	1	60	7	150
Spray	1	90	10	150
Mower	1	12	5	150
Bale	1	12	7	150
Cropping				
Fertilizer	1	40	8	150
Spray	1	90	10	150
Cut	1	12	7	150
Recondition	1.25	12	10	90
Bale	1	12	7	150

1.05 Moving Costs

Establishment		\$0.00
Pickup, load, unload and stack \$/bale		\$3.00
bale weight lbs		750

1.06 Custom & Rental Operations

Establishment		\$0.00
Annual		\$0.00

1.07 Repairs & Maintenance

% rate of investment		4%
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1.08 Insurance

risk area 8	Crop Insurance (\$/acre)	\$40.00	\$1.36 establishment
	Crop Insurance (\$/acre)		50% coverage level
			1.201 tonnes/acre
			\$61.00 \$/acre coverage
			\$0.25 annual admin fee

1.09 Miscellaneous**\$2.00**

1.10 Land Taxes **\$6.50**

1.11 Interest on Operating **5.5%**

Interest on Investment **4.0%**

Capital Costs	Export Cost/Acre	Useful Life	Salvage Value
Land Market Value	\$400		
Machinery Investment	\$290	10	10%
Storage Investment	\$150	20	10%

<u>Machinery Costs</u>	Market Value	Allocated % to Timothy	Allocated Timothy
Tractor 250 hp	\$180,000	10%	\$18,000
Tractor 150 hp	\$130,000	25%	\$32,500
Tractor 90 hp	\$70,000	25%	\$17,500
Sprayer	\$5,000	10%	\$500
Cultivator	\$3,000	5%	\$150
Harrow packer	\$5,000	5%	\$250
Baler	\$75,000	90%	\$67,500
Truck & Trailer	\$25,000	40%	\$10,000
Mower conditioner	\$25,000	70%	\$17,500
Reconditioner	<u>\$10,000</u>	100%	<u>\$10,000</u>
Total	\$528,000		\$173,900

Storage Shed **\$90,000** **100%** **\$90,000**

Labour Costs (\$/acre)

		<u>Export</u>
Establish	Rate per hour	\$10.00
	Hours per acre	1.5
Annual	Rate per hour	\$10.00
	Hours per acre	1.2

Export Timothy Hay Cost of Production Worksheet

1. This budget provides a guideline to determine the cost of production for a timothy hay enterprise for export based on 600 acres.
2. The machinery and equipment complement is similar to a grain enterprise with the addition of a baler, mower conditioner and a storage shed.
3. The investment in machinery and equipment was assumed to be \$290 per acre. An additional \$150/acre is included for storage.
4. An average yield of 2.26 tonnes per acre was assumed.
5. Land was valued at \$400 per acre.

A. Operating Costs

				<u>Your Cost</u>
1.01 Seed				
Establish		2.0	lbs/acre	_____
	x	\$4.00	\$/lb	_____
	±	<u>\$3.00</u>	<u>applicator rental (\$/acre)</u>	_____
	=	\$11.00	\$/acre	_____
1.02 Fertilizer				
Nitrogen				
Establish		20	lbs/acre seeding	_____
	<u>x</u>	<u>\$0.33</u>	<u>cost/lb seeding</u>	_____
	=	\$6.60	\$/acre	_____
Annual		60	lbs/acre cropping	_____
	<u>x</u>	<u>\$0.33</u>	<u>cost/lb cropping</u>	_____
	=	\$19.80	\$/acre	_____
P₂O₅				
Establish		20	lbs/acre seeding	_____
	<u>x</u>	<u>\$0.280</u>	<u>cost/lb seeding</u>	_____
	=	\$5.60	\$/acre	_____
Annual		20	lbs/acre cropping	_____
	<u>x</u>	<u>\$0.280</u>	<u>cost/lb cropping</u>	_____
	=	\$5.60	\$/acre	_____

				<u>Your Cost</u>
K₂O		0	lbs/acre seeding	_____
Establish	x	<u>\$0.150</u>	<u>cost/lb seeding</u>	_____
	=	\$0.00	\$ /acre	_____
Annual	+	0	lbs/acre cropping	_____
	x	<u>\$0.150</u>	<u>cost/lb cropping</u>	_____
	=	\$0.00	\$ /acre	_____
Sulfur		0	lbs/acre seeding	_____
Establish	x	<u>\$0.260</u>	<u>cost/lb seeding</u>	_____
	=	\$0.00	\$ /acre	_____
Annual		0	lbs/acre cropping	_____
	x	<u>\$0.260</u>	<u>cost/lb cropping</u>	_____
	=	\$0.00	\$ /acre	_____
Zinc		0	lbs/acre seeding	_____
Establish	x	<u>\$1.500</u>	<u>cost/lb seeding</u>	_____
	=	\$0.00	\$ /acre	_____
Annual		0	lbs/acre cropping	_____
	x	<u>\$1.500</u>	<u>cost/lb cropping</u>	_____
	=	\$0.00	\$ /acre	_____
Applicator rental	=	\$1.00	\$ /acre	_____
Establish Cost	=	\$13.20	\$ /acre	_____
Annual Cost	=	\$26.40	\$ /acre	_____
1.03 Herbicides				
Establish		\$10.00	broadleaf control (establish)	_____
	±	<u>\$8.00</u>	<u>wildoats (establish)</u>	_____
	=	\$18.00	\$ /acre	_____
Annual	=	\$12.00	broadleaf control (cropping)	_____

Your Cost

1.04 Field Fuel Costs

a) Establish operations

<u>Operation</u>	<u>Times Over</u>	<u>Width feet</u>	<u>Speed mph</u>	<u>Fuel \$/ac.</u>	
Spray	1.0	90	10	0.19	_____
Seeding	1.0	40	7	0.36	_____
Cultivate	1.0	48	5	1.18	_____
Cultivate	1.0	48	5	1.18	_____
Fertilizer	1.0	40	8	0.53	_____
Harrow Packer	1.0	60	7	0.41	_____
Spray	1.0	90	10	0.19	_____
Mower	1.0	12	5	2.84	_____
Bale	1.0	12	7	<u>2.03</u>	_____
Total				\$8.90	_____

b) Annual operations

<u>Operation</u>	<u>Times Over</u>	<u>Width feet</u>	<u>Speed mph</u>	<u>Fuel \$/ac.</u>	
Fertilizer	1.0	40	8	\$0.53	_____
Spray	1.0	90	10	\$0.19	_____
Cut	1.0	12	7	\$2.03	_____
Recondition	1.25	12	10	\$1.06	_____
Bale	1.0	12	7	<u>\$2.03</u>	_____
Total				\$5.83	_____

Total Fuel Costs	<u>estimated</u>	<u>calculated</u>	
	\$0.00	\$8.90 establishment	_____
	\$0.00	\$5.83 cropping	_____

1.05 Moving Costs

Pick up, load, unload & stack

Establish	\$0.00	establishment cost	_____
Annual	2.26	tonnes/acre	_____
	x 2204	lbs/tonne	_____
	÷ 750	bale weight (lbs)	_____
	<u>\$3.00</u>	<u>\$/bale</u>	_____
	= \$19.92	\$/acre	_____

Your Cost

1.06 Custom Operations

Establish		\$0.00	\$ /acre	_____
Annual		\$0.00	\$ /acre	_____

1.07 Repair & Maintenance

Establish*		4.0%	percentage rate	_____
	x	\$115	<u>investment/acre</u>	_____
	=	\$4.59	\$ /acre	_____

*Investment to establish crop includes tractors, sprayer, cultivator & packer

Annual**		4%	percentage rate	_____
	x	\$438	<u>investment/acre</u>	_____
	=	\$17.53	\$ /acre	_____

**Investment in annual cropping includes tractors, baler, truck & trailer, mower & reconditioner

1.08 Insurance

Establish		\$40.00	<u>\$/acre coverage</u>	_____
	=	\$1.36	\$ /acre	_____
Annual		1.201	tonnes/acre	_____
	x	50%	coverage level	_____
	=	0.601	tonnes/acre coverage	_____
	x	\$61.00	<u>\$/acre coverage</u>	_____
	=	\$36.63	<u>\$/acre coverage</u>	_____
	=	\$0.25	\$ /acre (administration fee)	_____

1.09 Miscellaneous

Establish	=	\$2.00	\$ /acre	_____
Annual	=	\$2.00	\$ /acre	_____

1.10 Land Taxes

Establish	=	\$6.50	\$ /acre	_____
Annual	=	\$6.50	\$ /acre	_____

1.11 Interest on Operating

Your Cost

Establish		\$65.55	Subtotal Operating	_____
	÷	2	average	_____
	x	<u>5.5%</u>	<u>interest rate</u>	_____
	=	\$1.80	\$ /acre	_____
Annual		\$110.56	Subtotal Operating	_____
	÷	2	average	_____
	x	<u>5.5%</u>	<u>interest rate</u>	_____
	=	\$3.04	\$ /acre	_____

