





Guidelines For Estimating Hay Production Costs - 2024 Round Bale Hay and Silage

Date: January, 2024

revised 2024 MASC data

This guide is designed to provide planning information and a format for calculating the costs of producing a forage crop of 100% alfalfa or alfalfa grass mixture for the purpose of feeding livestock or export in Manitoba. General Manitoba Agriculture recommendations are assumed in using fertilizers and chemical inputs. These figures provide an economic evaluation of the crops and estimated yields required to cover all costs. Costs include labour, investment and depreciation, but do not include management costs, nor do they necessarily represent the average cost of production in Manitoba.

The assumptions on which the costs were calculated are clearly defined in the supporting pages. They were developed using a combination of recommended practices and methods followed by many producers.

These budgets may be adjusted by putting in your own figures. As a producer, you are encouraged to calculate your own costs of production for your alfalfa hay crops. On each farm, costs and yields differ due to soil type, climate and agronomic practices.

This tool is available as an Excel worksheet at:



<u>The Farm Machinery Custom and Rental Rate Guide</u> is also available to help determine machinery costs.

Contact Us

For more information, contact a Farm Management Specialist.

- manitoba.ca/agriculture
- mbfarmbusiness@gov.mb.ca
- 1-844-769-6224

Note: 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 use of this information is the responsibility of the user. If you need help with a budget, contact a Farm Management Specialist.

			ry Hay Pr	oduction (Costs - 20	024				
		Alfalfa Hay	<u> </u>	Alfa	lfa-Grass I	Нау	Gi	reenfeed l	lay	_
		al (Years 2 duction Co			al (Years 2 duction Co		Pro	duction Co	sts	
	\$/acre		(Dry Matter- \$/ton		(as fed) \$/ton	(DM) \$/ton	\$/acre	(as fed) \$/ton	(DM) \$/ton	Your Farm
A. Operating Costs Forage Seed & Treatment Nurse Crop Seed	-			<u>-</u>			- \$30.00			
Establishment (amortized)	\$39.40	1		\$36.32	2		-			
Fertilizer Herbicide/Insecticide	\$106.25 \$0.00			\$83.78 \$0.00			\$88.05 \$16.00			
Fuel	\$14.14			\$9.86			\$16.69			
Machinery Operating	\$13.28			\$13.28			\$13.28			
Machinery Lease	\$2.40			\$2.40			\$2.40			
Rental and Custom	\$14.00			\$11.16			\$11.32			
Crop Insurance	\$32.17			\$9.22			\$17.15			
Twine/Net Wrap Plastic Silage Wrap	\$5.64 -			\$4.44 -			\$4.56 -			
Other Costs	\$2.00			\$2.00			\$2.00			
Land Taxes	\$10.00			\$10.00			\$10.00			
Interest on Operating	<u>\$10.77</u>			\$8.21			\$9.52			
Total Operating	\$250.05			\$190.66			\$220.97			
B. Fixed Costs Land Cost	\$80.41			\$80.41			\$80.41			
Machinery Costs	\$55.47			\$55.47			\$55.47			
Storage Costs	\$0.00			\$0.00			\$0.00			
Total Fixed	\$135.88			\$135.88			\$135.88			
Total Operating & Fixed	\$385.93			\$326.54			\$356.85			-
C. Labour	\$32.40			\$32.40			\$40.50			
Total Costs	\$418.33	\$119.52	\$135.82	\$358.94	\$128.65	\$147.11	\$397.35	\$140.41	\$163.52	
Total Costs (\$/lb.)		\$0.060	\$0.068		\$0.064	\$0.074		\$0.070	\$0.082	
Total Costs (\$/1500 lb. bale)	\$89.01			\$97.01			\$104.56			
			Profitabilit	y & Breakev	en Analys	is				
Estimated Farmgate Price \$ per ton		As Fed \$160.00	<u>DM</u> \$181.82		As Fed \$120.00	<u>DM</u> \$137.21		As Fed \$120.00	<u>DM</u> \$139.75	
Yield per acre (ton)		3.50	3.08		2.79	2.44		2.83	2.43	
Total Yield (tons/300 acres)		1,050	924		837	732		849	729	
Gross Revenue		\$560.00			\$334.80			\$339.60		
		(as fed)	(DM)		(as fed)	(DM)		(as fed)	(DM)	
Marginal Returns	<u>\$/acre</u>	<u>\$/ton</u>	<u>\$/ton</u>	\$/acre	<u>\$/ton</u>	<u>\$/ton</u>	<u>\$/acre</u>	<u>\$/ton</u>	<u>\$/ton</u>	
Over Operating Costs	\$309.95	\$88.56	\$100.63	\$144.14	\$51.66	\$59.07	\$118.63	\$41.92	\$48.82	
Over Total Costs (Net Profit) Operating Expense Ratio	\$141.67 44.7%	\$40.48	\$46.00	(\$24.14) 56.9%	(\$8.65)	(\$9.89)	(\$57.75) 65.1%	(\$20.41)	(\$23.76)	
Breakeven Price (\$/ton)		ф 74 44	#04.40		# 00.01	A70.44		#70.00	# 00.00	
Operating Costs Total Costs		\$71.44 \$119.52	\$81.19 \$135.82		\$68.34 \$128.65	\$78.14 \$147.11		\$78.08 \$140.41	\$90.93 \$163.52	
Breakeven Yield (tons/acre)										
Operating Costs		1.563	1.375		1.589	1.390		1.841	1.581	
Total Costs		2.615	2.301		2.991	2.616		3.311	2.843	
Total Costs										
		\$0.040	3		\$0.041	3		\$0.046	4	
Cost of Standing Hay (\$/lb.) Cost of Standing Hay (\$/ton)		\$0.040 \$80.02	3		\$0.041 \$82.14	3		\$0.046 \$92.64	4	

^{1.} Alfalfa establishment (without nurse crop) net cost of \$157.59 (total cost minus estimated gross revenue) were amortized over 4 hay production years.

^{2.} Alfalfa-grass establishment (with oat greenfeed nurse crop) net cost of \$254.23 (total cost minus estimated gross revenue) were amortized over 7 hay production years.

^{3.} Cost of alfalfa and alfalfa-grass standing hay (includes: establishment, fertilizer, pesticide, land taxes, crop insurance, 5% of fuel and labour, 50% of other costs, and land costs.)

^{4.} Cost of greenfeed standing hay (includes: seed; fertilizer; pesticide; land taxes; crop insurance; 40% of fuel; 20% of labour,machinery lease, and machinery operating; 50% of other costs, and land costs.)

		Balo	ed Silage	Productio	n Costs	- 2024				
	Alfalfa	a Baled Si	lage	Alfalfa-G	rass Baled	l Silage	Greenf	eed Baled	Silage	
•	Annua	al (Years 2	to 5)	Annu	al (Years 2	to 8)		luction Co		_
•	\$/acre	(as fed) \$/ton	(DM) \$/ton	\$/acre	(as fed) \$/ton	(DM) \$/ton	\$/acre	(as fed) \$/ton	(DM) \$/ton	Your Farm
A. Operating Costs Forage Seed & Treatment							_			
Nurse Crop Seed	-	1		-	"		\$30.00			
Establishment (amortized)	\$70.29	1		\$46.83	2		-			
Fertilizer	\$106.25			\$83.78			\$88.05			
Herbicide/Insecticide	\$0.00			\$0.00			\$16.00			
Fuel	\$15.11			\$11.86			\$18.69			
Machinery Operating	\$17.95			\$17.95			\$17.95			
Machinery Lease	\$2.40			\$2.40			\$2.40			
Rental and Custom	\$20.67			\$16.35			\$16.56			
Crop Insurance	\$32.17			\$9.22			\$17.15			
Twine/Net Wrap	\$8.28			\$6.60			\$6.60			
Plastic Silage Wrap	\$29.15			\$23.24			\$23.24			
Other Costs	\$2.00			\$2.00			\$2.00			
Land Taxes	\$10.00			\$10.00			\$10.00			
Interest on Operating	<u>\$14.14</u>			<u>\$10.36</u>			<u>\$11.19</u>			
Total Operating	\$328.42			\$240.59			\$259.83			
B. Fixed Costs										
Land Cost	\$80.41			\$80.41			\$80.41			
Machinery Costs	\$75.40			\$75.40			\$75.40			
Storage Costs	<u>\$0.00</u>			<u>\$0.00</u>			<u>\$0.00</u>			
Total Fixed	\$155.81			\$155.81			\$155.81			
Total Operating & Fixed	\$484.22			\$396.40			\$415.64			
C. Labour	\$37.80			\$37.80			\$45.90			
Total Costs	\$522.02	\$75.77	\$151.31	\$434.20	\$79.67	\$159.05	\$461.54	\$83.61	\$167.22	
Total Costs (\$/lb.)		\$0.038	\$0.076		\$0.040	\$0.080		\$0.042	\$0.084	
Total Costs (\$/2000 lb. bale)	\$75.66			\$78.94			\$83.92			
			Profitabilit	y & Breakev	en Analys	sis				
Estimated Farmgate		As Fed	<u>DM</u>		As Fed	<u>DM</u>		As Fed	<u>DM</u>	
Price \$ per ton		\$60.00	\$119.83		\$55.00	\$109.80		\$55.00	\$110.00	
Yield per acre (ton)		6.89	3.45		5.45	2.73		5.52	2.76	
Total Yield (tons/300 acres)		2,067	1,035		1,635	819		1,656	828	
Gross Revenue		\$413.40			\$299.75			\$303.60		
		(as fed)	(DM)		(as fed)	(DM)		(as fed)	(DM)	
Marginal Returns	\$/acre	<u>\$/ton</u>	<u>\$/ton</u>	\$/acre	\$/ton	<u>\$/ton</u>	\$/acre	<u>\$/ton</u>	<u>\$/ton</u>	
Over Operating Costs	\$84.98	\$12.33	\$24.63	\$59.16	\$10.86	\$21.67	\$43.77	\$7.93	\$15.86	
Over Total Costs (Net Profit)	(\$108.62)	(\$15.77)	(\$31.49)	(\$134.45)	(\$24.67)	(\$49.25)	(\$157.94)	(\$28.61)	(\$57.22)	
Operating Expense Ratio	79.4%			80.3%			85.6%			
Breakeven Price (\$/ton)		¢47.07	COF 40		C4444	£00.40			CO4.44	
Operating Costs		\$47.67	\$95.19		\$44.14	\$88.13		\$47.07	\$94.14	
Total Costs		\$75.77	\$151.31		\$79.67	\$159.05		\$83.61	\$167.22	
Breakeven Yield (tons/acre)		F 47.	0.744		4.07.	0.404		4 70 1	0.000	
Operating Costs		5.474	2.741		4.374	2.191		4.724	2.362	
Total Costs		8.700	4.357		7.894	3.954		8.392	4.196	
Cost of Standing Hay (\$/lb.)		\$0.023	3		\$0.022	3		\$0.025	4	
Cost of Standing Hay (\$/ton)		\$45.38			\$44.13			\$49.12		
On-Farm Harvest Cost (\$/ton)		\$30.38			\$35.53			\$34.49		
1 Alfalfa aatabliahmant (without nursa	· · · ·	10004 47 (atal agat minu		,					

^{1.} Alfalfa establishment (without nurse crop) net cost of \$281.17 (total cost minus estimated gross revenue) were amortized over 4 hay production years.

^{2.} Alfalfa-grass establishment (with oat greenfeed nurse crop) net cost of \$327.84 (total cost minus estimated gross revenue) were amortized over 7 hay production years.

^{3.} Cost of alfalfa and alfalfa-grass standing silage (includes: establishment, fertilizer, pesticide, land taxes, 5% of fuel and labour, 50% of other costs, and land costs.)

^{4.} Cost of greenfeed standing silage (includes: seed; fertilizer; pesticide; land taxes; crop insurance; 40% of fuel; 20% of labour,machinery lease, and machinery operating; 50% of other costs, and land costs.)

	r orage Establish	hment Cost Sumi Alfalfa-Grass	Alfalfa Baled	Alfalfa-Grass	
	Alfalfa Hay Establ. ¹	Hay Establ. ²	Silage Establ. ³	Baled Silage Establ. ⁴	
	\$/acre	\$/acre	\$/acre	\$/acre	Your Farn
A. Operating Costs					
Forage Seed & Treatment	\$42.50	\$36.00	\$42.50	\$36.00	
Nurse Crop Seed	-	\$15.00	-	\$15.00	
Establishment (amortized)	-	-	-	-	
Fertilizer	\$106.25	\$99.72	\$106.25	\$99.72	
Herbicide/Insecticide	\$35.00	\$35.00	\$35.00	\$35.00	
Fuel	\$22.33	\$18.27	\$23.30	\$19.55	
Machinery Operating	\$13.28	\$13.28	\$23.76	\$17.95	
Machinery Lease	\$2.40	\$2.40	\$2.40	\$2.40	
Rental and Custom	\$8.00	\$7.20	\$11.82	\$10.56	
Crop Insurance	\$5.00	\$5.00	\$5.00	\$5.00	
Twine/Net Wrap	\$3.20	\$2.88	\$4.73	\$4.22	
Plastic Silage Wrap	-	-	\$16.65	\$14.87	
Other Costs	\$2.00	\$2.00	\$2.00	\$2.00	
Land Taxes	\$10.00	\$10.00	\$10.00	\$10.00	
Interest on Operating	<u>\$11.25</u>	<u>\$11.10</u>	<u>\$12.75</u>	<u>\$12.25</u>	
Total Operating	\$261.22	\$257.85	\$296.16	\$284.53	
B. Fixed Costs					
Land Cost	\$80.41	\$80.41	\$80.41	\$80.41	
Machinery Costs	\$55.47	\$55.47	\$75.40	\$75.40	
Storage Costs	\$0.00	\$0.00	\$0.00	\$0.00	
Total Fixed	\$135.88	\$1 <mark>35.88</mark>	\$155.81	\$1 55.81	
Total Operating & Fixed	\$397.09	\$393.73	\$451.97	\$440.34	
C. Labour	\$40.50	\$40.50	\$45.90	\$45.90	
otal Costs	\$437.59	\$434.23	\$497.87	\$486.24	
otal Costs (\$/lb.)					
	Profitabili	ty & Breakeven Ana	lysis		
Stimated Farmgate					
Price \$ per ton	\$140.00	\$100.00	\$55.00	\$45.00	
Yield per acre (ton)	2.00	1.80	3.94	3.52	
Gross Revenue	\$280.00	\$180.00	\$216.70	\$158.40	
Marginal Returns	\$/acre	\$/acre	\$/acre	\$/acre	
Over Operating Costs	\$18.78	(\$77.85)	(\$79.46)	(\$126.13)	
Over Total Costs (Net Profit)	(\$157.59)	(\$254.23)	(\$281.17)	(\$327.84)	
Operating Expense Ratio	93.3%	143.3%	136.7%	179.6%	
Stablishment Cost (amortized)	\$39.40	\$36.32	\$70.29	\$46.83	
Years of Production	4	7	4	7	

^{1.} Alfalfa hay establishment (without nurse crop) net cost of \$157.59 (total cost minus estimated gross revenue) were amortized over 4 hay production years.

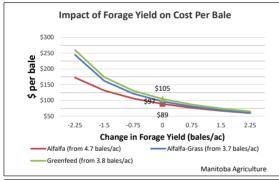
^{2.} Alfalfa-grass hay establishment (with oat greenfeed nurse crop) net cost of \$254.23 (total cost minus estimated gross revenue) were amortized over 7 hay production years.

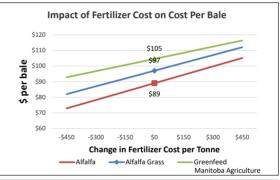
^{3.} Alfalfa silage establishment (without nurse crop) net cost of \$281.17 (total cost minus estimated gross revenue) were amortized over 4 hay production years.

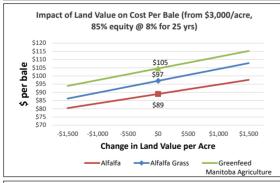
^{4.} Alfalfa-grass silage establishment (with oat greenfeed nurse crop) net cost of \$327.84 (total cost minus estimated gross revenue) were amortized over 7 hay production years.

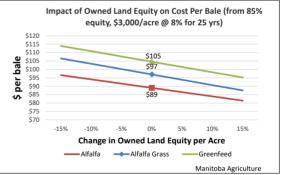
Baled Silage Wrapper Cost Summary (\$ per Bale) Increase/Decrease # Bales Wrapped per Year Alfalfa Baled Silage Alfalfa-Grass Baled Silage Based on # Bales Wrapped Per Year 1,656 2,070 2,588 1,320 1,650 Cost per Wrapped Silage Bale Plastic Silage Wrap Cost \$4.23 \$4.23 \$4.23 \$4.23 \$4.23 \$4.23 Silage Wrapper - Fuel Usage \$0.36 \$0.36 \$0.36 \$0.36 \$0.36 \$0.36 **Machinery Costs** \$3.61 \$2.89 \$2.31 \$4.53 \$3.62 \$2.90 Labour (Additional for wrapper only) \$0.78 \$0.78 \$0.78 \$0.98 \$0.98 \$0.98 Total (\$ per bale) \$8.98 \$7.68 \$10.10 \$9.20 \$8.47

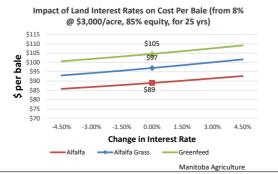
Baseline Values:			Alfalfa	Alfalfa Grass	Greenfeed
Production (Bales per acre)		_	4.7	3.7	3.8
Production Cost (\$ per bale)			\$89.01	\$97.01	\$104.56
Production Cost (\$ per lb.)			\$0.060	\$0.064	\$0.070
	Amo	unt Added		Changed Cost (\$ per bale)	
Change in Forage Yield (bales per acre)		-0.75	\$17.17	\$24.37	\$26.12
Change in Land Value	(from \$3,000)	\$500	\$2.87	\$3.60	\$3.55
Percent Change in Owned Land Equity	(from 85%)	-5%	\$2.53	\$3.17	\$3.13
Change in Land Interest Rate	(from 8%)	1.50%	\$1.18	\$1.49	\$1.46
Change in Machinery Interest Rate	(from 8.5%)	1.50%	\$0.37	\$0.46	\$0.45
Change in Fertilizer Cost (\$ per tonne)		\$150	\$5.37	\$5.01	\$3.93
Total Change in Cost (\$ p		\$ per bale)	\$29.49	\$38.10	\$38.65
'Stress Test'	Production Cost (\$ per Bale)	\$118.49	\$135.11	\$143.21
(\$ per lb.)			\$0.079	\$0.090	\$0.095



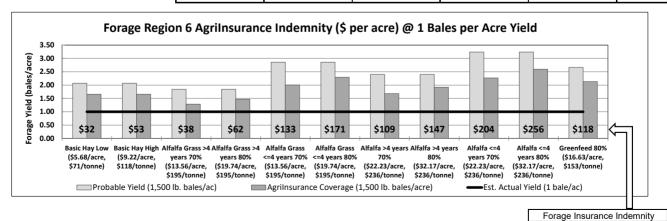


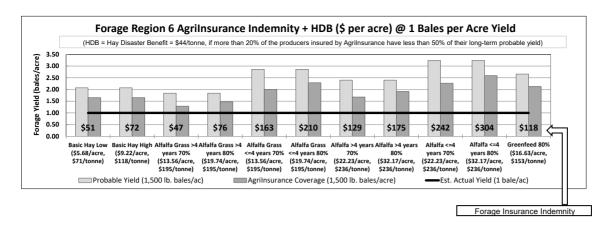


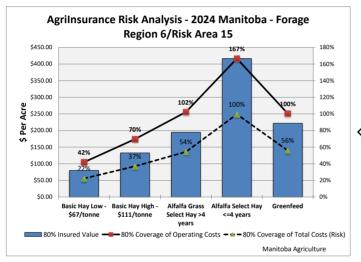




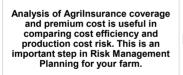
				Agrilns	urance A	nalysis						
							MASC For	age Regior	n Map	MASC F	orage Ins	<u>urance</u>
	Forage Region 6	Basic	: Hay	Alt	falfa Grass	- Select H	ay		Alfalfa - S	Select Hay		Greenfeed
	Risk Area 15	80% Cd	verage	More Than 4	Year Stand	4 Years or	Less Stand	More Than 4	Year Stand	4 Years or	ess Stand	
	Based on 2024 MASC data	Low - \$67/tonne	High - \$111/tonne	70% Coverage	80% Coverage	70% Coverage	80% Coverage	70% Coverage	80% Coverage	70% Coverage	80% Coverage	80% Coverage
A.	Hay Acres	160	160	160	160	160	160	160	160	160	160	160
Co	verage											
В.	Probable Yield - IC (tons/acre)	1.551	1.551	1.378	1.378	2.148	2.148	1.798	1.798	2.432	2.432	1.996
C.	Probable Yield (1,500 lb. bales/ac)	2.07	2.07	1.84	1.84	2.86	2.86	2.40	2.40	3.24	3.24	2.66
D.	Prob. Total No. of 1,500 lb. Bales	331	331	294	294	458	458	384	384	518	518	426
E.	Premium (\$/Acre)	\$5.68	\$9.22	\$13.56	\$19.74	\$13.56	\$19.74	\$22.23	\$32.17	\$22.23	\$32.17	\$16.63
F.	Premium (Total \$) = A x C	\$909	\$1,475	\$2,170	\$3,158	\$2,170	\$3,158	\$3,557	\$5,147	\$3,557	\$5,147	\$2,661
G.	Premium Cost (% of Insured) = E/M	7.1%	6.9%	7.9%	10.1%	5.1%	6.5%	8.2%	10.4%	6.1%	7.7%	7.5%
Co	verage Calculation											
Н.	Coverage (tons/acre) = B x %	1.241	1.241	0.965	1.102	1.504	1.718	1.259	1.438	1.702	1.946	1.597
I.	Coverage (\$/ton)	\$64.41	\$107.05	\$176.90	\$176.90	\$176.90	\$176.90	\$214.10	\$214.10	\$214.10	\$214.10	\$139.00
J.	Coverage (1,500 lb. bales/acre)	1.65	1.65	1.29	1.47	2.01	2.29	1.68	1.92	2.27	2.59	2.13
K.	Coverage No. of 1,500 lb. Bales	265	265	206	235	321	367	269	307	363	415	341
L.	Coverage (\$/bale)	\$48.31	\$80.29	\$132.68	\$132.68	\$132.68	\$132.68	\$160.57	\$160.57	\$160.57	\$160.57	\$104.25
M.	Coverage (\$/acre) = H x I	\$79.93	\$132.85	\$170.71	\$194.95	\$266.06	\$303.92	\$269.55	\$307.87	\$364.39	\$416.63	\$221.98
N.	Coverage (Total \$) = A x M	\$12,789	\$21,255	\$27,314	\$31,191	\$42,570	\$48,627	\$43,127	\$49,259	\$58,303	\$66,661	\$35,517
Inc	Imenity Calculation											
0.	Avg. Forage Yield (bales/acre)	1.0	00	(0.75 to	ns/acre)							
P.	Avg. Total No. of 1,500 lb. Bales	160	160	160	160	160	160	160	160	160	160	160
Q.	Percent of Probable Yield	48%	48%	54%	54%	35%	35%	42%	42%	31%	31%	38%
R.	Forage Indemnity (bales/acre) = J - O	0.65	0.65	0.29	0.47	1.01	1.29	0.68	0.92	1.27	1.59	1.13
S.	Forage Indemnity (tons/acre) = H - O	0.491	0.491	0.215	0.352	0.754	0.968	0.509	0.688	0.952	1.196	0.847
T.	Forage Indemnity (% of coverage)	39.6%	39.6%	22.3%	31.9%	50.1%	56.3%	40.4%	47.8%	55.9%	61.5%	53.0%
U.	Est. Forage Indemnity (\$/acre) = I x S	\$31.63	\$52.56	\$38.03	\$62.27	\$133.38	\$171.24	\$108.97	\$147.30	\$203.82	\$256.06	\$117.73
V.	Estimated Forage Indemnity = A x U	\$5,060	\$8,410	\$6,085	\$9,963	\$21,341	\$27,398	\$17,436	\$23,568	\$32,611	\$40,969	\$18,837
Ha	y Disaster Benefit Calculation											
Χ.	Significant MB hay yield loss	Y	es	(more than 2	ا 0% of the pro	l ducers insure	l d bv Aarilnsu	l Irance have le	ess than 50%	l of their long-t	erm probable	e vield)
Y.	Est. HDB (\$/acre) = S x \$39.92/ton	\$19.60	\$19.60	\$8.58	\$14.05	\$30.10	\$38.64	\$20.32	\$27.46	\$38.00	\$47.74	
Z.	Est. Hay Disaster Benefit = A x Y	\$3,136	\$3,136	\$1,373	\$2,248	\$4,815	\$6,182	\$3,251	\$4,394	\$6,080	\$7,638	n/a
To	tal Indemnity + HDB											
AA.		\$51.22	\$72.16	\$46.62	\$76.32	\$163.48	\$209.88	\$129.29	\$174.76	\$241.82	\$303.80	\$117.73
	Est.Indemnity + HDB = V + Z	\$8,196	\$11,545	\$7,459	\$12,211	\$26,157	\$33,581	\$20,687	\$27,962	\$38,691	\$48,608	\$18,837
	•	,,,,,,,	VII,010	V 1,100	¥ ·-,- · ·	420 ,101	400,00 .	4 20,00.	V =1,00=	400,001	V 10,000	V 10,001
Bre	eakeven Calculation	4 450	4 455	0.000	0.000	4 407	1 606	4 455	4 200	4 500	4 706	4 477
	Est. Breakeven yield (tons/acre) Est. Breakeven yield (bales/acre)	1.153 1.537	1.155 1.540	0.888 1.184	0.990 1.321	1.427 1.903	1.606 2.142	1.155 1.540	1.288 1.717	1.598 2.131	1.796 2.394	1.477 1.970
	, , ,	1.557	1.340	1.104	1.321	1.903	2.142	1.540	1.7 17	2.131	2.394	1.970
Со	sts Not Covered By Agrilnsurance											
	Operating Costs	\$110.73	\$57.82	\$19.95	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Operating & Fixed Costs	\$246.61	\$193.69	\$155.83	\$131.59	\$60.48	\$22.62	\$116.38	\$78.06	\$21.54	\$0.00	\$134.86
	Total Costs	\$279.01	\$226.09	\$188.23	\$163.99	\$92.88	\$55.02	\$148.78	\$110.46	\$53.94	\$1.70	\$175.36
Ag	rilnsurance Risk Ratio	(Agrilnsurar	nce Coverag	e / Cost)								
	Operating Costs	42%	70%	90%	102%	140%	159%	108%	123%	146%	167%	100%
	Total Costs	22%	37%	48%	54%	74%	85%	64%	74%	87%	100%	56%

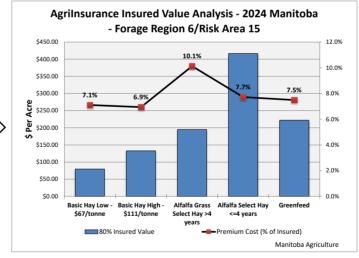


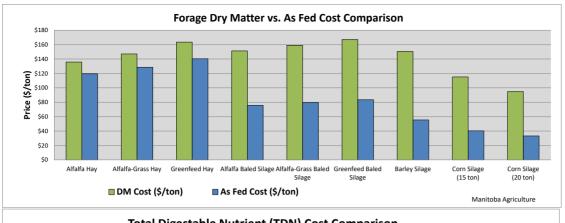


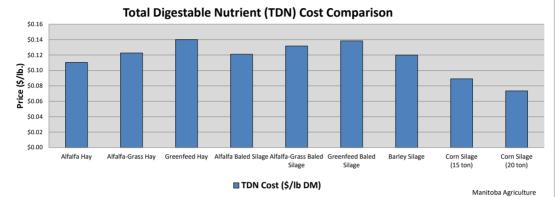


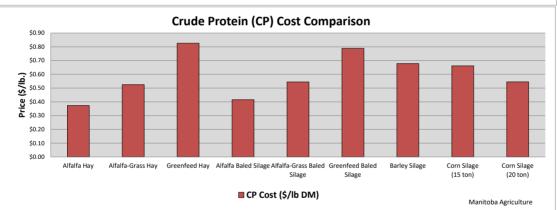
Analysis of your Agrilnsurance coverage of operating and total costs is an important step in Risk Management Planning for your farm.













Estimated Yield of Forage - Tons per Acre ¹

	Dry Hay			Wra	pped Bale Si	lage
	Alfalfa	Alfalfa-Grass	Greenfeed	Alfalfa	Alfalfa-Grass	Greenfeed
<u>Years</u>	tons/acre	tons/acre	tons/acre	tons/acre	tons/acre	tons/acre
(establishment year) 1	2.0	1.8	2.83	3.94	3.52	5.52
2	3.6	3.2		7.09	6.27	
3	3.6	3.2		7.09	6.27	
4	3.6	3.0		7.09	5.87	
5	3.2	2.8		6.30	5.48	
6		2.6			5.09	
7		2.4			4.70	
8		2.3			4.50	
9						
10						
11						
Total Yield (tons)	14.0	19.5	2.83	27.6	38.2	5.52
Average Yield (tons/acre)	3.50	2.79	2.83	6.89	5.45	5.52
Avg. Dry Matter Yield (tons/acre)	3.08	2.44	2.43	3.45	2.73	2.76
Bales (per acre)	4.7	3.7	3.8	6.9	5.5	5.5
Years production	4	7	1	4	7	1
Years rotation	5	8	1	5	8	1
Agrilnsurance - Individual Coverage	1.00	1.00	1.00	1.00	1.00	1.00
	Dry Hay		<u>w</u>	rapped Silage		
Bale Weight (lbs.)	1,500			2,000		
Estimated Storage Loss	20%			5%		

Forage A	Analysis
----------	----------

		Dry Hay			Wrapped Bale Silage				
	Alfalfa	Alfalfa-Grass	Greenfeed	Alfalfa	Alfalfa-Grass	Greenfeed			
Crude protein DM (CP)%	18.2	14.0	9.9	18.2	14.6	10.6			
Energy DM (TDN) %	61.5	60.0	58.4	62.5	60.4	60.4			
As fed moisture %	12.1	12.6	14.2	50.0	50.0	50.0			

Users are reminded to adjust fertilizer rates when making changes to forage yields.
 Forage yields are based on Forage Region #6 average yields with an IC of 1.25. Baled Silage DM yields are increased 12%.

Seed & Treatment								
Crop	Seeding Rate <u>per Acre</u>	Price per Unit	Cost <u>per Acre</u>					
Alfalfa Hay								
Alfalfa hay	10 lb.	\$4.25 /lb.	\$42.50					
Alfalfa-Grass Hay								
Alfalfa-grass hay	10 lb.	\$3.60 /lb.	\$36.00					
Oat greenfeed (nurse crop)	1.25 bu	\$12.00 /bu	\$15.00					
Greenfeed Hay								
Oats	2.50 bu	\$12.00 /bu	\$30.00					

Fertilizer ¹									
Fertilizer Type	Bulk Price \$/tonne	Actual Nutrient \$/lb.	Nitrogen <u>Usage</u>	Sulphur <u>Usage</u>					
Nitrogen: (urea) 46-0-0	\$825	\$0.814	100%	-					
Nitrogen: (NH3) 82-0-0	\$1,300	\$0.719	0%	-					
Nitrogen: (liquid) 28-0-0	\$500	\$0.810	0%	-					
Phosphorus: 11-52-0	\$1,075	\$0.766	-	-					
Potash: 0-0-60	\$625	\$0.473	-	-					
Sulphur: 20.5-0-0-24	\$600	\$0.439	-	100%					
MES S15: 13-33-0-15	\$1,000	\$0.635	-	0%					

	Aı	Amount of Actual Pounds of Elements Applied Per Acre							
	Nitr	ogen	Phosp	horus	Po	tash	Su	lphur	Total
Crop	<u>lbs.</u>	\$/acre	<u>lbs.</u>	\$/acre	<u>lbs.</u>	\$/acre	<u>lbs.</u>	\$/acre	\$/acre
Alfalfa Hay									
Alfalfa hay	0	\$0.00	60	\$56.26	65	\$30.71	17	\$19.28	\$106.25
Alfalfa-Grass Hay									
Alfalfa-grass hay	0	\$0.00	45	\$42.20	52	\$24.57	15	\$17.01	\$83.78
Oat greenfeed (nurse crop)	50	\$21.65	50	\$46.89	30	\$14.17	15	\$17.01	\$99.72
Greenfeed Hay									
Oats	80	\$59.92	30	\$28.13	0	\$0.00	0	\$0.00	\$88.05

The fertilizer recommendation will vary depending on the soil type, climate and crop rotation. Manitoba Agriculture recommends that soil test sampling and analysis be conducted each year to produce a better baseline for fertility. On many Manitoba soil types, potash application can be reduced based on soil test results. Custom soil sampling and analysis typically costs \$1.00 to \$2.00/acre.

^{1.} Users are reminded to adjust silage yields when making changes to fertilizer rates.

		Chemic	als	
Стор	Weed Control \$/acre	Insect Control \$/acre	Forage Removal \$/acre	Total Cost <u>\$/acre</u>
Alfalfa Hay	Ţ. u. u. u	7.00.0	4.000	
Alfalfa hay	\$0.00	\$0.00		\$0.00
Alfalfa establishment	\$20.00	\$0.00	\$15.00	\$35.00
Alfalfa-Grass Hay				
Alfalfa-grass hay	\$0.00	\$0.00		\$0.00
Oat greenfeed (nurse crop)	\$20.00	\$0.00	\$15.00	\$35.00

Operating Costs

\$60.00 Interest Rate on Operating 9.00% Twine/net wrap cost per unit 3.50% (% of total investment) 50 (\$1.20/bale) Hay machinery repair Bales per unit **\$150.00** (per roll) Land Taxes (\$/acre) \$10.00 Plastic Silage Wrap Cost Fuel Cost (\$/litre) \$1.40 Bales per Roll Silage Wrap 35.5 (bales/roll) Labour Cost per Hour \$27.00 Silage Wrapper - Fuel Usage 0.26 (Litres / bale)

	Dry Hay				
					Greenfeed
	Alfalfa Hay		Alfalfa Grass	s Hay	Hay
	Establishment	Production	Establishment	Production	Production
Field Fuel Cost (\$/acre)	\$22.33	\$14.14	\$18.27	\$9.86	\$16.69
Crop Insurance 1 (\$/acre)		Select_Hay		Basic_Hay	
		80%		High -	80% Coverage
		Coverage		\$97/tonne	
	\$5.00	\$32.17	\$5.00	\$9.22	\$17.15
Other Costs (\$/acre)	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Rental and Custom Work					
Seeding (\$/ace)	\$0.00	-	\$0.00	-	\$0.00
Application (\$/acre)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mower/Conditioner (\$/acre)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Baling (\$/bale)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bale Moving (\$/bale)	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
General (\$/acre)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total (\$/acre)	\$8.00	\$14.00	\$7.20	\$11.16	\$11.32
Labour Hours per Acre					
Hours per acre	1.5	1.2	1.5	1.2	1.5
Total (\$/acre)	\$40.50	\$32.40	\$40.50	\$32.40	\$40.50

Wrapped Bale Silage											
Alfalfa		Alfalfa G	Greenfeed Hay								
Establishment	Production	Establishment	Production	Production							
\$23.76	\$16.65	\$19.55	\$11.86	\$18.69							
Select_Hay		Basic_Hay									
80%		High -	80% Coverage								
Coverage		\$97/tonne									
\$5.00	\$32.17	\$5.00	\$9.22	\$17.15							
\$2.00	\$2.00	\$2.00	\$2.00	\$2.00							
\$0.00	-	\$0.00	-	\$0.00							
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00							
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00							
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00							
\$3.00	\$3.00	\$3.00	\$3.00	\$3.00							
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00							
\$11.82	\$20.67	\$10.56	\$16.35	\$16.56							
1.7	1.4	1.7	1.4	1.7							
\$45.90	\$37.80	\$45.90	\$37.80	\$45.90							

^{1.} Crop insurance: (2022 rates) Forage Establishment Insurance for \$80/ac coverage. Annual Insurance for Alfalfa Select_Hay coverage in MASC (Forage Region 6) with LTAY yield=2.432 tons/acre and for Alfalfa Grass Basic_Hay coverage with LTAY 4 Years or Less Stand yield=2.148 tons/acre. Annual Insurance for Greenfeed 80% Coverage coverage in MASC (Risk Area 15) with LTAY yield=1.996 tons/acre including \$0.52/acre EMI coverage.

Field Fuel Usage											
					Number	of Field Op	perations				Trucks
						SP				spin	3/4 ton
		cultivate	tandem disk	harrow	air drill	sprayer	hay rake	hay bine	round baler	spreader	pickup
Crop	L/acre	1.29	1.85	0.75	2.42	0.42	0.26	1.48	1.32	0.42	0.5
Alfalfa Hay											
Alfalfa hay	10.10	0	0	0	0	0	3	3	3	1	0.5
Alfalfa establishment	15.95	1	2	2	1	1	2	2	2	0	0.5
Alfalfa-Grass Hay											
Alfalfa-grass hay	7.04	0	0	0	0	0	2	2	2	1	0.5
Oat greenfeed (nurse crop)	13.05	1	2	2	1	1	0	1	1	1	0.5
Greenfeed Hay											
Oats	11.92	1	0	1	1	2	2	2	2	0	0.5

		Fixed Costs	
<u>Land</u>		Machinery - Hay	
Average Land value (\$/acre)	\$3,000	Total Investment (\$/acre)	\$379.50
Dry Hay Crop acres	300	Residual Value (End of Useful Life)	25%
Baled Silage Crop acres	300	Useful Life (years)	15
Owned Land Equity	85%	Owned Equipment Equity	55%
Land Financed (\$450 per acre)	15%	Equipment Financed (\$171 per acre)	45%
Land Opportunity Cost (Investment Rate)	1.50%	Machinery Opportunity Cost (Investment Rate)	1.50%
Land cost (\$/acre)		Machinery Cost - Hay (\$/acre)	
Finance Rate & Term 8.000%	25 Yea	ars Finance Rate & Term 8.500%	7 Years
Principle & Interest Cost	\$42.16	Principle & Interest Cost	\$33.36
Owned Land Opportunity Cost	\$38.25	Machinery Depreciation Cost	\$18.98
Total Cost	\$80.41	Owned Machinery Opportunity Cost	\$3.13
		Total Cost	\$55.47
Machinery Lease cost (\$/acre)	\$2.40	Machinery - Baled Silage	
		Total Investment (\$/acre)	\$133.33
		Residual Value (End of Useful Life)	20%
Total Land & Machinery Debt (\$/acre)	\$681	Useful Life (years)	15
,		Owned Equipment Equity	55%
		Equipment Financed (\$60 per acre)	45%
		Silage Storage Opp. Cost (Investment Rate)	1.50%
		Machinery Cost - Baled Silage (\$/acre)	
		Finance Rate & Term 8.500%	7 Years
		Principle & Interest Cost	\$11.72
		Machinery Depreciation Cost	\$7.11
		Owned Machinery Opportunity Cost	\$1.10
		Total Cost	\$19.93

Hay Equipment Inventory and Current Values										
	Market	Forage	Forage		Market	Forage	Forage			
Power & Misc Equipment	<u>Value</u>	Usage %	Allocation	Harvest Equipment	<u>Value</u>	Usage %	Allocation			
MFD Tractor 100HP	\$140,000	50%	\$70,000	Mower/Conditioner	\$44,000	100%	\$44,000			
2WD Tractor 60HP	\$44,000	50%	\$22,000	Hay Rake	\$16,500	100%	\$16,500			
	\$0	0%	\$0	Baler	\$60,000	100%	\$60,000			
	\$0	0%	\$0		\$0	0%	\$0			
	\$0	0%	\$0		\$0	0%	\$0			
	\$0	0%	\$0		\$0	0%	\$0			
	\$0	0%	\$0		\$0	0%	\$0			
	\$0	0%	\$0		\$0	0%	\$0			
To	otal		\$92,000	•	Total		\$120,500			

	Market	Forage	Forage			Market	Forage	Forage
Seeding, Tillage, Spraying	<u>Value</u>	<u>Usage %</u>	<u>Allocation</u>	Trucks & Trailers		<u>Value</u>	<u>Usage %</u>	<u>Allocation</u>
Cultivator	\$11,000	20%	\$2,200	enter equipment here		\$0	0%	\$0
Harrow 50ft	\$11,000	20%	\$2,200			\$0	0%	\$0
Air tank	\$11,000	20%	\$2,200			\$0	0%	\$0
Air drill 40ft	\$33,000	20%	\$6,600			\$0	0%	\$0
PT sprayer	\$10,000	20%	\$2,000			\$0	0%	\$0
	\$0	0%	\$0			\$0	0%	\$0
	\$0	0%	\$0			\$0	0%	\$0
	\$0	0%	\$0			\$0	0%	\$0
Total	\$76,000		\$15,200		Total			\$0
Owned Equipment TOTAL	\$227,700]						

Baled Silage Equipment Inventory and Current Values										
Miscellaneous Equipment	Market Value	Forage Usage %	Forage Allocation	Harvest Equipment		Market <u>Value</u>	Forage Usage %	Forage Allocation		
enter equipment here	\$0	0%	\$0	Silage Bale Wrapper		\$40,000	100%	\$40,000		
	\$0	0%	\$0			\$0	0%	\$0		
	\$0	0%	\$0			\$0	0%	\$0		
	\$0	0%	\$0			\$0	0%	\$0		
Total			\$0		Total			\$40,000		
Silage Equipment TOTAL	\$40,000									

	Leased Equipment Inventory									
	Annual	Forage	Forage			Annual	Forage	Forage		
Seeding, Tillage, Spraying	<u>Lease</u>	Usage %	<u>Allocation</u>	Trucks & Trailers		<u>Lease</u>	Usage %	<u>Allocation</u>		
enter equipment here	\$0	0%	\$0	3/4 ton pickup		\$9,600	15%	\$1,440		
	\$0	0%	\$0			\$0	0%	\$0		
	\$0	0%	\$0			\$0	0%	\$0		
	\$0	0%	\$0			\$0	0%	\$0		
	\$0	0%	\$0			\$0	0%	\$0		
	\$0	0%	\$0			\$0	0%	\$0		
Total	\$0		\$0		Total	•	•	\$1,440		
1 1 1 1 1 1	04 440	00.40								

Leased Equipment TOTAL \$1,440 \$2.40 per acre
* Leased equipment costs are listed under Operating Costs on the Summary Page.

Other Assumptions

Fuel Costs:

Includes fuel used for field work, and trucking in inputs.

Machinery Operating Costs:

Includes costs for maintenance, repairs, licenses and insurance.

Crop Insurance: (2023 rates)

Forage Region 6 - Establishment Insurance at \$80/ac coverage and annual Select_Hay insurance at 80% coverage. Risk Area 15 - Greenfeed Insurance at 80% coverage.

Other Costs:

Includes overhead expenses: hydro, telephone, accounting, buildings, supplies and insurance, etc.

Bale Moisture:

Bale moisture based on: 12.1% alfalfa hay; 12.6% alfalfa-grass hay; 14.2% greenfeed hay; 50% alfalfa baled silage; 50% alfalfa-grass baled silage and 50% greenfeed baled silage.

Land Taxes:

The average for the province was based on land tax assessment and mill rates of a sample of municipalities growing crops less provincial tax rebate.

Interest On Operating:

Interest charges on operating costs are calculated at 9% for six months.

Land Cost:

Based on approximate average land values. Budget assumed 15% financed at 8% for 25 years, plus 1.5% land equity opportunity cost. Budget can be used to estimate cashflow by removing investment cost.

P&I Cost (based on \$270,000 Mortgage) = \$25,293 payments per year) / 600 acres = \$42.16/acre)
Investment = (Total Investment x Owned Equity %) x Investment Rate % (eg. ((\$3,000 x 85%) x 1.5%) = \$38.25/acre)

Machinery Cost:

Based on approximate average machinery values. Budget assumed 45% financed at 8.5% for 7 years, depreciation costs over 15 years with a 25% residual value, plus 1.5% machinery equity opportunity cost. Budget can be used to estimate cashflow by removing depreciation and investment cost.

P&I Cost (based on \$102,465 + \$18,000 Loan) = \$20,019 + \$3,517 payment per year) / 600 + 300 acres = \$33.36 + \$11.72/acre)

Depreciation (Useage Cost) = (Total Investment - Residual Value) / Years Useful Life (eg. $(\$379.50 - (\$379.50 \times 25\%)) / 15 = \$18.98/acre)$ Investment = (Total Investment x Owned Equity %) x Investment Rate % (eg. $(\$379.50 \times 55\%) \times 1.5\%$) = \$3.13/acre)

Estimated Farmgate Values:

Forage prices are based on estimated prices for fall/winter 2023/24.

Storage Cost:

Dry hay storage costs are estimated at \$0.00 per acre.

Profitability & Breakeven Analysis:

Gross Revenue = Price per unit x Yield per acre (eg. alfalfa: \$160.00/ton x 3.5 ton/ac = \$560.00/ac)

Net Profit = Gross Revenue - Total Cost

(eg. alfalfa: \$560.00 gross revenue - \$418.33 total cost = \$141.67 per acre)

Operating Expense Ratio = (Operating Cost / Gross Revenue) x 100

(eg. alfalfa: \$250.05 operating expense / \$560.00 gross revenue = 44.7%)

Breakeven Price = Cost / Target Yield (eg. alfalfa cost \$418.33 / 3.5 ton = \$119.52 per ton)

Breakeven Yield = Cost / Price per Unit (eg. alfalfa cost \$418.33 / \$160.00 ton = 2.61 ton)

January, 2024

Contact Us

For more information, contact a Farm Management Specialist.

- manitoba.ca/agriculture
- mbfarmbusiness@gov.mb.ca
- 1-844-769-6224

Contact us

- Go to manitoba.ca/agriculture
- Toll free at 1-844-769-6224
- Email us at mbfarmbusiness@gov.mb.ca
- Follow us on Twitter @MBGovAg
- Visit your nearest ARD/MASC Service Centre