

Department of Agricultural and Resource Economics

2025 Tennessee Hay Budgets

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The 2025 Tennessee Hay Budgets were developed to assist producers and agricultural decision-makers in evaluating the profitability of various forage options. These budgets incorporate common production practices, management strategies, custom machinery hire rates and inputs typically used in forage production across Tennessee. The budgets are based on custom machinery rates, which include labor, operating, maintenance and ownership costs.

Given the diverse nature of hay production in the state, it is impossible to account for every possible scenario and circumstance. Therefore, this guide is intended to support decision-makers in planning efforts. To create a custom budget tailored to a specific field or operation, individuals are encouraged to use the University of Tennessee Extension's Excel-based spreadsheet tool available at arec.tennessee.edu/extension/budgets. This spreadsheet follows the same format as the budgets provided in this document but allows users to customize yields, input quantities and prices, machinery rates and add any additional costs specific to individual fields or hay production. This flexibility enables users to account for regional and site-specific production methods and input choices.



Figure 1. *Tennessee hay producers can use the forage budget calculator as a valuable risk management tool.*

This publication, along with the Excel spreadsheet, provides planning budgets for various forage types. Fertilizer recommendations in the forage budgets are generally based on medium soil test results. Producers are encouraged to test soils to maximize the return on fertilizer investments. Fertilizer applications can then be adjusted to align with soil test recommendations as forage plans are developed. To connect with a local Extension agent for personalized consultation and assistance, visit utextension.tennessee.edu.

Disclaimer

Significant variability exists in inputs, prices and production methods across forage production. The information in this document is based on estimates and assumptions specific to Tennessee forage production and may not reflect all circumstances statewide. Regional differences are expected, and users are encouraged to incorporate farm-specific inputs, prices and processes into budget calculations for greater accuracy.

Maximizing Forage Efficiency to Reduce Feeding Costs in Tennessee Cattle Operations

Effective utilization of available forage resources is essential for minimizing feeding costs in cattle operations. In the Southeastern U.S., winters are generally mild, yet hay remains the primary feed source for cattle from November through March. In Tennessee, most producers provide hay for at least 80 days during the winter, with an additional 20 to 70 days required in the fall. This results in a typical feeding period of 100 to 150 days with an average of approximately 130 days. While feeding hay and supplements increases operational costs, enhancing both the yield and quality of hay production can significantly improve cost efficiency and overall profitability.

One fundamental step in optimizing hay production is regular soil testing. As fertilizer prices increase, soil test reports become increasingly valuable. Making fertilizer applications based on site-specific soil needs is far more cost-effective than applying uniform rates across all fields. Soil variability can be influenced by factors such as the field's establishment year, harvest frequency, elevation and landscape position (hilltop, slope or low-lying area). Adjusting nutrient applications to match the unique requirements of each field maximizes forage production while reducing unnecessary input costs.

Another critical aspect of hayfield management is maintaining an appropriate cutting height. Cutting too close to the ground, known as "scalping," can weaken plants by forcing them to deplete energy reserves for regrowth. This slows recovery and reduces overall yield. Additionally, lower portions of the plant contain more stems and dead tissue, diminishing forage quality. To promote plant health and improve forage quality, adjust hay mower settings to leave approximately four inches of stubble. This practice helps preserve root energy reserves, accelerates regrowth and enhances the nutritional value of the hay.

Harvest timing is equally important for producing high-quality hay. As plants mature, they develop more stems and fewer leaves, leading to increased fiber and lignin content, which reduces digestibility for livestock. To maximize forage quality, producers should aim to harvest grass hay at the boot stage—when the seedhead is just beginning to emerge but has not yet fully developed. Harvesting at this stage ensures optimal digestibility and nutrient density, providing livestock with high-quality forage that supports health and productivity.

By implementing strategic soil management, maintaining appropriate cutting heights and optimizing harvest timing, Tennessee cattle producers can improve forage efficiency, reduce feeding costs, and enhance the overall sustainability of their operations.

Hay Budgets

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Cool Season Grass, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Fescue	ton	3.00	\$150.00	\$ 450.00	\$ 150.00	\$ 53.25	
Expenses								
Prorated Establishment Costs		acre	0.17	\$255.83	\$ 42.64	\$ 14.21	\$ 5.05	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 23.95	\$ 8.50	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 6.14	\$ 2.18	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 4.09	\$ 1.45	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 8.47	\$ 3.01	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 4.80	\$ 1.70	
	Weed Control							
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 4.10	\$ 1.45	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 3.94	\$ 1.40	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 209.07	\$ 69.69	\$ 24.74	
Return over Variable Expenses					\$ 240.93	\$ 80.31	\$ 28.51	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 11.00	\$ 3.91	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 4.45	\$ 1.58	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 5.78	\$ 2.05	
Baling		cutting	2	\$ 13.17	\$ 111.30	\$ 37.10	\$ 13.17	
Hauling		bale	8.45	\$ 5.42	\$ 45.80	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 220.78	\$ 73.59	\$ 26.13	
Interest on Operating Capital	6 months	acre	\$ 209.07	8.0%	\$ 8.36	\$ 2.79	\$ 0.99	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	8.45	\$ 4.43	\$ 37.46	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.34	\$ 5.11	\$ 1.81	
Total Storage Cost					\$ 52.80	\$ 17.60	\$ 6.25	
Total Budgeted Expenses					\$ 491.01	\$ 163.67	\$ 58.10	
Return to Land & Management					\$ (41.01)	\$ (13.67)	\$ (4.85)	

Cool Season Grass, Establishment
Estimated Expenses per Acre

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed Fertilizer	Fescue	lb	17.50	\$ 1.33	\$ 23.28
	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 218.21
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 218.21	8.0%	\$ 8.73
Total Budgeted Expenses					\$ 255.83

**Establishment
Prorated Over
Years
6⁸**

Cool Season Grass, Hay- Fescue

Sensitivity Analysis

Return Above Variable Expenses

Yield (ton)	Price (\$/ton)				
	\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
2.0	\$ (9.07)	\$ 40.93	\$ 90.93	\$ 140.93	\$ 190.93
2.5	\$ 40.93	\$ 103.43	\$ 165.93	\$ 228.43	\$ 290.93
3.0	\$ 90.93	\$ 165.93	\$ 240.93	\$ 315.93	\$ 390.93
3.5	\$ 140.93	\$ 228.43	\$ 315.93	\$ 403.43	\$ 490.93
4.0	\$ 190.93	\$ 290.93	\$ 390.93	\$ 490.93	\$ 590.93

Return Above Fixed Expenses

Yield (ton)	Price (\$/ton)				
	\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
2.0	\$ (291.01)	\$ (241.01)	\$ (191.01)	\$ (141.01)	\$ (91.01)
2.5	\$ (241.01)	\$ (178.51)	\$ (116.01)	\$ (53.51)	\$ 8.99
3.0	\$ (191.01)	\$ (116.01)	\$ (41.01)	\$ 33.99	\$ 108.99
3.5	\$ (141.01)	\$ (53.51)	\$ 33.99	\$ 121.49	\$ 208.99
4.0	\$ (91.01)	\$ 8.99	\$ 108.99	\$ 208.99	\$ 308.99

Sensitivity Analysis

Yield	Variable (per bale)	Total Costs (per bale)
	1.7	\$43.98
2.3	\$32.99	\$77.47
3.0	\$24.74	\$58.10
3.8	\$19.79	\$46.48
4.7	\$15.83	\$37.19

Return Above Fixed Expenses

Yield (bale)	Price (\$/bale)				
	\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
4.5	\$ (67.07)	\$ (62.07)	\$ (57.07)	\$ (52.07)	\$ (47.07)
6.5	\$ (32.87)	\$ (27.87)	\$ (22.87)	\$ (17.87)	\$ (12.87)
8.5	\$ (14.85)	\$ (9.85)	\$ (4.85)	\$ 0.15	\$ 5.15
10.5	\$ (3.73)	\$ 1.27	\$ 6.27	\$ 11.27	\$ 16.27
12.5	\$ 3.81	\$ 8.81	\$ 13.81	\$ 18.81	\$ 23.81

**Cool Season Grass, Hay, Square Bale
Estimated Expenses per Acre^{1,2}**

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square 50
Income								
Hay	Fescue	ton	3.00	\$320.00	\$ 960.00	\$ 320.00	\$ 8.00	
Expenses								
Prorated Establishment Costs		acre	0.17	\$255.83	\$ 42.64	\$ 14.21	\$ 0.36	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 23.95	\$ 0.60	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 6.14	\$ 0.15	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 4.09	\$ 0.10	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 8.47	\$ 0.21	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 4.80	\$ 0.12	
	Total Variable Expenses \$ 209.07 \$ 69.69 \$ 1.74							
Return over Variable Expenses					\$ 750.93	\$ 250.31	\$ 6.26	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 11.00	\$ 0.28	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 4.45	\$ 0.11	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 5.78	\$ 0.14	
Baling		cutting	2	\$ 1.09	\$ 130.80	\$ 43.60	\$ 1.09	
Hauling		bale	120.00	\$ 0.75	\$ 90.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 284.48	\$ 94.83	\$ 2.37	
Interest on Operating Capital	6 months	acre	\$ 209.07	8.0%	\$ 8.36	\$ 2.79	\$ 0.07	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	120.00	\$ 0.23	\$ 27.45	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 17.57	\$ 5.86	\$ 0.15	
Total Storage Cost					\$ 45.02	\$ 15.01	\$ 0.38	
Total Budgeted Expenses					\$ 546.93	\$ 182.31	\$ 4.56	
Return to Land & Management					\$ 413.07	\$ 137.69	\$ 3.44	

**Cool Season Grass, Establishment
Estimated Expenses per Acre**

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Fescue	lb	17.50	\$ 1.33	\$ 23.28
	Fertilizer	N	30.00	\$ 0.60	\$ 17.96
Lime & Application	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 218.21
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 218.21	8.0%	\$ 8.73
Total Budgeted Expenses					\$ 255.83

**Establishment
Prorated Over
Years
6⁸**

Cool Season Grass, Hay- Fescue

Sensitivity Analysis

Return Above Variable Expenses

Yield (ton)	Price (\$/ton)				
	\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
2.0	\$ 330.93	\$ 380.93	\$ 430.93	\$ 480.93	\$ 530.93
2.5	\$ 465.93	\$ 528.43	\$ 590.93	\$ 653.43	\$ 715.93
3.0	\$ 600.93	\$ 675.93	\$ 750.93	\$ 825.93	\$ 900.93
3.5	\$ 735.93	\$ 823.43	\$ 910.93	\$ 998.43	\$ 1,085.93
4.0	\$ 870.93	\$ 970.93	\$ 1,070.93	\$ 1,170.93	\$ 1,270.93

Return Above Fixed Expenses

Yield (ton)	Price (\$/ton)				
	\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
2.0	\$ (6.93)	\$ 43.07	\$ 93.07	\$ 143.07	\$ 193.07
2.5	\$ 128.07	\$ 190.57	\$ 253.07	\$ 315.57	\$ 378.07
3.0	\$ 263.07	\$ 338.07	\$ 413.07	\$ 488.07	\$ 563.07
3.5	\$ 398.07	\$ 485.57	\$ 573.07	\$ 660.57	\$ 748.07
4.0	\$ 533.07	\$ 633.07	\$ 733.07	\$ 833.07	\$ 933.07

Sensitivity Analysis

Yield	Variable (per bale)	Total Costs (per bale)
	1.7	\$3.10
2.3	\$2.32	\$6.08
3.0	\$1.74	\$4.56
3.8	\$1.39	\$3.65
4.7	\$1.12	\$2.92

Return Above Fixed Expenses

Yield (bale)	Price (\$/bale)				
	\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
116.0	\$ 1.29	\$ 2.29	\$ 3.29	\$ 4.29	\$ 5.29
118.0	\$ 1.36	\$ 2.36	\$ 3.36	\$ 4.36	\$ 5.36
120.0	\$ 1.44	\$ 2.44	\$ 3.44	\$ 4.44	\$ 5.44
122.0	\$ 1.52	\$ 2.52	\$ 3.52	\$ 4.52	\$ 5.52
124.0	\$ 1.59	\$ 2.59	\$ 3.59	\$ 4.59	\$ 5.59

**Cool Season Grass, Hay, Round Bale
Estimated Expenses per Acre^{1,2}**

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Orchardgrass	ton	3.00	\$220.00	\$ 660.00	\$ 220.00	\$ 78.10	
Expenses								
Prorated Establishment Costs		acre	0.17	\$270.88	\$ 45.15	\$ 15.05	\$ 5.34	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 23.95	\$ 8.50	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 6.14	\$ 2.18	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 4.09	\$ 1.45	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 8.47	\$ 3.01	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 4.80	\$ 1.70	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 4.10	\$ 1.45	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 3.94	\$ 1.40	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 211.58	\$ 70.53	\$ 25.04	
Return over Variable Expenses					\$ 448.42	\$ 149.47	\$ 53.06	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 11.00	\$ 3.91	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 4.45	\$ 1.58	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 5.78	\$ 2.05	
Baling		cutting	2	\$ 13.17	\$ 111.30	\$ 37.10	\$ 13.17	
Hauling		bale	8.45	\$ 5.42	\$ 45.80	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 220.78	\$ 73.59	\$ 26.13	
Interest on Operating Capital	6 months	acre	\$ 211.58	8.0%	\$ 8.46	\$ 2.82	\$ 1.00	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	8.45	\$ 4.43	\$ 37.46	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.43	\$ 5.14	\$ 1.83	
Total Storage Cost					\$ 52.89	\$ 17.63	\$ 6.26	
Total Budgeted Expenses					\$ 493.71	\$ 164.57	\$ 58.42	
Return to Land & Management					\$ 166.29	\$ 55.43	\$ 19.68	

**Cool Season Grass, Establishment
Estimated Expenses per Acre**

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Orchardgrass	lb	12.50	\$ 3.02	\$ 37.75
Fertilizer	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 232.68
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 232.68	8.0%	\$ 9.31
Total Budgeted Expenses					\$ 270.88

**Establishment
Prorated Over
Years
6⁸**

Cool Season Grass, Hay- Orchardgrass

Sensitivity Analysis

Return Above Variable Expenses

Yield (ton)	Price (\$/ton)				
	\$ 170.00	\$ 195.00	\$ 220.00	\$ 245.00	\$ 270.00
2.0	\$ 128.42	\$ 178.42	\$ 228.42	\$ 278.42	\$ 328.42
2.5	\$ 213.42	\$ 275.92	\$ 338.42	\$ 400.92	\$ 463.42
3.0	\$ 298.42	\$ 373.42	\$ 448.42	\$ 523.42	\$ 598.42
3.5	\$ 383.42	\$ 470.92	\$ 558.42	\$ 645.92	\$ 733.42
4.0	\$ 468.42	\$ 568.42	\$ 668.42	\$ 768.42	\$ 868.42

Return Above Fixed Expenses

Yield (ton)	Price (\$/ton)				
	\$ 170.00	\$ 195.00	\$ 220.00	\$ 245.00	\$ 270.00
2.0	\$ (153.71)	\$ (103.71)	\$ (53.71)	\$ (3.71)	\$ 46.29
2.5	\$ (68.71)	\$ (6.21)	\$ 56.29	\$ 118.79	\$ 181.29
3.0	\$ 16.29	\$ 91.29	\$ 166.29	\$ 241.29	\$ 316.29
3.5	\$ 101.29	\$ 188.79	\$ 276.29	\$ 363.79	\$ 451.29
4.0	\$ 186.29	\$ 286.29	\$ 386.29	\$ 486.29	\$ 586.29

Sensitivity Analysis

Yield	Variable (per bale)	Total Costs (per bale)
	1.7	\$44.51
2.3	\$33.38	\$77.90
3.0	\$25.04	\$58.42
3.8	\$20.03	\$46.74
4.7	\$16.02	\$37.39

Return Above Fixed Expenses

Yield (bale)	Price (\$/bale)				
	\$ 68.10	\$ 73.10	\$ 78.10	\$ 83.10	\$ 88.10
4.5	\$ (42.83)	\$ (37.83)	\$ (32.83)	\$ (27.83)	\$ (22.83)
6.5	\$ (8.44)	\$ (3.44)	\$ 1.56	\$ 6.56	\$ 11.56
8.5	\$ 9.68	\$ 14.68	\$ 19.68	\$ 24.68	\$ 29.68
10.5	\$ 20.86	\$ 25.86	\$ 30.86	\$ 35.86	\$ 40.86
12.5	\$ 28.45	\$ 33.45	\$ 38.45	\$ 43.45	\$ 48.45

**Cool Season Grass, Hay, Square Bale
Estimated Expenses per Acre^{1,2}**

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square 50
Income								
Hay	Orchardgrass	ton	3.00	\$400.00	\$ 1,200.00	\$ 400.00	\$ 10.00	
Expenses								
Prorated Establishment Costs		acre	0.17	\$270.88	\$ 45.15	\$ 15.05	\$ 0.38	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 23.95	\$ 0.60	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 6.14	\$ 0.15	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 4.09	\$ 0.10	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 8.47	\$ 0.21	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 4.80	\$ 0.12	
	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 4.10	\$ 0.10	
Post-Emerge ⁶	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 3.94	\$ 0.10	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 211.58	\$ 70.53	\$ 1.76	
Return over Variable Expenses					\$ 988.42	\$ 329.47	\$ 8.24	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 11.00	\$ 0.28	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 4.45	\$ 0.11	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 5.78	\$ 0.14	
Baling		cutting	2	\$ 1.09	\$ 130.80	\$ 43.60	\$ 1.09	
Hauling		bale	120.00	\$ 0.75	\$ 90.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 284.48	\$ 94.83	\$ 2.37	
Interest on Operating Capital	6 months	acre	\$ 211.58	8.0%	\$ 8.46	\$ 2.82	\$ 0.07	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	120.00	\$ 0.23	\$ 27.45	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 17.66	\$ 5.89	\$ 0.15	
Total Storage Cost					\$ 45.11	\$ 15.04	\$ 0.38	
Total Budgeted Expenses					\$ 549.63	\$ 183.21	\$ 4.58	
Return to Land & Management					\$ 650.37	\$ 216.79	\$ 5.42	

**Cool Season Grass, Establishment
Estimated Expenses per Acre**

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed Fertilizer	Orchardgrass	lb	12.50	\$ 3.02	\$ 37.75
	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 232.68
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 232.68	8.0%	\$ 9.31
Total Budgeted Expenses					\$ 270.88

**Establishment
Prorated Over
Years
6⁸**

Cool Season Grass, Hay- Orchardgrass

Sensitivity Analysis

Return Above Variable Expenses

Yield (ton)	Price (\$/ton)				
	\$ 350.00	\$ 375.00	\$ 400.00	\$ 425.00	\$ 450.00
2.0	\$ 488.42	\$ 538.42	\$ 588.42	\$ 638.42	\$ 688.42
2.5	\$ 663.42	\$ 725.92	\$ 788.42	\$ 850.92	\$ 913.42
3.0	\$ 838.42	\$ 913.42	\$ 988.42	\$ 1,063.42	\$ 1,138.42
3.5	\$ 1,013.42	\$ 1,100.92	\$ 1,188.42	\$ 1,275.92	\$ 1,363.42
4.0	\$ 1,188.42	\$ 1,288.42	\$ 1,388.42	\$ 1,488.42	\$ 1,588.42

Return Above Fixed Expenses

Yield (ton)	Price (\$/ton)				
	\$ 350.00	\$ 375.00	\$ 400.00	\$ 425.00	\$ 450.00
2.0	\$ 150.37	\$ 200.37	\$ 250.37	\$ 300.37	\$ 350.37
2.5	\$ 325.37	\$ 387.87	\$ 450.37	\$ 512.87	\$ 575.37
3.0	\$ 500.37	\$ 575.37	\$ 650.37	\$ 725.37	\$ 800.37
3.5	\$ 675.37	\$ 762.87	\$ 850.37	\$ 937.87	\$ 1,025.37
4.0	\$ 850.37	\$ 950.37	\$ 1,050.37	\$ 1,150.37	\$ 1,250.37

Sensitivity Analysis

Yield	Variable (per bale)	Total Costs (per bale)
	1.7	\$3.13
2.3	\$2.35	\$6.11
3.0	\$1.76	\$4.58
3.8	\$1.41	\$3.66
4.7	\$1.13	\$2.93

Return Above Fixed Expenses

Yield (bale)	Price (\$/bale)				
	\$ 8.00	\$ 9.00	\$ 10.00	\$ 11.00	\$ 12.00
116.0	\$ 3.26	\$ 4.26	\$ 5.26	\$ 6.26	\$ 7.26
118.0	\$ 3.34	\$ 4.34	\$ 5.34	\$ 6.34	\$ 7.34
120.0	\$ 3.42	\$ 4.42	\$ 5.42	\$ 6.42	\$ 7.42
122.0	\$ 3.49	\$ 4.49	\$ 5.49	\$ 6.49	\$ 7.49
124.0	\$ 3.57	\$ 4.57	\$ 5.57	\$ 6.57	\$ 7.57

Cool Season Grass Clover, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round
Income								
Hay	Fescue/Clover	ton	2.00	\$ 150.00	\$ 300.00	\$ 150.00	\$ 53.25	4x5 710
Expenses								
Prorated Establishment Costs		acre	0.17	\$ 294.18	\$ 49.03	\$ 24.52	\$ 8.70	
Fertilizer	N ³	lb	60.00	\$ 0.60	\$ 35.92	\$ 17.96	\$ 6.38	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 9.20	\$ 3.27	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 6.13	\$ 2.18	
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71	\$ 6.36	\$ 2.26	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 7.20	\$ 2.56	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 6.15	\$ 2.18	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 5.91	\$ 2.10	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 166.83	\$ 83.42	\$ 29.61	
Return over Variable Expenses					\$ 133.17	\$ 66.58	\$ 23.64	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 16.50	\$ 5.86	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 6.67	\$ 2.37	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 8.67	\$ 3.08	
Baling		cutting	2	\$ 13.17	\$ 74.20	\$ 37.10	\$ 13.17	
Hauling		bale	5.63	\$ 5.42	\$ 30.54	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 168.41	\$ 84.21	\$ 29.89	
Interest on Operating Capital	6 months	acre	\$ 166.83	8.0%	\$ 6.67	\$ 3.34	\$ 1.18	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	5.63	\$ 4.43	\$ 24.97	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 11.97	\$ 5.98	\$ 2.12	
Total Storage Cost					\$ 36.94	\$ 18.47	\$ 6.56	
Total Budgeted Expenses					\$ 378.86	\$ 189.43	\$ 67.25	
Return to Land & Management					\$ (78.86)	\$ (39.43)	\$ (14.00)	

Cool Season Grass/Clover Hay, Establishment
Estimated Expenses per Acre

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Fescue	lb	17.50	\$ 1.33	\$ 23.28
	Red Clover	lb	4.00	\$ 3.33	\$ 13.32
	White Clover	lb	2.00	\$ 4.57	\$ 9.14
Fertilizer	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 240.67
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Broadcast Seeding		acre	1	\$ 15.00	\$ 15.00
Total Custom Machinery Cost					\$ 43.89
Interest on Operating Capital	6 months	acre	\$ 240.67	8.0%	\$ 9.63
Total Budgeted Expenses					\$ 294.18

Establishment
Prorated Over Years
6⁸

Cool Season Grass Clover, Hay- Fescue

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)					
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00	
Yield	1.0	\$ (66.83)	\$ (41.83)	\$ (16.83)	\$ 8.17	\$ 33.17	
	1.5	\$ (16.83)	\$ 20.67	\$ 58.17	\$ 95.67	\$ 133.17	
	2.0	\$ 33.17	\$ 83.17	\$ 133.17	\$ 183.17	\$ 233.17	
	2.5	\$ 83.17	\$ 145.67	\$ 208.17	\$ 270.67	\$ 333.17	
	3.0	\$ 133.17	\$ 208.17	\$ 283.17	\$ 358.17	\$ 433.17	

		Variable (per bale)	Total Costs (per bale)
Yield	1.1	\$52.65	\$119.55
	1.5	\$39.48	\$89.66
	2.0	\$29.61	\$67.25
	2.5	\$23.69	\$53.80
	3.1	\$18.95	\$43.04

Return Above Fixed Expenses

		Price (\$/ton)					
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00	
Yield	1.0	\$ (278.86)	\$ (253.86)	\$ (228.86)	\$ (203.86)	\$ (178.86)	
	1.5	\$ (228.86)	\$ (191.36)	\$ (153.86)	\$ (116.36)	\$ (78.86)	
	2.0	\$ (178.86)	\$ (128.86)	\$ (78.86)	\$ (28.86)	\$ 21.14	
	2.5	\$ (128.86)	\$ (66.36)	\$ (3.86)	\$ 58.64	\$ 121.14	
	3.0	\$ (78.86)	\$ (3.86)	\$ 71.14	\$ 146.14	\$ 221.14	

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	1.6	\$ (188.64)	\$ (183.64)	\$ (178.64)	\$ (173.64)	\$ (168.64)
	3.6	\$ (61.01)	\$ (56.01)	\$ (51.01)	\$ (46.01)	\$ (41.01)
	5.6	\$ (24.00)	\$ (19.00)	\$ (14.00)	\$ (9.00)	\$ (4.00)
	7.6	\$ (6.38)	\$ (1.38)	\$ 3.62	\$ 8.62	\$ 13.62
	9.6	\$ 3.92	\$ 8.92	\$ 13.92	\$ 18.92	\$ 23.92

Cool Season Grass Clover, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Fescue/Clover	ton	2.00	\$ 320.00	\$ 640.00	\$ 320.00	\$ 8.00	50
Expenses								
Prorated Establishment Costs		acre	0.17	\$ 294.18	\$ 49.03	\$ 24.52	\$ 0.61	
Fertilizer	N ³	lb	60.00	\$ 0.60	\$ 35.92	\$ 17.96	\$ 0.45	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 9.20	\$ 0.23	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 6.13	\$ 0.15	
Lime & Application ^{4,5}	Custom Application	acre	1.00	\$ 12.71	\$ 12.71	\$ 6.36	\$ 0.16	
	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 7.20	\$ 0.18	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 6.15	\$ 0.15	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 5.91	\$ 0.15	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 166.83	\$ 83.42	\$ 2.09	
Return over Variable Expenses					\$ 473.17	\$ 236.58	\$ 5.91	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 16.50	\$ 0.41	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 6.67	\$ 0.17	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 8.67	\$ 0.22	
Baling		cutting	2	\$ 1.09	\$ 87.20	\$ 43.60	\$ 1.09	
Hauling		bale	80.00	\$ 0.75	\$ 60.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 210.88	\$ 105.44	\$ 2.64	
Interest on Operating Capital	6 months	acre	\$ 166.83	8.0%	\$ 6.67	\$ 3.34	\$ 0.08	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	80.00	\$ 0.23	\$ 18.30	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 13.45	\$ 6.73	\$ 0.17	
Total Storage Cost					\$ 31.76	\$ 15.88	\$ 0.40	
Total Budgeted Expenses					\$ 416.14	\$ 208.07	\$ 5.20	
Return to Land & Management					\$ 223.86	\$ 111.93	\$ 2.80	

Cool Season Grass/Clover Hay, Establishment
Estimated Expenses per Acre

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Fescue	lb	17.50	\$ 1.33	\$ 23.28
	Red Clover	lb	4.00	\$ 3.33	\$ 13.32
	White Clover	lb	2.00	\$ 4.57	\$ 9.14
Fertilizer	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
Lime & Application	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 240.67
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Broadcast Seeding		acre	1	\$ 15.00	\$ 15.00
Total Custom Machinery Cost					\$ 43.89
Interest on Operating Capital	6 months	acre	\$ 240.67	8.0%	\$ 9.63
Total Budgeted Expenses					\$ 294.18

Establishment
Prorated Over Years
6⁸

Cool Season Grass Clover, Hay- Fescue

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.0	\$ 103.17	\$ 128.17	\$ 153.17	\$ 178.17	\$ 203.17
	1.5	\$ 238.17	\$ 275.67	\$ 313.17	\$ 350.67	\$ 388.17
	2.0	\$ 373.17	\$ 423.17	\$ 473.17	\$ 523.17	\$ 573.17
	2.5	\$ 508.17	\$ 570.67	\$ 633.17	\$ 695.67	\$ 758.17
	3.0	\$ 643.17	\$ 718.17	\$ 793.17	\$ 868.17	\$ 943.17

		Variable (per bale)	Total Costs (per bale)
Yield	1.1	\$3.71	\$9.25
	1.5	\$2.78	\$6.94
	2.0	\$2.09	\$5.20
	2.5	\$1.67	\$4.16
	3.1	\$1.33	\$3.33

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.0	\$ (146.14)	\$ (121.14)	\$ (96.14)	\$ (71.14)	\$ (46.14)
	1.5	\$ (11.14)	\$ 26.36	\$ 63.86	\$ 101.36	\$ 138.86
	2.0	\$ 123.86	\$ 173.86	\$ 223.86	\$ 273.86	\$ 323.86
	2.5	\$ 258.86	\$ 321.36	\$ 383.86	\$ 446.36	\$ 508.86
	3.0	\$ 393.86	\$ 468.86	\$ 543.86	\$ 618.86	\$ 693.86

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	76.0	\$ 0.52	\$ 1.52	\$ 2.52	\$ 3.52	\$ 4.52
	78.0	\$ 0.66	\$ 1.66	\$ 2.66	\$ 3.66	\$ 4.66
	80.0	\$ 0.80	\$ 1.80	\$ 2.80	\$ 3.80	\$ 4.80
	82.0	\$ 0.93	\$ 1.93	\$ 2.93	\$ 3.93	\$ 4.93
	84.0	\$ 1.05	\$ 2.05	\$ 3.05	\$ 4.05	\$ 5.05

Cool Season Grass Clover, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round
Income								
Hay	Orchardgrass/Clover	ton	2.00	\$ 220.00	\$ 440.00	\$ 220.00	\$ 78.10	4x5 710
Expenses								
Prorated Establishment Costs		acre	0.17	\$ 309.24	\$ 51.54	\$ 25.77	\$ 9.15	
Fertilizer	N ³	lb	60.00	\$ 0.60	\$ 35.92	\$ 17.96	\$ 6.38	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 9.20	\$ 3.27	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 6.13	\$ 2.18	
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71	\$ 6.36	\$ 2.26	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 7.20	\$ 2.56	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 6.15	\$ 2.18	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 5.91	\$ 2.10	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 169.34	\$ 84.67	\$ 30.06	
Return over Variable Expenses					\$ 270.66	\$ 135.33	\$ 48.04	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 16.50	\$ 5.86	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 6.67	\$ 2.37	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 8.67	\$ 3.08	
Baling		cutting	2	\$ 13.17	\$ 74.20	\$ 37.10	\$ 13.17	
Hauling		bale	5.63	\$ 5.42	\$ 30.54	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 168.41	\$ 84.21	\$ 29.89	
Interest on Operating Capital	6 months	acre	\$ 169.34	8.0%	\$ 6.77	\$ 3.39	\$ 1.20	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	5.63	\$ 4.43	\$ 24.97	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 12.06	\$ 6.03	\$ 2.14	
Total Storage Cost					\$ 37.03	\$ 18.52	\$ 6.57	
Total Budgeted Expenses					\$ 381.56	\$ 190.78	\$ 67.73	
Return to Land & Management					\$ 58.44	\$ 29.22	\$ 10.37	

Cool Season Grass/Clover Hay, Establishment
Estimated Expenses per Acre

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Orchardgrass	lb	12.50	\$ 3.02	\$ 37.75
	Red Clover	lb	4.00	\$ 3.33	\$ 13.32
	White Clover	lb	2.00	\$ 4.57	\$ 9.14
Fertilizer	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 255.14
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Broadcast Seeding		acre	1	\$ 15.00	\$ 15.00
Total Custom Machinery Cost					\$ 43.89
Interest on Operating Capital	6 months	acre	\$ 255.14	8.0%	\$ 10.21
Total Budgeted Expenses					\$ 309.24

Establishment
Prorated Over Years
6⁸

Cool Season Grass Clover, Hay- Orchardgrass

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)					
		\$ 170.00	\$ 195.00	\$ 220.00	\$ 245.00	\$ 270.00	
Yield	1.0	\$ 0.66	\$ 25.66	\$ 50.66	\$ 75.66	\$ 100.66	
	1.5	\$ 85.66	\$ 123.16	\$ 160.66	\$ 198.16	\$ 235.66	
	2.0	\$ 170.66	\$ 220.66	\$ 270.66	\$ 320.66	\$ 370.66	
	2.5	\$ 255.66	\$ 318.16	\$ 380.66	\$ 443.16	\$ 505.66	
	3.0	\$ 340.66	\$ 415.66	\$ 490.66	\$ 565.66	\$ 640.66	

		Variable (per bale)	Total Costs (per bale)
Yield	1.1	\$53.44	\$120.40
	1.5	\$40.08	\$90.30
	2.0	\$30.06	\$67.73
	2.5	\$24.05	\$54.18
	3.1	\$19.24	\$43.35

Return Above Fixed Expenses

		Price (\$/ton)					
		\$ 170.00	\$ 195.00	\$ 220.00	\$ 245.00	\$ 270.00	
Yield	1.0	\$ (211.56)	\$ (186.56)	\$ (161.56)	\$ (136.56)	\$ (111.56)	
	1.5	\$ (126.56)	\$ (89.06)	\$ (51.56)	\$ (14.06)	\$ 23.44	
	2.0	\$ (41.56)	\$ 8.44	\$ 58.44	\$ 108.44	\$ 158.44	
	2.5	\$ 43.44	\$ 105.94	\$ 168.44	\$ 230.94	\$ 293.44	
	3.0	\$ 128.44	\$ 203.44	\$ 278.44	\$ 353.44	\$ 428.44	

Return Above Fixed Expenses

		Price (\$/bale)					
		\$ 68.10	\$ 73.10	\$ 78.10	\$ 83.10	\$ 88.10	
Yield (bale)	1.6	\$ (165.44)	\$ (160.44)	\$ (155.44)	\$ (150.44)	\$ (145.44)	
	3.6	\$ (36.90)	\$ (31.90)	\$ (26.90)	\$ (21.90)	\$ (16.90)	
	5.6	\$ 0.37	\$ 5.37	\$ 10.37	\$ 15.37	\$ 20.37	
	7.6	\$ 18.12	\$ 23.12	\$ 28.12	\$ 33.12	\$ 38.12	
	9.6	\$ 28.49	\$ 33.49	\$ 38.49	\$ 43.49	\$ 48.49	

Cool Season Grass Clover, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Orchardgrass/Clover	ton	2.00	\$ 400.00	\$ 800.00	\$ 400.00	\$ 10.00	50
Expenses								
Prorated Establishment Costs		acre	0.17	\$ 309.24	\$ 51.54	\$ 25.77	\$ 0.64	
Fertilizer	N ³	lb	60.00	\$ 0.60	\$ 35.92	\$ 17.96	\$ 0.45	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 9.20	\$ 0.23	
	K2O	lb	30.00	\$ 0.41	\$ 12.26	\$ 6.13	\$ 0.15	
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71	\$ 6.36	\$ 0.16	
Lime & Application ^{4,5}	Custom Application	ton	0.33	\$ 43.63	\$ 14.40	\$ 7.20	\$ 0.18	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 6.15	\$ 0.15	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 5.91	\$ 0.15	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 169.34	\$ 84.67	\$ 2.12	
Return over Variable Expenses					\$ 630.66	\$ 315.33	\$ 7.88	
Custom Machinery Cost								
Disk Mowing		cutting	2	\$ 16.50	\$ 33.00	\$ 16.50	\$ 0.41	
Tedding		cutting	2	\$ 6.67	\$ 13.34	\$ 6.67	\$ 0.17	
Raking		cutting	2	\$ 8.67	\$ 17.34	\$ 8.67	\$ 0.22	
Baling		cutting	2	\$ 1.09	\$ 87.20	\$ 43.60	\$ 1.09	
Hauling		bale	80.00	\$ 0.75	\$ 60.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 210.88	\$ 105.44	\$ 2.64	
Interest on Operating Capital	6 months	acre	\$ 169.34	8.0%	\$ 6.77	\$ 3.39	\$ 0.08	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	80.00	\$ 0.23	\$ 18.30	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 13.54	\$ 6.77	\$ 0.17	
Total Storage Cost					\$ 31.85	\$ 15.92	\$ 0.40	
Total Budgeted Expenses					\$ 418.84	\$ 209.42	\$ 5.24	
Return to Land & Management					\$ 381.16	\$ 190.58	\$ 4.76	

Cool Season Grass/Clover Hay, Establishment
Estimated Expenses per Acre

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Orchardgrass	lb	12.50	\$ 3.02	\$ 37.75
	Red Clover	lb	4.00	\$ 3.33	\$ 13.32
	White Clover	lb	2.00	\$ 4.57	\$ 9.14
Fertilizer	N	lb	30.00	\$ 0.60	\$ 17.96
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	60.00	\$ 0.41	\$ 24.53
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 255.14
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Broadcast Seeding		acre	1	\$ 15.00	\$ 15.00
Total Custom Machinery Cost					\$ 43.89
Interest on Operating Capital	6 months	acre	\$ 255.14	8.0%	\$ 10.21
Total Budgeted Expenses					\$ 309.24

Establishment
Prorated Over Years
6⁸

Cool Season Grass Clover, Hay- Orchardgrass

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 350.00	\$ 375.00	\$ 400.00	\$ 425.00	\$ 450.00
Yield	1.0	\$ 180.66	\$ 205.66	\$ 230.66	\$ 255.66	\$ 280.66
	1.5	\$ 355.66	\$ 393.16	\$ 430.66	\$ 468.16	\$ 505.66
	2.0	\$ 530.66	\$ 580.66	\$ 630.66	\$ 680.66	\$ 730.66
	2.5	\$ 705.66	\$ 768.16	\$ 830.66	\$ 893.16	\$ 955.66
	3.0	\$ 880.66	\$ 955.66	\$ 1,030.66	\$ 1,105.66	\$ 1,180.66

		Variable (per bale)	Total Costs (per bale)
Yield	1.1	\$3.76	\$9.31
	1.5	\$2.82	\$6.98
	2.0	\$2.12	\$5.24
	2.5	\$1.69	\$4.19
	3.1	\$1.35	\$3.35

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 350.00	\$ 375.00	\$ 400.00	\$ 425.00	\$ 450.00
Yield	1.0	\$ (68.84)	\$ (43.84)	\$ (18.84)	\$ 6.16	\$ 31.16
	1.5	\$ 106.16	\$ 143.66	\$ 181.16	\$ 218.66	\$ 256.16
	2.0	\$ 281.16	\$ 331.16	\$ 381.16	\$ 431.16	\$ 481.16
	2.5	\$ 456.16	\$ 518.66	\$ 581.16	\$ 643.66	\$ 706.16
	3.0	\$ 631.16	\$ 706.16	\$ 781.16	\$ 856.16	\$ 931.16

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 8.00	\$ 9.00	\$ 10.00	\$ 11.00	\$ 12.00
Yield (bale)	76.0	\$ 2.49	\$ 3.49	\$ 4.49	\$ 5.49	\$ 6.49
	78.0	\$ 2.63	\$ 3.63	\$ 4.63	\$ 5.63	\$ 6.63
	80.0	\$ 2.76	\$ 3.76	\$ 4.76	\$ 5.76	\$ 6.76
	82.0	\$ 2.89	\$ 3.89	\$ 4.89	\$ 5.89	\$ 6.89
	84.0	\$ 3.01	\$ 4.01	\$ 5.01	\$ 6.01	\$ 7.01

Cool Season Grass and Cool Season Grass and Clover Assumptions

1. The budget is based on custom rates for machinery processes. Labor, operating, maintenance, and ownership costs are included in these rates. The baling rate includes binding.
2. The budget is based on no-till establishment.
3. Sixty pounds of nitrogen will be applied in March, with the remainder applied during the growing season. If clover is included, it is assumed that 60 pounds of nitrogen will come from the clover.
4. Lime prorated at one ton over three years.
5. For a more accurate fertilizer and lime recommendation, take a soil sample. ([Instructions on how to take a soil sample.](#))
6. The post-emergence weed control is based on an average of three common practices. Burndown is a common practice. For weed control and/or burndown recommendations, contact the county Extension office. ([County office contact information.](#))
7. Storage loss is based on an average of multiple studies.
8. Establishment pro-rated expenses for hay are set for six years.

Alfalfa, Hay, Round Bale
Estimated Expenses per Acre^{1,2,3}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round
Income								4x5 710
Hay	Alfalfa	ton	4.00	\$ 250.00	\$ 1,000.00	\$ 250.00	\$ 88.75	
Expenses								
Prorated Establishment Costs		acre	0.25	\$ 463.13	\$ 115.78	\$ 28.95	\$ 10.28	
Fertilizer	N	lb	15.00	\$ 0.60	\$ 8.98	\$ 2.24	\$ 0.80	
	P2O5	lb	60.00	\$ 0.61	\$ 36.81	\$ 9.20	\$ 3.27	
	K2O	lb	190.00	\$ 0.41	\$ 77.67	\$ 19.42	\$ 6.89	
	Boron	lb	2.00	\$ 0.99	\$ 1.98	\$ 0.50	\$ 0.04	
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71	\$ 3.18	\$ 1.13	
Lime & Application ^{4,5}	Custom Application	ton	0.67	\$ 43.63	\$ 29.23	\$ 7.31	\$ 2.59	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	2.00	\$ 7.83	\$ 15.66	\$ 3.92	\$ 1.39	
	Custom Application	acre	2.00	\$ 11.81	\$ 23.62	\$ 5.91	\$ 2.10	
Pest Control	Pest Control Application	acre	1.00	\$ 6.51	\$ 6.51	\$ 1.63	\$ 0.58	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 2.95	\$ 1.05	
Total Variable Expenses					\$ 340.77	\$ 85.19	\$ 30.11	
Return over Variable Expenses					\$ 659.23	\$ 164.81	\$ 58.64	
Custom Machinery Cost								
Disk Mowing		cutting	4	\$ 16.50	\$ 66.00	\$ 16.50	\$ 5.86	
Tedding		cutting	4	\$ 6.67	\$ 26.68	\$ 6.67	\$ 2.37	
Raking		cutting	4	\$ 8.67	\$ 34.68	\$ 8.67	\$ 3.08	
Baling		cutting	4	\$ 13.17	\$ 148.39	\$ 37.10	\$ 13.17	
Hauling		bale	11.27	\$ 5.42	\$ 61.07	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 336.82	\$ 84.21	\$ 29.89	
Interest on Operating Capital	6 months	acre	\$ 677.60	8.0%	\$ 27.10	\$ 6.78	\$ 2.41	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	11.27	\$ 4.43	\$ 49.94	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 24.66	\$ 6.17	\$ 2.19	
Total Storage Cost					\$ 74.61	\$ 18.65	\$ 6.62	
Total Budgeted Expenses					\$ 779.31	\$ 194.83	\$ 69.03	
Return to Land & Management					\$ 220.69	\$ 55.17	\$ 19.72	

Alfalfa, Establishment
Estimated Expenses per Acre

Establishment
Prorated Over
Years
4⁸

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Alfalfa	lb	17.50	\$ 10.02	\$ 175.35
Fertilizer	N	lb	15.00	\$ 0.60	\$ 8.98
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	190.00	\$ 0.41	\$ 77.67
	Boron	lb	2.00	\$ 0.99	\$ 1.98
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 416.43
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 445.32	8.0%	\$ 17.81
Total Budgeted Expenses					\$ 463.13

Alfalfa, Hay

Sensitivity Analysis

Return Above Variable Expenses

Yield (ton)	Price (\$/ton)				
	\$ 200.00	\$ 225.00	\$ 250.00	\$ 275.00	\$ 300.00
3.0	\$ 259.23	\$ 334.23	\$ 409.23	\$ 484.23	\$ 559.23
3.5	\$ 359.23	\$ 446.73	\$ 534.23	\$ 621.73	\$ 709.23
4.0	\$ 459.23	\$ 559.23	\$ 659.23	\$ 759.23	\$ 859.23
4.5	\$ 559.23	\$ 671.73	\$ 784.23	\$ 896.73	\$ 1,009.23
5.0	\$ 659.23	\$ 784.23	\$ 909.23	\$ 1,034.23	\$ 1,159.23

Return Above Fixed Expenses

Yield (ton)	Price (\$/ton)				
	\$ 200.00	\$ 225.00	\$ 250.00	\$ 275.00	\$ 300.00
3.0	\$ (179.31)	\$ (104.31)	\$ (29.31)	\$ 45.69	\$ 120.69
3.5	\$ (79.31)	\$ 8.19	\$ 95.69	\$ 183.19	\$ 270.69
4.0	\$ 20.69	\$ 120.69	\$ 220.69	\$ 320.69	\$ 420.69
4.5	\$ 120.69	\$ 233.19	\$ 345.69	\$ 458.19	\$ 570.69
5.0	\$ 220.69	\$ 345.69	\$ 470.69	\$ 595.69	\$ 720.69

Sensitivity Analysis

Yield	Variable (per bale)	Total Costs (per bale)
	2.3	\$53.77
3.0	\$40.32	\$92.22
4.0	\$30.24	\$69.16
5.0	\$24.19	\$55.33
6.3	\$19.36	\$44.26

Return Above Fixed Expenses

Yield	Price (\$/bale)				
	\$ 78.75	\$ 83.75	\$ 88.75	\$ 93.75	\$ 98.75
7.3	\$ (28.48)	\$ (23.48)	\$ (18.48)	\$ (13.48)	\$ (8.48)
9.3	\$ (5.34)	\$ (0.34)	\$ 4.66	\$ 9.66	\$ 14.66
11.3	\$ 9.59	\$ 14.59	\$ 19.59	\$ 24.59	\$ 29.59
13.3	\$ 20.01	\$ 25.01	\$ 30.01	\$ 35.01	\$ 40.01
15.3	\$ 27.71	\$ 32.71	\$ 37.71	\$ 42.71	\$ 47.71

Alfalfa, Hay, Square Bale
Estimated Expenses per Acre^{1,2,3}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Alfalfa	ton	4.00	\$ 480.00	\$ 1,920.00	\$ 480.00	\$ 12.00	50
Expenses								
Prorated Establishment Costs		acre	0.25	\$ 463.13	\$ 115.78	\$ 28.95	\$ 0.72	
Fertilizer	N	lb	15.00	\$ 0.60	\$ 8.98	\$ 2.24	\$ 0.06	
	P2O5	lb	60.00	\$ 0.61	\$ 36.81	\$ 9.20	\$ 0.23	
	K2O	lb	190.00	\$ 0.41	\$ 77.67	\$ 19.42	\$ 0.49	
	Boron	lb	2.00	\$ 0.99	\$ 1.98	\$ 0.50	\$ 0.00	
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71	\$ 3.18	\$ 0.08	
Lime & Application ^{4,5}	Custom Application	ton	0.67	\$ 43.63	\$ 29.23	\$ 7.31	\$ 0.18	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	2.00	\$ 7.83	\$ 15.66	\$ 3.92	\$ 0.10	
	Custom Application	acre	2.00	\$ 11.81	\$ 23.62	\$ 5.91	\$ 0.15	
Pest Control	Pest Control Application	acre	1.00	\$ 6.51	\$ 6.51	\$ 1.63	\$ 0.04	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 2.95	\$ 0.07	
Total Variable Expenses					\$ 340.77	\$ 85.19	\$ 2.12	
Return over Variable Expenses					\$ 1,579.23	\$ 394.81	\$ 9.88	
Custom Machinery Cost								
Disk Mowing		cutting	4	\$ 16.50	\$ 66.00	\$ 16.50	\$ 0.41	
Tedding		cutting	4	\$ 6.67	\$ 26.68	\$ 6.67	\$ 0.17	
Raking		cutting	4	\$ 8.67	\$ 34.68	\$ 8.67	\$ 0.22	
Baling		cutting	4	\$ 1.09	\$ 174.40	\$ 43.60	\$ 1.09	
Hauling		bale	160.00	\$ 0.75	\$ 120.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 421.76	\$ 105.44	\$ 2.64	
Interest on Operating Capital	6 months	acre	\$ 762.53	8.0%	\$ 30.50	\$ 7.63	\$ 0.19	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	160.00	\$ 0.23	\$ 36.60	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 27.76	\$ 6.94	\$ 0.17	
Total Storage Cost					\$ 64.36	\$ 16.09	\$ 0.40	
Total Budgeted Expenses					\$ 857.39	\$ 214.35	\$ 5.35	
Return to Land & Management					\$ 1,062.61	\$ 265.65	\$ 6.65	

Alfalfa, Establishment
Estimated Expenses per Acre

**Establishment
Prorated Over
Years**
4⁸

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Alfalfa	lb	17.50	\$ 10.02	\$ 175.35
Fertilizer	N	lb	15.00	\$ 0.60	\$ 8.98
	P2O5	lb	60.00	\$ 0.61	\$ 36.81
	K2O	lb	190.00	\$ 0.41	\$ 77.67
	Boron	lb	2.00	\$ 0.99	\$ 1.98
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 416.43
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 445.32	8.0%	\$ 17.81
Total Budgeted Expenses					\$ 463.13

Alfalfa, Hay

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 430.00	\$ 455.00	\$ 480.00	\$ 505.00	\$ 530.00
Yield (ton)	3.0	\$ 949.23	\$ 1,024.23	\$ 1,099.23	\$ 1,174.23	\$ 1,249.23
	3.5	\$ 1,164.23	\$ 1,251.73	\$ 1,339.23	\$ 1,426.73	\$ 1,514.23
	4.0	\$ 1,379.23	\$ 1,479.23	\$ 1,579.23	\$ 1,679.23	\$ 1,779.23
	4.5	\$ 1,594.23	\$ 1,706.73	\$ 1,819.23	\$ 1,931.73	\$ 2,044.23
	5.0	\$ 1,809.23	\$ 1,934.23	\$ 2,059.23	\$ 2,184.23	\$ 2,309.23

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 430.00	\$ 455.00	\$ 480.00	\$ 505.00	\$ 530.00
Yield (ton)	3.0	\$ 432.61	\$ 507.61	\$ 582.61	\$ 657.61	\$ 732.61
	3.5	\$ 647.61	\$ 735.11	\$ 822.61	\$ 910.11	\$ 997.61
	4.0	\$ 862.61	\$ 962.61	\$ 1,062.61	\$ 1,162.61	\$ 1,262.61
	4.5	\$ 1,077.61	\$ 1,190.11	\$ 1,302.61	\$ 1,415.11	\$ 1,527.61
	5.0	\$ 1,292.61	\$ 1,417.61	\$ 1,542.61	\$ 1,667.61	\$ 1,792.61

Sensitivity Analysis

		Variable (per bale)	Total Costs (per bale)
Yield	2.3	\$3.79	\$9.53
	3.0	\$2.84	\$7.14
	4.0	\$2.13	\$5.36
	5.0	\$1.70	\$4.29
	6.3	\$1.36	\$3.43

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 10.00	\$ 11.00	\$ 12.00	\$ 13.00	\$ 14.00
Yield	156.0	\$ 4.50	\$ 5.50	\$ 6.50	\$ 7.50	\$ 8.50
	158.0	\$ 4.57	\$ 5.57	\$ 6.57	\$ 7.57	\$ 8.57
	160.0	\$ 4.64	\$ 5.64	\$ 6.64	\$ 7.64	\$ 8.64
	162.0	\$ 4.71	\$ 5.71	\$ 6.71	\$ 7.71	\$ 8.71
	164.0	\$ 4.77	\$ 5.77	\$ 6.77	\$ 7.77	\$ 8.77

Alfalfa Assumptions

1. The budget is based on custom rates for machinery processes. Labor, operating, maintenance, and ownership costs are included in these rates. The baling rate includes binding.
2. Based on Roundup Ready Alfalfa.
3. The budget is based on no-till establishment.
4. Lime prorated at two tons over three years.
5. For a more accurate fertilizer and lime recommendation, take a soil sample. ([Instructions on how to take a soil sample.](#))
6. The post-emergence weed control is based on an average of three common practices. Burndown is a common practice. For weed control and/or burndown recommendations, contact the county Extension office. ([County office contact information.](#))
7. Storage loss is based on an average of multiple studies.
8. Establishment pro-rated expenses for hay are set for four years.

Bermudagrass, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Bermudagrass	ton	6.00	\$ 250.00	\$ 1,500.00	\$ 250.00	\$ 88.75	
Expenses								
Prorated Establishment Costs		acre	0.10	\$ 303.36	\$ 30.34	\$ 5.06	\$ 1.79	
Fertilizer	N ³	lb	300.00	\$ 0.60	\$ 179.59	\$ 29.93	\$ 10.63	
	P2O5	lb	80.00	\$ 0.61	\$ 49.09	\$ 8.18	\$ 2.90	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 4.09	\$ 1.45	
	Custom Application	acre	4.00	\$ 12.71	\$ 50.84	\$ 8.47	\$ 3.01	
Lime & Application ^{4,5}	Custom Application	ton	0.67	\$ 43.63	\$ 29.23	\$ 4.87	\$ 1.73	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 2.05	\$ 0.73	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 1.97	\$ 0.70	
Pest Control	Pest Control Application	acre	1.00	\$ 6.51	\$ 6.51	\$ 1.09	\$ 0.39	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 1.97	\$ 0.70	
Total Variable Expenses					\$ 406.04	\$ 67.67	\$ 24.02	
Return over Variable Expenses					\$ 1,093.96	\$ 182.33	\$ 64.73	
Custom Machinery Cost								
Disk Mowing		cutting	4	\$ 16.50	\$ 66.00	\$ 11.00	\$ 3.91	
Tedding		cutting	4	\$ 6.67	\$ 26.68	\$ 4.45	\$ 1.58	
Raking		cutting	4	\$ 8.67	\$ 34.68	\$ 5.78	\$ 2.05	
Baling		cutting	4	\$ 13.17	\$ 222.59	\$ 37.10	\$ 13.17	
Hauling		bale	16.90	\$ 5.42	\$ 91.61	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 441.56	\$ 73.59	\$ 26.13	
Interest on Operating Capital	6 months	acre	\$ 406.04	8.0%	\$ 16.24	\$ 2.71	\$ 0.96	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	16.90	\$ 4.43	\$ 74.92	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 30.23	\$ 5.04	\$ 1.79	
Total Storage Cost					\$ 105.15	\$ 17.53	\$ 6.22	
Total Budgeted Expenses					\$ 968.99	\$ 161.50	\$ 57.33	
Return to Land & Management					\$ 531.01	\$ 88.50	\$ 31.42	

Bermudagrass, Establishment
Estimated Expenses per Acre

**Establishment
Prorated Over
Years**
10⁸

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Bermudagrass	lb	6.50	\$ 8.48	\$ 55.12
Sprigging	Bermudagrass	acre		\$ 0.00	\$ -
Fertilizer	N	lb	60.00	\$ 0.60	\$ 35.92
	P2O5	lb	40.00	\$ 0.61	\$ 24.54
	K2O	lb	80.00	\$ 0.41	\$ 32.70
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 263.92
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Sprigging		acre	1	\$ -	\$ -
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 263.92	8.0%	\$ 10.56
Total Budgeted Expenses					\$ 303.36

Bermudagrass, Hay

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 200.00	\$ 225.00	\$ 250.00	\$ 275.00	\$ 300.00
Yield (ton)	5.0	\$ 593.96	\$ 718.96	\$ 843.96	\$ 968.96	\$ 1,093.96
	5.5	\$ 693.96	\$ 831.46	\$ 968.96	\$ 1,106.46	\$ 1,243.96
	6.0	\$ 793.96	\$ 943.96	\$ 1,093.96	\$ 1,243.96	\$ 1,393.96
	6.5	\$ 893.96	\$ 1,056.46	\$ 1,218.96	\$ 1,381.46	\$ 1,543.96
	7.0	\$ 993.96	\$ 1,168.96	\$ 1,343.96	\$ 1,518.96	\$ 1,693.96

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 200.00	\$ 225.00	\$ 250.00	\$ 275.00	\$ 300.00
Yield (ton)	5.0	\$ 31.01	\$ 156.01	\$ 281.01	\$ 406.01	\$ 531.01
	5.5	\$ 131.01	\$ 268.51	\$ 406.01	\$ 543.51	\$ 681.01
	6.0	\$ 231.01	\$ 381.01	\$ 531.01	\$ 681.01	\$ 831.01
	6.5	\$ 331.01	\$ 493.51	\$ 656.01	\$ 818.51	\$ 981.01
	7.0	\$ 431.01	\$ 606.01	\$ 781.01	\$ 956.01	\$ 1,131.01

Sensitivity Analysis

		Variable (per bale)	Total Costs (per bale)
Yield	3.4	\$42.71	\$101.92
	4.5	\$32.03	\$76.44
	6.0	\$24.02	\$57.33
	7.5	\$19.22	\$45.87
	9.4	\$15.38	\$36.69

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 78.75	\$ 83.75	\$ 88.75	\$ 93.75	\$ 98.75
Yield	12.9	\$ 3.64	\$ 8.64	\$ 13.64	\$ 18.64	\$ 23.64
	14.9	\$ 13.72	\$ 18.72	\$ 23.72	\$ 28.72	\$ 33.72
	16.9	\$ 21.42	\$ 26.42	\$ 31.42	\$ 36.42	\$ 41.42
	18.9	\$ 27.48	\$ 32.48	\$ 37.48	\$ 42.48	\$ 47.48
	20.9	\$ 32.39	\$ 37.39	\$ 42.39	\$ 47.39	\$ 52.39

Bermudagrass, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Bermudagrass	ton	6.00	\$ 480.00	\$ 2,880.00	\$ 480.00	\$ 12.00	50
Expenses								
Prorated Establishment Costs		acre	0.10	\$ 303.36	\$ 30.34	\$ 5.06	\$ 0.13	
Fertilizer	N ³	lb	300.00	\$ 0.60	\$ 179.59	\$ 29.93	\$ 0.75	
	P2O5	lb	80.00	\$ 0.61	\$ 49.09	\$ 8.18	\$ 0.20	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 4.09	\$ 0.10	
	Custom Application	acre	4.00	\$ 12.71	\$ 50.84	\$ 8.47	\$ 0.21	
Lime & Application ^{4,5}	Custom Application	ton	0.67	\$ 43.63	\$ 29.23	\$ 4.87	\$ 0.12	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre	1.00	\$ 12.30	\$ 12.30	\$ 2.05	\$ 0.05	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 1.97	\$ 0.05	
Pest Control	Pest Control Application	acre	1.00	\$ 6.51	\$ 6.51	\$ 1.09	\$ 0.03	
	Custom Application	acre	1.00	\$ 11.81	\$ 11.81	\$ 1.97	\$ 0.05	
Total Variable Expenses					\$ 406.04	\$ 67.67	\$ 1.69	
Return over Variable Expenses					\$ 2,473.96	\$ 412.33	\$ 10.31	
Custom Machinery Cost								
Disk Mowing		cutting	4	\$ 16.50	\$ 66.00	\$ 11.00	\$ 0.28	
Tedding		cutting	4	\$ 6.67	\$ 26.68	\$ 4.45	\$ 0.11	
Raking		cutting	4	\$ 8.67	\$ 34.68	\$ 5.78	\$ 0.14	
Baling		cutting	4	\$ 1.09	\$ 261.60	\$ 43.60	\$ 1.09	
Hauling		bale	240.00	\$ 0.75	\$ 180.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 568.96	\$ 94.83	\$ 2.37	
Interest on Operating Capital	6 months	acre	\$ 406.04	8.0%	\$ 16.24	\$ 2.71	\$ 0.07	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	240.00	\$ 0.23	\$ 54.91	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 34.69	\$ 5.78	\$ 0.14	
Total Storage Cost					\$ 89.60	\$ 14.93	\$ 0.37	
Total Budgeted Expenses					\$ 1,080.84	\$ 180.14	\$ 4.50	
Return to Land & Management					\$ 1,799.16	\$ 299.86	\$ 7.50	

Bermudagrass, Establishment
Estimated Expenses per Acre

Establishment
Prorated Over
Years
10⁸

Item	Description	Unit	Quantity	Price	Amount (\$/acre)
Expenses					
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66
Seed	Bermudagrass	lb	6.50	\$ 8.48	\$ 55.12
Sprigging	Bermudagrass	acre		\$ 0.00	\$ -
Fertilizer	N	lb	60.00	\$ 0.60	\$ 35.92
	P2O5	lb	40.00	\$ 0.61	\$ 24.54
	K2O	lb	80.00	\$ 0.41	\$ 32.70
	Custom Application	acre	1.00	\$ 12.71	\$ 12.71
Lime & Application	Custom Application	ton	2.00	\$ 43.63	\$ 87.26
Total Variable Expenses					\$ 263.92
Custom Machinery Cost					
Spraying		acre	1	\$ 11.81	\$ 11.81
No-till Drill		acre	1	\$ 17.08	\$ 17.08
Sprigging		acre	1	\$ -	\$ -
Total Custom Machinery Cost					\$ 28.89
Interest on Operating Capital	6 months	acre	\$ 263.92	8.0%	\$ 10.56
Total Budgeted Expenses					\$ 303.36

Bermudagrass, Hay

Sensitivity Analysis

Return Above Variable Expenses

Yield (ton)	Price (\$/ton)				
	\$ 430.00	\$ 455.00	\$ 480.00	\$ 505.00	\$ 530.00
5.0	\$ 1,743.96	\$ 1,868.96	\$ 1,993.96	\$ 2,118.96	\$ 2,243.96
5.5	\$ 1,958.96	\$ 2,096.46	\$ 2,233.96	\$ 2,371.46	\$ 2,508.96
6.0	\$ 2,173.96	\$ 2,323.96	\$ 2,473.96	\$ 2,623.96	\$ 2,773.96
6.5	\$ 2,388.96	\$ 2,551.46	\$ 2,713.96	\$ 2,876.46	\$ 3,038.96
7.0	\$ 2,603.96	\$ 2,778.96	\$ 2,953.96	\$ 3,128.96	\$ 3,303.96

Return Above Fixed Expenses

Yield (ton)	Price (\$/ton)				
	\$ 430.00	\$ 455.00	\$ 480.00	\$ 505.00	\$ 530.00
5.0	\$ 1,069.16	\$ 1,194.16	\$ 1,319.16	\$ 1,444.16	\$ 1,569.16
5.5	\$ 1,284.16	\$ 1,421.66	\$ 1,559.16	\$ 1,696.66	\$ 1,834.16
6.0	\$ 1,499.16	\$ 1,649.16	\$ 1,799.16	\$ 1,949.16	\$ 2,099.16
6.5	\$ 1,714.16	\$ 1,876.66	\$ 2,039.16	\$ 2,201.66	\$ 2,364.16
7.0	\$ 1,929.16	\$ 2,104.16	\$ 2,279.16	\$ 2,454.16	\$ 2,629.16

Sensitivity Analysis

Yield	Variable (per bale)	Total Costs (per bale)
	3.4	\$3.01
4.5	\$2.26	\$6.00
6.0	\$1.69	\$4.50
7.5	\$1.35	\$3.60
9.4	\$1.08	\$2.88

Return Above Fixed Expenses

Yield	Price (\$/bale)				
	\$ 10.00	\$ 11.00	\$ 12.00	\$ 13.00	\$ 14.00
236.0	\$ 5.42	\$ 6.42	\$ 7.42	\$ 8.42	\$ 9.42
238.0	\$ 5.46	\$ 6.46	\$ 7.46	\$ 8.46	\$ 9.46
240.0	\$ 5.50	\$ 6.50	\$ 7.50	\$ 8.50	\$ 9.50
242.0	\$ 5.53	\$ 6.53	\$ 7.53	\$ 8.53	\$ 9.53
244.0	\$ 5.57	\$ 6.57	\$ 7.57	\$ 8.57	\$ 9.57

Bermuda Assumptions

1. The budget is based on custom rates for machinery processes. Labor, operating, maintenance, and ownership costs are included in these rates. The baling rate includes binding.
2. The budget is based on no-till establishment.
3. Nitrogen is applied in split applications.
4. Lime prorated at one ton over three years.
5. For a more accurate fertilizer and lime recommendation, take a soil sample. ([Instructions on how to take a soil sample.](#))
6. The post-emergence weed control is based on an average of three common practices. Burndown is a common practice. For weed control and/or burndown recommendations, contact the county Extension office. ([County office contact information.](#))
7. Storage loss is based on an average of multiple studies.
8. Establishment pro-rated expenses for hay are set for 10 years.

Summer Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Crabgrass	ton	3.00	\$ 150.00	\$ 450.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 5.22	\$ 1.85	
Seed	Crabgrass	lb	5.00	\$ 6.66	\$ 33.30	\$ 11.10	\$ 3.94	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 23.95	\$ 8.50	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 6.14	\$ 2.18	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 8.18	\$ 2.90	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 8.47	\$ 3.01	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 7.27	\$ 2.58	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 210.97	\$ 70.32	\$ 24.96	
Return over Variable Expenses					\$ 239.03	\$ 79.68	\$ 28.29	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 3.94	\$ 1.40	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 5.69	\$ 2.02	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 5.50	\$ 1.95	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.22	\$ 0.79	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 2.89	\$ 1.03	
Baling		cutting	1	\$ 13.17	\$ 111.30	\$ 37.10	\$ 13.17	
Hauling		bale	8.45	\$ 5.42	\$ 45.80	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 217.83	\$ 72.61	\$ 25.78	
Interest on Operating Capital	6 months	acre	\$ 210.97	8.0%	\$ 8.44	\$ 2.81	\$ 1.00	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	8.45	\$ 4.43	\$ 37.46	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.30	\$ 5.10	\$ 1.81	
Total Storage Cost					\$ 52.76	\$ 17.59	\$ 6.24	
Total Budgeted Expenses					\$ 490.00	\$ 163.33	\$ 57.98	
Return to Land & Management					\$ (40.00)	\$ (13.33)	\$ (4.73)	

Summer Annual, Hay -Crabgrass

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	2.0	\$ (10.97)	\$ 39.03	\$ 89.03	\$ 139.03	\$ 189.03
	2.5	\$ 39.03	\$ 101.53	\$ 164.03	\$ 226.53	\$ 289.03
	3.0	\$ 89.03	\$ 164.03	\$ 239.03	\$ 314.03	\$ 389.03
	3.5	\$ 139.03	\$ 226.53	\$ 314.03	\$ 401.53	\$ 489.03
	4.0	\$ 189.03	\$ 289.03	\$ 389.03	\$ 489.03	\$ 589.03

		Variable (per bale)	Total (per bale)
Yield	1.7	\$44.38	\$103.08
	2.3	\$33.29	\$77.31
	3.0	\$24.96	\$57.98
	3.8	\$19.97	\$46.39
	4.7	\$15.98	\$37.11

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	2.0	\$ (290.00)	\$ (240.00)	\$ (190.00)	\$ (140.00)	\$ (90.00)
	2.5	\$ (240.00)	\$ (177.50)	\$ (115.00)	\$ (52.50)	\$ 10.00
	3.0	\$ (190.00)	\$ (115.00)	\$ (40.00)	\$ 35.00	\$ 110.00
	3.5	\$ (140.00)	\$ (52.50)	\$ 35.00	\$ 122.50	\$ 210.00
	4.0	\$ (90.00)	\$ 10.00	\$ 110.00	\$ 210.00	\$ 310.00

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	4.5	\$ (66.84)	\$ (61.84)	\$ (56.84)	\$ (51.84)	\$ (46.84)
	6.5	\$ (32.71)	\$ (27.71)	\$ (22.71)	\$ (17.71)	\$ (12.71)
	8.5	\$ (14.73)	\$ (9.73)	\$ (4.73)	\$ 0.27	\$ 5.27
	10.5	\$ (3.64)	\$ 1.36	\$ 6.36	\$ 11.36	\$ 16.36
	12.5	\$ 3.90	\$ 8.90	\$ 13.90	\$ 18.90	\$ 23.90

Summer Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Crabgrass	ton	3.00	\$ 320.00	\$ 960.00	\$ 320.00	\$ 8.00	50
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 5.22	\$ 0.13	
Seed	Crabgrass	lb	5.00	\$ 6.66	\$ 33.30	\$ 11.10	\$ 0.28	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 23.95	\$ 0.60	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 6.14	\$ 0.15	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 8.18	\$ 0.20	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 8.47	\$ 0.21	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 7.27	\$ 0.18	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 210.97	\$ 70.32	\$ 1.76	
Return over Variable Expenses					\$ 749.03	\$ 249.68	\$ 6.24	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 3.94	\$ 0.10	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 5.69	\$ 0.14	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 5.50	\$ 0.14	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.22	\$ 0.06	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 2.89	\$ 0.07	
Baling		cutting	1	\$ 1.09	\$ 130.80	\$ 43.60	\$ 1.09	
Hauling		bale	120.00	\$ 0.75	\$ 90.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 281.53	\$ 93.84	\$ 2.35	
Interest on Operating Capital	6 months	acre	\$ 210.97	8.0%	\$ 8.44	\$ 2.81	\$ 0.07	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	120.00	\$ 0.23	\$ 27.45	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 17.53	\$ 5.84	\$ 0.15	
Total Storage Cost					\$ 44.99	\$ 15.00	\$ 0.37	
Total Budgeted Expenses					\$ 545.92	\$ 181.97	\$ 4.55	
Return to Land & Management					\$ 414.08	\$ 138.03	\$ 3.45	

Summer Annual, Hay -Crabgrass

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	2.0	\$ 329.03	\$ 379.03	\$ 429.03	\$ 479.03	\$ 529.03
	2.5	\$ 464.03	\$ 526.53	\$ 589.03	\$ 651.53	\$ 714.03
	3.0	\$ 599.03	\$ 674.03	\$ 749.03	\$ 824.03	\$ 899.03
	3.5	\$ 734.03	\$ 821.53	\$ 909.03	\$ 996.53	\$ 1,084.03
	4.0	\$ 869.03	\$ 969.03	\$ 1,069.03	\$ 1,169.03	\$ 1,269.03

		Variable (per bale)	Total (per bale)
Yield	1.7	\$3.13	\$8.09
	2.3	\$2.34	\$6.07
	3.0	\$1.76	\$4.55
	3.8	\$1.41	\$3.64
	4.7	\$1.13	\$2.91

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	2.0	\$ (5.92)	\$ 44.08	\$ 94.08	\$ 144.08	\$ 194.08
	2.5	\$ 129.08	\$ 191.58	\$ 254.08	\$ 316.58	\$ 379.08
	3.0	\$ 264.08	\$ 339.08	\$ 414.08	\$ 489.08	\$ 564.08
	3.5	\$ 399.08	\$ 486.58	\$ 574.08	\$ 661.58	\$ 749.08
	4.0	\$ 534.08	\$ 634.08	\$ 734.08	\$ 834.08	\$ 934.08

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	116.0	\$ 1.29	\$ 2.29	\$ 3.29	\$ 4.29	\$ 5.29
	118.0	\$ 1.37	\$ 2.37	\$ 3.37	\$ 4.37	\$ 5.37
	120.0	\$ 1.45	\$ 2.45	\$ 3.45	\$ 4.45	\$ 5.45
	122.0	\$ 1.53	\$ 2.53	\$ 3.53	\$ 4.53	\$ 5.53
	124.0	\$ 1.60	\$ 2.60	\$ 3.60	\$ 4.60	\$ 5.60

Summer Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Millet	ton	4.00	\$ 150.00	\$ 600.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 3.92	\$ 1.39	
Seed	Millet	lb	20.00	\$ 1.98	\$ 39.60	\$ 9.90	\$ 3.51	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 17.96	\$ 6.38	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 4.60	\$ 1.63	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 6.13	\$ 2.18	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 6.36	\$ 2.26	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 5.45	\$ 1.94	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 217.27	\$ 54.32	\$ 19.28	
Return over Variable Expenses					\$ 382.73	\$ 95.68	\$ 33.97	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 2.95	\$ 1.05	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 4.27	\$ 1.52	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 4.13	\$ 1.46	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 1.67	\$ 0.59	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 2.17	\$ 0.77	
Baling		cutting	1	\$ 13.17	\$ 148.39	\$ 37.10	\$ 13.17	
Hauling		bale	11.27	\$ 5.42	\$ 61.07	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 270.19	\$ 67.55	\$ 23.98	
Interest on Operating Capital	6 months	acre	\$ 217.27	8.0%	\$ 8.69	\$ 2.17	\$ 0.77	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	11.27	\$ 4.43	\$ 49.94	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 17.37	\$ 4.34	\$ 1.54	
Total Storage Cost					\$ 67.31	\$ 16.83	\$ 5.97	
Total Budgeted Expenses					\$ 563.46	\$ 140.87	\$ 50.01	
Return to Land & Management					\$ 36.54	\$ 9.13	\$ 3.24	

Summer Annual, Hay -Millet

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	3.0	\$ 82.73	\$ 157.73	\$ 232.73	\$ 307.73	\$ 382.73
	3.5	\$ 132.73	\$ 220.23	\$ 307.73	\$ 395.23	\$ 482.73
	4.0	\$ 182.73	\$ 282.73	\$ 382.73	\$ 482.73	\$ 582.73
	4.5	\$ 232.73	\$ 345.23	\$ 457.73	\$ 570.23	\$ 682.73
	5.0	\$ 282.73	\$ 407.73	\$ 532.73	\$ 657.73	\$ 782.73

		Variable (per bale)	Total (per bale)
Yield	2.3	\$34.28	\$88.90
	3.0	\$25.71	\$66.68
	4.0	\$19.28	\$50.01
	5.0	\$15.43	\$40.01
	6.3	\$12.34	\$32.00

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	3.0	\$ (263.46)	\$ (188.46)	\$ (113.46)	\$ (38.46)	\$ 36.54
	3.5	\$ (213.46)	\$ (125.96)	\$ (38.46)	\$ 49.04	\$ 136.54
	4.0	\$ (163.46)	\$ (63.46)	\$ 36.54	\$ 136.54	\$ 236.54
	4.5	\$ (113.46)	\$ (0.96)	\$ 111.54	\$ 224.04	\$ 336.54
	5.0	\$ (63.46)	\$ 61.54	\$ 186.54	\$ 311.54	\$ 436.54

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	7.3	\$ (34.28)	\$ (29.28)	\$ (24.28)	\$ (19.28)	\$ (14.28)
	9.3	\$ (17.55)	\$ (12.55)	\$ (7.55)	\$ (2.55)	\$ 2.45
	11.3	\$ (6.76)	\$ (1.76)	\$ 3.24	\$ 8.24	\$ 13.24
	13.3	\$ 0.78	\$ 5.78	\$ 10.78	\$ 15.78	\$ 20.78
	15.3	\$ 6.34	\$ 11.34	\$ 16.34	\$ 21.34	\$ 26.34

Summer Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Millet	ton	4.00	\$ 320.00	\$ 1,280.00	\$ 320.00	\$ 8.00	50
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 3.92	\$ 0.10	
Seed	Millet	lb	20.00	\$ 1.98	\$ 39.60	\$ 9.90	\$ 0.25	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 17.96	\$ 0.45	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 4.60	\$ 0.12	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 6.13	\$ 0.15	
Lime & Application ^{4,5}	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 6.36	\$ 0.16	
	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 5.45	\$ 0.14	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 217.27	\$ 54.32	\$ 1.36	
Return over Variable Expenses					\$ 1,062.73	\$ 265.68	\$ 6.64	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 2.95	\$ 0.07	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 4.27	\$ 0.11	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 4.13	\$ 0.10	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 1.67	\$ 0.04	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 2.17	\$ 0.05	
Baling		cutting	1	\$ 1.09	\$ 174.40	\$ 43.60	\$ 1.09	
Hauling		bale	160.00	\$ 0.75	\$ 120.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 355.13	\$ 88.78	\$ 2.22	
Interest on Operating Capital	6 months	acre	\$ 217.27	8.0%	\$ 8.69	\$ 2.17	\$ 0.05	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	160.00	\$ 0.23	\$ 36.60	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 20.34	\$ 5.08	\$ 0.13	
Total Storage Cost					\$ 56.94	\$ 14.24	\$ 0.36	
Total Budgeted Expenses					\$ 638.03	\$ 159.51	\$ 3.99	
Return to Land & Management					\$ 641.97	\$ 160.49	\$ 4.01	

Summer Annual, Hay -Millet

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	3.0	\$ 592.73	\$ 667.73	\$ 742.73	\$ 817.73	\$ 892.73
	3.5	\$ 727.73	\$ 815.23	\$ 902.73	\$ 990.23	\$ 1,077.73
	4.0	\$ 862.73	\$ 962.73	\$ 1,062.73	\$ 1,162.73	\$ 1,262.73
	4.5	\$ 997.73	\$ 1,110.23	\$ 1,222.73	\$ 1,335.23	\$ 1,447.73
	5.0	\$ 1,132.73	\$ 1,257.73	\$ 1,382.73	\$ 1,507.73	\$ 1,632.73

		Variable (per bale)	Total (per bale)
Yield	2.3	\$2.41	\$7.09
	3.0	\$1.81	\$5.32
	4.0	\$1.36	\$3.99
	5.0	\$1.09	\$3.19
	6.3	\$0.87	\$2.55

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	3.0	\$ 171.97	\$ 246.97	\$ 321.97	\$ 396.97	\$ 471.97
	3.5	\$ 306.97	\$ 394.47	\$ 481.97	\$ 569.47	\$ 656.97
	4.0	\$ 441.97	\$ 541.97	\$ 641.97	\$ 741.97	\$ 841.97
	4.5	\$ 576.97	\$ 689.47	\$ 801.97	\$ 914.47	\$ 1,026.97
	5.0	\$ 711.97	\$ 836.97	\$ 961.97	\$ 1,086.97	\$ 1,211.97

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	156.0	\$ 1.91	\$ 2.91	\$ 3.91	\$ 4.91	\$ 5.91
	158.0	\$ 1.96	\$ 2.96	\$ 3.96	\$ 4.96	\$ 5.96
	160.0	\$ 2.01	\$ 3.01	\$ 4.01	\$ 5.01	\$ 6.01
	162.0	\$ 2.06	\$ 3.06	\$ 4.06	\$ 5.06	\$ 6.06
	164.0	\$ 2.11	\$ 3.11	\$ 4.11	\$ 5.11	\$ 6.11

Summer Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Sorghum-Sudan	ton	4.00	\$ 150.00	\$ 600.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 3.92	\$ 1.39	
Seed	Sorghum-Sudan	lb	30.00	\$ 0.83	\$ 24.90	\$ 6.23	\$ 2.21	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 17.96	\$ 6.38	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 4.60	\$ 1.63	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 6.13	\$ 2.18	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 6.36	\$ 2.26	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 5.45	\$ 1.94	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 202.57	\$ 50.64	\$ 17.98	
Return over Variable Expenses					\$ 397.43	\$ 99.36	\$ 35.27	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 2.95	\$ 1.05	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 4.27	\$ 1.52	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 4.13	\$ 1.46	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 1.67	\$ 0.59	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 2.17	\$ 0.77	
Baling		cutting	1	\$ 13.17	\$ 148.39	\$ 37.10	\$ 13.17	
Hauling		bale	11.27	\$ 5.42	\$ 61.07	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 270.19	\$ 67.55	\$ 23.98	
Interest on Operating Capital	6 months	acre	\$ 202.57	8.0%	\$ 8.10	\$ 2.03	\$ 0.72	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	11.27	\$ 4.43	\$ 49.94	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 16.83	\$ 4.21	\$ 1.49	
Total Storage Cost					\$ 66.77	\$ 16.69	\$ 5.93	
Total Budgeted Expenses					\$ 547.64	\$ 136.91	\$ 48.60	
Return to Land & Management					\$ 52.36	\$ 13.09	\$ 4.65	

Summer Annual, Hay -Sorghum-Sudan

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	3.0	\$ 97.43	\$ 172.43	\$ 247.43	\$ 322.43	\$ 397.43
	3.5	\$ 147.43	\$ 234.93	\$ 322.43	\$ 409.93	\$ 497.43
	4.0	\$ 197.43	\$ 297.43	\$ 397.43	\$ 497.43	\$ 597.43
	4.5	\$ 247.43	\$ 359.93	\$ 472.43	\$ 584.93	\$ 697.43
	5.0	\$ 297.43	\$ 422.43	\$ 547.43	\$ 672.43	\$ 797.43

		Variable (per bale)	Total (per bale)
Yield	2.3	\$31.96	\$86.41
	3.0	\$23.97	\$64.80
	4.0	\$17.98	\$48.60
	5.0	\$14.38	\$38.88
	6.3	\$11.51	\$31.11

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	3.0	\$ (247.64)	\$ (172.64)	\$ (97.64)	\$ (22.64)	\$ 52.36
	3.5	\$ (197.64)	\$ (110.14)	\$ (22.64)	\$ 64.86	\$ 152.36
	4.0	\$ (147.64)	\$ (47.64)	\$ 52.36	\$ 152.36	\$ 252.36
	4.5	\$ (97.64)	\$ 14.86	\$ 127.36	\$ 239.86	\$ 352.36
	5.0	\$ (47.64)	\$ 77.36	\$ 202.36	\$ 327.36	\$ 452.36

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	7.3	\$ (32.10)	\$ (27.10)	\$ (22.10)	\$ (17.10)	\$ (12.10)
	9.3	\$ (15.84)	\$ (10.84)	\$ (5.84)	\$ (0.84)	\$ 4.16
	11.3	\$ (5.35)	\$ (0.35)	\$ 4.65	\$ 9.65	\$ 14.65
	13.3	\$ 1.97	\$ 6.97	\$ 11.97	\$ 16.97	\$ 21.97
	15.3	\$ 7.38	\$ 12.38	\$ 17.38	\$ 22.38	\$ 27.38

Summer Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Sorghum-Sudan	ton	4.00	\$ 320.00	\$ 1,280.00	\$ 320.00	\$ 8.00	50
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 3.92	\$ 0.10	
Seed	Sorghum-Sudan	lb	30.00	\$ 0.83	\$ 24.90	\$ 6.23	\$ 0.16	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 17.96	\$ 0.45	
	P2O5	lb	30.00	\$ 0.61	\$ 18.41	\$ 4.60	\$ 0.12	
	K2O	lb	60.00	\$ 0.41	\$ 24.53	\$ 6.13	\$ 0.15	
Lime & Application ^{4,5}	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 6.36	\$ 0.16	
	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 5.45	\$ 0.14	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 202.57	\$ 50.64	\$ 1.27	
Return over Variable Expenses					\$ 1,077.43	\$ 269.36	\$ 6.73	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 2.95	\$ 0.07	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 4.27	\$ 0.11	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 4.13	\$ 0.10	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 1.67	\$ 0.04	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 2.17	\$ 0.05	
Baling		cutting	1	\$ 1.09	\$ 174.40	\$ 43.60	\$ 1.09	
Hauling		bale	160.00	\$ 0.75	\$ 120.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 355.13	\$ 88.78	\$ 2.22	
Interest on Operating Capital	6 months	acre	\$ 202.57	8.0%	\$ 8.10	\$ 2.03	\$ 0.05	
Cash Rent		acre	1		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	160.00	\$ 0.23	\$ 36.60	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 19.80	\$ 4.95	\$ 0.12	
Total Storage Cost					\$ 56.41	\$ 14.10	\$ 0.35	
Total Budgeted Expenses					\$ 622.21	\$ 155.55	\$ 3.89	
Return to Land & Management					\$ 657.79	\$ 164.45	\$ 4.11	

Summer Annual, Hay -Sorghum-Sudan

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	3.0	\$ 607.43	\$ 682.43	\$ 757.43	\$ 832.43	\$ 907.43
	3.5	\$ 742.43	\$ 829.93	\$ 917.43	\$ 1,004.93	\$ 1,092.43
	4.0	\$ 877.43	\$ 977.43	\$ 1,077.43	\$ 1,177.43	\$ 1,277.43
	4.5	\$ 1,012.43	\$ 1,124.93	\$ 1,237.43	\$ 1,349.93	\$ 1,462.43
	5.0	\$ 1,147.43	\$ 1,272.43	\$ 1,397.43	\$ 1,522.43	\$ 1,647.43

		Variable (per bale)	Total (per bale)
Yield	2.3	\$2.25	\$6.91
	3.0	\$1.69	\$5.19
	4.0	\$1.27	\$3.89
	5.0	\$1.01	\$3.11
	6.3	\$0.81	\$2.49

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	3.0	\$ 187.79	\$ 262.79	\$ 337.79	\$ 412.79	\$ 487.79
	3.5	\$ 322.79	\$ 410.29	\$ 497.79	\$ 585.29	\$ 672.79
	4.0	\$ 457.79	\$ 557.79	\$ 657.79	\$ 757.79	\$ 857.79
	4.5	\$ 592.79	\$ 705.29	\$ 817.79	\$ 930.29	\$ 1,042.79
	5.0	\$ 727.79	\$ 852.79	\$ 977.79	\$ 1,102.79	\$ 1,227.79

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	156.0	\$ 2.01	\$ 3.01	\$ 4.01	\$ 5.01	\$ 6.01
	158.0	\$ 2.06	\$ 3.06	\$ 4.06	\$ 5.06	\$ 6.06
	160.0	\$ 2.11	\$ 3.11	\$ 4.11	\$ 5.11	\$ 6.11
	162.0	\$ 2.16	\$ 3.16	\$ 4.16	\$ 5.16	\$ 6.16
	164.0	\$ 2.21	\$ 3.21	\$ 4.21	\$ 5.21	\$ 6.21

Winter Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Barley	ton	2.50	\$ 150.00	\$ 375.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 2.22	
Seed	Barley	lb	125.00	\$ 0.43	\$ 53.75	\$ 21.50	\$ 7.63	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 10.20	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 3.49	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 2.32	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 3.61	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 3.10	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 229.38	\$ 91.75	\$ 32.57	
Return over Variable Expenses					\$ 145.62	\$ 58.25	\$ 20.68	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 1.68	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 2.43	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 2.34	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.95	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 1.23	
Baling		cutting	1	\$ 13.17	\$ 92.75	\$ 37.10	\$ 13.17	
Hauling		bale	7.04	\$ 5.42	\$ 38.17	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 191.65	\$ 76.66	\$ 27.21	
Interest on Operating Capital	6 months	acre	\$ 229.38	8.0%	\$ 9.18	\$ 3.67	\$ 1.30	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	7.04	\$ 4.43	\$ 31.22	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.06	\$ 6.02	\$ 2.14	
Total Storage Cost					\$ 46.27	\$ 18.51	\$ 6.57	
Total Budgeted Expenses					\$ 476.47	\$ 190.59	\$ 67.66	
Return to Land & Management					\$ (101.47)	\$ (40.59)	\$ (14.41)	

Winter Annual, Hay -Barley

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (79.38)	\$ (41.88)	\$ (4.38)	\$ 33.12	\$ 70.62
	2.0	\$ (29.38)	\$ 20.62	\$ 70.62	\$ 120.62	\$ 170.62
	2.5	\$ 20.62	\$ 83.12	\$ 145.62	\$ 208.12	\$ 270.62
	3.0	\$ 70.62	\$ 145.62	\$ 220.62	\$ 295.62	\$ 370.62
	3.5	\$ 120.62	\$ 208.12	\$ 295.62	\$ 383.12	\$ 470.62

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$57.90	\$120.28
	1.9	\$43.43	\$90.21
	2.5	\$32.57	\$67.66
	3.1	\$26.06	\$54.13
	3.9	\$20.85	\$43.30

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (326.47)	\$ (288.97)	\$ (251.47)	\$ (213.97)	\$ (176.47)
	2.0	\$ (276.47)	\$ (226.47)	\$ (176.47)	\$ (126.47)	\$ (76.47)
	2.5	\$ (226.47)	\$ (163.97)	\$ (101.47)	\$ (38.97)	\$ 23.53
	3.0	\$ (176.47)	\$ (101.47)	\$ (26.47)	\$ 48.53	\$ 123.53
	3.5	\$ (126.47)	\$ (38.97)	\$ 48.53	\$ 136.03	\$ 223.53

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	3.0	\$ (113.37)	\$ (108.37)	\$ (103.37)	\$ (98.37)	\$ (93.37)
	5.0	\$ (51.25)	\$ (46.25)	\$ (41.25)	\$ (36.25)	\$ (31.25)
	7.0	\$ (24.41)	\$ (19.41)	\$ (14.41)	\$ (9.41)	\$ (4.41)
	9.0	\$ (9.44)	\$ (4.44)	\$ 0.56	\$ 5.56	\$ 10.56
	11.0	\$ 0.10	\$ 5.10	\$ 10.10	\$ 15.10	\$ 20.10

Winter Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Barley	ton	2.50	\$ 320.00	\$ 800.00	\$ 320.00	\$ 8.00	50
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 0.16	
Seed	Barley	lb	125.00	\$ 0.43	\$ 53.75	\$ 21.50	\$ 0.54	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 0.72	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 0.25	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 0.16	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 0.25	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 0.22	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 229.38	\$ 91.75	\$ 2.29	
Return over Variable Expenses					\$ 570.62	\$ 228.25	\$ 5.71	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 0.12	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 0.17	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 0.17	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.07	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 0.09	
Baling		cutting	1	\$ 1.09	\$ 109.00	\$ 43.60	\$ 1.09	
Hauling		bale	100.00	\$ 0.75	\$ 75.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 244.73	\$ 97.89	\$ 2.45	
Interest on Operating Capital	6 months	acre	\$ 229.38	8.0%	\$ 9.18	\$ 3.67	\$ 0.09	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	100.00	\$ 0.23	\$ 22.88	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 16.91	\$ 6.77	\$ 0.17	
Total Storage Cost					\$ 39.79	\$ 15.92	\$ 0.40	
Total Budgeted Expenses					\$ 523.07	\$ 209.23	\$ 5.23	
Return to Land & Management					\$ 276.93	\$ 110.77	\$ 2.77	

Winter Annual, Hay -Barley

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ 175.62	\$ 213.12	\$ 250.62	\$ 288.12	\$ 325.62
	2.0	\$ 310.62	\$ 360.62	\$ 410.62	\$ 460.62	\$ 510.62
	2.5	\$ 445.62	\$ 508.12	\$ 570.62	\$ 633.12	\$ 695.62
	3.0	\$ 580.62	\$ 655.62	\$ 730.62	\$ 805.62	\$ 880.62
	3.5	\$ 715.62	\$ 803.12	\$ 890.62	\$ 978.12	\$ 1,065.62

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$4.08	\$9.30
	1.9	\$3.06	\$6.97
	2.5	\$2.29	\$5.23
	3.1	\$1.84	\$4.18
	3.9	\$1.47	\$3.35

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ (118.07)	\$ (80.57)	\$ (43.07)	\$ (5.57)	\$ 31.93
	2.0	\$ 16.93	\$ 66.93	\$ 116.93	\$ 166.93	\$ 216.93
	2.5	\$ 151.93	\$ 214.43	\$ 276.93	\$ 339.43	\$ 401.93
	3.0	\$ 286.93	\$ 361.93	\$ 436.93	\$ 511.93	\$ 586.93
	3.5	\$ 421.93	\$ 509.43	\$ 596.93	\$ 684.43	\$ 771.93

Return Above Fixed Expenses

		Price (\$/bale)					
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00	
Yield (bale)	96.0	\$ 0.55	\$ 1.55	\$ 2.55	\$ 3.55	\$ 4.55	
	98.0	\$ 0.66	\$ 1.66	\$ 2.66	\$ 3.66	\$ 4.66	
	100.0	\$ 0.77	\$ 1.77	\$ 2.77	\$ 3.77	\$ 4.77	
	102.0	\$ 0.87	\$ 1.87	\$ 2.87	\$ 3.87	\$ 4.87	
	104.0	\$ 0.97	\$ 1.97	\$ 2.97	\$ 3.97	\$ 4.97	

Winter Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Rye	ton	2.50	\$ 150.00	\$ 375.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 2.22	
Seed	Rye	lb	125.00	\$ 0.48	\$ 60.00	\$ 24.00	\$ 8.52	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 10.20	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 3.49	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 2.32	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 3.61	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 3.10	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 235.63	\$ 94.25	\$ 33.46	
Return over Variable Expenses					\$ 139.37	\$ 55.75	\$ 19.79	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 1.68	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 2.43	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 2.34	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.95	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 1.23	
Baling		cutting	1	\$ 13.17	\$ 92.75	\$ 37.10	\$ 13.17	
Hauling		bale	7.04	\$ 5.42	\$ 38.17	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 191.65	\$ 76.66	\$ 27.21	
Interest on Operating Capital	6 months	acre	\$ 235.63	8.0%	\$ 9.43	\$ 3.77	\$ 1.34	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	7.04	\$ 4.43	\$ 31.22	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.28	\$ 6.11	\$ 2.17	
Total Storage Cost					\$ 46.50	\$ 18.60	\$ 6.60	
Total Budgeted Expenses					\$ 483.20	\$ 193.28	\$ 68.61	
Return to Land & Management					\$ (108.20)	\$ (43.28)	\$ (15.36)	

Winter Annual, Hay -Rye

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (85.63)	\$ (48.13)	\$ (10.63)	\$ 26.87	\$ 64.37
	2.0	\$ (35.63)	\$ 14.37	\$ 64.37	\$ 114.37	\$ 164.37
	2.5	\$ 14.37	\$ 76.87	\$ 139.37	\$ 201.87	\$ 264.37
	3.0	\$ 64.37	\$ 139.37	\$ 214.37	\$ 289.37	\$ 364.37
	3.5	\$ 114.37	\$ 201.87	\$ 289.37	\$ 376.87	\$ 464.37

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$59.48	\$121.98
	1.9	\$44.61	\$91.49
	2.5	\$33.46	\$68.61
	3.1	\$26.77	\$54.89
	3.9	\$21.41	\$43.91

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (333.20)	\$ (295.70)	\$ (258.20)	\$ (220.70)	\$ (183.20)
	2.0	\$ (283.20)	\$ (233.20)	\$ (183.20)	\$ (133.20)	\$ (83.20)
	2.5	\$ (233.20)	\$ (170.70)	\$ (108.20)	\$ (45.70)	\$ 16.80
	3.0	\$ (183.20)	\$ (108.20)	\$ (33.20)	\$ 41.80	\$ 116.80
	3.5	\$ (133.20)	\$ (45.70)	\$ 41.80	\$ 129.30	\$ 216.80

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	3.0	\$ (115.58)	\$ (110.58)	\$ (105.58)	\$ (100.58)	\$ (95.58)
	5.0	\$ (52.58)	\$ (47.58)	\$ (42.58)	\$ (37.58)	\$ (32.58)
	7.0	\$ (25.36)	\$ (20.36)	\$ (15.36)	\$ (10.36)	\$ (5.36)
	9.0	\$ (10.19)	\$ (5.19)	\$ (0.19)	\$ 4.81	\$ 9.81
	11.0	\$ (0.51)	\$ 4.49	\$ 9.49	\$ 14.49	\$ 19.49

Winter Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								50
Hay	Rye	ton	2.50	\$ 320.00	\$ 800.00	\$ 320.00	\$ 8.00	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 0.16	
Seed	Rye	lb	125.00	\$ 0.48	\$ 60.00	\$ 24.00	\$ 0.60	
Fertilizer	N	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 0.72	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 0.25	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 0.16	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 0.25	
Lime & Application	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 0.22	
Weed Control								
Post-Emerge	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 235.63	\$ 94.25	\$ 2.36	
Return over Variable Expenses					\$ 564.37	\$ 225.75	\$ 5.64	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 0.12	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 0.17	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 0.17	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.07	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 0.09	
Baling		cutting	1	\$ 1.09	\$ 109.00	\$ 43.60	\$ 1.09	
Hauling		bale	100.00	\$ 0.75	\$ 75.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 244.73	\$ 97.89	\$ 2.45	
Interest on Operating Capital	6 months	acre	\$ 235.63	8.0%	\$ 9.43	\$ 3.77	\$ 0.09	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	100.00	\$ 0.23	\$ 22.88	\$ 9.15	\$ 0.23	
Shrinkage Loss		annual	3.5%		\$ 17.14	\$ 6.86	\$ 0.17	
Total Storage Cost					\$ 40.02	\$ 16.01	\$ 0.40	
Total Budgeted Expenses					\$ 529.80	\$ 211.92	\$ 5.30	
Return to Land & Management					\$ 270.20	\$ 108.08	\$ 2.70	

Winter Annual, Hay -Rye

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ 169.37	\$ 206.87	\$ 244.37	\$ 281.87	\$ 319.37
	2.0	\$ 304.37	\$ 354.37	\$ 404.37	\$ 454.37	\$ 504.37
	2.5	\$ 439.37	\$ 501.87	\$ 564.37	\$ 626.87	\$ 689.37
	3.0	\$ 574.37	\$ 649.37	\$ 724.37	\$ 799.37	\$ 874.37
	3.5	\$ 709.37	\$ 796.87	\$ 884.37	\$ 971.87	\$ 1,059.37

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$4.19	\$9.42
	1.9	\$3.14	\$7.06
	2.5	\$2.36	\$5.30
	3.1	\$1.89	\$4.24
	3.9	\$1.51	\$3.39

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ (124.80)	\$ (87.30)	\$ (49.80)	\$ (12.30)	\$ 25.20
	2.0	\$ 10.20	\$ 60.20	\$ 110.20	\$ 160.20	\$ 210.20
	2.5	\$ 145.20	\$ 207.70	\$ 270.20	\$ 332.70	\$ 395.20
	3.0	\$ 280.20	\$ 355.20	\$ 430.20	\$ 505.20	\$ 580.20
	3.5	\$ 415.20	\$ 502.70	\$ 590.20	\$ 677.70	\$ 765.20

Return Above Fixed Expenses

		Price (\$/bale)					
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00	
Yield (bale)	96.0	\$ 0.48	\$ 1.48	\$ 2.48	\$ 3.48	\$ 4.48	
	98.0	\$ 0.59	\$ 1.59	\$ 2.59	\$ 3.59	\$ 4.59	
	100.0	\$ 0.70	\$ 1.70	\$ 2.70	\$ 3.70	\$ 4.70	
	102.0	\$ 0.81	\$ 1.81	\$ 2.81	\$ 3.81	\$ 4.81	
	104.0	\$ 0.91	\$ 1.91	\$ 2.91	\$ 3.91	\$ 4.91	

Winter Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Oats	ton	2.50	\$ 150.00	\$ 375.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 2.22	
Seed	Oats	lb	125.00	\$ 0.49	\$ 61.25	\$ 24.50	\$ 8.70	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 10.20	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 3.49	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 2.32	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 3.61	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 3.10	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 236.88	\$ 94.75	\$ 33.64	
Return over Variable Expenses					\$ 138.12	\$ 55.25	\$ 19.61	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 1.68	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 2.43	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 2.34	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.95	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 1.23	
Baling		cutting	1	\$ 13.17	\$ 92.75	\$ 37.10	\$ 13.17	
Hauling		bale	7.04	\$ 5.42	\$ 38.17	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 191.65	\$ 76.66	\$ 27.21	
Interest on Operating Capital	6 months	acre	\$ 236.88	8.0%	\$ 9.48	\$ 3.79	\$ 1.35	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	7.04	\$ 4.43	\$ 31.22	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.33	\$ 6.13	\$ 2.18	
Total Storage Cost					\$ 46.55	\$ 18.62	\$ 6.61	
Total Budgeted Expenses					\$ 484.54	\$ 193.82	\$ 68.81	
Return to Land & Management					\$ (109.54)	\$ (43.82)	\$ (15.56)	

Winter Annual, Hay -Oats

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (86.88)	\$ (49.38)	\$ (11.88)	\$ 25.62	\$ 63.12
	2.0	\$ (36.88)	\$ 13.12	\$ 63.12	\$ 113.12	\$ 163.12
	2.5	\$ 13.12	\$ 75.62	\$ 138.12	\$ 200.62	\$ 263.12
	3.0	\$ 63.12	\$ 138.12	\$ 213.12	\$ 288.12	\$ 363.12
	3.5	\$ 113.12	\$ 200.62	\$ 288.12	\$ 375.62	\$ 463.12

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$59.80	\$122.32
	1.9	\$44.85	\$91.74
	2.5	\$33.64	\$68.81
	3.1	\$26.91	\$55.04
	3.9	\$21.53	\$44.04

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (334.54)	\$ (297.04)	\$ (259.54)	\$ (222.04)	\$ (184.54)
	2.0	\$ (284.54)	\$ (234.54)	\$ (184.54)	\$ (134.54)	\$ (84.54)
	2.5	\$ (234.54)	\$ (172.04)	\$ (109.54)	\$ (47.04)	\$ 15.46
	3.0	\$ (184.54)	\$ (109.54)	\$ (34.54)	\$ 40.46	\$ 115.46
	3.5	\$ (134.54)	\$ (47.04)	\$ 40.46	\$ 127.96	\$ 215.46

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	3.0	\$ (116.02)	\$ (111.02)	\$ (106.02)	\$ (101.02)	\$ (96.02)
	5.0	\$ (52.85)	\$ (47.85)	\$ (42.85)	\$ (37.85)	\$ (32.85)
	7.0	\$ (25.56)	\$ (20.56)	\$ (15.56)	\$ (10.56)	\$ (5.56)
	9.0	\$ (10.34)	\$ (5.34)	\$ (0.34)	\$ 4.66	\$ 9.66
	11.0	\$ (0.63)	\$ 4.37	\$ 9.37	\$ 14.37	\$ 19.37

Winter Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								50
Hay	Oats	ton	2.50	\$ 320.00	\$ 800.00	\$ 320.00	\$ 8.00	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 0.16	
Seed	Oats	lb	125.00	\$ 0.49	\$ 61.25	\$ 24.50	\$ 0.61	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 0.72	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 0.25	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 0.16	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 0.25	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 0.22	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 236.88	\$ 94.75	\$ 2.37	
Return over Variable Expenses					\$ 563.12	\$ 225.25	\$ 5.63	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 0.12	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 0.17	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 0.17	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.07	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 0.09	
Baling		cutting	1	\$ 1.09	\$ 109.00	\$ 43.60	\$ 1.09	
Hauling		bale	100.00	\$ 0.75	\$ 75.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 244.73	\$ 97.89	\$ 2.45	
Interest on Operating Capital	6 months	acre	\$ 236.88	8.0%	\$ 9.48	\$ 3.79	\$ 0.09	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	100.00	\$ 0.23	\$ 22.88	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 17.19	\$ 6.88	\$ 0.17	
Total Storage Cost					\$ 40.07	\$ 16.03	\$ 0.40	
Total Budgeted Expenses					\$ 531.15	\$ 212.46	\$ 5.31	
Return to Land & Management					\$ 268.85	\$ 107.54	\$ 2.69	

Winter Annual, Hay -Oats

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ 168.12	\$ 205.62	\$ 243.12	\$ 280.62	\$ 318.12
	2.0	\$ 303.12	\$ 353.12	\$ 403.12	\$ 453.12	\$ 503.12
	2.5	\$ 438.12	\$ 500.62	\$ 563.12	\$ 625.62	\$ 688.12
	3.0	\$ 573.12	\$ 648.12	\$ 723.12	\$ 798.12	\$ 873.12
	3.5	\$ 708.12	\$ 795.62	\$ 883.12	\$ 970.62	\$ 1,058.12

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$4.21	\$9.44
	1.9	\$3.16	\$7.08
	2.5	\$2.37	\$5.31
	3.1	\$1.90	\$4.25
	3.9	\$1.52	\$3.40

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ (126.15)	\$ (88.65)	\$ (51.15)	\$ (13.65)	\$ 23.85
	2.0	\$ 8.85	\$ 58.85	\$ 108.85	\$ 158.85	\$ 208.85
	2.5	\$ 143.85	\$ 206.35	\$ 268.85	\$ 331.35	\$ 393.85
	3.0	\$ 278.85	\$ 353.85	\$ 428.85	\$ 503.85	\$ 578.85
	3.5	\$ 413.85	\$ 501.35	\$ 588.85	\$ 676.35	\$ 763.85

Return Above Fixed Expenses

		Price (\$/bale)					
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00	
Yield (bale)	96.0	\$ 0.47	\$ 1.47	\$ 2.47	\$ 3.47	\$ 4.47	
	98.0	\$ 0.58	\$ 1.58	\$ 2.58	\$ 3.58	\$ 4.58	
	100.0	\$ 0.69	\$ 1.69	\$ 2.69	\$ 3.69	\$ 4.69	
	102.0	\$ 0.79	\$ 1.79	\$ 2.79	\$ 3.79	\$ 4.79	
	104.0	\$ 0.89	\$ 1.89	\$ 2.89	\$ 3.89	\$ 4.89	

Winter Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Ryegrass	ton	2.50	\$ 150.00	\$ 375.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 2.22	
Seed	Ryegrass	lb	25.00	\$ 0.87	\$ 21.75	\$ 8.70	\$ 3.09	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 10.20	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 3.49	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 2.32	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 3.61	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 3.10	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 197.38	\$ 78.95	\$ 28.03	
Return over Variable Expenses					\$ 177.62	\$ 71.05	\$ 25.22	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 1.68	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 2.43	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 2.34	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.95	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 1.23	
Baling		cutting	1	\$ 13.17	\$ 92.75	\$ 37.10	\$ 13.17	
Hauling		bale	7.04	\$ 5.42	\$ 38.17	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 191.65	\$ 76.66	\$ 27.21	
Interest on Operating Capital	6 months	acre	\$ 197.38	8.0%	\$ 7.90	\$ 3.16	\$ 1.12	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	7.04	\$ 4.43	\$ 31.22	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 13.89	\$ 5.56	\$ 1.97	
Total Storage Cost					\$ 45.11	\$ 18.04	\$ 6.41	
Total Budgeted Expenses					\$ 442.03	\$ 176.81	\$ 62.77	
Return to Land & Management					\$ (67.03)	\$ (26.81)	\$ (9.52)	

Winter Annual, Hay -Ryegrass

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (47.38)	\$ (9.88)	\$ 27.62	\$ 65.12	\$ 102.62
	2.0	\$ 2.62	\$ 52.62	\$ 102.62	\$ 152.62	\$ 202.62
	2.5	\$ 52.62	\$ 115.12	\$ 177.62	\$ 240.12	\$ 302.62
	3.0	\$ 102.62	\$ 177.62	\$ 252.62	\$ 327.62	\$ 402.62
	3.5	\$ 152.62	\$ 240.12	\$ 327.62	\$ 415.12	\$ 502.62

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$49.83	\$111.59
	1.9	\$37.37	\$83.69
	2.5	\$28.03	\$62.77
	3.1	\$22.42	\$50.21
	3.9	\$17.94	\$40.17

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (292.03)	\$ (254.53)	\$ (217.03)	\$ (179.53)	\$ (142.03)
	2.0	\$ (242.03)	\$ (192.03)	\$ (142.03)	\$ (92.03)	\$ (42.03)
	2.5	\$ (192.03)	\$ (129.53)	\$ (67.03)	\$ (4.53)	\$ 57.97
	3.0	\$ (142.03)	\$ (67.03)	\$ 7.97	\$ 82.97	\$ 157.97
	3.5	\$ (92.03)	\$ (4.53)	\$ 82.97	\$ 170.47	\$ 257.97

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	3.0	\$ (102.05)	\$ (97.05)	\$ (92.05)	\$ (87.05)	\$ (82.05)
	5.0	\$ (44.41)	\$ (39.41)	\$ (34.41)	\$ (29.41)	\$ (24.41)
	7.0	\$ (19.52)	\$ (14.52)	\$ (9.52)	\$ (4.52)	\$ 0.48
	9.0	\$ (5.63)	\$ (0.63)	\$ 4.37	\$ 9.37	\$ 14.37
	11.0	\$ 3.22	\$ 8.22	\$ 13.22	\$ 18.22	\$ 23.22

Winter Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square 50
Income								
Hay	Ryegrass	ton	2.50	\$ 320.00	\$ 800.00	\$ 320.00	\$ 8.00	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 0.16	
Seed	Ryegrass	lb	25.00	\$ 0.87	\$ 21.75	\$ 8.70	\$ 0.22	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 0.72	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 0.25	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 0.16	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 0.25	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 0.22	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 197.38	\$ 78.95	\$ 1.97	
Return over Variable Expenses					\$ 602.62	\$ 241.05	\$ 6.03	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 0.12	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 0.17	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 0.17	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.07	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 0.09	
Baling		cutting	1	\$ 1.09	\$ 109.00	\$ 43.60	\$ 1.09	
Hauling		bale	100.00	\$ 0.75	\$ 75.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 244.73	\$ 97.89	\$ 2.45	
Interest on Operating Capital	6 months	acre	\$ 197.38	8.0%	\$ 7.90	\$ 3.16	\$ 0.08	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	100.00	\$ 0.23	\$ 22.88	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 15.75	\$ 6.30	\$ 0.16	
Total Storage Cost					\$ 38.63	\$ 15.45	\$ 0.39	
Total Budgeted Expenses					\$ 488.63	\$ 195.45	\$ 4.89	
Return to Land & Management					\$ 311.37	\$ 124.55	\$ 3.11	

Winter Annual, Hay -Ryegrass

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ 207.62	\$ 245.12	\$ 282.62	\$ 320.12	\$ 357.62
	2.0	\$ 342.62	\$ 392.62	\$ 442.62	\$ 492.62	\$ 542.62
	2.5	\$ 477.62	\$ 540.12	\$ 602.62	\$ 665.12	\$ 727.62
	3.0	\$ 612.62	\$ 687.62	\$ 762.62	\$ 837.62	\$ 912.62
	3.5	\$ 747.62	\$ 835.12	\$ 922.62	\$ 1,010.12	\$ 1,097.62

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$3.51	\$8.69
	1.9	\$2.63	\$6.52
	2.5	\$1.97	\$4.89
	3.1	\$1.58	\$3.91
	3.9	\$1.26	\$3.13

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ (83.63)	\$ (46.13)	\$ (8.63)	\$ 28.87	\$ 66.37
	2.0	\$ 51.37	\$ 101.37	\$ 151.37	\$ 201.37	\$ 251.37
	2.5	\$ 186.37	\$ 248.87	\$ 311.37	\$ 373.87	\$ 436.37
	3.0	\$ 321.37	\$ 396.37	\$ 471.37	\$ 546.37	\$ 621.37
	3.5	\$ 456.37	\$ 543.87	\$ 631.37	\$ 718.87	\$ 806.37

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	96.0	\$ 0.91	\$ 1.91	\$ 2.91	\$ 3.91	\$ 4.91
	98.0	\$ 1.01	\$ 2.01	\$ 3.01	\$ 4.01	\$ 5.01
	100.0	\$ 1.11	\$ 2.11	\$ 3.11	\$ 4.11	\$ 5.11
	102.0	\$ 1.21	\$ 2.21	\$ 3.21	\$ 4.21	\$ 5.21
	104.0	\$ 1.30	\$ 2.30	\$ 3.30	\$ 4.30	\$ 5.30

Winter Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Triticale	ton	2.50	\$ 150.00	\$ 375.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 2.22	
Seed	Triticale	lb	100.00	\$ 0.52	\$ 52.00	\$ 20.80	\$ 7.38	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 10.20	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 3.49	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 2.32	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 3.61	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 3.10	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 227.63	\$ 91.05	\$ 32.32	
Return over Variable Expenses					\$ 147.37	\$ 58.95	\$ 20.93	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 1.68	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 2.43	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 2.34	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.95	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 1.23	
Baling		cutting	1	\$ 13.17	\$ 92.75	\$ 37.10	\$ 13.17	
Hauling		bale	7.04	\$ 5.42	\$ 38.17	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 191.65	\$ 76.66	\$ 27.21	
Interest on Operating Capital	6 months	acre	\$ 227.63	8.0%	\$ 9.11	\$ 3.64	\$ 1.29	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	7.04	\$ 4.43	\$ 31.22	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 14.99	\$ 6.00	\$ 2.13	
Total Storage Cost					\$ 46.21	\$ 18.48	\$ 6.56	
Total Budgeted Expenses					\$ 474.59	\$ 189.83	\$ 67.39	
Return to Land & Management					\$ (99.59)	\$ (39.83)	\$ (14.14)	

Winter Annual, Hay -Triticale

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (77.63)	\$ (40.13)	\$ (2.63)	\$ 34.87	\$ 72.37
	2.0	\$ (27.63)	\$ 22.37	\$ 72.37	\$ 122.37	\$ 172.37
	2.5	\$ 22.37	\$ 84.87	\$ 147.37	\$ 209.87	\$ 272.37
	3.0	\$ 72.37	\$ 147.37	\$ 222.37	\$ 297.37	\$ 372.37
	3.5	\$ 122.37	\$ 209.87	\$ 297.37	\$ 384.87	\$ 472.37

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$57.46	\$119.81
	1.9	\$43.10	\$89.85
	2.5	\$32.32	\$67.39
	3.1	\$25.86	\$53.91
	3.9	\$20.69	\$43.13

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (324.59)	\$ (287.09)	\$ (249.59)	\$ (212.09)	\$ (174.59)
	2.0	\$ (274.59)	\$ (224.59)	\$ (174.59)	\$ (124.59)	\$ (74.59)
	2.5	\$ (224.59)	\$ (162.09)	\$ (99.59)	\$ (37.09)	\$ 25.41
	3.0	\$ (174.59)	\$ (99.59)	\$ (24.59)	\$ 50.41	\$ 125.41
	3.5	\$ (124.59)	\$ (37.09)	\$ 50.41	\$ 137.91	\$ 225.41

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	3.0	\$ (112.75)	\$ (107.75)	\$ (102.75)	\$ (97.75)	\$ (92.75)
	5.0	\$ (50.87)	\$ (45.87)	\$ (40.87)	\$ (35.87)	\$ (30.87)
	7.0	\$ (24.14)	\$ (19.14)	\$ (14.14)	\$ (9.14)	\$ (4.14)
	9.0	\$ (9.24)	\$ (4.24)	\$ 0.76	\$ 5.76	\$ 10.76
	11.0	\$ 0.27	\$ 5.27	\$ 10.27	\$ 15.27	\$ 20.27

Winter Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Triticale	ton	2.50	\$ 320.00	\$ 800.00	\$ 320.00	\$ 8.00	50
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 0.16	
Seed	Triticale	lb	100.00	\$ 0.52	\$ 52.00	\$ 20.80	\$ 0.52	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 0.72	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 0.25	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 0.16	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 0.25	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 0.22	
	Weed Control							
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 227.63	\$ 91.05	\$ 2.28	
Return over Variable Expenses					\$ 572.37	\$ 228.95	\$ 5.72	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 0.12	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 0.17	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 0.17	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.07	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 0.09	
Baling		cutting	1	\$ 1.09	\$ 109.00	\$ 43.60	\$ 1.09	
Hauling		bale	100.00	\$ 0.75	\$ 75.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 244.73	\$ 97.89	\$ 2.45	
Interest on Operating Capital	6 months	acre	\$ 227.63	8.0%	\$ 9.11	\$ 3.64	\$ 0.09	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	100.00	\$ 0.23	\$ 22.88	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 16.85	\$ 6.74	\$ 0.17	
Total Storage Cost					\$ 39.73	\$ 15.89	\$ 0.40	
Total Budgeted Expenses					\$ 521.19	\$ 208.48	\$ 5.21	
Return to Land & Management					\$ 278.81	\$ 111.52	\$ 2.79	

Winter Annual, Hay -Triticale

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ 177.37	\$ 214.87	\$ 252.37	\$ 289.87	\$ 327.37
	2.0	\$ 312.37	\$ 362.37	\$ 412.37	\$ 462.37	\$ 512.37
	2.5	\$ 447.37	\$ 509.87	\$ 572.37	\$ 634.87	\$ 697.37
	3.0	\$ 582.37	\$ 657.37	\$ 732.37	\$ 807.37	\$ 882.37
	3.5	\$ 717.37	\$ 804.87	\$ 892.37	\$ 979.87	\$ 1,067.37

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$4.05	\$9.27
	1.9	\$3.04	\$6.95
	2.5	\$2.28	\$5.21
	3.1	\$1.82	\$4.17
	3.9	\$1.46	\$3.34

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ (116.19)	\$ (78.69)	\$ (41.19)	\$ (3.69)	\$ 33.81
	2.0	\$ 18.81	\$ 68.81	\$ 118.81	\$ 168.81	\$ 218.81
	2.5	\$ 153.81	\$ 216.31	\$ 278.81	\$ 341.31	\$ 403.81
	3.0	\$ 288.81	\$ 363.81	\$ 438.81	\$ 513.81	\$ 588.81
	3.5	\$ 423.81	\$ 511.31	\$ 598.81	\$ 686.31	\$ 773.81

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	96.0	\$ 0.57	\$ 1.57	\$ 2.57	\$ 3.57	\$ 4.57
	98.0	\$ 0.68	\$ 1.68	\$ 2.68	\$ 3.68	\$ 4.68
	100.0	\$ 0.79	\$ 1.79	\$ 2.79	\$ 3.79	\$ 4.79
	102.0	\$ 0.89	\$ 1.89	\$ 2.89	\$ 3.89	\$ 4.89
	104.0	\$ 0.99	\$ 1.99	\$ 2.99	\$ 3.99	\$ 4.99

Winter Annual, Hay, Round Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Round 4x5 710
Income								
Hay	Wheat	ton	2.50	\$ 150.00	\$ 375.00	\$ 150.00	\$ 53.25	
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 2.22	
Seed	Wheat	lb	150.00	\$ 0.28	\$ 42.00	\$ 16.80	\$ 5.96	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 10.20	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 3.49	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 2.32	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 3.61	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 3.10	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 217.63	\$ 87.05	\$ 30.90	
Return over Variable Expenses					\$ 157.37	\$ 62.95	\$ 22.35	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 1.68	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 2.43	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 2.34	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.95	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 1.23	
Baling		cutting	1	\$ 13.17	\$ 92.75	\$ 37.10	\$ 13.17	
Hauling		bale	7.04	\$ 5.42	\$ 38.17	\$ 15.27	\$ 5.42	
Total Custom Machinery Cost					\$ 191.65	\$ 76.66	\$ 27.21	
Interest on Operating Capital	6 months	acre	\$ 217.63	8.0%	\$ 8.71	\$ 3.48	\$ 1.24	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	7.04	\$ 4.43	\$ 31.22	\$ 12.49	\$ 4.43	
Shrinkage Loss ⁷		annual	3.5%		\$ 14.63	\$ 5.85	\$ 2.08	
Total Storage Cost					\$ 45.84	\$ 18.34	\$ 6.51	
Total Budgeted Expenses					\$ 463.82	\$ 185.53	\$ 65.86	
Return to Land & Management					\$ (88.82)	\$ (35.53)	\$ (12.61)	

Winter Annual, Hay -Wheat

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (67.63)	\$ (30.13)	\$ 7.37	\$ 44.87	\$ 82.37
	2.0	\$ (17.63)	\$ 32.37	\$ 82.37	\$ 132.37	\$ 182.37
	2.5	\$ 32.37	\$ 94.87	\$ 157.37	\$ 219.87	\$ 282.37
	3.0	\$ 82.37	\$ 157.37	\$ 232.37	\$ 307.37	\$ 382.37
	3.5	\$ 132.37	\$ 219.87	\$ 307.37	\$ 394.87	\$ 482.37

Yield

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$54.94	\$117.09
	1.9	\$41.20	\$87.82
	2.5	\$30.90	\$65.86
	3.1	\$24.72	\$52.69
	3.9	\$19.78	\$42.15

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 100.00	\$ 125.00	\$ 150.00	\$ 175.00	\$ 200.00
Yield	1.5	\$ (313.82)	\$ (276.32)	\$ (238.82)	\$ (201.32)	\$ (163.82)
	2.0	\$ (263.82)	\$ (213.82)	\$ (163.82)	\$ (113.82)	\$ (63.82)
	2.5	\$ (213.82)	\$ (151.32)	\$ (88.82)	\$ (26.32)	\$ 36.18
	3.0	\$ (163.82)	\$ (88.82)	\$ (13.82)	\$ 61.18	\$ 136.18
	3.5	\$ (113.82)	\$ (26.32)	\$ 61.18	\$ 148.68	\$ 236.18

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 43.25	\$ 48.25	\$ 53.25	\$ 58.25	\$ 63.25
Yield (bale)	3.0	\$ (109.21)	\$ (104.21)	\$ (99.21)	\$ (94.21)	\$ (89.21)
	5.0	\$ (48.74)	\$ (43.74)	\$ (38.74)	\$ (33.74)	\$ (28.74)
	7.0	\$ (22.61)	\$ (17.61)	\$ (12.61)	\$ (7.61)	\$ (2.61)
	9.0	\$ (8.04)	\$ (3.04)	\$ 1.96	\$ 6.96	\$ 11.96
	11.0	\$ 1.25	\$ 6.25	\$ 11.25	\$ 16.25	\$ 21.25

Winter Annual, Hay, Square Bale
Estimated Expenses per Acre^{1,2}

Item	Description	Unit	Quantity	Price	Amount (\$/acre)	Amount (\$/ton)	Amount (\$/bale)	Square Square
Income								
Hay	Wheat	ton	2.50	\$ 320.00	\$ 800.00	\$ 320.00	\$ 8.00	50
Expenses								
Burndown	Burndown	acre	1.00	\$ 15.66	\$ 15.66	\$ 6.26	\$ 0.16	
Seed	Wheat	lb	150.00	\$ 0.28	\$ 42.00	\$ 16.80	\$ 0.42	
Fertilizer	N ³	lb	120.00	\$ 0.60	\$ 71.84	\$ 28.73	\$ 0.72	
	P2O5	lb	40.00	\$ 0.61	\$ 24.54	\$ 9.82	\$ 0.25	
	K2O	lb	40.00	\$ 0.41	\$ 16.35	\$ 6.54	\$ 0.16	
	Custom Application	acre	2.00	\$ 12.71	\$ 25.42	\$ 10.17	\$ 0.25	
Lime & Application ^{4,5}	Custom Application	ton	0.50	\$ 43.63	\$ 21.82	\$ 8.73	\$ 0.22	
Weed Control								
Post-Emerge ⁶	Herbicide Application	acre		\$ 12.30	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Pest Control	Pest Control Application	acre		\$ 6.51	\$ -	\$ -	\$ -	
	Custom Application	acre		\$ 11.81	\$ -	\$ -	\$ -	
Total Variable Expenses					\$ 217.63	\$ 87.05	\$ 2.18	
Return over Variable Expenses					\$ 582.37	\$ 232.95	\$ 5.82	
Custom Machinery Cost								
Spraying		acre	1	\$ 11.81	\$ 11.81	\$ 4.72	\$ 0.12	
No-till Drill		acre	1	\$ 17.08	\$ 17.08	\$ 6.83	\$ 0.17	
Disk Mowing		cutting	1	\$ 16.50	\$ 16.50	\$ 6.60	\$ 0.17	
Tedding		cutting	1	\$ 6.67	\$ 6.67	\$ 2.67	\$ 0.07	
Raking		cutting	1	\$ 8.67	\$ 8.67	\$ 3.47	\$ 0.09	
Baling		cutting	1	\$ 1.09	\$ 109.00	\$ 43.60	\$ 1.09	
Hauling		bale	100.00	\$ 0.75	\$ 75.00	\$ 30.00	\$ 0.75	
Total Custom Machinery Cost					\$ 244.73	\$ 97.89	\$ 2.45	
Interest on Operating Capital	6 months	acre	\$ 217.63	8.0%	\$ 8.71	\$ 3.48	\$ 0.09	
Cash Rent		acre	1.0%		\$ -	\$ -	\$ -	
Storage								
Fixed Cost	Hay Barn	bale	100.00	\$ 0.23	\$ 22.88	\$ 9.15	\$ 0.23	
Shrinkage Loss ⁷		annual	3.5%		\$ 16.49	\$ 6.59	\$ 0.16	
Total Storage Cost					\$ 39.37	\$ 15.75	\$ 0.39	
Total Budgeted Expenses					\$ 510.43	\$ 204.17	\$ 5.10	
Return to Land & Management					\$ 289.57	\$ 115.83	\$ 2.90	

Winter Annual, Hay -Wheat

Sensitivity Analysis

Sensitivity Analysis

Return Above Variable Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ 187.37	\$ 224.87	\$ 262.37	\$ 299.87	\$ 337.37
	2.0	\$ 322.37	\$ 372.37	\$ 422.37	\$ 472.37	\$ 522.37
	2.5	\$ 457.37	\$ 519.87	\$ 582.37	\$ 644.87	\$ 707.37
	3.0	\$ 592.37	\$ 667.37	\$ 742.37	\$ 817.37	\$ 892.37
	3.5	\$ 727.37	\$ 814.87	\$ 902.37	\$ 989.87	\$ 1,077.37

		Variable (per bale)	Total Costs (per bale)
Yield	1.4	\$3.87	\$9.07
	1.9	\$2.90	\$6.81
	2.5	\$2.18	\$5.10
	3.1	\$1.74	\$4.08
	3.9	\$1.39	\$3.27

Return Above Fixed Expenses

		Price (\$/ton)				
		\$ 270.00	\$ 295.00	\$ 320.00	\$ 345.00	\$ 370.00
Yield	1.5	\$ (105.43)	\$ (67.93)	\$ (30.43)	\$ 7.07	\$ 44.57
	2.0	\$ 29.57	\$ 79.57	\$ 129.57	\$ 179.57	\$ 229.57
	2.5	\$ 164.57	\$ 227.07	\$ 289.57	\$ 352.07	\$ 414.57
	3.0	\$ 299.57	\$ 374.57	\$ 449.57	\$ 524.57	\$ 599.57
	3.5	\$ 434.57	\$ 522.07	\$ 609.57	\$ 697.07	\$ 784.57

Return Above Fixed Expenses

		Price (\$/bale)				
		\$ 6.00	\$ 7.00	\$ 8.00	\$ 9.00	\$ 10.00
Yield (bale)	96.0	\$ 0.68	\$ 1.68	\$ 2.68	\$ 3.68	\$ 4.68
	98.0	\$ 0.79	\$ 1.79	\$ 2.79	\$ 3.79	\$ 4.79
	100.0	\$ 0.90	\$ 1.90	\$ 2.90	\$ 3.90	\$ 4.90
	102.0	\$ 1.00	\$ 2.00	\$ 3.00	\$ 4.00	\$ 5.00
	104.0	\$ 1.09	\$ 2.09	\$ 3.09	\$ 4.09	\$ 5.09

Summer and Winter Annual Assumptions

1. The budget is based on custom rates for machinery processes. Labor, operating, maintenance, and ownership costs are included in these rates. The baling rate includes binding.
2. The budget is based on no-till establishment.
3. Nitrogen is applied in split applications.
4. Lime prorated at one ton over two years.
5. For a more accurate fertilizer and lime recommendation, take a soil sample. ([Instructions on how to take a soil sample.](#))
6. The post-emergence weed control is based on an average of three common practices. Burndown is a common practice. For weed control and/or burndown recommendations, contact the county Extension office. ([County office contact information.](#))
7. Storage loss is based on an average of multiple studies.



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