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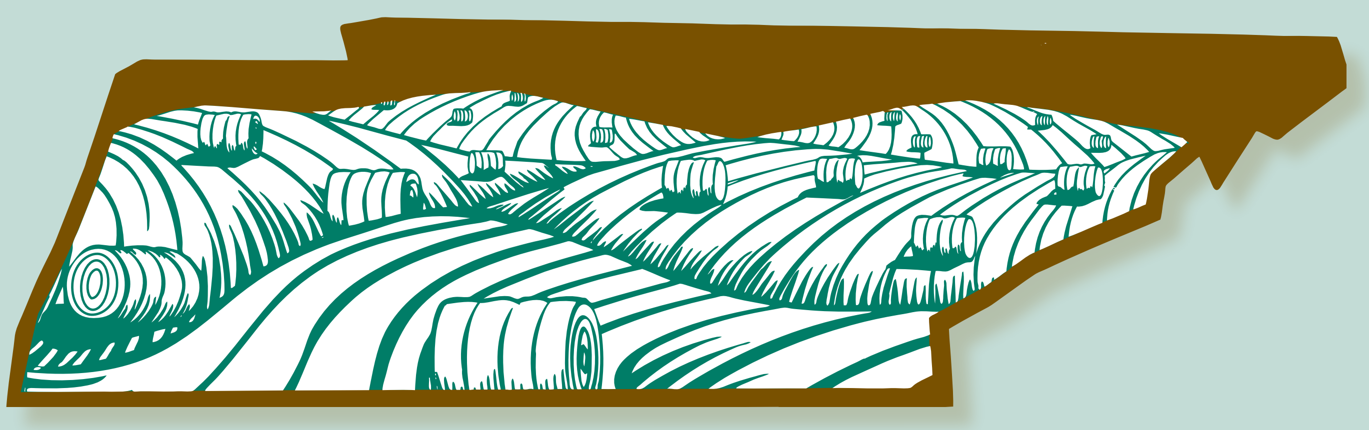
PB1658

# Tennessee Forage Budgets



THE UNIVERSITY of TENNESSEE

# Tennessee Forage Budgets

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**December 2006**

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This publication contains short-term planning budgets for the most prevalent forage enterprises in Tennessee. Guideline tobacco, livestock and field crop budgets are published in separate publications.

## Fertilizer Recommendations

The fertilizer recommendations in the forage budgets are generally for soils that represent a medium soil test. Farmers should have their soils tested to get maximum return from money spent for fertilizer. As forage programs are planned, fertilizer applications must be adjusted to soil test recommendations.

## Trade Names and Pesticide Caution

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the product.

Pesticides recommended in the publication were registered for the prescribed uses when these budgets were printed. Pesticide registrations are continuously being reviewed. Should registration of a recommended pesticide be canceled, it will no longer be recommended by the University of Tennessee.

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

## Applicability and Precision

These budgets are intended as guides only. Adjustments can and should be made when needed to represent specific farm situations. The computer program used to construct these budgets internally calculates totals to the 7th decimal place. Totals for a column may not equal the total of rounded numbers.

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# Tennessee Forage Budgets

Forage producers in Tennessee can produce a wide range of forage crops. Annual crops may be grown for three to six months as winter or summer forages. Perennial crops may be planted that produce forages for five years or longer. Many forage crops can be grazed, cut for hay or chopped for silage. This publication presents estimated forage crop establishment and production costs for many of these options, assuming above-average levels of management. These budgets should be viewed as examples of feasible forage-crop production methods. They are not necessarily the best ways of growing forage, nor are they to be considered as recommendations.

**Methods and Assumptions**

Each forage budget includes variable expenses, fixed expenses and labor expenses. Perennial forage crop budgets also include establishment costs. Fixed expenses in the budgets account for annual depreciation and interest costs associated with machinery, equipment and fences. The costs of owning or renting land are not included.

Most forages are produced on the same farms where they are fed to livestock. This causes very little market information to be available for forage crops, making it difficult to obtain typical or average prices for forages other than grass and alfalfa hay. Yield data are also limited, because many forage crops are not measured or weighed before they are fed. As a result, prices and yields are not shown in the forage crop budgets. However, break-even prices are calculated for silage and hay crops at yield levels representative of crops in Tennessee. Break-even prices represent cost-based estimates of forage-crop values.

**Establishment Costs and Methods**

All the costs of establishing annual forage crops are included in the annual forage crop budgets, because they produce forage for less than one year. Establishment costs for perennial crops must be spread over their productive lives, so that each year of production "repays" a portion of the costs to establish them. This is accomplished by constructing forage crop establishment budgets, then *amortizing* establishment costs for perennial crops. The total establishment cost for each perennial forage crop is treated as a loan that must be repaid, in equal annual payments with interest, during the productive life of the crop. The interest charge represents the cost of borrowing money to finance the establishment cost, if the funds are obtained from a lender. If an owner provides the funds to pay for establishment of a perennial crop, then the interest charge represents the earnings given up by not investing the money in some other activity, such as feeding livestock or purchasing shares in a mutual fund. Amortized establishment costs are included as fixed expenses in perennial forage crop budgets.

Several methods can be used to prepare seedbeds and establish forage crops. The best method to use is influenced by many factors, including soil conservation requirements, costs, soil types, crop rotations and equipment availability. These forage budgets present cost estimates for two establishment methods – traditional and no-till.

*Traditional establishment* is assumed to include plowing, disking and/or cultimulching before planting. *No-till establishment* eliminates all tillage operations. Seed is planted using sod planters or no-till drills. No-till establishment is usually performed by applying a burn-down contact herbicide to stubble or a standing prior crop, then planting into the remaining crop residue. Adjustments should be made to the budgets to reflect establishment methods that differ from those used in the budgets. Each perennial forage production budget includes the amortized cost of establishing the crop using no-till planting. To determine production costs using traditional tillage, substitute the amortized cost from the traditional establishment budget in the forage production budget being analyzed.

**Pasture Budgets**

Two types of pasture budgets are included. Budgets for forage crops that are managed intensively using rotational grazing are referred to as *intensive grazing* budgets. *Continuous grazing* budgets represent the costs of pastures at lower levels of labor, management and production.

In the past, most livestock producers have managed continuous grazing systems, using primarily perennial grass or grass and clover forage crops. Many of the pastures included in continuous grazing systems have been in production for 20 years or more. Establishment and fencing costs are assumed to have been fully recovered for these pastures, so these costs are not included in the continuous grazing budgets. Thus, budgets for continuous grazing include only the costs to maintain perennial forage stands at low-to-moderate levels of production, plus minimal costs for annual fence repairs and maintenance.

For intensive grazing budgets, forage is assumed to be grown in fields sub-divided into smaller grazing paddocks. Following a short period of intensive grazing, each paddock will have a period of rest for forage regrowth. Pastures are grazed when the forage is at a high-quality stage of growth, resulting in increased efficiency in forage production and utilization.

Fence costs vary depending on the materials used, field size and paddock arrangement. In these budgets, fencing cost for intensively grazed crops is estimated based on a 10-acre field, with a high-tensile perimeter fence and polytape used for divider fence. Both the perimeter and divider fence are electrified. A 20-year life for the perimeter fence and a five-year life for the divider fence are assumed. Annual fixed costs for the fence are \$20.29 per acre, which includes \$12.50/acre in depreciation and interest charges for perimeter fences, and \$7.79/acre in depreciation and interest expenses for temporary divider fences. Annual fence repair costs are \$5.56/acre for perimeter fences and \$1.30/acre for temporary divider fences.

**Hay and Silage Budgets**

Large, 1,000 lb. round bales are used in harvesting all hay crops except alfalfa and bermudagrass, which are harvested as small, rectangular bales weighing about 50 lbs. Costs of removing hay from the field are included as stacking or hauling expenses. The budgets do not estimate the costs of storing or feeding hay.

The raw product for silage comes from the field as green chop. For finished silage, the green chop must be hauled from the field and blown into a silo, dumped in a trench or bunker and packed, or packed into a bag. It must be allowed to go through a fermentation period before reaching proper feeding condition. The silage budgets show expenditures for chopping, hauling and then blowing green chop into upright silos. Again, the budgets do not include storage or feeding costs for silage.

**Machinery**

All machinery and equipment used in the budgets is listed in the table on page 4. List prices were obtained from manufacturers during August 2005. Machinery ownership and operating costs are calculated following procedures developed in “Machinery Cost Calculation Methods,” AE&RD No. 13, 1998. This publication is available from the authors, or can be obtained online at http://economics.ag.utk.edu.

Depreciation and interest costs are estimated assuming all machinery and equipment is six years old. Interest expenses are calculated using an 8 percent interest rate. Fuel costs are based on a diesel price of $2.10/gallon. All machinery costs are estimated on an hourly basis, then allocated to each budget according to the hours of use of each piece of machinery used in the budget.

Two tables are included with each budget. The first table summarizes the approximate month in which every cultural operation for the forage crop is performed. It also shows the machinery used in each operation, and the estimated time it takes to perform the operations based on speed of operation, width of machinery and field efficiency. Labor hours for operations assume that every hour of machinery operation requires 1.25 hours of labor. This labor hour adjustment accounts for time spent locating, hooking up, adjusting and transporting machinery. Labor cost is $8.50 per hour, including wages, taxes and payroll overhead costs. This cost represents either a cash cost for hired labor or a non-cash opportunity cost for labor provided by the owner or farm family.

The second table accompanying each budget shows estimated costs per acre for each machine used in the budget. These costs are calculated using the costs per hour reported in the machinery table (page 4) multiplied by the hours of machinery use shown in the estimated machinery and labor requirements table. Variable costs, fixed costs and total costs are shown for each machine and for the entire forage budget on a per-acre basis. Note that labor expense is not included in these machinery costs.

## *Machinery and Equipment Table*

| Description | List Price | Annual Hours | Year Manufactured | Age | Speed | Width | Efficiency Factor | Variable Cost $/hour | Fixed Cost $/hour | Total Cost $/hour |
|---|---|---|---|---|---|---|---|---|---|---|
| Bale Wagon, Pull Type | $ 15,000 | 100 | 2001 | 6 | 7.0 | 9.00 | 75 | $ 3.26 | $ 11.01 | $ 14.26 |
| Baler, Round, 5 x 4 | $ 20,300 | 125 | 2001 | 6 | 3.5 | 9.00 | 65 | $ 13.31 | $ 9.53 | $ 22.83 |
| Baler, Square | $ 16,600 | 100 | 2001 | 6 | 3.5 | 9.00 | 75 | $ 4.87 | $ 9.83 | $ 14.70 |
| Boom Sprayer, 20’ | $ 3,000 | 100 | 2001 | 6 | 6.5 | 30.00 | 65 | $ 0.74 | $ 2.18 | $ 2.92 |
| Broadcast Spreader | $ 800 | 60 | 2001 | 6 | 7.0 | 15.00 | 70 | $ 0.49 | $ 1.01 | $ 1.51 |
| Chisel Plow, 9’ | $ 3,000 | 100 | 2001 | 6 | 5.0 | 9.00 | 85 | $ 0.99 | $ 1.39 | $ 2.38 |
| Corn Header, 2-row | $ 7,000 | 175 | 2001 | 6 | 2.5 | 5.00 | 60 | $ 1.81 | $ 3.22 | $ 5.04 |
| Corn Planter, 4-row | $ 14,000 | 80 | 2001 | 6 | 4.0 | 12.66 | 65 | $ 4.58 | $ 11.33 | $ 15.92 |
| Cultimulcher, 12’ | $ 9,000 | 100 | 2001 | 6 | 5.0 | 12.00 | 80 | $ 2.97 | $ 4.40 | $ 7.37 |
| Cultipacker-Seeder, 10’ | $ 4,000 | 100 | 2001 | 6 | 5.0 | 8.33 | 70 | $ 1.67 | $ 2.64 | $ 4.31 |
| Disk, 12’ | $ 8,200 | 100 | 2001 | 6 | 5.0 | 12.00 | 80 | $ 1.86 | $ 5.37 | $ 7.23 |
| Forage Blower | $ 3,000 | 100 | 2001 | 6 | 6.0 | 7.00 | 70 | $ 0.84 | $ 2.17 | $ 3.01 |
| Forage Chopper | $ 20,800 | 175 | 2001 | 6 | 3.0 | 7.00 | 70 | $ 5.39 | $ 6.03 | $ 11.42 |
| Forage Wagon #1 | $ 12,500 | 100 | 2001 | 6 | 6.0 | 7.00 | 70 | $ 2.71 | $ 9.08 | $ 11.79 |
| Forage Wagon #2 | $ 12,500 | 100 | 2001 | 6 | 6.0 | 7.00 | 70 | $ 2.71 | $ 9.08 | $ 11.79 |
| Front-End Loader/Spear | $ 5,700 | 125 | 2001 | 6 | 3.5 | 9.00 | 65 | $ 1.32 | $ 3.24 | $ 4.57 |
| Grain Drill, 10’ | $ 4,000 | 75 | 2001 | 6 | 5.0 | 14.00 | 70 | $ 1.22 | $ 3.61 | $ 4.83 |
| Harrow, 10’ | $ 1,200 | 100 | 2001 | 6 | 7.0 | 10.00 | 85 | $ 0.38 | $ 0.77 | $ 1.15 |
| Mower-Conditioner, 9’ | $ 20,100 | 125 | 2001 | 6 | 4.0 | 7.00 | 80 | $ 5.11 | $ 7.62 | $ 12.73 |
| No-Till Corn Planter, 4-row | $ 10,000 | 80 | 2001 | 6 | 4.0 | 12.00 | 65 | $ 3.27 | $ 8.18 | $ 11.45 |
| No-Till Drill, 10’ | $ 21,000 | 120 | 2001 | 6 | 3.0 | 9.00 | 65 | $ 10.74 | $ 11.28 | $ 22.02 |
| No-Till Drill, Rental | | 120 | 2001 | 6 | 3.0 | 9.00 | 65 | $ 0.00 | $ 0.24 | $ 0.24 |
| Plow, 4-Bottom | $ 3,000 | 100 | 2001 | 6 | 3.5 | 4.67 | 85 | $ 1.11 | $ 1.48 | $ 2.59 |
| Rake, 18’ | $ 3,200 | 125 | 2001 | 6 | 6.0 | 9.00 | 80 | $ 0.70 | $ 1.41 | $ 2.11 |
| Rotary Mower, 10’ | $ 6,000 | 100 | 2001 | 6 | 4.0 | 10.00 | 80 | $ 3.43 | $ 2.95 | $ 6.38 |
| Tedder, 10’ | $ 2,400 | 100 | 2001 | 6 | 6.0 | 17.00 | 80 | $ 0.53 | $ 1.29 | $ 1.82 |
| Tractor, 100 hp | $ 61,000 | 666 | 2001 | 6 | | | | $ 14.27 | $ 6.22 | $ 20.50 |
| Tractor, 60 hp | $ 29,000 | 666 | 2001 | 6 | | | | $ 8.10 | $ 2.43 | $ 10.53 |
| Tractor, 70 hp | $ 35,000 | 666 | 2001 | 6 | | | | $ 9.53 | $ 2.92 | $ 12.45 |
| Windrow Header | $ 3,500 | 100 | 2001 | 6 | 2.5 | 9.00 | 60 | $ 0.65 | $ 1.98 | $ 2.63 |
| Manure Spreader | $ 3,400 | 100 | 2001 | 6 | 4.0 | 10.00 | 90 | $ 0.05 | $ 2.53 | $ 2.58 |

**Alfalfa, Traditional Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Alfalfa Seed[1] | Pre-inoculated | lb | 20.00 | $ 3.09 | $ 61.80 | _______ |
| Fertilizer | N | lb | 15.00 | $ 0.48 | $ 7.20 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 190.00 | $ 0.23 | $ 43.70 | _______ |
| | Boron | lb | 2.00 | $ 2.38 | $ 4.76 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Weed Control | | | | | | |
| Post-Emerge | 2,4-DB | pt | 4.00 | $ 4.26 | $ 17.04 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| | Poast Plus[2] | pt | 1.50 | $ 6.50 | $ 9.75 | _______ |
| | Crop Oil | pt | 2.00 | $ 1.73 | $ 3.46 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Twine | | bale | 80.00 | $ 0.04 | $ 3.31 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 23.28 | $ 23.28 | _______ |
| Oil & Filter | | acre | 1.00 | $ 3.49 | $ 3.49 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 19.07 | $ 19.07 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 274.25 | 8.0% | $ 10.97 | _______ |
| | | **Total Variable Expenses** | | | $ 285.22 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 14.34 | $ 14.34 | _______ |
| Interest | | acre | 1.00 | $ 17.95 | $ 17.95 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.79 | $ 1.79 | _______ |
| | | **Total Fixed Expenses** | | | $ 34.08 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[3] | | hour | 3.98 | $ 8.50 | $ 33.79 | _______ |
| | | **Total Establishment Expenses** | | | $ 353.10 | _______ |
| Credit for hay[4] | | ton | 2.00 | $ 90.00 | $ 180.00 | _______ |
| | | **Net Establishment Expenses** | | | $ 173.10 | _______ |
| Prorated Share | | year | 4.00 | 8.0% | $ 52.26 | _______ |

**Footnotes:**

[1]Seed variety selection should be based on harvest method (grazing, hay or haylage).

[2]Poast Plus is included for control of crabgrass, which is a common problem. If johnsongrass is a problem, Select may be used.

[3]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[4]A partial crop is harvested during the establishment period. The value of this crop is used to partially offset establishment costs. The balance, plus interest, is recovered over the stand-life of 4 years.

## Alfalfa, Traditional Establishment

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Chisel | Tractor, 100 hp | Chisel Plow, 9' | 0.22 | 0.27 |
| Mar | Disk, 2X | Tractor, 100 hp | Disk, 12' | 0.34 | 0.43 |
| Mar | Fertilize & Lime | Custom | Custom | --- | --- |
| Apr | Disk & Cultimulch | Tractor, 100 hp | Disk, 12' Cultimulcher, 12' | 0.17 | 0.21 |
| Apr | Plant | Tractor, 100 hp | Cultipacker-Seeder, 10' | 0.28 | 0.35 |
| May | Post-Emerge (2-4,DB) | Custom | Custom | --- | --- |
| May | Post-Emerge (Poast Plus) | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jul | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Jul | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Aug | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Aug | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Aug | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Aug | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| | | | | Total | 3.98 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost Fuel | Variable Cost Oil & Filter | Variable Cost Repairs | Total Variable Costs | Fixed Cost Depreciation | Fixed Cost Interest | Fixed Cost Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.01 | 9.33 | 1.40 | 3.75 | 14.48 | 2.72 | 3.41 | 0.18 | 6.31 |
| Tractor, 70 hp | 2.17 | 13.95 | 2.09 | 4.59 | 20.63 | 2.78 | 3.31 | 0.25 | 6.33 |
| Chisel Plow, 9' | 0.22 | 0.00 | 0.00 | 0.21 | 0.21 | 0.09 | 0.19 | 0.02 | 0.30 |
| Disk, 12' | 0.52 | 0.00 | 0.00 | 0.96 | 0.96 | 1.25 | 1.31 | 0.21 | 2.77 |
| Cultimulcher, 12' | 0.17 | 0.00 | 0.00 | 0.51 | 0.51 | 0.21 | 0.47 | 0.08 | 0.76 |
| Cultipacker-Seeder, 10' | 0.28 | 0.00 | 0.00 | 0.47 | 0.47 | 0.26 | 0.43 | 0.05 | 0.75 |
| Mower-Conditioner, 9' | 0.74 | 0.00 | 0.00 | 3.76 | 3.76 | 2.03 | 3.31 | 0.27 | 5.62 |
| Rake, 18' | 0.38 | 0.00 | 0.00 | 0.27 | 0.27 | 0.22 | 0.25 | 0.07 | 0.54 |
| Baler, Square | 0.70 | 0.00 | 0.00 | 3.40 | 3.40 | 3.08 | 3.38 | 0.40 | 6.87 |
| Bale Wagon, Pull Type | 0.35 | 0.00 | 0.00 | 1.14 | 1.14 | 1.70 | 1.88 | 0.26 | 3.84 |
| Total | | $ 23.28 | $ 3.49 | $ 19.07 | $ 45.83 | $ 14.34 | $ 17.95 | $ 1.79 | $ 34.08 |
| **Total Machinery Cost** | | | | | | | | | $ 79.91 |

**Alfalfa, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Alfalfa Seed[1] | Pre-inoculated | lb | 20.00 | $ 3.09 | $ 61.80 | _______ |
| Fertilizer | N | lb | 15.00 | $ 0.48 | $ 7.20 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 190.00 | $ 0.23 | $ 43.70 | _______ |
| | Boron | lb | 2.00 | $ 2.38 | $ 4.76 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Post-Emerge | 2,4-DB | pt | 4.00 | $ 4.26 | $ 17.04 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| | Poast Plus[2] | pt | 1.50 | $ 6.50 | $ 9.75 | _______ |
| | Crop Oil | pt | 2.00 | $ 1.73 | $ 3.46 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Twine | | bale | 80.00 | $ 0.04 | $ 3.31 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 15.85 | $ 15.85 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.55 | $ 2.55 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 19.21 | $ 19.21 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 238.29 | 8.0% | $ 9.53 | _______ |
| | | **Total Variable Expenses** | | | $ 288.73 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 12.33 | $ 12.33 | _______ |
| Interest | | acre | 1.00 | $ 16.00 | $ 16.00 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.55 | $ 1.55 | _______ |
| | | **Total Fixed Expenses** | | | $ 29.87 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[3] | | hour | 3.30 | $ 8.50 | $ 28.01 | _______ |
| | | **Total Establishment Expenses** | | | $ 346.62 | _______ |
| Credit for hay[4] | | ton | 2.00 | $ 90.00 | $ 180.00 | _______ |
| | | **Net Establishment Expenses** | | | $ 166.62 | _______ |
| Prorated Share | | year | 4.00 | 8.0% | $ 50.31 | _______ |

**Footnotes:**

[1]Seed variety selection should be based on harvest method (grazing, hay or haylage).

[2]Poast Plus is included for control of crabgrass, which is a common problem. If johnsongrass is a problem, Select may be used.

[3]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[4]A partial crop is harvested during the establishment period. The value of this crop is used to partially offset establishment costs. The balance, plus interest, is recovered over the stand-life of 4 years.

## Alfalfa, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Fertilize & Lime | Custom | Custom | --- | --- |
| Apr | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Apr | Plant | Tractor, 70 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| May | Post-Emerge (2-4,DB) | Custom | Custom | --- | --- |
| May | Post-Emerge (Poast Plus) | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jul | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Jul | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Aug | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Aug | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Aug | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Aug | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| | | | | **Total** | 3.30 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 2.64 | 15.85 | 2.55 | 5.59 | 23.99 | 3.38 | 4.02 | 0.30 | 7.71 |
| No-Till Drill, 10' | 0.47 | 0.00 | 0.00 | 5.05 | 5.05 | 1.91 | 3.15 | 0.24 | 5.30 |
| Mower-Conditioner, 9' | 0.74 | 0.00 | 0.00 | 3.76 | 3.76 | 2.03 | 3.31 | 0.27 | 5.62 |
| Rake, 18' | 0.38 | 0.00 | 0.00 | 0.27 | 0.27 | 0.22 | 0.25 | 0.07 | 0.54 |
| Baler, Square | 0.70 | 0.00 | 0.00 | 3.40 | 3.40 | 3.08 | 3.38 | 0.40 | 6.87 |
| Bale Wagon, Pull Type | 0.35 | 0.00 | 0.00 | 1.14 | 1.14 | 1.70 | 1.88 | 0.26 | 3.84 |
| **Total** | | $ 15.85 | $ 2.55 | $ 19.21 | $ 37.60 | $ 12.33 | $ 16.00 | $ 1.55 | $ 29.87 |
| **Total Machinery Cost** | | | | | | | | | $ 67.48 |

**Alfalfa, Hay**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** [1] | | | | | | |
| Fertilizer | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | ________ |
| | K2O | lb | 190.00 | $ 0.23 | $ 43.70 | ________ |
| | Boron | lb | 2.00 | $ 2.38 | $ 4.76 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Lime[2] | Custom Application | ton | 0.67 | $ 21.00 | $ 14.07 | ________ |
| Insect Control[3] | Furadan 4F | pt | 2.00 | $ 9.23 | $ 18.46 | ________ |
| Weed Control | | | | | | |
| Post-Emerge | Poast Plus[4] | pt | 1.50 | $ 6.50 | $ 9.75 | ________ |
| | Crop Oil | pt | 2.00 | $ 1.73 | $ 3.46 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| | 2,4-DB[5] | pt | 1.00 | $ 4.26 | $ 4.26 | ________ |
| | Custom Application | acre | 0.25 | $ 5.00 | $ 1.25 | ________ |
| Dormant Spray | Gramoxone Max | pt | 1.00 | $ 4.91 | $ 4.91 | ________ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Twine | | bale | 140.00 | $ 0.04 | $ 5.79 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 28.96 | $ 28.96 | ________ |
| Oil & Filter | | acre | 1.00 | $ 4.34 | $ 4.34 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 26.78 | $ 26.78 | ________ |
| Interest on Operating Capital | 6 months | acre | $ 206.72 | 8.0% | $ 8.27 | ________ |
| | | **Total Variable Expenses** | | | $ 214.98 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 4 years | acre | 1.00 | $ 50.31 | $ 50.31 | ________ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 19.94 | $ 19.94 | ________ |
| Interest | | acre | 1.00 | $ 24.66 | $ 24.66 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 2.21 | $ 2.21 | ________ |
| | | **Total Fixed Expenses** | | | $ 97.11 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[6] | | hour | 5.62 | $ 8.50 | $ 47.80 | ________ |
| | | **Total Budgeted Expenses** | | | $ 359.89 | ________ |

**Footnotes:**

[1]A hay preservative may be needed, please include the expense.

[2]Lime is applied at the rate of 2 tons every 3 years.

[3]Other materials may be used at slightly less cost, but do not appear as effective.

[4]Poast Plus is included for control of crabgrass, which is a common problem. If johnsongrass is a problem, Select may be used.

[5]Applied once every four years.

[6]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Alfalfa, Hay

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Feb | Fertilize | Custom | Custom | --- | --- |
| Mar | Insect Control | Tractor, 70 hp | Boom Sprayer, 20' | 0.07 | 0.08 |
| May | Post-Emerge (2-4,DB) | Custom | Custom | --- | --- |
| May | Post-Emerge (Poast Plus) | Custom | Custom | --- | --- |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| May | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| May | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| May | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jun | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Jun | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jul | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Jul | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Sep | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Sep | Rake, 18' | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Sep | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Sep | Stack & Move | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Oct | Lime | Custom | Custom | --- | --- |
| Dec | Spray (Gramoxone Max) | Custom | Custom | --- | --- |
| | | | | Total | 5.62 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 4.50 | 28.96 | 4.34 | 9.54 | 42.85 | 5.77 | 6.86 | 0.16 | 12.80 |
| Boom Sprayer, 20' | 0.07 | 0.00 | 0.00 | 0.05 | 0.05 | 0.06 | 0.07 | 0.01 | 0.14 |
| Mower-Conditioner, 9' | 1.47 | 0.00 | 0.00 | 7.53 | 7.53 | 4.07 | 6.62 | 0.55 | 11.23 |
| Tedder, 10' | 0.10 | 0.00 | 0.00 | 0.05 | 0.05 | 0.04 | 0.07 | 0.02 | 0.13 |
| Rake, 18' | 0.76 | 0.00 | 0.00 | 0.54 | 0.54 | 0.44 | 0.50 | 0.13 | 1.08 |
| Baler, Square | 1.40 | 0.00 | 0.00 | 6.80 | 6.80 | 6.17 | 6.76 | 0.81 | 13.73 |
| Bale Wagon, Pull Type | 0.70 | 0.00 | 0.00 | 2.27 | 2.27 | 3.39 | 3.77 | 0.53 | 7.69 |
| **Total** | | $ 28.96 | $ 4.34 | $ 26.78 | $ 60.09 | $ 19.94 | $ 24.66 | $ 2.21 | $ 46.80 |
| **Total Machinery Cost** | | | | | | | | | $ 106.89 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 2.5 | tons | $ 85.99 |
| | Average Yield | 3.5 | tons | $ 61.42 |
| | Above-Average Yield | 4.5 | tons | $ 47.77 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 2.5 | tons | $ 143.96 |
| | Average Yield | 3.5 | tons | $ 102.83 |
| | Above-Average Yield | 4.5 | tons | $ 79.98 |

**Alfalfa, Intensive Grazing**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 190.00 | $ 0.23 | $ 43.70 | _______ |
| | Boron | lb | 2.00 | $ 2.38 | $ 4.76 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime[1] | Custom Application | ton | 0.67 | $ 21.00 | $ 14.07 | _______ |
| Insect Control[2] | Furadan 4F | pt | 2.00 | $ 9.23 | $ 18.46 | _______ |
| Weed Control | | | | | | |
| Post-Emerge | Poast Plus[3] | pt | 1.50 | $ 2.04 | $ 3.06 | _______ |
| | Crop Oil | pt | 2.00 | $ 1.73 | $ 3.46 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| | 2,4-DB[4] | pt | 1.00 | $ 2.05 | $ 2.05 | _______ |
| | Custom Application | acre | 0.25 | $ 5.00 | $ 1.25 | _______ |
| Dormant Spray | Gramoxone Max | pt | 1.00 | $ 4.91 | $ 4.91 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 3.20 | $ 3.20 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.48 | $ 0.48 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 2.84 | $ 2.84 | _______ |
| Fence Repairs | | acre | 1.00 | $ 6.86 | $ 6.86 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 145.32 | 8.0% | $ 5.81 | _______ |
| | | **Total Variable Expenses** | | | $ 151.13 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 4 years | acre | 1.00 | $ 50.31 | $ 50.31 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 1.21 | $ 1.21 | _______ |
| Interest | | acre | 1.00 | $ 1.67 | $ 1.67 | _______ |
| Housing & Insurance | Machinery & Equipment | acre | 1.00 | $ 0.19 | $ 0.19 | _______ |
| Fencing | | | | | | |
| Depreciation | Perimeter Fence | acre | 1.00 | $ 6.94 | $ 6.94 | _______ |
| Depreciation | Divider Fence | acre | 1.00 | $ 6.50 | $ 6.50 | _______ |
| Interest | Perimeter Fence | acre | 1.00 | $ 5.56 | $ 5.56 | _______ |
| Interest | Divider Fence | acre | 1.00 | $ 1.30 | $ 1.30 | _______ |
| | | **Total Fixed Expenses** | | | $ 73.68 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5,6] | | hour | 0.73 | $ 8.50 | $ 6.17 | _______ |
| | | **Total Budgeted Expenses** | | | $ 230.98 | _______ |

**Footnotes:**

[1]Lime is applied at the rate of 2 tons every 3 years.

[2]Other materials may be used at slightly less cost, but do not appear as effective.

[3]Poast Plus is included for control of crabgrass, which is a common problem. If johnsongrass is a problem, Select may be used.

[4]Applied once every four years.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[6]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

**Alfalfa, Intensive Grazing**

**Estimated Machinery and Labor Requirements per Acre**

| | | | | Hours per Acre | |
|---|---|---|---|---|---|
| **Month** | **Operation** | **Power Unit** | **Implement** | **Machine** | **Labor** |
| Feb | Fertilize | Custom | Custom | --- | --- |
| Mar | Insect Control | Tractor, 60 hp | Boom Sprayer, 20' | 0.07 | 0.08 |
| May | Post-Emerge (Poast Plus) | Custom | Custom | --- | --- |
| May | Post-Emerge (2,4-DB) | Custom | Custom | --- | --- |
| Jun | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Aug | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Oct | Lime | Custom | Custom | --- | --- |
| Dec | Spray (Gramoxone Max) | Custom | Custom | --- | --- |
| | | | | **Total** | 0.73 |

**Estimated Machinery Expenses per Acre**

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 60 hp | 0.58 | 3.20 | 0.48 | 1.02 | 4.71 | 0.62 | 0.73 | 0.06 | 1.41 |
| Rotary Mower, 10' | 0.52 | 0.00 | 0.00 | 1.77 | 1.77 | 0.53 | 0.86 | 0.13 | 1.52 |
| Boom Sprayer, 20' | 0.07 | 0.00 | 0.00 | 0.05 | 0.05 | 0.06 | 0.07 | 0.01 | 0.14 |
| **Total** | | $ 3.20 | $ 0.48 | $ 2.84 | $ 6.52 | $ 1.21 | $ 1.67 | $ 0.19 | $ 3.07 |
| **Total Machinery Cost** | | | | | | | | | $ 9.60 |

## Alfalfa, Hay Crop Silage
### Estimated Expenses per Acre

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 190.00 | $ 0.23 | $ 43.70 | _______ |
| | Boron | lb | 2.00 | $ 2.38 | $ 4.76 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime[1] | Custom Application | ton | 0.67 | $ 21.00 | $ 14.07 | _______ |
| Insect Control[2] | Furadan 4F | pt | 2.00 | $ 9.23 | $ 18.46 | _______ |
| Weed Control | | | | | | |
| Post-Emerge | Poast Plus[3] | pt | 1.50 | $ 6.50 | $ 9.75 | _______ |
| | Crop Oil | pt | 2.00 | $ 1.73 | $ 3.46 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| | 2,4-DB[4] | pt | 1.00 | $ 4.26 | $ 4.26 | _______ |
| | Custom Application | acre | 0.25 | $ 5.00 | $ 1.25 | _______ |
| Dormant Spray | Gramoxone Max | pt | 1.00 | $ 4.91 | $ 4.91 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 45.01 | $ 45.01 | _______ |
| Oil & Filter | | acre | 1.00 | $ 6.75 | $ 6.75 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 47.54 | $ 47.54 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 240.13 | 8.0% | $ 9.61 | _______ |
| | | **Total Variable Expenses** | | | $ 249.74 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 4 years | acre | 1.00 | $ 50.31 | $ 50.31 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 39.93 | $ 39.93 | _______ |
| Interest | | acre | 1.00 | $ 32.17 | $ 32.17 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 4.11 | $ 4.11 | _______ |
| | | **Total Fixed Expenses** | | | $ 126.51 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5] | | hour | 7.54 | $ 8.50 | $ 64.05 | _______ |
| | | **Total Budgeted Expenses** | | | $ 440.30 | _______ |

**Footnotes:**

[1]Lime is applied at the rate of 2 tons every 3 years.

[2]Other materials may be used at slightly less cost, but do not appear as effective.

[3]Poast Plus is included for control of crabgrass, which is a common problem. If johnsongrass is a problem, Select may be used.

[4]Applied once every four years.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Alfalfa, Hay Crop Silage
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Feb | Fertilize | Custom | Custom | --- | --- |
| Mar | Insect Control | Tractor, 70 hp | Boom Sprayer, 20' | 0.07 | 0.08 |
| Apr | Post-Emerge (2-4,DB) | Custom | Custom | --- | --- |
| May | Post-Emerge (Poast Plus) | Custom | Custom | --- | --- |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| May | Haul | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| May | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Jun | Haul | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Jun | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Jul | Haul | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Jul | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Sep | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Sep | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Sep | Haul | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Sep | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | **Total** | 7.54 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 100 hp | 2.24 | 20.65 | 3.10 | 8.30 | 32.05 | 7.54 | 0.09 | 0.31 | 7.95 |
| Tractor, 70 hp | 3.78 | 24.36 | 3.65 | 8.02 | 36.04 | 5.77 | 0.14 | 0.00 | 5.91 |
| Boom Sprayer, 20' | 0.07 | 0.00 | 0.00 | 0.05 | 0.05 | 0.06 | 0.07 | 0.01 | 0.14 |
| Mower-Conditioner, 9' | 1.47 | 0.00 | 0.00 | 7.53 | 7.53 | 4.07 | 6.62 | 0.55 | 11.23 |
| Forage Chopper | 2.24 | 0.00 | 0.00 | 12.10 | 12.10 | 6.00 | 6.87 | 0.66 | 13.53 |
| Windrow Header | 2.24 | 0.00 | 0.00 | 1.46 | 1.46 | 1.77 | 2.02 | 0.66 | 4.45 |
| Forage Wagon #1 | 2.24 | 0.00 | 0.00 | 6.09 | 6.09 | 9.08 | 10.09 | 1.20 | 20.38 |
| Forage Wagon #2 | 1.12 | 0.00 | 0.00 | 3.04 | 3.04 | 4.54 | 5.05 | 0.60 | 10.19 |
| Forage Blower | 1.12 | 0.00 | 0.00 | 0.94 | 0.94 | 1.09 | 1.21 | 0.13 | 2.43 |
| **Total** | | $ 45.01 | $ 6.75 | $ 47.54 | $ 99.30 | $ 39.93 | $ 32.17 | $ 4.11 | $ 76.21 |
| **Total Machinery Cost** | | | | | | | | | $ 175.50 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 5.6 | tons | $ 44.60 |
| | Average Yield | 9.0 | tons | $ 27.75 |
| | Above-Average Yield | 12.4 | tons | $ 20.14 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 5.6 | tons | $ 78.62 |
| | Average Yield | 9.0 | tons | $ 48.92 |
| | Above-Average Yield | 12.4 | tons | $ 35.51 |

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

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Fescue or Orchardgrass | lb | 15.00 | $ 1.00 | $ 15.00 | _______ |
| Fertilizer | N | lb | 30.00 | $ 0.48 | $ 14.40 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 15.97 | $ 15.97 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.40 | $ 2.40 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 9.87 | $ 9.87 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 138.84 | 8.0% | $ 5.55 | _______ |
| | | | **Total Variable Expenses** | | $ 144.39 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 7.18 | $ 7.18 | _______ |
| Interest | | acre | 1.00 | $ 9.62 | $ 9.62 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.92 | $ 0.92 | _______ |
| | | | **Total Fixed Expenses** | | $ 17.73 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[2] | | hour | 2.17 | $ 8.50 | $ 18.45 | _______ |
| | | | **Total Establishment Expenses** | | $ 180.56 | _______ |
| Prorated Share | | year | 6.00 | 8.0% | $ 39.06 | _______ |

**Footnotes:**

[1]Seed variety selection should be based on harvest method (grazing, hay or haylage).

[2]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass, Traditional Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|---|
| Aug | Plow | Tractor, 100 hp | Plow, 4-Bottom | | 0.59 | 0.74 |
| Aug | Fertilize & Lime | Custom | Custom | | --- | --- |
| Aug | Disk, 3X | Tractor, 100 hp | Disk, 12' | | 0.52 | 0.64 |
| Aug | Cultimulch, 2X | Tractor, 100 hp | Cultimulcher, 12' | | 0.34 | 0.43 |
| Sep | Plant | Tractor, 100 hp | Grain Drill, 10' | Cultipacker-Seeder, 10' | 0.28 | 0.35 |
| | | | | | **Total** | 2.17 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost Fuel | Variable Cost Oil & Filter | Variable Cost Repairs | Total Variable Costs | Fixed Cost Depreciation | Fixed Cost Interest | Fixed Cost Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.74 | 15.97 | 2.40 | 6.42 | 24.78 | 4.66 | 5.83 | 0.31 | 10.80 |
| Plow, 4-Bottom | 0.59 | 0.00 | 0.00 | 0.66 | 0.66 | 0.24 | 0.54 | 0.10 | 0.88 |
| Disk, 12' | 0.52 | 0.00 | 0.00 | 0.96 | 0.96 | 1.25 | 1.31 | 0.21 | 2.77 |
| Cultipacker-Seeder, 10' | 0.28 | 0.00 | 0.00 | 0.47 | 0.47 | 0.26 | 0.43 | 0.05 | 0.75 |
| Cultimulcher, 12' | 0.34 | 0.00 | 0.00 | 1.02 | 1.02 | 0.42 | 0.93 | 0.16 | 1.51 |
| Grain Drill, 10' | 0.28 | 0.00 | 0.00 | 0.35 | 0.35 | 0.35 | 0.58 | 0.09 | 1.02 |
| **Total** | | $ 15.97 | $ 2.40 | $ 9.87 | $ 28.24 | $ 7.18 | $ 9.62 | $ 0.92 | $ 17.73 |
| **Total Machinery Cost** | | | | | | | | | $ 45.96 |

**Cool Season Grass, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Fescue or Orchardgrass | lb | 15.00 | $ 1.00 | $ 15.00 | _______ |
| No-Till Drill, Rental | | acre | 1.00 | $ 8.00 | $ 8.00 | _______ |
| Fertilizer | N | lb | 30.00 | $ 0.48 | $ 14.40 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Weed Control | | | | | | |
| Burndown[2] | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 3.03 | $ 3.03 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.45 | $ 0.45 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 1.00 | $ 1.00 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 131.78 | 8.0% | $ 5.27 | _______ |
| | | | **Total Variable Expenses** | | $ 141.53 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 0.60 | $ 0.60 | _______ |
| Interest | | acre | 1.00 | $ 0.72 | $ 0.72 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.05 | $ 0.05 | _______ |
| | | | **Total Fixed Expenses** | | $ 1.37 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[3] | | hour | 0.59 | $ 8.50 | $ 4.99 | _______ |
| | | **Total Establishment Expenses** | | | $ 147.90 | _______ |
| Prorated Share | | year | 6.00 | 8.0% | $ 31.99 | _______ |

**Footnotes:**

[1]Seed variety selection should be based on harvest method (grazing, hay or haylage).

[2]Other herbicides may also be required, depending on the weeds present prior to establishment.

[3]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass, No-Till Establishment

### Estimated Machinery and Labor Requirements per Acre

| | | | | Hours per Acre | |
|---|---|---|---|---|---|
| **Month** | **Operation** | **Power Unit** | **Implement** | **Machine** | **Labor** |
| Sep | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Sep | Fertilize & Lime | Custom | Custom | --- | --- |
| Sep | Plant | Tractor, 70 hp | No-Till Drill, Rental | 0.47 | 0.59 |
| | | | | **Total** | 0.59 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 70 hp | 0.47 | 3.03 | 0.45 | 1.00 | 4.48 | 0.60 | 0.72 | 0.05 | 1.37 |
| **Total** | | $ 3.03 | $ 0.45 | $ 1.00 | $ 4.48 | $ 0.60 | $ 0.72 | $ 0.05 | $ 1.37 |
| **Total Machinery Cost** | | | | | | | | | $ 5.85 |

## Cool Season Grass, Hay
### Estimated Expenses per Acre

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 120.00 | $ 0.48 | $ 57.60 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 3.00 | $ 5.00 | $ 15.00 | _______ |
| Lime[2] | Custom Application | ton | 0.33 | $ 21.00 | $ 6.93 | _______ |
| Overseeding[3] | Fescue or Orchardgrass | lb | 2.00 | $ 1.00 | $ 2.00 | _______ |
| No-Till Drill, Rental | | acre | 0.17 | $ 8.00 | $ 1.36 | _______ |
| Weed Control[4] | | | | | | |
| Post-Emerge | 2,4-D Ester 4EC | pt | 1.00 | $ 2.04 | $ 2.04 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Twine | | bale | 5.00 | $ 0.24 | $ 1.19 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 27.67 | $ 27.67 | _______ |
| Oil & Filter | | acre | 1.00 | $ 4.51 | $ 4.51 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 33.68 | $ 33.68 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 174.08 | 8.0% | $ 6.96 | _______ |
| | | **Total Variable Expenses** | | | $ 181.05 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 6 years | acre | 1.00 | $ 31.99 | $ 31.99 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 16.41 | $ 16.41 | _______ |
| Interest | | acre | 1.00 | $ 20.24 | $ 20.24 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.79 | $ 1.79 | _______ |
| | | **Total Fixed Expenses** | | | $ 70.44 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5] | | hour | 5.83 | $ 8.50 | $ 49.58 | _______ |
| | | **Total Budgeted Expenses** | | | $ 301.07 | _______ |

**Footnotes:**

[1]60 lbs of nitrogen applied in March, 30 lbs applied in May, and 30 lbs applied in September to produce fall cutting of hay.

[2]Lime is applied at the rate of 2 tons every 6 years.

[3]Overseed 12 lbs once over 6 years. Prorated over stand-life.

[4]Weed spray is done every other year at a rate of 2 pt/acre, to supplement clipping and control broadleaf weeds.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass, Hay

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Fertilize | Custom | Custom | --- | --- |
| Mar | Post-Emerge (2-4,D Ester 4EC) | Custom | Custom | --- | --- |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| May | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| May | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| May | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| May | Fertilize | Custom | Custom | --- | --- |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jun | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| Jun | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| Sep | Fertilize | Custom | Custom | --- | --- |
| Oct | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Oct | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Oct | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| Oct | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| Oct | Overseed | Tractor, 70 hp | No-Till Drill, Rental | 0.47 | 0.59 |
| | | | | **Total** | 5.83 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 4.67 | 27.67 | 4.51 | 9.90 | 42.08 | 5.99 | 7.12 | 0.54 | 13.64 |
| Mower-Conditioner, 9' | 1.10 | 0.00 | 0.00 | 5.65 | 5.65 | 3.05 | 4.97 | 0.41 | 8.42 |
| Tedder, 10' | 0.10 | 0.00 | 0.00 | 0.05 | 0.05 | 0.04 | 0.07 | 0.02 | 0.13 |
| Rake, 18' | 0.57 | 0.00 | 0.00 | 0.40 | 0.40 | 0.33 | 0.38 | 0.10 | 0.81 |
| Baler, Round, 5 x 4 | 1.21 | 0.00 | 0.00 | 16.08 | 16.08 | 5.22 | 5.72 | 0.57 | 11.52 |
| Front-End Loader/Spear | 1.21 | 0.00 | 0.00 | 1.60 | 1.60 | 1.78 | 1.98 | 0.15 | 3.92 |
| **Total** | | $ 27.67 | $ 4.51 | $ 33.68 | $ 65.86 | $ 16.41 | $ 20.24 | $ 1.79 | $ 38.45 |
| **Total Machinery Cost** | | | | | | | | | $ 104.31 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 1.5 | tons | $ 120.70 |
| | Average Yield | 2.5 | tons | $ 72.42 |
| | Above-Average Yield | 3.5 | tons | $ 51.73 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 1.5 | tons | $ 200.71 |
| | Average Yield | 2.5 | tons | $ 120.43 |
| | Above-Average Yield | 3.5 | tons | $ 86.02 |

**Cool Season Grass, Intensive Grazing**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 105.00 | $ 0.48 | $ 50.40 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[2] | 2 tons every 6 years | ton | 0.33 | $ 21.00 | $ 6.93 | _______ |
| Overseeding[3] | Fescue | lb | 2.00 | $ 1.00 | $ 2.00 | _______ |
| No-Till Drill, Rental | | acre | 0.17 | $ 8.00 | $ 1.36 | _______ |
| Weed Control[4] | | | | | | |
| Post-Emerge | 2,4-D Ester 4EC | pt | 1.00 | $ 2.04 | $ 2.04 | _______ |
| | Custom Application | acre | 0.50 | $ 5.00 | $ 2.50 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 6.21 | $ 6.21 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.93 | $ 0.93 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 3.80 | $ 3.80 | _______ |
| Fence Repairs | | acre | 1.00 | $ 6.86 | $ 6.86 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 110.12 | 8.0% | $ 4.40 | _______ |
| | | **Total Variable Expenses** | | | $ 114.53 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 6 years | acre | 1.00 | $ 31.99 | $ 31.99 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 1.78 | $ 1.78 | _______ |
| Interest | | acre | 1.00 | $ 2.34 | $ 2.34 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.25 | $ 0.25 | _______ |
| Fencing | | | | | | |
| Depreciation | Perimeter Fence | acre | 1.00 | $ 6.94 | $ 6.94 | _______ |
| Depreciation | Divider Fence | acre | 1.00 | $ 6.50 | $ 6.50 | _______ |
| Interest | Perimeter Fence | acre | 1.00 | $ 5.56 | $ 5.56 | _______ |
| Interest | Divider Fence | acre | 1.00 | $ 1.30 | $ 1.30 | _______ |
| | | **Total Fixed Expenses** | | | $ 56.65 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5,6] | | hour | 1.41 | $ 8.50 | $ 11.95 | _______ |
| | | **Total Budgeted Expenses** | | | $ 183.13 | _______ |

**Footnotes:**

[1]45 lbs of nitrogen applied in March, and 60 lbs applied in September to provide stockpiled grazing.

[2]Lime is applied at the rate of 2 tons every 6 years.

[3]Overseed 12 lbs once over 6 years. Prorated over stand-life.

[4]Weed spray every other year at a rate of 2 pt/acre to supplement clipping and control broadleaf weeds.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[6]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

## Cool Season Grass, Intensive Grazing

### Estimated Machinery and Labor Requirements per Acre

| | | | | Hours per Acre | |
|---|---|---|---|---|---|
| Month | Operation | Power Unit | Implement | Machine | Labor |
| Mar | Fertilize | Custom | Custom | --- | --- |
| Mar | Drag Pastures | Tractor, 60 hp | Harrow, 10' | 0.14 | 0.17 |
| Mar | Post-Emerge (2,4-D Ester 4EC) | Custom | Custom | --- | --- |
| May | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Jul | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Oct | Overseed | Tractor, 60 hp | No-Till Drill, Rental | 0.47 | 0.59 |
| Oct | Fertilize | Custom | Custom | --- | --- |
| | | | | Total | 1.41 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Machine | Hours per Acre | Fuel | Oil & Filter | Repairs | Variable Costs | Depreciation | Interest | Housing & Insurance | Fixed Costs |
| Tractor, 60 hp | 1.12 | 6.21 | 0.93 | 1.98 | 9.11 | 1.20 | 1.42 | 0.11 | 2.73 |
| Rotary Mower, 10' | 0.52 | 0.00 | 0.00 | 1.77 | 1.77 | 0.53 | 0.86 | 0.13 | 1.52 |
| Harrow, 10' | 0.14 | 0.00 | 0.00 | 0.05 | 0.05 | 0.05 | 0.05 | 0.01 | 0.11 |
| **Total** | | $ 6.21 | $ 0.93 | $ 3.80 | $ 10.93 | $ 1.78 | $ 2.34 | $ 0.25 | $ 4.36 |
| **Total Machinery Cost** | | | | | | | | | $ 15.29 |

**Cool Season Grass, Continuous Grazing**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 105.00 | $ 0.48 | $ 50.40 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[2] | Custom Application | ton | 0.20 | $ 21.00 | $ 4.20 | _______ |
| Weed Control[3] | | | | | | |
| Post-Emerge | 2,4-D Ester 4EC | pt | 1.00 | $ 2.04 | $ 2.04 | _______ |
| | Custom Application | acre | 0.50 | $ 5.00 | $ 2.50 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 1.42 | $ 1.42 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.21 | $ 0.21 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 1.34 | $ 1.34 | _______ |
| Fence Repairs | | acre | 1.00 | $ 5.56 | $ 5.56 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 94.77 | 8.0% | $ 3.79 | _______ |
| | | **Total Variable Expenses** | | | $ 98.57 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 0.54 | $ 0.54 | _______ |
| Interest | | acre | 1.00 | $ 0.76 | $ 0.76 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.09 | $ 0.09 | _______ |
| | | **Total Fixed Expenses** | | | $ 1.39 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4,5] | | hour | 0.32 | $ 8.50 | $ 2.74 | _______ |
| | | **Total Budgeted Expenses** | | | $ 102.69 | _______ |

**Footnotes:**

[1]45 lbs of nitrogen applied in March, and 60 lbs applied in September to provide stockpiled grazing.

[2]Lime is applied at the rate of 2 tons every 10 years.

[3]Weed spray is done every other year at a rate of 2 pt/acre, to supplement clipping and control broadleaf weeds.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[5]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

## Cool Season Grass, Continuous Grazing

### Estimated Machinery and Labor Requirements per Acre

| | | | | Hours per Acre | |
|---|---|---|---|---|---|
| Month | Operation | Power Unit | Implement | Machine | Labor |
| Mar | Fertilize | Custom | Custom | --- | --- |
| Mar | Post-Emerge (2,4-D Ester 4EC) | Custom | Custom | --- | --- |
| May | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Oct | Fertilize | Custom | Custom | --- | --- |
| | | | | **Total** | 0.32 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Machine | Hours per Acre | Fuel | Oil & Filter | Repairs | Variable Costs | Depreciation | Interest | Housing & Insurance | Fixed Costs |
| Tractor, 60 hp | 0.26 | 1.42 | 0.21 | 0.45 | 2.09 | 0.27 | 0.33 | 0.03 | 0.63 |
| Rotary Mower, 10' | 0.26 | 0.00 | 0.00 | 0.88 | 0.88 | 0.27 | 0.43 | 0.06 | 0.76 |
| **Total** | | $ 1.42 | $ 0.21 | $ 1.34 | $ 2.97 | $ 0.54 | $ 0.76 | $ 0.09 | $ 1.39 |
| **Total Machinery Cost** | | | | | | | | | $ 4.36 |

**Cool Season Grass, Hay Crop Silage**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 120.00 | $ 0.48 | $ 57.60 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 3.00 | $ 5.00 | $ 15.00 | _______ |
| Lime[2] | Custom Application | ton | 0.33 | $ 21.00 | $ 6.93 | _______ |
| Overseeding[3] | Fescue or Orchardgrass | lb | 2.00 | $ 1.00 | $ 2.00 | _______ |
| No-Till Drill, Rental | | acre | 0.17 | $ 8.00 | $ 1.36 | _______ |
| Weed Control[4] | | | | | | |
| Post-Emerge | 2,4-D Ester 4EC | pt | 1.00 | $ 2.04 | $ 2.04 | _______ |
| | Custom Application | acre | 0.50 | $ 5.00 | $ 2.50 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 36.47 | $ 36.47 | _______ |
| Oil & Filter | | acre | 1.00 | $ 5.47 | $ 5.47 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 36.51 | $ 36.51 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 182.98 | 8.0% | $ 7.32 | _______ |
| | | **Total Variable Expenses** | | | $ 190.30 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 6 years | acre | 1.00 | $ 31.99 | $ 31.99 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 28.60 | $ 28.60 | _______ |
| Interest | | acre | 1.00 | $ 34.53 | $ 34.53 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 3.09 | $ 3.09 | _______ |
| | | **Total Fixed Expenses** | | | $ 98.22 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5] | | hour | 6.18 | $ 8.50 | $ 52.51 | _______ |
| | | **Total Budgeted Expenses** | | | $ 341.03 | _______ |

**Footnotes:**

[1]60 lbs of nitrogen applied in March, 30 lbs applied in May, and 30 lbs applied in September to produce Fall cutting of silage.

[2]Lime is applied at the rate of 2 tons every 6 years.

[3]Overseed 12 lbs once over 6 years. Prorated over stand-life.

[4]Weed spray is done every other year at a rate of 2 pt/acre, to supplement clipping and control broadleaf weeds.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass, Hay Crop Silage

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Fertilize | Custom | Custom | --- | --- |
| Mar | Post-Emerge (2,4-D Ester 4EC) | Custom | Custom | --- | --- |
| Apr | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Apr | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Apr | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Apr | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| May | Fertilize | Custom | Custom | --- | --- |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Jun | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Jun | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Sep | Fertilize | Custom | Custom | --- | --- |
| Oct | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Oct | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Oct | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Oct | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Oct | Overseed | Tractor, 70 hp | No-Till Drill, Rental | 0.47 | 0.59 |
| | | | | **Total** | 6.18 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.68 | 15.49 | 2.32 | 6.22 | 24.03 | 4.51 | 5.66 | 0.30 | 10.47 |
| Tractor, 70 hp | 3.26 | 20.98 | 3.15 | 6.91 | 31.04 | 4.18 | 4.97 | 0.37 | 9.53 |
| Mower-Conditioner, 9' | 1.10 | 0.00 | 0.00 | 5.65 | 5.65 | 3.05 | 4.97 | 0.40 | 8.41 |
| Forage Chopper | 1.68 | 0.00 | 0.00 | 9.08 | 9.08 | 4.50 | 5.16 | 0.41 | 10.07 |
| Windrow Header | 1.68 | 0.00 | 0.00 | 1.09 | 1.09 | 1.33 | 1.52 | 0.33 | 3.17 |
| Forage Wagon #1 | 1.68 | 0.00 | 0.00 | 4.57 | 4.57 | 6.81 | 7.57 | 0.66 | 15.05 |
| Forage Wagon #2 | 0.84 | 0.00 | 0.00 | 2.28 | 2.28 | 3.41 | 3.79 | 0.51 | 7.70 |
| Forage Blower | 0.84 | 0.00 | 0.00 | 0.71 | 0.71 | 0.82 | 0.91 | 0.11 | 1.83 |
| **Total** | | $ 36.47 | $ 5.47 | $ 36.51 | $ 78.45 | $ 28.60 | $ 34.53 | $ 3.09 | $ 66.23 |
| **Total Machinery Cost** | | | | | | | | | $ 144.68 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 4.5 | tons | $ 42.29 |
| | Average Yield | 6.0 | tons | $ 31.72 |
| | Above-Average Yield | 8.5 | tons | $ 22.39 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 4.5 | tons | $ 75.79 |
| | Average Yield | 6.0 | tons | $ 56.84 |
| | Above-Average Yield | 8.5 | tons | $ 40.12 |

**Cool Season Grass/Clover, Traditional Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Fescue or Orchardgrass | lb | 15.00 | $ 1.00 | $ 15.00 | _______ |
| | White Clover | lb | 2.00 | $ 3.06 | $ 6.12 | _______ |
| | Red Clover | lb | 4.00 | $ 2.86 | $ 11.44 | _______ |
| Fertilizer | N | lb | 30.00 | $ 0.48 | $ 14.40 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 17.00 | $ 17.00 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.55 | $ 2.55 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 10.34 | $ 10.34 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 158.06 | 8.0% | $ 6.32 | _______ |
| | | | **Total Variable Expenses** | | $ 164.38 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 7.53 | $ 7.53 | _______ |
| Interest | | acre | 1.00 | $ 10.05 | $ 10.05 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.96 | $ 0.96 | _______ |
| | | | **Total Fixed Expenses** | | $ 18.54 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[2] | | hour | 2.31 | $ 8.50 | $ 19.64 | _______ |
| | | **Total Establishment Expenses** | | | $ 202.56 | _______ |
| Prorated Share | | year | 6.00 | 8.0% | $ 43.82 | _______ |

**Footnotes:**

[1]Seed variety selection should be based on harvest method (grazing, hay or haylage).

[2]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass/Clover, Traditional Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Aug | Plow | Tractor, 100 hp | Plow, 4-Bottom | 0.59 | 0.74 |
| Aug | Fertilize & Lime | Custom | Custom | --- | --- |
| Aug | Disk, 3X | Tractor, 100 hp | Disk, 12' | 0.52 | 0.64 |
| Aug | Cultimulch, 2X | Tractor, 100 hp | Cultimulcher, 12' | 0.34 | 0.43 |
| Sep | Plant Fescue or Orchardgrass | Tractor, 100 hp | Grain Drill, 10' Cultipacker-Seeder, 10' | 0.28 | 0.35 |
| Feb | Plant Clover | Tractor, 100 hp | Broadcast Spreader | 0.11 | 0.14 |
| | | | | **Total** | 2.31 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.85 | 17.00 | 2.55 | 6.83 | 26.39 | 4.96 | 6.21 | 0.33 | 11.50 |
| Plow, 4-Bottom | 0.59 | 0.00 | 0.00 | 0.66 | 0.66 | 0.24 | 0.54 | 0.10 | 0.88 |
| Disk, 12' | 0.52 | 0.00 | 0.00 | 0.96 | 0.96 | 1.25 | 1.31 | 0.21 | 2.77 |
| Cultipacker-Seeder, 10' | 0.28 | 0.00 | 0.00 | 0.47 | 0.47 | 0.26 | 0.43 | 0.05 | 0.75 |
| Cultimulcher, 12' | 0.34 | 0.00 | 0.00 | 1.02 | 1.02 | 0.42 | 0.93 | 0.16 | 1.51 |
| Grain Drill, 10' | 0.28 | 0.00 | 0.00 | 0.35 | 0.35 | 0.35 | 0.58 | 0.09 | 1.02 |
| Broadcast Spreader | 0.11 | 0.00 | 0.00 | 0.06 | 0.06 | 0.05 | 0.05 | 0.01 | 0.11 |
| **Total** | | $ 17.00 | $ 2.55 | $ 10.34 | $ 29.90 | $ 7.53 | $ 10.05 | $ 0.96 | $ 18.54 |
| **Total Machinery Cost** | | | | | | | | | $ 48.43 |

**Cool Season Grass/Clover, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Fescue or Orchardgrass | lb | 15.00 | $ 1.00 | $ 15.00 | _______ |
| | White Clover | lb | 2.00 | $ 3.06 | $ 6.12 | _______ |
| | Red Clover | lb | 4.00 | $ 2.86 | $ 11.44 | _______ |
| No-Till Drill, Rental | | acre | 1.00 | $ 8.00 | $ 8.00 | _______ |
| Fertilizer | N | lb | 30.00 | $ 0.48 | $ 14.40 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 3.75 | $ 3.75 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.56 | $ 0.56 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 1.29 | $ 1.29 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 149.34 | 8.0% | $ 5.97 | _______ |
| | | **Total Variable Expenses** | | | $ 160.92 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 0.80 | $ 0.80 | _______ |
| Interest | | acre | 1.00 | $ 0.94 | $ 0.94 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.08 | $ 0.08 | _______ |
| | | **Total Fixed Expenses** | | | $ 1.82 | _______ |
| ***Labor*** | | | | | | |
| Labor[2] | | hour | 0.73 | $ 8.50 | $ 6.19 | _______ |
| | | **Total Establishment Expenses** | | | $ 168.92 | _______ |
| Prorated Share | | year | 6.00 | 8.0% | $ 36.54 | _______ |

**Footnotes:**

[1]Seed variety selection should be based on harvest method (grazing, hay or haylage).

[2]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass/Clover, No-Till Establishment

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Sep | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Sep | Fertilize & Lime | Custom | Custom | --- | --- |
| Sep | Plant Fescue or Orchardgrass | Tractor, 70 hp | No-Till Drill, Rental | 0.47 | 0.59 |
| Sep | Plant Clover | Tractor, 70 hp | Broadcast Spreader | 0.11 | 0.14 |
| | | | | **Total** | 0.73 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 70 hp | 0.58 | 3.75 | 0.56 | 1.24 | 5.55 | 0.75 | 0.89 | 0.07 | 1.70 |
| Broadcast Spreader | 0.11 | 0.00 | 0.00 | 0.06 | 0.06 | 0.05 | 0.05 | 0.01 | 0.11 |
| **Total** | | $ 3.75 | $ 0.56 | $ 1.29 | $ 5.60 | $ 0.80 | $ 0.94 | $ 0.08 | $ 1.82 |
| **Total Machinery Cost** | | | | | | | | | $ 7.42 |

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

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Overseeding[2] | Fescue or Orchardgrass | lb | 2.00 | $ 1.00 | $ 2.00 | _______ |
| | White Clover | lb | 0.33 | $ 3.06 | $ 1.01 | _______ |
| | Red Clover | lb | 0.67 | $ 2.86 | $ 1.92 | _______ |
| No-Till Drill, Rental | | acre | 0.17 | $ 8.00 | $ 1.36 | _______ |
| Weed Control[3] | | | | | | |
| Post-Emerge | 2,4-D Ester 4EC | pt | 0.33 | $ 2.04 | $ 0.67 | _______ |
| | Custom Application | acre | 0.33 | $ 5.00 | $ 1.65 | _______ |
| Twine | | bale | 5.00 | $ 0.24 | $ 1.19 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 28.94 | $ 28.94 | _______ |
| Oil & Filter | | acre | 1.00 | $ 4.27 | $ 4.27 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 33.27 | $ 33.27 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 127.18 | 8.0% | $ 5.09 | _______ |
| | | **Total Variable Expenses** | | | $ 132.27 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | | acre | 1.00 | $ 36.54 | $ 36.54 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 16.18 | $ 16.18 | _______ |
| Interest | | acre | 1.00 | $ 20.00 | $ 20.00 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.81 | $ 1.81 | _______ |
| | | **Total Fixed Expenses** | | | $ 74.54 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 5.62 | $ 8.50 | $ 47.76 | _______ |
| | | **Total Budgeted Expenses** | | | $ 254.57 | _______ |

**Footnotes:**

[1]Fall application of nitrogen. Spring nitrogen provided by clover.

[2]To maintain clover in the pasture it should be overseeded once during the 6-year stand-life, at the rate of 2 lbs of white clover and 4 lbs of red clover per acre. 12 lbs of fescue or orchardgrass also overseeded once. These rates are prorated over the life of the stand.

[3]Weed spray is done once at a rate of 2 pt/acre, and is prorated over the 6-year stand-life.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass/Clover, Hay

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Feb | Post-Emerge (2-4,D Ester 4EC) | Custom | Custom | --- | --- |
| Feb | Overseed Clover | Tractor, 70 hp | Broadcast Spreader | 0.02 | 0.02 |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| May | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| May | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| May | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| Jun | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jun | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| Jun | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| Sep | Overseed Fescue or Orchardgrass | Tractor, 70 hp | No-Till Drill, Rental | 0.08 | 0.10 |
| Sep | Fertilize & Lime | Custom | Custom | --- | --- |
| Oct | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Oct | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| Oct | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Oct | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| Oct | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| | | | | **Total** | 5.62 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 70 hp | 4.50 | 28.94 | 4.27 | 9.37 | 42.58 | 5.67 | 6.74 | 0.51 | 12.92 |
| Mower-Conditioner, 9' | 1.10 | 0.00 | 0.00 | 5.65 | 5.65 | 3.05 | 4.97 | 0.41 | 8.42 |
| Tedder, 10' | 0.30 | 0.00 | 0.00 | 0.16 | 0.16 | 0.12 | 0.20 | 0.06 | 0.39 |
| Rake, 18' | 0.57 | 0.00 | 0.00 | 0.40 | 0.40 | 0.33 | 0.38 | 0.10 | 0.81 |
| Baler, Round, 5 x 4 | 1.21 | 0.00 | 0.00 | 16.08 | 16.08 | 5.22 | 5.72 | 0.57 | 11.52 |
| Front-End Loader/Spear | 1.21 | 0.00 | 0.00 | 1.60 | 1.60 | 1.78 | 1.98 | 0.15 | 3.92 |
| Broadcast Spreader | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 |
| **Total** | | $ 28.94 | $ 4.27 | $ 33.27 | $ 66.48 | $ 16.18 | $ 20.00 | $ 1.81 | $ 38.00 |
| **Total Machinery Cost** | | | | | | | | | $ 104.48 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 1.5 | tons | $ 88.18 |
| | Average Yield | 2.5 | tons | $ 52.91 |
| | Above-Average Yield | 3.5 | tons | $ 37.79 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 1.5 | tons | $ 169.71 |
| | Average Yield | 2.5 | tons | $ 101.83 |
| | Above-Average Yield | 3.5 | tons | $ 72.73 |

## Cool Season Grass/Clover, Intensive Grazing
### Estimated Expenses per Acre

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Overseeding[2] | Fescue or Orchardgrass | lb | 2.00 | $ 1.00 | $ 2.00 | _______ |
| | White Clover | lb | 0.33 | $ 3.06 | $ 1.01 | _______ |
| | Red Clover | lb | 0.67 | $ 2.86 | $ 1.92 | _______ |
| No-Till Drill, Rental | | acre | 0.17 | $ 8.00 | $ 1.36 | _______ |
| Weed Control[3] | | | | | | _______ |
| Post-Emerge | 2,4-D Ester 4EC | pt | 1.00 | $ 2.04 | $ 2.04 | _______ |
| | Custom Application | acre | 0.17 | $ 5.00 | $ 0.85 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 4.14 | $ 4.14 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.62 | $ 0.62 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 3.15 | $ 3.15 | _______ |
| Fence Repairs | | acre | 1.00 | $ 6.86 | $ 6.86 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 74.85 | 8.0% | $ 2.99 | _______ |
| | | **Total Variable Expenses** | | | $ 77.85 | _______ |
| ***Fixed Expenses*** | | | | | | _______ |
| Establishment Cost | | acre | 1.00 | $ 36.54 | $ 36.54 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 1.39 | $ 1.39 | _______ |
| Interest | | acre | 1.00 | $ 1.87 | $ 1.87 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.21 | $ 0.21 | _______ |
| Fencing | | | | | | |
| Depreciation | Perimeter Fence | acre | 1.00 | $ 6.94 | $ 6.94 | _______ |
| Depreciation | Divider Fence | acre | 1.00 | $ 6.50 | $ 6.50 | _______ |
| Interest | Perimeter Fence | acre | 1.00 | $ 5.56 | $ 5.56 | _______ |
| Interest | Divider Fence | acre | 1.00 | $ 1.30 | $ 1.30 | _______ |
| | | **Total Fixed Expenses** | | | $ 60.31 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4,5] | | hour | 0.94 | $ 8.50 | $ 7.98 | _______ |
| | | **Total Budgeted Expenses** | | | $ 146.14 | _______ |

**Footnotes:**

[1]Fall application of nitrogen. Spring nitrogen provided by clover.

[2]To maintain clover in the pasture it should be overseeded once during the 6-year stand-life, at the rate of 2 lbs of white clover and 4 lbs of red clover per acre. 12 lbs of fescue also overseeded once. These rates are prorated over the life of the stand.

[3]Weed spray is done once at a rate of 2 pt/acre, and is prorated over the 6-year stand-life.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[5]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

**Cool Season Grass/Clover, Intensive Grazing**
**Estimated Machinery and Labor Requirements per Acre**

| | | | | Hours per Acre | |
|---|---|---|---|---|---|
| **Month** | **Operation** | **Power Unit** | **Implement** | **Machine** | **Labor** |
| Feb | Post-Emerge (2,4-D Ester 4EC) | Custom | Custom | --- | --- |
| Feb | Fertilize | Custom | Custom | --- | --- |
| Feb | Overseed Clover | Tractor, 60 hp | Broadcast Spreader | 0.02 | 0.02 |
| Mar | Drag Pastures | Tractor, 60 hp | Harrow, 10' | 0.14 | 0.17 |
| May | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Jun | Fertilize | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Sep | Overseed Fescue or Orchardgrass | Tractor, 60 hp | No-Till Drill, Rental | 0.08 | 0.10 |
| Sep | Fertilize | Custom | Custom | --- | --- |
| | | | | **Total** | 0.94 |

**Estimated Machinery Expenses per Acre**

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 60 hp | 0.75 | 4.14 | 0.62 | 1.32 | 6.09 | 0.80 | 0.95 | 0.08 | 1.82 |
| Rotary Mower, 10' | 0.52 | 0.00 | 0.00 | 1.77 | 1.77 | 0.53 | 0.86 | 0.13 | 1.52 |
| Harrow, 10' | 0.14 | 0.00 | 0.00 | 0.05 | 0.05 | 0.05 | 0.05 | 0.01 | 0.11 |
| Broadcast Spreader | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 |
| **Total** | | $ 4.14 | $ 0.62 | $ 3.15 | $ 7.92 | $ 1.39 | $ 1.87 | $ 0.21 | $ 3.47 |
| **Total Machinery Cost** | | | | | | | | | $ 11.39 |

**Cool Season Grass/Clover, Continuous Grazing**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime[2] | Custom Application | ton | 0.20 | $ 21.00 | $ 4.20 | _______ |
| Overseeding[3] | White Clover | lb | 0.33 | $ 3.06 | $ 1.01 | _______ |
| | Red Clover | lb | 0.67 | $ 2.86 | $ 1.92 | _______ |
| Weed Control[4] | | | | | | _______ |
| Post-Emerge | 2,4-D Ester 4EC | pt | 1.00 | $ 2.04 | $ 2.04 | _______ |
| | Custom Application | acre | 0.50 | $ 5.00 | $ 2.50 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 1.53 | $ 1.53 | _______ |
| Oil & Filter | | acre | 1.00 | $ 0.23 | $ 0.23 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 1.38 | $ 1.38 | _______ |
| Fence Repairs | | acre | 1.00 | $ 5.56 | $ 5.56 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 71.26 | 8.0% | $ 2.85 | _______ |
| | | **Total Variable Expenses** | | | $ 74.11 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 0.57 | $ 0.57 | _______ |
| Interest | | acre | 1.00 | $ 0.79 | $ 0.79 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.09 | $ 0.09 | _______ |
| | | **Total Fixed Expenses** | | | $ 1.45 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5,6] | | hour | 0.35 | $ 8.50 | $ 2.94 | _______ |
| | | **Total Budgeted Expenses** | | | $ 78.50 | _______ |

**Footnotes:**

[1]Fall application of nitrogen. Spring nitrogen provided by clover.

[2]Lime is applied at the rate of 2 tons every 10 years.

[3]To maintain clover in the pasture it should be overseeded every four years, at the rate of 2 lbs of white clover and 4 lbs of red clover per acre.

[4]Weed spray is done every 2 years at a rate of 2 pt/acre to supplement clipping and control broadleaf weeds.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[6]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

**Cool Season Grass/Clover, Continuous Grazing**
**Estimated Machinery and Labor Requirements per Acre**

| | | | | Hours per Acre | |
|---|---|---|---|---|---|
| **Month** | **Operation** | **Power Unit** | **Implement** | **Machine** | **Labor** |
| Feb | Post-Emerge (2,4-D Ester 4EC) | Custom | Custom | --- | --- |
| Feb | overseed Clover | Tractor, 60 hp | Broadcast Spreader | 0.02 | 0.02 |
| May | Mow | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Sep | Fertilize & Lime | Custom | Custom | --- | --- |
| | | | | **Total** | 0.35 |

**Estimated Machinery Expenses per Acre**

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | **Hours** | | **Oil &** | | **Variable** | | | **Housing &** | **Fixed** |
| **Machine** | **per Acre** | **Fuel** | **Filter** | **Repairs** | **Costs** | **Depreciation** | **Interest** | **Insurance** | **Costs** |
| Tractor, 60 hp | 0.28 | 1.53 | 0.23 | 0.49 | 2.24 | 0.29 | 0.35 | 0.03 | 0.67 |
| Rotary Mower, 10' | 0.26 | 0.00 | 0.00 | 0.88 | 0.88 | 0.27 | 0.43 | 0.06 | 0.76 |
| Broadcast Spreader | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 |
| **Total** | | $ 1.53 | $ 0.23 | $ 1.38 | $ 3.13 | $ 0.57 | $ 0.79 | $ 0.09 | $ 1.45 |
| **Total Machinery Cost** | | | | | | | | | $ 4.59 |

**Cool Season Grass/Clover, Hay Crop Silage**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 30.00 | $ 0.23 | $ 6.90 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Overseeding[2] | Fescue or Orchardgrass | lb | 2.00 | $ 1.00 | $ 2.00 | _______ |
| | White Clover | lb | 0.33 | $ 3.06 | $ 1.01 | _______ |
| | Red Clover | lb | 0.67 | $ 2.86 | $ 1.92 | _______ |
| No-Till Drill, Rental | | acre | 0.17 | $ 8.00 | $ 1.36 | _______ |
| Weed Control[3] | | | | | | |
| Post-Emerge | 2,4-D Ester 4EC | pt | 0.33 | $ 2.04 | $ 0.67 | _______ |
| | Custom Application | acre | 0.17 | $ 5.00 | $ 0.85 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 34.06 | $ 34.06 | _______ |
| Oil & Filter | | acre | 1.00 | $ 5.11 | $ 5.11 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 35.72 | $ 35.72 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 133.60 | 8.0% | $ 5.34 | _______ |
| | | **Total Variable Expenses** | | | $ 138.95 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | | acre | 1.00 | $ 36.54 | $ 36.54 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 28.13 | $ 28.13 | _______ |
| Interest | | acre | 1.00 | $ 33.96 | $ 33.96 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.72 | $ 1.72 | _______ |
| | | **Total Fixed Expenses** | | | $ 100.35 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 5.71 | $ 8.50 | $ 48.54 | _______ |
| | | **Total Budgeted Expenses** | | | $ 287.84 | _______ |

**Footnotes:**

[1]Fall application of nitrogen. Spring nitrogen provided by clover.

[2]To maintain clover in the pasture it should be overseeded once during the 6-year stand-life, at the rate of 2 lbs of white clover and 4 lbs of red clover per acre. 12 lbs of fescue also overseeded once. These rates are prorated over the life of the stand.

[3]Weed spray is done once at a rate of 2 pt/acre, and is prorated over the 6-year stand-life.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Cool Season Grass/Clover, Hay Crop Silage

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre: Machine | Hours per Acre: Labor |
|---|---|---|---|---|---|
| Feb | Post-Emerge (2,4-D Ester 4EC) | Custom | Custom | --- | --- |
| Feb | Overseed Clover | Tractor, 70 hp | Broadcast Spreader | 0.02 | 0.02 |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| May | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| May | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Jun | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Jun | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Sep | Overseed Fescue or Orchardgrass | Tractor, 70 hp | No-Till Drill, Rental | 0.08 | 0.10 |
| Sep | Fertilize & Lime | Custom | Custom | --- | --- |
| Oct | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Oct | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Oct | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Oct | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | Total | 5.71 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.68 | 15.49 | 2.32 | 6.22 | 24.03 | 4.51 | 5.66 | 0.14 | 10.31 |
| Tractor, 70 hp | 2.89 | 18.58 | 2.79 | 6.12 | 27.48 | 3.70 | 4.40 | 0.33 | 8.44 |
| Mower-Conditioner, 9' | 1.10 | 0.00 | 0.00 | 5.65 | 5.65 | 3.05 | 4.97 | 0.13 | 8.14 |
| Forage Chopper | 1.68 | 0.00 | 0.00 | 9.08 | 9.08 | 4.50 | 5.16 | 0.11 | 9.77 |
| Windrow Header | 1.68 | 0.00 | 0.00 | 1.09 | 1.09 | 1.33 | 1.52 | 0.24 | 3.08 |
| Forage Wagon #1 | 1.68 | 0.00 | 0.00 | 4.57 | 4.57 | 6.81 | 7.57 | 0.35 | 14.73 |
| Forage Wagon #2 | 0.84 | 0.00 | 0.00 | 2.28 | 2.28 | 3.41 | 3.79 | 0.35 | 7.54 |
| Forage Blower | 0.84 | 0.00 | 0.00 | 0.71 | 0.71 | 0.82 | 0.91 | 0.07 | 1.80 |
| **Total** | | $ 34.06 | $ 5.11 | $ 35.72 | $ 74.89 | $ 28.13 | $ 33.96 | $ 1.72 | $ 63.81 |
| **Total Machinery Cost** | | | | | | | | | $ 138.70 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 2.7 | tons | $ 51.46 |
| | Average Yield | 5.0 | tons | $ 27.79 |
| | Above-Average Yield | 8.3 | tons | $ 16.74 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 2.7 | tons | $ 106.61 |
| | Average Yield | 5.0 | tons | $ 57.57 |
| | Above-Average Yield | 8.3 | tons | $ 34.68 |

**Summer Annuals, Hay, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Sorghum-Sudan Hybrid | lb | 35.00 | $ 0.35 | $ 12.25 | _______ |
| Fertilizer[2] | N | lb | 120.00 | $ 0.48 | $ 57.60 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Post-Emerge | 2,4-D Amine | pt | 2.00 | $ 2.05 | $ 4.10 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Twine | | bale | 6.00 | $ 0.24 | $ 1.43 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 23.21 | $ 23.21 | _______ |
| Oil & Filter | | acre | 1.00 | $ 3.48 | $ 3.48 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 28.73 | $ 28.73 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 193.48 | 8.0% | $ 7.74 | _______ |
| | | **Total Variable Expenses** | | | $ 201.22 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 13.63 | $ 13.63 | _______ |
| Interest | | acre | 1.00 | $ 17.62 | $ 17.62 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.56 | $ 1.56 | _______ |
| | | **Total Fixed Expenses** | | | $ 32.81 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 4.51 | $ 8.50 | $ 38.30 | _______ |
| | | **Total Budgeted Expenses** | | | $ 272.33 | _______ |

**Footnotes:**

[1]Pearlmillet and sudangrass may also be used for hay.

[2]60 lbs of nitrogen applied at seeding, remainder applied following first cutting of hay, assuming seed is planted before June 20.

[3]Lime is applied at the rate of 2 tons every 4 years.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Summer Annuals, Hay, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| May | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| May | Fertilize & Lime | Custom | Custom | --- | --- |
| May | Plant | Tractor, 70 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| Jun | Post-Emerge (2-4,D Amine) | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Tedder, 10', 2X | Tractor, 70 hp | Tedder, 10' | 0.20 | 0.25 |
| Jul | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jul | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| Jul | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Sep | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Sep | Tedder, 10', 2X | Tractor, 70 hp | Tedder, 10' | 0.20 | 0.25 |
| Sep | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Sep | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| Sep | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| | | | | Total | 4.51 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost Fuel | Variable Cost Oil & Filter | Variable Cost Repairs | Total Variable Costs | Fixed Cost Depreciation | Fixed Cost Interest | Fixed Cost Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 3.60 | 23.21 | 3.48 | 7.65 | 34.34 | 4.63 | 5.50 | 0.41 | 10.54 |
| No-Till Drill, 10' | 0.47 | 0.00 | 0.00 | 5.05 | 5.05 | 1.91 | 3.15 | 0.24 | 5.30 |
| Mower-Conditioner, 9' | 0.74 | 0.00 | 0.00 | 3.76 | 3.76 | 2.03 | 3.31 | 0.27 | 5.62 |
| Tedder, 10' | 0.40 | 0.00 | 0.00 | 0.22 | 0.22 | 0.17 | 0.27 | 0.08 | 0.52 |
| Rake, 18' | 0.38 | 0.00 | 0.00 | 0.27 | 0.27 | 0.22 | 0.25 | 0.07 | 0.54 |
| Baler, Round, 5 x 4 | 0.81 | 0.00 | 0.00 | 10.72 | 10.72 | 3.48 | 3.82 | 0.38 | 7.68 |
| Front-End Loader/Spear | 0.81 | 0.00 | 0.00 | 1.07 | 1.07 | 1.19 | 1.32 | 0.10 | 2.61 |
| Total | | $ 23.21 | $ 3.48 | $ 28.73 | $ 55.42 | $ 13.63 | $ 17.62 | $ 1.56 | $ 32.81 |
| **Total Machinery Cost** | | | | | | | | | $ 88.23 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 1.5 | tons | $ 134.15 |
| | Average Yield | 3.0 | tons | $ 67.07 |
| | Above-Average Yield | 4.5 | tons | $ 44.72 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 1.5 | tons | $ 181.55 |
| | Average Yield | 3.0 | tons | $ 90.78 |
| | Above-Average Yield | 4.5 | tons | $ 60.52 |

**Summer Annuals, Intensive Grazing, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Sorghum-Sudan Hybrid | lb | 35.00 | $ 0.35 | $ 12.25 | _______ |
| Fertilizer[2] | N | lb | 120.00 | $ 0.48 | $ 57.60 | _______ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | _______ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Post-Emerge | 2,4-D Amine | pt | 2.00 | $ 2.05 | $ 4.10 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 8.29 | $ 8.29 | _______ |
| Oil & Filter | | acre | 1.00 | $ 1.24 | $ 1.24 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 8.95 | $ 8.95 | _______ |
| Fence Repairs[4] | | acre | 1.00 | $ 3.43 | $ 3.43 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 158.53 | 8.0% | $ 6.34 | _______ |
| | | **Total Variable Expenses** | | | $ 164.88 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 3.71 | $ 3.71 | _______ |
| Interest | | acre | 1.00 | $ 5.36 | $ 5.36 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.54 | $ 0.54 | _______ |
| Fencing[4] | | | | | | |
| Depreciation | Perimeter Fence | acre | 1.00 | $ 3.47 | $ 3.47 | _______ |
| Depreciation | Divider Fence | acre | 1.00 | $ 3.25 | $ 3.25 | _______ |
| Interest | Perimeter Fence | acre | 1.00 | $ 2.78 | $ 2.78 | _______ |
| Interest | Divider Fence | acre | 1.00 | $ 0.65 | $ 0.65 | _______ |
| | | **Total Fixed Expenses** | | | $ 19.75 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[5,6] | | hour | 1.88 | $ 8.50 | $ 15.95 | _______ |
| | | **Total Budgeted Expenses** | | | $ 200.58 | _______ |

**Footnotes:**

[1]Pearlmillet and sudangrass may also be used for hay.

[2]60 lbs of nitrogen applied at seeding, remainder applied following first grazing, assuming seed is planted before June 20.

[3]Lime is applied at the rate of 2 tons every 4 years.

[4]Fencing costs are only included for one-half of the year to correspond with the productive period of summer annuals.

[5]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[6]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

## Summer Annuals, Intensive Grazing, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| May | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| May | Fertilize & Lime | Custom | Custom | --- | --- |
| May | Plant | Tractor, 60 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| Jul | Clip | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Aug | Clip, 2X | Tractor, 60 hp | Rotary Mower, 10' | 0.52 | 0.64 |
| Sep | Clip | Tractor, 60 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| | | | | Total | 1.88 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Machine | Hours per Acre | Fuel | Oil & Filter | Repairs | Variable Costs | Depreciation | Interest | Housing & Insurance | Fixed Costs |
| Tractor, 60 hp | 1.50 | 8.29 | 1.24 | 2.64 | 12.17 | 1.60 | 1.90 | 0.15 | 3.65 |
| No-Till Drill, 10' | 0.26 | 0.00 | 0.00 | 2.77 | 2.77 | 1.05 | 1.73 | 0.13 | 2.91 |
| Rotary Mower, 10' | 1.03 | 0.00 | 0.00 | 3.54 | 3.54 | 1.06 | 1.73 | 0.25 | 3.04 |
| **Total** | | $ 8.29 | $ 1.24 | $ 8.95 | $ 18.47 | $ 3.71 | $ 5.36 | $ 0.54 | $ 9.60 |
| **Total Machinery Cost** | | | | | | | | | $ 28.07 |

**Summer Annuals, Hay Crop Silage, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Sorghum-Sudan Hybrid | lb | 35.00 | $ 0.35 | $ 12.25 | ________ |
| Fertilizer[2] | N | lb | 120.00 | $ 0.48 | $ 57.60 | ________ |
| | P2O5 | lb | 30.00 | $ 0.34 | $ 10.20 | ________ |
| | K2O | lb | 60.00 | $ 0.23 | $ 13.80 | ________ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | ________ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | ________ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | ________ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Post-Emerge | 2,4-D Amine | pt | 2.00 | $ 2.05 | $ 4.10 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 25.32 | $ 25.32 | ________ |
| Oil & Filter | | acre | 1.00 | $ 3.80 | $ 3.80 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 29.72 | $ 29.72 | ________ |
| Interest on Operating Capital | 6 months | acre | $ 195.47 | 8.0% | $ 7.82 | ________ |
| | | | **Total Variable Expenses** | | $ 203.29 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 21.18 | $ 21.18 | ________ |
| Interest | | acre | 1.00 | $ 26.41 | $ 26.41 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 2.86 | $ 2.86 | ________ |
| | | | **Total Fixed Expenses** | | $ 50.46 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 4.31 | $ 8.50 | $ 36.67 | ________ |
| | | | **Total Budgeted Expenses** | | $ 290.42 | ________ |

**Footnotes:**

[1]Pearlmillet and forage sorghum may also be used for silage, but should be seeded at recommended rates.

[2]60 lbs of nitrogen applied at seeding, remainder applied following first silage cutting, assuming seed is planted before June 20.

[3]Lime is applied at the rate of 2 tons every 4 years.

[4]Labor cost is based on a cash wage for hired labor of $8.50 equivalent per hour which includes social security and medicaid taxes, and payroll administration.

## Summer Annuals, Hay Crop Silage, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| May | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| May | Fertilize & Lime | Custom | Custom | --- | --- |
| May | Plant | Tractor, 70 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| Jun | Post-Emerge (2,4-D Amine) | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Jul | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Jul | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Sep | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Sep | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| Sep | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Sep | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | Total | 4.31 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.12 | 10.32 | 1.55 | 4.15 | 16.02 | 3.01 | 3.77 | 0.20 | 6.98 |
| Tractor, 70 hp | 2.33 | 15.00 | 2.25 | 4.94 | 22.19 | 2.99 | 3.55 | 0.27 | 6.81 |
| Mower-Conditioner, 9' | 0.74 | 0.00 | 0.00 | 3.76 | 3.76 | 2.03 | 3.31 | 0.31 | 5.65 |
| Forage Chopper | 1.12 | 0.00 | 0.00 | 6.05 | 6.05 | 3.00 | 3.44 | 0.31 | 6.75 |
| Windrow Header | 1.12 | 0.00 | 0.00 | 0.73 | 0.73 | 0.88 | 1.01 | 0.30 | 2.19 |
| Forage Wagon #1 | 1.12 | 0.00 | 0.00 | 3.04 | 3.04 | 4.54 | 5.05 | 0.56 | 10.15 |
| Forage Wagon #2 | 0.56 | 0.00 | 0.00 | 1.52 | 1.52 | 2.27 | 2.52 | 0.45 | 5.25 |
| Forage Blower | 0.56 | 0.00 | 0.00 | 0.47 | 0.47 | 0.54 | 0.61 | 0.10 | 1.25 |
| No-Till Drill, 10' | 0.47 | 0.00 | 0.00 | 5.05 | 5.05 | 1.91 | 3.15 | 0.36 | 5.43 |
| **Total** | | $ 25.32 | $ 3.80 | $ 29.72 | $ 58.84 | $ 21.18 | $ 26.41 | $ 2.86 | $ 50.46 |
| **Total Machinery Cost** | | | | | | | | | $ 109.30 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 3.6 | tons | $ 56.47 |
| | Average Yield | 7.3 | tons | $ 27.85 |
| | Above-Average Yield | 11.0 | tons | $ 18.48 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 3.6 | tons | $ 80.67 |
| | Average Yield | 7.3 | tons | $ 39.78 |
| | Above-Average Yield | 11.0 | tons | $ 26.40 |

**Winter Annuals, Hay, Traditional Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Wheat | bu | 1.50 | $ 9.60 | $ 14.40 | _______ |
| Fertilizer[2] | N | lb | 120.00 | $ 0.48 | $ 57.60 | _______ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | _______ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Twine | | bale | 4.00 | $ 0.24 | $ 0.95 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 16.13 | $ 16.13 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.42 | $ 2.42 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 14.95 | $ 14.95 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 149.76 | 8.0% | $ 5.99 | _______ |
| | | **Total Variable Expenses** | | | $ 155.75 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 8.59 | $ 8.59 | _______ |
| Interest | | acre | 1.00 | $ 10.64 | $ 10.64 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.77 | $ 1.77 | _______ |
| | | **Total Fixed Expenses** | | | $ 21.00 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 2.74 | $ 8.50 | $ 23.31 | _______ |
| | | **Total Budgeted Expenses** | | | $ 200.06 | _______ |

**Footnotes:**

[1]Ryegrass may also be used as a winter annual hay crop.

[2]60 lbs of nitrogen applied at seeding. Remainder applied in the Spring.

[3]Lime is applied at the rate of 2 tons per acre every 4 years.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Winter Annuals, Hay, Traditional Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Sep | Chisel | Tractor, 100 hp | Chisel Plow, 9' | 0.22 | 0.27 |
| Oct | Fertilize & Lime | Custom | Custom | --- | --- |
| Oct | Prepare Seedbed, 2X | Tractor, 100 hp | Disk, 12' Harrow, 10' | 0.34 | 0.43 |
| Oct | Plant | Tractor, 100 hp | Grain Drill, 10' | 0.17 | 0.21 |
| Mar | Fertilize | Custom | Custom | --- | --- |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| May | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| May | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| May | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| | | | | **Total** | 2.74 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 0.73 | 6.69 | 1.00 | 2.69 | 10.39 | 1.95 | 2.45 | 0.06 | 4.46 |
| Tractor, 70 hp | 1.47 | 9.44 | 1.42 | 3.11 | 13.97 | 1.88 | 2.24 | 0.11 | 4.22 |
| Chisel Plow, 9' | 0.22 | 0.00 | 0.00 | 0.21 | 0.21 | 0.09 | 0.19 | 0.04 | 0.33 |
| Grain Drill, 10' | 0.17 | 0.00 | 0.00 | 0.21 | 0.21 | 0.21 | 0.34 | 0.26 | 0.81 |
| Disk, 12' | 0.34 | 0.00 | 0.00 | 0.64 | 0.64 | 0.84 | 0.87 | 0.32 | 2.03 |
| Harrow, 10' | 0.34 | 0.00 | 0.00 | 0.13 | 0.13 | 0.12 | 0.13 | 0.03 | 0.28 |
| Mower-Conditioner, 9' | 0.37 | 0.00 | 0.00 | 1.88 | 1.88 | 1.02 | 1.66 | 0.22 | 2.89 |
| Rake, 18' | 0.19 | 0.00 | 0.00 | 0.13 | 0.13 | 0.11 | 0.13 | 0.14 | 0.38 |
| Baler, Round, 5 x 4 | 0.40 | 0.00 | 0.00 | 5.36 | 5.36 | 1.74 | 1.91 | 0.33 | 3.98 |
| Front-End Loader/Spear | 0.40 | 0.00 | 0.00 | 0.53 | 0.53 | 0.59 | 0.66 | 0.09 | 1.34 |
| Tedder, 10' | 0.10 | 0.00 | 0.00 | 0.05 | 0.05 | 0.04 | 0.07 | 0.18 | 0.29 |
| **Total** | | $ 16.13 | $ 2.42 | $ 14.95 | $ 33.51 | $ 8.59 | $ 10.64 | $ 1.77 | $ 21.00 |
| **Total Machinery Cost** | | | | | | | | | $ 54.50 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 1.0 | tons | $ 155.75 |
| | Average Yield | 2.0 | tons | $ 77.87 |
| | Above-Average Yield | 3.0 | tons | $ 51.92 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 1.0 | tons | $ 200.06 |
| | Average Yield | 2.0 | tons | $ 100.03 |
| | Above-Average Yield | 3.0 | tons | $ 66.69 |

## Winter Annuals, Hay, No-Till Establishment
## Estimated Expenses per Acre

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Wheat | bu | 1.50 | $ 9.60 | $ 14.40 | _______ |
| Fertilizer[2] | N | lb | 120.00 | $ 0.48 | $ 57.60 | _______ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | _______ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Twine | | bale | 4.00 | $ 0.24 | $ 0.95 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 12.47 | $ 12.47 | _______ |
| Oil & Filter | | acre | 1.00 | $ 1.87 | $ 1.87 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 17.12 | $ 17.12 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 160.89 | 8.0% | $ 6.44 | _______ |
| | | | **Total Variable Expenses** | | $ 167.32 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 7.90 | $ 7.90 | _______ |
| Interest | | acre | 1.00 | $ 10.52 | $ 10.52 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.89 | $ 0.89 | _______ |
| | | | **Total Fixed Expenses** | | $ 19.32 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 2.42 | $ 8.50 | $ 20.57 | _______ |
| | | | **Total Budgeted Expenses** | | $ 207.21 | _______ |

**Footnotes:**

[1]Ryegrass may also be used as a winter annual hay crop.

[2]60 lbs of nitrogen applied at seeding. Remainder applied in the Spring.

[3]Lime is applied at the rate of 2 tons per acre every 4 years.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Winter Annuals, Hay, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Oct | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Oct | Fertilize & Lime | Custom | Custom | --- | --- |
| Oct | Plant | Tractor, 70 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| Mar | Fertilize | Custom | Custom | --- | --- |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Tedder, 10' | Tractor, 70 hp | Tedder, 10' | 0.10 | 0.13 |
| May | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| May | Bale | Tractor, 70 hp | Baler, Round, 5 x 4 | 0.40 | 0.50 |
| May | Stack & Move | Tractor, 70 hp | Front-End Loader/Spear | 0.40 | 0.50 |
| | | | | Total | 2.42 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 1.94 | 12.47 | 1.87 | 4.11 | 18.44 | 2.48 | 2.95 | 0.22 | 5.66 |
| No-Till Drill, 10' | 0.47 | 0.00 | 0.00 | 5.05 | 5.05 | 1.91 | 3.15 | 0.24 | 5.30 |
| Mower-Conditioner, 9' | 0.37 | 0.00 | 0.00 | 1.88 | 1.88 | 1.02 | 1.66 | 0.14 | 2.81 |
| Tedder, 10' | 0.10 | 0.00 | 0.00 | 0.05 | 0.05 | 0.04 | 0.07 | 0.02 | 0.13 |
| Rake, 18' | 0.19 | 0.00 | 0.00 | 0.13 | 0.13 | 0.11 | 0.13 | 0.03 | 0.27 |
| Baler, Round, 5 x 4 | 0.40 | 0.00 | 0.00 | 5.36 | 5.36 | 1.74 | 1.91 | 0.19 | 3.84 |
| Front-End Loader/Spear | 0.40 | 0.00 | 0.00 | 0.53 | 0.53 | 0.59 | 0.66 | 0.05 | 1.31 |
| **Total** | | $ 12.47 | $ 1.87 | $ 17.12 | $ 31.46 | $ 7.90 | $ 10.52 | $ 0.89 | $ 19.32 |
| **Total Machinery Cost** | | | | | | | | | $ 50.77 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 1.0 | ton | $ 167.32 |
| | Average Yield | 2.0 | tons | $ 83.66 |
| | Above-Average Yield | 3.0 | tons | $ 55.77 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 1.0 | ton | $ 207.21 |
| | Average Yield | 2.0 | tons | $ 103.61 |
| | Above-Average Yield | 3.0 | tons | $ 69.07 |

**Winter Annuals, Intensive Grazing, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Rye | bu | 1.50 | $ 14.84 | $ 22.26 | ________ |
| | Ryegrass | lb | 15.00 | $ 0.59 | $ 8.85 | ________ |
| Fertilizer[2] | N | lb | 120.00 | $ 0.48 | $ 57.60 | ________ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | ________ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | ________ |
| | Custom Application | acre | 3.00 | $ 5.00 | $ 15.00 | ________ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | ________ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | ________ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 6.35 | $ 6.35 | ________ |
| Oil & Filter | | acre | 1.00 | $ 0.95 | $ 0.95 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 8.91 | $ 8.91 | ________ |
| Fence Repairs | | acre | 1.00 | $ 6.86 | $ 6.86 | ________ |
| Interest on Operating Capital | 6 months | acre | $ 173.26 | 8.0% | $ 6.93 | ________ |
| | | **Total Variable Expenses** | | | $ 180.19 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 3.71 | $ 3.71 | ________ |
| Interest | | acre | 1.00 | $ 5.52 | $ 5.52 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 0.48 | $ 0.48 | ________ |
| Fencing | | | | | | |
| Depreciation | Perimeter Fence | acre | 1.00 | $ 6.94 | $ 6.94 | ________ |
| Depreciation | Divider Fence | acre | 1.00 | $ 6.50 | $ 6.50 | ________ |
| Interest | Perimeter Fence | acre | 1.00 | $ 5.56 | $ 5.56 | ________ |
| Interest | Divider Fence | acre | 1.00 | $ 1.30 | $ 1.30 | ________ |
| | | **Total Fixed Expenses** | | | $ 30.01 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[4,5] | | hour | 1.23 | $ 8.50 | $ 10.47 | ________ |
| | | **Total Budgeted Expenses** | | | $ 220.67 | ________ |

**Footnotes:**

[1]Wheat and crimson clover may also be used for Winter grazing.

[2]60 lbs of nitrogen applied at seeding. Remainder applied in the Spring as two 30 lb. applications.

[3]Lime is applied at the rate of 2 tons per acre every 4 years.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[5]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

## Winter Annuals, Intensive Grazing, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Sep | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Sep | Fertilize & Lime | Custom | Custom | --- | --- |
| Sep | Plant | Tractor, 70 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| Mar | Fertilize | Tractor, 70 hp | Custom | --- | --- |
| Apr | Clip | Tractor, 70 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| May | Fertilize | Tractor, 70 hp | Custom | --- | --- |
| May | Clip | Tractor, 70 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| | | | | **Total** | 1.23 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 0.99 | 6.35 | 0.95 | 2.09 | 9.39 | 1.26 | 1.50 | 0.11 | 2.88 |
| No-Till Drill, 10' | 0.47 | 0.00 | 0.00 | 5.05 | 5.05 | 1.91 | 3.15 | 0.24 | 5.30 |
| Rotary Mower, 10' | 0.52 | 0.00 | 0.00 | 1.77 | 1.77 | 0.53 | 0.86 | 0.13 | 1.52 |
| **Total** | | $ 6.35 | $ 0.95 | $ 8.91 | $ 16.21 | $ 3.71 | $ 5.52 | $ 0.48 | $ 9.71 |
| **Total Machinery Cost** | | | | | | | | | $ 25.91 |

**Winter Annuals, Hay Crop Silage, Traditional Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Wheat | bu | 1.50 | $ 9.60 | $ 14.40 | _______ |
| | Crimson Clover | lb | 10.00 | $ 0.95 | $ 9.50 | _______ |
| Fertilizer[2] | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | _______ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 15.83 | $ 15.83 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.37 | $ 2.37 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 14.57 | $ 14.57 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 128.78 | 8.0% | $ 5.15 | _______ |
| | | **Total Variable Expenses** | | | $ 133.93 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 11.52 | $ 11.52 | _______ |
| Interest | | acre | 1.00 | $ 13.92 | $ 13.92 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 2.12 | $ 2.12 | _______ |
| | | **Total Fixed Expenses** | | | $ 27.56 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 1.80 | $ 8.50 | $ 15.32 | _______ |
| | | **Total Budgeted Expenses** | | | $ 176.81 | _______ |

**Footnotes:**

[1]Rye may also be used for wilted silage. Oats and barley may be considered, but have been lost to freezes in some years.

[2]60 lbs of nitrogen applied at seeding. Remainder applied in the Spring.

[3]Lime is applied at the rate of 2 tons per acre every 4 years.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Winter Annuals, Hay Crop Silage, Traditional Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Sep | Chisel | Tractor, 70 hp | Chisel Plow, 9' | 0.22 | --- |
| Oct | Prepare Seedbed, 2X | Tractor, 70 hp | Disk, 12' Harrow, 10' | 0.34 | 0.43 |
| Oct | Fertilize & Lime | Custom | Custom | --- | --- |
| Oct | Plant | Tractor, 70 hp | Grain Drill, 10' | 0.17 | 0.21 |
| Mar | Fertilize | Custom | Custom | --- | --- |
| May | Mow & Condition | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| May | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| May | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | Total | 1.80 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 0.56 | 5.16 | 0.77 | 2.07 | 8.01 | 1.50 | 1.89 | 0.10 | 3.49 |
| Tractor, 70 hp | 1.66 | 10.67 | 1.60 | 3.52 | 15.79 | 2.13 | 2.53 | 0.19 | 4.85 |
| Mower-Conditioner, 9' | 0.37 | 0.00 | 0.00 | 1.88 | 1.88 | 1.02 | 1.66 | 0.13 | 2.80 |
| Forage Chopper | 0.56 | 0.00 | 0.00 | 3.03 | 3.03 | 1.50 | 1.72 | 0.11 | 3.33 |
| Windrow Header | 0.56 | 0.00 | 0.00 | 0.36 | 0.36 | 0.44 | 0.51 | 0.24 | 1.19 |
| Forage Wagon #1 | 0.56 | 0.00 | 0.00 | 1.52 | 1.52 | 2.27 | 2.52 | 0.35 | 5.14 |
| Forage Wagon #2 | 0.28 | 0.00 | 0.00 | 0.76 | 0.76 | 1.14 | 1.26 | 0.35 | 2.74 |
| Forage Blower | 0.28 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.30 | 0.07 | 0.65 |
| Disk, 12' | 0.34 | 0.00 | 0.00 | 0.64 | 0.64 | 0.84 | 0.87 | 0.28 | 1.98 |
| Chisel Plow, 9' | 0.22 | 0.00 | 0.00 | 0.21 | 0.21 | 0.09 | 0.19 | 0.03 | 0.32 |
| Grain Drill, 10' | 0.17 | 0.00 | 0.00 | 0.21 | 0.21 | 0.21 | 0.34 | 0.24 | 0.80 |
| Harrow, 10' | 0.34 | 0.00 | 0.00 | 0.13 | 0.13 | 0.12 | 0.13 | 0.02 | 0.27 |
| Total | | $ 15.83 | $ 2.37 | $ 14.57 | $ 32.78 | $ 11.52 | $ 13.92 | $ 2.12 | $ 27.56 |
| **Total Machinery Cost** | | | | | | | | | $ 60.34 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 2.8 | tons | $ 47.83 |
| | Average Yield | 5.0 | tons | $ 26.79 |
| | Above-Average Yield | 7.2 | tons | $ 18.60 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 2.8 | tons | $ 63.15 |
| | Average Yield | 5.0 | tons | $ 35.36 |
| | Above-Average Yield | 7.2 | tons | $ 24.56 |

**Winter Annuals, Hay Crop Silage, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Wheat | bu | 1.50 | $ 9.60 | $ 14.40 | _______ |
| | Crimson Clover | lb | 10.00 | $ 0.95 | $ 9.50 | _______ |
| Fertilizer[2] | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | _______ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | _______ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | _______ |
| Lime[3] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 14.17 | $ 14.17 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.13 | $ 2.13 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 17.88 | $ 17.88 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 143.36 | 8.0% | $ 5.73 | _______ |
| | | | **Total Variable Expenses** | | $ 149.10 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 11.85 | $ 11.85 | _______ |
| Interest | | acre | 1.00 | $ 15.14 | $ 15.14 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.75 | $ 1.75 | _______ |
| | | | **Total Fixed Expenses** | | $ 28.74 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 2.45 | $ 8.50 | $ 20.83 | _______ |
| | | | **Total Budgeted Expenses** | | $ 198.67 | _______ |

**Footnotes:**

[1]Rye may also be used for wilted silage. Oats and barley may be considered, but have been lost to freezes in some years.

[2]60 lbs of nitrogen applied at seeding. Remainder applied in the Spring.

[3]Lime is applied at the rate of 2 tons per acre every 4 years.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Winter Annuals, Hay Crop Silage, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Oct | Burndown (Gramoxone) | Custom | Custom | --- | --- |
| Oct | Fertilize & Lime | Custom | Custom | --- | --- |
| Oct | Plant | Tractor, 70 hp | No-Till Drill, 10' | 0.47 | 0.59 |
| Mar | Fertilize | Custom | Custom | --- | --- |
| May | Mow & Condition | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Chop | Tractor, 100 hp | Forage Chopper Windrow Header Forage Wagon #1 | 0.56 | 0.70 |
| May | Stack & Move | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| May | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | Total | 2.45 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 0.56 | 5.16 | 0.77 | 2.07 | 8.01 | 1.50 | 1.89 | 0.10 | 3.49 |
| Tractor, 70 hp | 1.40 | 9.01 | 1.35 | 2.97 | 13.33 | 1.80 | 2.14 | 0.16 | 4.09 |
| Mower-Conditioner, 9' | 0.37 | 0.00 | 0.00 | 1.88 | 1.88 | 1.02 | 1.66 | 0.13 | 2.80 |
| Forage Chopper | 0.56 | 0.00 | 0.00 | 3.03 | 3.03 | 1.50 | 1.72 | 0.11 | 3.33 |
| Windrow Header | 0.56 | 0.00 | 0.00 | 0.36 | 0.36 | 0.44 | 0.51 | 0.24 | 1.19 |
| Forage Wagon #1 | 0.56 | 0.00 | 0.00 | 1.52 | 1.52 | 2.27 | 2.52 | 0.35 | 5.14 |
| Forage Wagon #2 | 0.28 | 0.00 | 0.00 | 0.76 | 0.76 | 1.14 | 1.26 | 0.35 | 2.74 |
| Forage Blower | 0.28 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.30 | 0.07 | 0.65 |
| No-Till Drill, 10' | 0.47 | 0.00 | 0.00 | 5.05 | 5.05 | 1.91 | 3.15 | 0.24 | 5.30 |
| **Total** | | $ 14.17 | $ 2.13 | $ 17.88 | $ 34.18 | $ 11.85 | $ 15.14 | $ 1.75 | $ 28.74 |
| **Total Machinery Cost** | | | | | | | | | $ 62.93 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 2.8 | tons | $ 53.25 |
| | Average Yield | 5.0 | tons | $ 29.82 |
| | Above-Average Yield | 7.2 | tons | $ 20.71 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 2.8 | tons | $ 70.96 |
| | Average Yield | 5.0 | tons | $ 39.73 |
| | Above-Average Yield | 7.2 | tons | $ 27.59 |

## Corn Silage, Traditional Establishment
## Estimated Expenses per Acre

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | 23 Thousand Seeds | bag | 0.28 | $ 100.75 | $ 28.21 | _______ |
| Fertilizer | N | lb | 150.00 | $ 0.48 | $ 72.00 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 120.00 | $ 0.23 | $ 27.60 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime[2] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Weed Control[3] | | | | | | |
| Pre-Emerge | Atrazine, 4L | pt | 0.80 | $ 1.26 | $ 1.01 | _______ |
| | Bicep II Magnum | pt | 4.80 | $ 5.65 | $ 27.12 | _______ |
| Post-Emerge | Accent | oz | 0.67 | $ 34.94 | $ 23.41 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 16.23 | $ 16.23 | _______ |
| Oil & Filter | | acre | 1.00 | $ 2.43 | $ 2.43 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 15.02 | $ 15.02 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 254.74 | 8.0% | $ 10.19 | _______ |
| | | **Total Variable Expenses** | | | $ 264.93 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 12.76 | $ 12.76 | _______ |
| Interest | | acre | 1.00 | $ 14.97 | $ 14.97 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.38 | $ 1.38 | _______ |
| | | **Total Fixed Expenses** | | | $ 29.10 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 2.42 | $ 8.50 | $ 20.53 | _______ |
| | | **Total Budgeted Expenses** | | | $ 314.57 | _______ |

**Footnotes:**

[1]Plant population and rate of fertilization are directly related. A higher population probably should be fertilized at a higher rate.

[2]Lime is applied at the rate of 2 tons every 4 years.

[3]When other chemicals are used, calculate the appropriate costs for the chemical used. Rates are for medium-textured soils--use lower rates for sandy soils and higher rates for fine-textured or clay-type soils, check labels. Other herbicide combinations are available.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Corn Silage, Traditional Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | | | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|---|---|
| Mar | Chisel | Tractor, 100 hp | Chisel Plow, 9' | | | 0.22 | 0.27 |
| Apr | Fertilize & Lime | Custom | Custom | | | --- | --- |
| Apr | Disk & Pre-Emerge (Atrazine & Bicep II Magnum) | Tractor, 100 hp | Disk, 12' | Boom Sprayer, 20' | | 0.17 | 0.21 |
| Apr | Disk & Harrow | Tractor, 100 hp | Disk, 12' | Harrow, 10' | | 0.17 | 0.21 |
| Apr | Plant | Tractor, 100 hp | Corn Planter, 4-row | | | 0.25 | 0.31 |
| May | Post-Emerge (Accent) | Custom | Custom | | | --- | --- |
| Sep | Harvest | Tractor, 100 hp | Forage Chopper | Corn Header, 2-row | Forage Wagon #1 | 0.56 | 0.70 |
| Sep | Haul | Tractor, 70 hp | Forage Wagon #2 | | | 0.28 | 0.35 |
| Sep | Store | Tractor, 70 hp | Forage Blower | | | 0.28 | 0.35 |
| | | | | | | Total | 2.42 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.37 | 12.61 | 1.89 | 5.07 | 19.57 | 3.68 | 4.61 | 0.25 | 8.53 |
| Tractor, 70 hp | 0.56 | 3.61 | 0.54 | 1.19 | 5.35 | 0.72 | 0.86 | 0.06 | 1.64 |
| Forage Chopper | 0.56 | 0.00 | 0.00 | 3.03 | 3.03 | 1.50 | 1.72 | 0.16 | 3.38 |
| Corn Header, 2-row | 0.56 | 0.00 | 0.00 | 1.02 | 1.02 | 1.01 | 0.70 | 0.10 | 1.81 |
| Chisel Plow, 9' | 0.22 | 0.00 | 0.00 | 0.21 | 0.21 | 0.09 | 0.19 | 0.02 | 0.30 |
| Disk, 12' | 0.34 | 0.00 | 0.00 | 0.64 | 0.64 | 0.84 | 0.87 | 0.14 | 1.85 |
| Harrow, 10' | 0.17 | 0.00 | 0.00 | 0.07 | 0.07 | 0.06 | 0.06 | 0.01 | 0.13 |
| Boom Sprayer, 20' | 0.17 | 0.00 | 0.00 | 0.13 | 0.13 | 0.17 | 0.19 | 0.02 | 0.37 |
| Corn Planter, 4-row | 0.25 | 0.00 | 0.00 | 1.15 | 1.15 | 1.02 | 1.68 | 0.14 | 2.84 |
| Forage Wagon #1 | 0.56 | 0.00 | 0.00 | 1.52 | 1.52 | 2.27 | 2.52 | 0.30 | 5.09 |
| Forage Wagon #2 | 0.28 | 0.00 | 0.00 | 0.76 | 0.76 | 1.14 | 1.26 | 0.15 | 2.55 |
| Forage Blower | 0.28 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.30 | 0.03 | 0.61 |
| **Total** | | $ 16.23 | $ 2.43 | $ 15.02 | $ 33.68 | $ 12.76 | $ 14.97 | $ 1.38 | $ 29.10 |
| **Total Machinery Cost** | | | | | | | | | $ 62.78 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 12.0 | tons | $ 22.08 |
| | Average Yield | 15.0 | tons | $ 17.66 |
| | Above-Average Yield | 18.0 | tons | $ 14.72 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 12.0 | tons | $ 26.21 |
| | Average Yield | 15.0 | tons | $ 20.97 |
| | Above-Average Yield | 18.0 | tons | $ 17.48 |

**Corn Silage, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | 23 Thousand Seeds | bag | 0.28 | $ 100.75 | $ 28.21 | _______ |
| Soil Insecticide | Force | lb | 4.00 | $ 4.57 | $ 18.28 | _______ |
| Fertilizer | N | lb | 150.00 | $ 0.48 | $ 72.00 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 120.00 | $ 0.23 | $ 27.60 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime[2] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | _______ |
| Weed Control[3] | | | | | | |
| Burndown | Gramoxone Max | pt | 2.00 | $ 4.91 | $ 9.82 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Pre-Emerge | Atrazine, 4L | pt | 0.80 | $ 1.26 | $ 1.01 | _______ |
| | Bicep II Magnum | pt | 4.80 | $ 5.65 | $ 27.12 | _______ |
| Post-Emerge | Accent | oz | 0.67 | $ 34.94 | $ 23.41 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 11.63 | $ 11.63 | _______ |
| Oil & Filter | | acre | 1.00 | $ 1.74 | $ 1.74 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 11.86 | $ 11.86 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 280.21 | 8.0% | $ 11.21 | _______ |
| | | **Total Variable Expenses** | | | $ 291.42 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 10.04 | $ 10.04 | _______ |
| Interest | | acre | 1.00 | $ 11.57 | $ 11.57 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 1.85 | $ 1.85 | _______ |
| | | **Total Fixed Expenses** | | | $ 23.47 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[4] | | hour | 1.81 | $ 8.50 | $ 15.43 | _______ |
| | | **Total Budgeted Expenses** | | | $ 330.31 | _______ |

**Footnotes:**

[1]Plant population and rate of fertilization are directly related. A higher population probably should be fertilized at a higher rate.

[2]Lime is applied at the rate of 2 tons every 4 years.

[3]When other chemicals are used, calculate the appropriate costs for the chemical used. Rates are for medium-textured soils--use lower rates for sandy soils and higher rates for fine-textured or clay-type soils, check labels. Other herbicide combinations are available.

[4]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Corn Silage, No-Till Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Apr | Fertilize & Lime | Custom | Custom | --- | --- |
| Apr | Plant & Soil Insecticide | Tractor, 100 hp | No-Till Corn Planter, 4-row | 0.26 | 0.33 |
| Apr | Pre-Emerge (Atrazine & Bicep I | Tractor, 70 hp | Boom Sprayer, 20' | 0.07 | 0.08 |
| May | Post-Emerge (Accent) | Custom | Custom | --- | --- |
| Sep | Harvest | Tractor, 100 hp | Forage Chopper Corn Header, 2-row Forage Wagon #1 | 0.56 | 0.70 |
| Sep | Haul | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Sep | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | Total | 1.81 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Machine | Hours per Acre | Fuel | Oil & Filter | Repairs | Variable Costs | Depreciation | Interest | Housing & Insurance | Fixed Costs |
| Tractor, 100 hp | 0.83 | 7.59 | 1.14 | 3.05 | 11.79 | 2.21 | 2.77 | 0.07 | 5.06 |
| Tractor, 70 hp | 0.63 | 4.03 | 0.60 | 1.33 | 5.97 | 0.80 | 0.96 | 0.06 | 1.82 |
| Forage Chopper | 0.56 | 0.00 | 0.00 | 3.03 | 3.03 | 1.50 | 1.72 | 0.21 | 3.43 |
| Corn Header, 2-row | 0.56 | 0.00 | 0.00 | 1.02 | 1.02 | 1.01 | 0.70 | 0.15 | 1.86 |
| Boom Sprayer, 20' | 0.07 | 0.00 | 0.00 | 0.05 | 0.05 | 0.06 | 0.07 | 0.08 | 0.22 |
| No-Till Corn Planter, 4-row | 0.26 | 0.00 | 0.00 | 0.87 | 0.87 | 0.77 | 1.27 | 0.35 | 2.38 |
| Forage Wagon #1 | 0.56 | 0.00 | 0.00 | 1.52 | 1.52 | 2.27 | 2.52 | 0.45 | 5.25 |
| Forage Wagon #2 | 0.28 | 0.00 | 0.00 | 0.76 | 0.76 | 1.14 | 1.26 | 0.40 | 2.80 |
| Forage Blower | 0.28 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.30 | 0.08 | 0.66 |
| Total | | $ 11.63 | $ 1.74 | $ 11.86 | $ 25.23 | $ 10.04 | $ 11.57 | $ 1.85 | $ 23.47 |
| **Total Machinery Cost** | | | | | | | | | $ 48.70 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 12.0 | tons | $ 24.28 |
| | Average Yield | 15.0 | tons | $ 19.43 |
| | Above-Average Yield | 18.0 | tons | $ 16.19 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 12.0 | tons | $ 27.53 |
| | Average Yield | 15.0 | tons | $ 22.02 |
| | Above-Average Yield | 18.0 | tons | $ 18.35 |

**Bermudagrass, Traditional Establishment, Seeded**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed | Bermudagrass | lb | 10.00 | $ 5.92 | $ 59.15 | ________ |
| Fertilizer | N | lb | 60.00 | $ 0.48 | $ 28.80 | ________ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | ________ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 14.62 | $ 14.62 | ________ |
| Oil & Filter | | acre | 1.00 | $ 2.19 | $ 2.19 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 8.69 | $ 8.69 | ________ |
| Interest on Operating Capital | 6 Months | acre | $ 183.25 | 8.0% | $ 7.33 | ________ |
| | | | **Total Variable Expenses** | | $ 190.58 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 5.71 | $ 5.71 | ________ |
| Interest | | acre | 1.00 | $ 7.61 | $ 7.61 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 0.62 | $ 0.62 | ________ |
| | | | **Total Fixed Expenses** | | $ 13.94 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[1] | | hour | 1.99 | $ 8.50 | $ 16.89 | ________ |
| | | | **Total Establishment Expenses** | | $ 221.41 | ________ |
| Prorated Share | | years | 10.00 | 8.0% | $ 33.00 | ________ |

**Footnotes:**

[1]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Bermudagrass, Traditional Establishment, Seeded
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| May | Fertilize & Lime | Custom | Custom | --- | --- |
| May | Plow | Tractor, 100 hp | Plow, 4-Bottom | 0.59 | 0.74 |
| May | Disk | Tractor, 100 hp | Disk, 12' | 0.17 | 0.21 |
| May | Cultipacker | Tractor, 100 hp | Cultipacker-Seeder, 10' | 0.28 | 0.35 |
| May | Cultipacker-Seeder | Tractor, 100 hp | Cultipacker-Seeder, 10' | 0.28 | 0.35 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 100 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| | | | | **Total** | 1.99 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.59 | 14.62 | 2.19 | 5.88 | 22.69 | 4.26 | 5.34 | 0.28 | 9.89 |
| Plow, 4-Bottom | 0.59 | 0.00 | 0.00 | 0.66 | 0.66 | 0.24 | 0.54 | 0.10 | 0.88 |
| Disk, 12' | 0.17 | 0.00 | 0.00 | 0.32 | 0.32 | 0.42 | 0.44 | 0.07 | 0.92 |
| Cultipacker-Seeder, 10' | 0.57 | 0.00 | 0.00 | 0.95 | 0.95 | 0.53 | 0.87 | 0.10 | 1.49 |
| Rotary Mower, 10' | 0.26 | 0.00 | 0.00 | 0.88 | 0.88 | 0.27 | 0.43 | 0.06 | 0.76 |
| **Total** | | $ 14.62 | $ 2.19 | $ 8.69 | $ 25.50 | $ 5.71 | $ 7.61 | 0.62 | $ 13.94 |
| **Total Machinery Cost** | | | | | | | | | $ 39.44 |

**Bermudagrass, No-Till Establishment, Seeded**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed | Bermudagrass | lb | 10.00 | $ 5.92 | $ 59.15 | ________ |
| No-Till Drill, Rental | | acre | 1.00 | $ 8.00 | $ 8.00 | ________ |
| Fertilizer | N | lb | 60.00 | $ 0.48 | $ 28.80 | ________ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | ________ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | ________ |
| Weed Control | | | | | | |
| Burndown[1] | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | ________ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 6.70 | $ 6.70 | ________ |
| Oil & Filter | | acre | 1.00 | $ 1.00 | $ 1.00 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 3.58 | $ 3.58 | ________ |
| Interest on Operating Capital | 6 Months | acre | $ 190.21 | 8.0% | $ 7.61 | ________ |
| | | **Total Variable Expenses** | | | $ 197.81 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 2.22 | $ 2.22 | ________ |
| Interest | | acre | 1.00 | $ 2.88 | $ 2.88 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 0.19 | $ 0.19 | ________ |
| | | **Total Fixed Expenses** | | | $ 5.29 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[2] | | hour | 0.91 | $ 8.50 | $ 7.73 | ________ |
| | | **Total Establishment Expenses** | | | $ 210.84 | ________ |
| Prorated Share | | years | 10.00 | 10.0% | $ 34.31 | ________ |

**Footnotes:**

[1]Other herbicides may also be required, depending on the weeds present prior to establishment.

[2]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Bermudagrass, No-Till Establishment, Seeded

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Apr | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| May | Fertilize & Lime | Custom | Custom | --- | --- |
| May | Plant | Tractor, 100 hp | No-Till Drill, Rental | 0.47 | 0.59 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 100 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| | | | | **Total** | 0.91 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Machine** | **Hours per Acre** | **Fuel** | **Oil & Filter** | **Repairs** | **Variable Costs** | **Depreciation** | **Interest** | **Housing & Insurance** | **Fixed Costs** |
| Tractor, 100 hp | 0.73 | 6.70 | 1.00 | 2.69 | 10.39 | 1.95 | 2.45 | 0.13 | 4.53 |
| Rotary Mower, 10' | 0.26 | 0.00 | 0.00 | 0.88 | 0.88 | 0.27 | 0.43 | 0.06 | 0.76 |
| **Total** | | $ 6.70 | $ 1.00 | $ 3.58 | $ 11.28 | $ 2.22 | $ 2.88 | 0.19 | $ 5.29 |
| **Total Machinery Cost** | | | | | | | | | $ 16.56 |

**Bermudagrass, Clipping Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Clippings[1] | Bermudagrass--Vaughn's #1 | acre | 1.00 | $ 160.00 | $ 160.00 | _______ |
| Fertilizer | N | lb | 60.00 | $ 0.48 | $ 28.80 | _______ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | _______ |
| | K2O | lb | 40.00 | $ 0.23 | $ 9.20 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Lime | Custom Application | ton | 2.00 | $ 21.00 | $ 42.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 13.10 | $ 13.10 | _______ |
| Oil & Filter | | acre | 1.00 | $ 1.97 | $ 1.97 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 7.46 | $ 7.46 | _______ |
| Interest on Operating Capital | 6 Months | acre | $ 281.13 | 8.0% | $ 11.25 | _______ |
| | | **Total Variable Expenses** | | | $ 292.37 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 5.41 | $ 5.41 | _______ |
| Interest | | acre | 1.00 | $ 6.91 | $ 6.91 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 0.60 | $ 0.60 | _______ |
| | | **Total Fixed Expenses** | | | $ 12.93 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[2] | | hour | 1.78 | $ 8.50 | $ 15.14 | _______ |
| | | **Total Establishment Expenses** | | | $ 320.44 | _______ |
| Prorated Share | | years | 10.00 | 8.0% | $ 47.75 | _______ |

**Footnotes:**

[1]Established through clippings, the cost will be prorated over 10 years.

[2]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Bermudagrass, Clipping Establishment
### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| May | Fertilize & Lime | Custom | Custom | --- | --- |
| May | Plow | Tractor, 100 hp | Plow, 4-Bottom | 0.59 | 0.74 |
| May | Disk | Tractor, 100 hp | Disk, 12' | 0.17 | 0.21 |
| May | Manure Spreader | Tractor, 100 hp | Manure Spreader | 0.23 | 0.29 |
| May | Disk | Tractor, 100 hp | Disk, 12' | 0.17 | 0.21 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 100 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| | | | | **Total** | 1.78 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 100 hp | 1.42 | 13.10 | 1.97 | 5.27 | 20.33 | 3.82 | 4.79 | 0.25 | 8.86 |
| Plow, 4-Bottom | 0.59 | 0.00 | 0.00 | 0.66 | 0.66 | 0.24 | 0.54 | 0.10 | 0.88 |
| Disk, 12' | 0.34 | 0.00 | 0.00 | 0.64 | 0.64 | 0.84 | 0.87 | 0.14 | 1.85 |
| Manure Spreader | 0.23 | 0.00 | 0.00 | 0.01 | 0.01 | 0.25 | 0.28 | 0.05 | 0.58 |
| Rotary Mower, 10' | 0.26 | 0.00 | 0.00 | 0.88 | 0.88 | 0.27 | 0.43 | 0.06 | 0.76 |
| **Total** | | $ 13.10 | $ 1.97 | $ 7.46 | $ 22.53 | $ 5.41 | $ 6.91 | 0.60 | $ 12.93 |
| **Total Machinery Cost** | | | | | | | | | $ 35.46 |

**Bermudagrass, Hay**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 240.00 | $ 0.48 | $ 115.20 | _______ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | _______ |
| | K2O | lb | 180.00 | $ 0.23 | $ 41.40 | _______ |
| | Custom Application | acre | 4.00 | $ 5.00 | $ 20.00 | _______ |
| Lime | Custom Application | ton | 0.67 | $ 21.00 | $ 14.07 | _______ |
| Twine | | bale | 160.00 | $ 0.04 | $ 6.62 | _______ |
| Weed Control | | | | | | |
| Dormant | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | _______ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Post-Emerge | Cimarron | oz | 0.20 | $ 21.90 | $ 4.38 | _______ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | _______ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 27.89 | $ 27.89 | _______ |
| Oil & Filter | | acre | 1.00 | $ 4.18 | $ 4.18 | _______ |
| Repairs & Maintenance | | acre | 1.00 | $ 26.33 | $ 26.33 | _______ |
| Interest on Operating Capital | 6 months | acre | $ 298.65 | 8.0% | $ 11.95 | _______ |
| | | | **Total Variable Expenses** | | $ 310.60 | _______ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 10 years | acre | 1.00 | $ 33.00 | $ 33.00 | _______ |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 19.62 | $ 19.62 | _______ |
| Interest | | acre | 1.00 | $ 24.27 | $ 24.27 | _______ |
| Housing & Insurance | | acre | 1.00 | $ 2.51 | $ 2.51 | _______ |
| | | | **Total Fixed Expenses** | | $ 79.40 | _______ |
| ***Labor Expenses*** | | | | | | |
| Labor[2] | | hour | 5.42 | $ 8.50 | $ 46.03 | _______ |
| | | | **Total Budgeted Expenses** | | $ 436.02 | _______ |

**Footnotes:**

[1]60 lbs of nitrogen applied in April, May, June, and July. Hybrids may require higher application rates.

[2]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Bermudagrass, Hay

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Lime | Custom | Custom | --- | --- |
| Mar | Dormant (Gramoxone Max) | Custom | Custom | --- | --- |
| Apr | Fertilize | Custom | Custom | --- | --- |
| May | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| May | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| May | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| May | Stack | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| May | Fertilize | Custom | Custom | --- | --- |
| Jun | Post-Emerge (Cimarron) | Custom | Custom | --- | --- |
| Jun | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jun | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jun | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Jun | Stack | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Jun | Fertilize | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Jul | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Jul | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Jul | Stack | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Sep | Mow | Tractor, 70 hp | Mower-Conditioner, 9' | 0.37 | 0.46 |
| Sep | Rake | Tractor, 70 hp | Rake, 18' | 0.19 | 0.24 |
| Sep | Bale | Tractor, 70 hp | Baler, Square | 0.35 | 0.44 |
| Sep | Stack | Tractor, 70 hp | Bale Wagon, Pull Type | 0.17 | 0.22 |
| | | | | **Total** | 5.42 |

### Estimated Machinery Expenses per Acre

| Machine | Hours per Acre | Variable Cost: Fuel | Variable Cost: Oil & Filter | Variable Cost: Repairs | Total Variable Costs | Fixed Cost: Depreciation | Fixed Cost: Interest | Fixed Cost: Housing & Insurance | Total Fixed Costs |
|---|---|---|---|---|---|---|---|---|---|
| Tractor, 70 hp | 4.33 | 27.89 | 4.18 | 9.19 | 41.27 | 5.56 | 6.61 | 0.50 | 12.67 |
| Mower-Conditioner, 9' | 1.47 | 0.00 | 0.00 | 7.53 | 7.53 | 4.07 | 6.62 | 0.55 | 11.23 |
| Rake, 18' | 0.76 | 0.00 | 0.00 | 0.54 | 0.54 | 0.44 | 0.50 | 0.13 | 1.08 |
| Baler, Square | 1.40 | 0.00 | 0.00 | 6.80 | 6.80 | 6.17 | 6.76 | 0.81 | 13.73 |
| Bale Wagon, Pull Type | 0.70 | 0.00 | 0.00 | 2.27 | 2.27 | 3.39 | 3.77 | 0.53 | 7.69 |
| **Total** | | $ 27.89 | $ 4.18 | $ 26.33 | $ 58.40 | $ 19.62 | $ 24.27 | $ 2.51 | $ 46.40 |
| **Total Machinery Cost** | | | | | | | | | $ 104.80 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 2.0 | tons | $ 155.30 |
| | Average Yield | 4.0 | tons | $ 77.65 |
| | Above-Average Yield | 6.0 | tons | $ 51.77 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 2.0 | tons | $ 218.01 |
| | Average Yield | 4.0 | tons | $ 109.01 |
| | Above-Average Yield | 6.0 | tons | $ 72.67 |

**Bermudagrass, Intensive Grazing**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Fertilizer[1] | N | lb | 120.00 | $ 0.48 | $ 57.60 | ________ |
| | P2O5 | lb | 40.00 | $ 0.34 | $ 13.60 | ________ |
| | K2O | lb | 80.00 | $ 0.23 | $ 18.40 | ________ |
| | Custom Application | acre | 2.00 | $ 5.00 | $ 10.00 | ________ |
| Lime[2] | Custom Application | ton | 0.33 | $ 21.00 | $ 6.93 | ________ |
| Weed Control | | | | | | |
| Dormant | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | ________ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Post-Emerge | Cimarron | oz | 0.20 | $ 21.90 | $ 4.38 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 3.32 | $ 3.32 | ________ |
| Oil & Filter | | acre | 1.00 | $ 0.50 | $ 0.50 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 2.86 | $ 2.86 | ________ |
| Fence Repairs | | acre | 1.00 | $ 6.86 | $ 6.86 | ________ |
| Interest on Operating Capital | 6 months | acre | $ 142.63 | 8.0% | $ 5.71 | ________ |
| | | **Total Variable Expenses** | | | $ 148.34 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Establishment Cost | Prorated over 10 years | acre | 1.00 | $ 33.00 | $ 33.00 | ________ |
| Machinery | | | | | | ________ |
| Depreciation | | acre | 1.00 | $ 1.19 | $ 1.19 | ________ |
| Interest | | acre | 1.00 | $ 1.65 | $ 1.65 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 0.19 | $ 0.19 | ________ |
| Fencing | | | | | | |
| Depreciation | Perimeter Fence | acre | 1.00 | $ 6.94 | $ 6.94 | ________ |
| Depreciation | Divider Fence | acre | 1.00 | $ 6.50 | $ 6.50 | ________ |
| Interest | Perimeter Fence | acre | 1.00 | $ 5.56 | $ 5.56 | ________ |
| Interest | Divider Fence | acre | 1.00 | $ 1.30 | $ 1.30 | ________ |
| | | **Total Fixed Expenses** | | | $ 56.33 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[3,4] | | hour | 0.64 | $ 8.50 | $ 5.48 | ________ |
| | | **Total Budgeted Expenses** | | | $ 210.14 | ________ |

**Footnotes:**

[1]60 lbs of nitrogen applied in April and an additional 60 lbs applied in the summer.

[2]Lime is applied at the rate of 1 ton every 3 years.

[3]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

[4]Labor for managing livestock grazing is not included in this budget. Hours devoted to moving cattle and fences should be included in livestock enterprise analyses.

## Bermudagrass, Intensive Grazing

### Estimated Machinery and Labor Requirements per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Mar | Lime | Custom | Custom | --- | --- |
| Mar | Dormant (Gramoxone Max) | Custom | Custom | --- | --- |
| Apr | Fertilize | Custom | Custom | --- | --- |
| Jun | Post-Emerge (Cimarron) | Custom | Custom | --- | --- |
| Jul | Mow | Tractor, 70 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| Jul | Fertilize | Custom | Custom | --- | --- |
| Sep | Mow | Tractor, 70 hp | Rotary Mower, 10' | 0.26 | 0.32 |
| | | | | Total | 0.64 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Machine | Hours per Acre | Fuel | Oil & Filter | Repairs | Variable Costs | Depreciation | Interest | Housing & Insurance | Fixed Costs |
| Tractor, 70 hp | 0.52 | 3.32 | 0.50 | 1.09 | 4.91 | 0.66 | 0.79 | 0.06 | 1.51 |
| Rotary Mower, 10' | 0.52 | 0.00 | 0.00 | 1.77 | 1.77 | 0.53 | 0.86 | 0.13 | 1.52 |
| Total | | $ 3.32 | $ 0.50 | $ 2.86 | $ 6.68 | $ 1.19 | $ 1.65 | $ 0.19 | $ 3.03 |
| Total Machinery Cost | | | | | | | | | $ 9.71 |

**Grain Sorghum, Silage, No-Till Establishment**
**Estimated Expenses per Acre**

| Item | Description | Unit | Quantity | Price | Amount ($/acre) | Your Farm |
|---|---|---|---|---|---|---|
| ***Variable Expenses*** | | | | | | |
| Seed[1] | Grain Sorghum | lb | 12.00 | $ 1.20 | $ 14.40 | ________ |
| Fertilizer | N | lb | 90.00 | $ 0.48 | $ 43.20 | ________ |
| | P2O5 | lb | 60.00 | $ 0.34 | $ 20.40 | ________ |
| | K2O | lb | 120.00 | $ 0.23 | $ 27.60 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Lime[2] | Custom Application | ton | 0.50 | $ 21.00 | $ 10.50 | ________ |
| Weed Control | | | | | | |
| Burndown | Gramoxone Max | pt | 1.50 | $ 4.91 | $ 7.37 | ________ |
| | Surfactant | pt | 0.50 | $ 1.63 | $ 0.82 | ________ |
| | Custom Application | acre | 1.00 | $ 5.00 | $ 5.00 | ________ |
| Pre-Emerge | Bicep II Magnum | pt | 3.60 | $ 5.65 | $ 20.34 | ________ |
| | Atrazine, 4L | pt | 0.40 | $ 1.26 | $ 0.50 | ________ |
| Machinery | | | | | | |
| Fuel | | acre | 1.00 | $ 11.21 | $ 11.21 | ________ |
| Oil & Filter | | acre | 1.00 | $ 1.68 | $ 1.68 | ________ |
| Repairs & Maintenance | | acre | 1.00 | $ 11.67 | $ 11.67 | ________ |
| Interest on Operating Capital | 6 Months | acre | $ 179.69 | 8.0% | $ 7.19 | ________ |
| | | **Total Variable Expenses** | | | $ 186.87 | ________ |
| ***Fixed Expenses*** | | | | | | |
| Machinery | | | | | | |
| Depreciation | | acre | 1.00 | $ 9.89 | $ 9.89 | ________ |
| Interest | | acre | 1.00 | $ 11.40 | $ 11.40 | ________ |
| Housing & Insurance | | acre | 1.00 | $ 0.98 | $ 0.98 | ________ |
| | | **Total Fixed Expenses** | | | $ 22.28 | ________ |
| ***Labor Expenses*** | | | | | | |
| Labor[3] | | hour | 1.73 | $ 8.50 | $ 14.74 | ________ |
| | | **Total Budgeted Expenses** | | | $ 223.89 | ________ |

**Footnotes:**

[1]Use tall, high-grain-yielding varieties (performer 1330) that are herbicide-tolerant.

[2]Lime is applied at the rate of 2 tons every 4 years.

[3]Labor expense is $8.50 per hour, including wages, Social Security and Medicaid taxes and payroll administration costs.

## Grain Sorghum, Silage, No-Till Establishment
### Estimated Expenses per Acre

| Month | Operation | Power Unit | Implement | Hours per Acre Machine | Hours per Acre Labor |
|---|---|---|---|---|---|
| Jun | Burndown (Gramoxone Max) | Custom | Custom | --- | --- |
| Jun | Fertilize & Lime | Custom | Custom | --- | --- |
| Jun | Plant | Tractor, 100 hp | No-Till Corn Planter, 4-row | 0.26 | 0.33 |
| Jun | Pre-Emerge (Bicep II Magnum) | Custom | Custom | --- | --- |
| Sep | Chop | Tractor, 100 hp | Forage Chopper Corn Header, 2-row Forage Wagon #1 | 0.56 | 0.70 |
| Sep | Haul | Tractor, 70 hp | Forage Wagon #2 | 0.28 | 0.35 |
| Sep | Store | Tractor, 70 hp | Forage Blower | 0.28 | 0.35 |
| | | | | Total | 1.73 |

### Estimated Machinery Expenses per Acre

| | | Variable Cost | | | Total | Fixed Cost | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Machine | Hours per Acre | Fuel | Oil & Filter | Repairs | Variable Costs | Depreciation | Interest | Housing & Insurance | Fixed Costs |
| Tractor, 100 hp | 0.83 | 7.59 | 1.14 | 3.05 | 11.79 | 2.21 | 2.77 | 0.07 | 5.06 |
| Tractor, 70 hp | 0.56 | 3.61 | 0.54 | 1.19 | 5.35 | 0.72 | 0.86 | 0.04 | 1.62 |
| Forage Chopper | 0.56 | 0.00 | 0.00 | 3.03 | 3.03 | 1.50 | 1.72 | 0.16 | 3.38 |
| Corn Header, 2-row | 0.56 | 0.00 | 0.00 | 1.02 | 1.02 | 1.01 | 0.70 | 0.10 | 1.81 |
| No-Till Corn Planter, 4-row | 0.26 | 0.00 | 0.00 | 0.87 | 0.87 | 0.77 | 1.27 | 0.13 | 2.16 |
| Forage Wagon #1 | 0.56 | 0.00 | 0.00 | 1.52 | 1.52 | 2.27 | 2.52 | 0.30 | 5.09 |
| Forage Wagon #2 | 0.28 | 0.00 | 0.00 | 0.76 | 0.76 | 1.14 | 1.26 | 0.15 | 2.55 |
| Forage Blower | 0.28 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.30 | 0.03 | 0.61 |
| Total | | $ 11.21 | $ 1.68 | $ 11.67 | $ 24.56 | $ 9.89 | $ 11.40 | $ 0.98 | $ 22.28 |
| **Total Machinery Cost** | | | | | | | | | $ 46.84 |

### Break-even Analysis

| | | Yield/Acre | | Break-even Price/Ton |
|---|---|---|---|---|
| Break-even Price over Total Variable Expenses: | Below-Average Yield | 4.0 | tons | $ 46.72 |
| | Average Yield | 8.0 | tons | $ 23.36 |
| | Above-Average Yield | 12.0 | tons | $ 15.57 |
| Break-even Price over Total Budgeted Expenses: | Below-Average Yield | 4.0 | tons | $ 55.97 |
| | Average Yield | 8.0 | tons | $ 27.99 |
| | Above-Average Yield | 12.0 | tons | $ 18.66 |

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PB0233-1.5M-3/07 E12-4115-00-005-07 07-0233