Enterprise Budget, Roundup® Ready Alfalfa Hay
Pershing County, Nevada, 2012
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Introduction
Pershing County has approximately 36,900 acres of alfalfa production, with an approximate value of $37 million. (Foster, 2010)

This enterprise budget (2012 Pershing County Roundup Ready Alfalfa Hay Production Budget) estimates the typical costs of establishing glyphosate resistant (Roundup-Ready or RR) alfalfa hay in Pershing County, Nev., (specifically in the Lovelock Valley area). It should be used as a guide to estimate costs and returns for RR alfalfa hay establishment and production.

Enterprise budgets contain several cost components, and it can often be difficult to determine which should be considered for a given decision, because production costs are unique to each farming situation.

Categories or items most used in enterprise budgets are income/receipts, and variable and fixed costs. Income/receipt values are calculated from estimated production levels and expected prices to be received from the product produced.

Variable costs are those that vary within a production period. Examples include seed, fertilizer, chemicals, fuel and repairs.

Fixed costs include machinery/equipment costs, taxes, and land charges. Management fees are normally included as a fixed cost. Since the cost of management for the enterprise remains the same, regardless of the enterprise production level, it is considered to be “fixed”.

Total costs are calculated by adding variable and fixed costs. The goal of the operation should be to earn a profit above total costs every year.

Assumptions
Production data was gathered from a panel of Pershing County alfalfa producers in February 2012. The following assumptions refer to the Excel spreadsheet, Round-up Ready (RR) Alfalfa Hay Production Budget, and they represent the average income and cost estimates to establish and produce an alfalfa hay stand under flood irrigation in Pershing County, Nev. Materials and practices are not applicable to all situations, as establishment and cultural practices vary among growers within the region.

RR Alfalfa vs. Conventional Alfalfa
“The cost of the RR alfalfa genetics is similar to the cost of most proprietary varieties that growers purchase today. When comparing the cost of RR and conventional alfalfa seed, the primary difference is the $150 per 50-pound bag charge for the RR trait that growers pay apart from the cost of the genetics. At a seeding rate of 20 pounds per acre this equates to a $60 per acre increase for RR alfalfa at planting time. The herbicide cost for an application of Roundup herbicide is less than $10 per acre (excluding application costs). The cost of conventional herbicides to control weeds in seedling alfalfa is often $30 to $45. The herbicide
cost for a dormant alfalfa weed control program in established alfalfa is typically $25 to $40 and can increase another $25 to $35 or more for an application of Treflan or Prowl for summer annual grasses. Other economic factors including almost complete elimination of crop injury from herbicide antagonism, longer stand life or a higher hay price for “cleaner” hay should be factored into the evaluation.” (Orloff, Putnam, 2011)

**Land and Irrigation**

This budget is based on a farm consisting of 200 total acres. Alfalfa stands are assumed to last five years. Flood irrigation is the primary irrigation system and costs $27.32 per acre.

**Production**

Yield production is estimated at 5.8 tons the first year; and yields of approximately 5.3, 4.8, 4.8 and 4.3 tons in years two through five years (depending on soil productivity).

Quality of the hay is based on 86 percent DM (dry matter) alfalfa hay. Alfalfa hay quality will often vary over the growing season. High quality alfalfa is assumed to be harvested at optimum maturity and condition. Lower quality alfalfa is assumed to be harvested at less than optimum maturity and/or condition. Seventy-five percent of the crop is assumed to be harvested at optimum conditions.

**Yield**

Although, studies have shown there is no significant yield difference between RR alfalfa and convention alfalfa varieties, there has been yield differences attributed to herbicide injury.

Studies both at University of California Davis (Orloff, Putnam, 2011) and the University of Wisconsin (Rankin, 2007) have indicated an average of 0.25-0.77 tons/acre yield increase for RR alfalfa treated with Roundup herbicide versus conventional alfalfa treated with Raptor herbicide. In the subsequent four years when alfalfa was treated with winter-dormant herbicides, there was not a consistent difference in yield when RR varieties were treated with Roundup versus conventional herbicides. However, the initial yield increase is being reflected in subsequent years for this budget.

**Variable Costs**

Expenses associated with seeding are prorated over the 5-year stand life.

**Seed Costs**

Seed costs are calculated at a 25 pounds-per-acre seeding rate, with a cost of $7.50 per pound of seed (includes technology fee), equaling a total seed cost of $187.50 per acre prorated over five years of production.

**Seedbed Preparation Costs**

Seedbed preparation and seeding costs are charged at custom hire rates and prorated over five years. The following rates per acre are included: Chisel Plow, $14.05; Field Cultivate, $11.10; Cultimulch, $11.40. Seeding costs are $50.85 divided by five years equals $10.17 per acre.

**Fertilizer Costs**

The following fertilizer amounts and costs are calculated for standard application rates as determined by a panel of Pershing County alfalfa producers. Costs are averaged over the life of the stand: 300 lbs per acre of MAP (Monoammonium Phosphate 11-52-0) equals $750/ton. Fertilizer prices vary over time and by area. It is recommended that producers check with local suppliers for current prices.

**Chemical Costs**

The following chemical applications and costs are calculated for standard application rates as determined by a panel of Pershing County alfalfa producers.
First year:
Roundup PowerMax® – two applications the first year at a rate of 40 ounces per acre per application.

Years 2-5:
Roundup PowerMax® – one application per year at a rate of 40 ounces per acre per application.
Lorsban – one application per year at a rate of 16 ounces per acre.
Adjuvant/Surfactant = $1 per acre per application.

Machinery/Equipment and Fuel/Repair Costs
Machinery cost estimates, fuel estimates and cost calculations based on information from the "Farm Machinery Cost Estimates." See the reference online at: http://faculty.apec.umn.edu/wlazarus/documents/machdata.pdf
The machinery and equipment charge (cost per acre) is equal to the machinery cost (new cost) assuming eight or 16-year useful life using straight line depreciation, 6 percent interest on average value, 0.5 percent insurance cost on average value and 1 percent housing cost on average value. Salvage Values are based on ASAE formulas.

Machines are all assumed to be new and in the first year of use (except for pickup truck).

Fuel calculations are based on the fuel requirements for each implement and the tractor, times the number of cuttings estimated per year. Lubrication costs are assumed to be 10 percent of fuel costs. (Williams, 2011)

Other Variable Costs
Miscellaneous costs include the following: twine, other supplies, utilities, soil tests, small tools, crop insurance, etc.

Interest on Capital is calculated for 6 months at a 6 percent interest rate.

Custom hire includes: 10 chemical spray applications over a 5-year period at $6.20 per acre equals $62 per acre per 5 years equals $12.40 per acre.

Fixed Costs
The following fixed costs are reflected in this budget:

Labor Costs
Part or all of labor may be a variable cost if paid labor varies with acres farmed. It is a fixed cost if labor costs do not change with acres farmed. Labor costs are calculated at a rate of $13.50 per hour, but may be adjusted to specific areas.

Management Charge
If a consulting firm or other entity is being used to help with management decisions, then this expense would be reflected in the management charge. If it is the owner/operator making management decisions then they should be receiving additional compensation over the average labor charge.

Discussion
The enterprise budget provides the best means to evaluate the potential profitability for a given enterprise or farm income source. Developing an enterprise budget allows for the identification of costs, both variable and fixed, and returns associated with the production and marketing of a product.

“By understanding the basic concepts and formats of an enterprise budget, a producer is better able to analyze short and long-run fiscal impacts and evaluate profitability, as changes in break-even prices occur due to input cost and market pressures. Utilizing enterprise budgets developed by the University of Nevada Cooperative Extension provides producers an example
format for evaluating current and potential
profit centers in their agricultural operation.”
(Riggs, Curtis, Harris, 2005)

“The advantages and cost effectiveness of
RR alfalfa are not so great as to preclude a
grower who chooses to produce
conventional alfalfa from competing
effectively with RR alfalfa growers. Which
approach makes the most sense for a
grower comes down to a personal decision,
specific weed pressure and species,
economic analysis, and the sensitivity of
markets.” (Orloff, Putnam, 2011)

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