
Organic Crop Production

Enterprise Budgets

Ag Decision Maker

File A1-18

Introduction

An enterprise budget is an estimate of the costs and returns to produce a product (enterprise). For example, a conventional Iowa corn and soybean producer would be interested in developing both a corn and soybean enterprise budget. Organic growers may have three to six different products they may wish to develop budgets for depending upon the number of crops within their rotation. These budgets reflect a four-year rotation of corn, soybeans, oats with alfalfa, and a second year of alfalfa as the crops. Changing the rotation to include a second year of corn after soybeans for example would affect the corn budget described here.

Why use enterprise budgets? In economic terms, enterprise budgets help to allocate land, labor, and capital, which are limited, to the most appropriate use. The most appropriate use is defined by the person in control of the resources and may be used to maximize profits, minimize soil loss, or to achieve other goals.

The estimated costs and returns illustrated are based on a long-term study located at an Iowa State University research farm in southwestern Iowa. The data were modified to more accurately reflect average Iowa results as indicated by organic farmers who reviewed the budgets.

Budget Format

Enterprise budget formats vary. Some are complex. Others are quite simple. The budgets included in this publication are divided into five sections. They are:

The first section illustrates the total receipts the enterprise provides on a set unit(s). Records should be kept on both a sales unit (per bushel or per ton) and land unit (per acre) basis. Sales prices are those listed by the Agricultural Market-

ing Service (http://www.ams.usda.gov/mnreports/nw_gr113.txt) where yields are those that would have been received by a wide range of organic producers over the last two to three years. Note that the alfalfa price for the establishment year is lower than the second year due to lower quality from straw residue being picked up in the fall hay cutting.

The second section includes the costs of planting and growing the product (preharvest costs). For example, once the seed is planted or a field operation is completed, the cost has occurred and needs to be covered from some source. Additionally, there is a time delay between preharvest expenses and the time the product is sold. These expenses may have to be covered from borrowing, savings, or some other source. Therefore, interest on preharvest costs should be included as a production expense. Preharvest costs for the oat and alfalfa budgets are referred to as establishment costs and are divided equally between the two crops (years). Dividing establishment costs allocates the first year costs of field preparation and seeds over the life of the establishment, which in this case is two years. The allocation process is similar to that conducted for *Estimated Costs of Crop Production in Iowa – 2008* (FM 1712)* and *Estimated Costs of Pasture and Hay Production* (AG 96)*.

Note that machinery has both a variable and fixed component. The machinery cost estimates for field operations were taken from *Estimated Costs of Crop Production in Iowa – 2008* (FM 1712). Field operations listed are those typically conducted by organic producers. Seed costs are average prices paid. Supplemental fertility can be supplied by a number of products ranging from liquid swine manure to bedded compost from a dairy, poultry,

* See note at the end of this publication for ordering information.

or other livestock production systems. The costs of the products vary substantially based on availability, distance from farm, and fertility content.

This corn budget assumes that manure is readily available from a nearby livestock producer and provides enough nitrogen, given the rotation used. The cost of the manure includes the cost of application only. The application of the manure is included in the listing of field operations. The amount of P and K needed for the entire four year rotation will depend upon crop yields (removal rates) as well as the fertility content and application rate of the manure. Crop removal rates for P and K and additional information about manure and fertility can be found in *Managing Manure Nutrients for Crop Production* (PM 1811)*.

Miscellaneous expenses vary and include those cost items that are related to the general production practices for the crop but are either infrequent (not annual) or don't quite fit into the other cost categories. For organic crops, miscellaneous expenses may include costs related to organic certification.

The third section is the harvest component. The handling and hauling costs are included with the harvesting activity and machinery has a variable and fixed component. Again, the machinery cost estimates were taken from *Estimated Costs of Crop Production in Iowa – 2008* (FM 1712).

The fourth section relates to labor and land ownership costs. Labor is considered a fixed cost in these budgets because most labor is provided by the operator, family, or permanent hired labor. The hours per acre are those typically provided for fieldwork for each crop. The soybean budget includes two hours of hand weeding in addition to the 1.1 hours per acre for pre-harvest and harvest machinery. No labor was added for traveling to and from the field, repairs, or other activities related to production. These activities would add

approximately 1.5 hours per acre to the fieldwork times listed in the budgets. The land use is charged a cash rent equivalent of \$225 per acre. This charge reflects ownership costs and a return to the land asset regardless of whether the land is actually owned or rented. Depending upon the debt level and interest rate, principal and interest payments for purchased land could be higher than the cash rent equivalent listed.

The last section is the summary of returns. The total costs are variable costs and ownership costs combined. The return over variable costs is total receipts minus total variable costs. The return over all costs is total receipts minus combined variable and ownership costs.

Limitations

The illustrated budgets are to be used as an indication of what a particular crop could average over time and location. Individual farm results will vary from these numbers based on soil types, location to markets, availability to sources of manure, and managerial ability, among other considerations.

The budgets include receipts as well as costs through harvest and handling. Marketing costs have been excluded. Note that prices listed from the Agricultural Marketing Service are F.O.B. the farm indicating the buyer of the crop will pay for transportation from the farm to their selected destination.

* *Estimated Costs of Crop Production in Iowa – 2008* (FM 1712), *Estimated Costs of Pasture and Hay Production* (AG 96), and *Managing Manure Nutrients for Crop Production* (PM 1811) are available through an ISU Extension county office, or the ISU Extension Distribution Center at <https://www.extension.iastate.edu/store/> or by calling (515) 294-5247.

Organic Corn Budget

| | Quantity | \$/Unit | Total | Your Estimate |
|---|----------|-------------------|----------------------|---------------|
| Receipts | | | | |
| Organic corn sales | 150 bu | \$9.25 | \$1,387.50 | _____ |
| | | Fixed Cost | Variable Cost | |
| Preharvest | | | | |
| Plow (moldboard) | | \$8.20 | \$8.40 | _____ |
| Tandem disk | | \$3.20 | \$2.40 | _____ |
| Manure application (3x) | | \$5.10 | \$3.90 | _____ |
| Field cultivate | | \$2.00 | \$2.20 | _____ |
| Plant | | \$4.50 | \$3.80 | _____ |
| Rotary hoe (2x) | | \$2.80 | \$1.80 | _____ |
| Row cultivate (2x) | | \$4.40 | \$4.60 | _____ |
| Total Machinery Costs | | \$30.20 | \$27.10 | _____ |
| Seed (price per 1000 seeds) | 32,000 | \$3.25 | \$104.00 | _____ |
| Crop insurance | | | \$22.00 | _____ |
| Misc. expenses | | | \$7.00 | _____ |
| Interest on preharvest variable cost (8 months @ 8.0%) | | | \$8.54 | _____ |
| Harvest | | | | |
| Combine | | \$14.10 | \$11.00 | _____ |
| Haul | | \$3.00 | \$4.50 | _____ |
| Dry | | \$6.00 | \$31.50 | _____ |
| Handle | | \$1.50 | \$0.75 | _____ |
| Total Harvest Costs | | \$24.60 | \$47.75 | _____ |
| Labor (hours per acre) | 2.1 | \$12.00 | \$25.20 | _____ |
| Land (cash rent equivalent) | | | \$225.00 | _____ |
| Total costs | | \$305.00 | \$216.39 | _____ |
| Total costs per bushel | | \$2.03 | \$1.44 | _____ |
| Returns over variable cost | | | \$1,171.11 | _____ |
| Returns over total cost | | | \$866.11 | _____ |
| Return to land, labor, and management | | | \$1,116.31 | _____ |
| Return to land and management | | | \$1,091.11 | _____ |
| Return to management | | | \$866.11 | _____ |

Organic Soybean Budget

| | Quantity | | \$/Unit | Total | Your Estimate |
|--|-----------|---------|-------------------|----------------------|---------------|
| Receipts | | | | | |
| Organic soybean sales (cleaned) | 36 | bu | \$24.00 | \$864.00 | _____ |
| Organic soybean sales (screened) | 4 | bu | \$18.00 | <u>\$72.00</u> | _____ |
| Total Receipts | 40 | | | \$936.00 | _____ |
| | | | Fixed Cost | Variable Cost | |
| Preharvest | | | | | |
| Fall - disk stalks | | | \$3.20 | \$2.40 | _____ |
| Fall - plant rye | | | \$3.70 | \$3.30 | _____ |
| Disk rye (2x) | | | \$6.40 | \$4.80 | _____ |
| Field cultivate | | | \$2.00 | \$2.20 | _____ |
| Plant | | | \$4.50 | \$3.80 | _____ |
| Rotary hoe (2x) | | | \$2.80 | \$1.80 | _____ |
| Row cultivate (2x) | | | <u>\$4.40</u> | <u>\$4.60</u> | _____ |
| Total Machinery Costs | | | \$27.00 | \$22.90 | _____ |
| Soybean seed (price per bushel) | 1.5 | \$30.00 | | \$45.00 | _____ |
| Rye seed (price per bushel) | 1.0 | \$7.25 | | \$7.25 | _____ |
| Crop insurance | | | | \$22.00 | _____ |
| Misc. expenses | | | | \$7.00 | _____ |
| Interest on preharvest variable costs (8 months @ 8.0%) | | | | \$5.90 | _____ |
| Harvest | | | | | |
| Combine | | | \$10.50 | \$7.30 | _____ |
| Haul | | | \$0.72 | \$1.08 | _____ |
| Handle | | | <u>\$0.36</u> | <u>\$0.18</u> | _____ |
| Total Harvest Costs | | | \$11.58 | \$8.56 | _____ |
| Labor (hours per acre) | 3.1 | \$12.00 | \$37.20 | | _____ |
| Land (cash rent equivalent) | | | \$225.00 | | _____ |
| Total costs | | | \$300.78 | \$118.61 | _____ |
| Total costs per bushel | | | \$7.52 | \$2.97 | _____ |
| Returns over variable costs | | | | \$817.39 | _____ |
| Returns over total costs | | | | \$516.61 | _____ |
| Return to land, labor, and management | | | | \$778.81 | _____ |
| Return to land and management | | | | \$741.61 | _____ |
| Return to management | | | | \$516.61 | _____ |

Organic Oat Budget

| | Quantity | \$/Unit | Total | Your Estimate |
|---|----------|-----------------|-----------------|---------------|
| Receipts | | | | |
| Organic oat sales | 80 bu | \$5.00 | \$400.00 | _____ |
| Straw sales | 1.0 ton | \$90.00 | \$90.00 | _____ |
| Organic alfalfa sales | 1.0 ton | \$140.00 | \$140.00 | _____ |
| Total Receipts | | | \$630.00 | _____ |
| | | Fixed | Variable | |
| | | Cost | Cost | |
| Establishment | | | | |
| Field cultivate | | \$2.00 | \$2.20 | _____ |
| Harrow | | \$1.70 | \$1.00 | _____ |
| Drill oats | | \$3.70 | \$3.30 | _____ |
| Cultipack | | \$2.20 | \$2.30 | _____ |
| Total Machinery Costs | | \$9.60 | \$8.80 | _____ |
| Oat seed (unit price per bushel) | 2.5 | \$9.00 | \$22.50 | _____ |
| Alfalfa mix (unit price per pound) | 16.0 | \$3.50 | \$56.00 | _____ |
| Crop insurance | | | \$0.00 | _____ |
| Misc. expenses | | | \$7.00 | _____ |
| Interest on preharvest variable cost (6 months @ 8.0%) | | | \$3.77 | _____ |
| One half of establishment costs | | \$4.80 | \$49.04 | _____ |
| Harvest | | | | |
| Combined | | \$9.80 | \$6.20 | _____ |
| Haul oats | | \$1.60 | \$2.40 | _____ |
| Handle oats | | \$0.80 | \$0.40 | _____ |
| Baled oat straw (small squares) | | \$6.70 | \$3.70 | _____ |
| Haul oat straw | | \$0.90 | \$1.40 | _____ |
| Mowed alfalfa mix | | \$3.60 | \$2.90 | _____ |
| Raked alfalfa mix | | \$2.20 | \$1.50 | _____ |
| Baled alfalfa mix (large squares) | | \$7.80 | \$7.80 | _____ |
| Haul alfalfa mix | | \$0.90 | \$1.40 | _____ |
| Total Harvest Costs | | \$34.30 | \$27.70 | _____ |
| Labor (hours per acre) | 1.2 | \$12.00 | \$14.40 | _____ |
| Land (cash rent equivalent) | | | \$225.00 | _____ |
| Total costs | | \$278.50 | \$76.74 | _____ |
| Returns over variable cost | | | \$553.26 | _____ |
| Returns over total cost | | | \$274.76 | _____ |
| Return to land, labor, and management | | | \$514.16 | _____ |
| Return to land and management | | | \$499.76 | _____ |
| Return to management | | | \$274.76 | _____ |

Organic Alfalfa Budget

| | Quantity | | \$/Unit | Total | Your Estimate |
|--|----------|---------|-------------------|----------------------|---------------|
| Receipts | | | | | |
| Organic alfalfa sales | 4.0 | tons | \$180.00 | \$720.00 | _____ |
| | | | Fixed Cost | Variable Cost | |
| Preharvest | | | | | |
| One half of establishment costs | | | \$4.80 | \$49.04 | _____ |
| Crop insurance | | | | \$0.00 | _____ |
| Misc. expenses | | | | \$7.00 | _____ |
| Interest on preharvest variable costs (6 months @ 8.0%) | | | | \$0.28 | _____ |
| Harvest | | | | | |
| Mowed (3x) | | | \$10.80 | \$8.70 | _____ |
| Raked (3x) | | | \$6.60 | \$4.50 | _____ |
| Baled (3x) - large square | | | \$23.40 | \$23.40 | _____ |
| Haul (3x) | | | \$3.60 | \$5.60 | _____ |
| Total Harvest Costs | | | \$44.40 | \$42.20 | _____ |
| Labor (hours per acre) | 1.5 | \$12.00 | \$18.00 | | _____ |
| Land (cash rent equivalent) | | | \$225.00 | | _____ |
| Total costs | | | \$292.20 | \$98.52 | _____ |
| Returns over variable cost | | | | \$621.48 | _____ |
| Returns over total cost | | | | \$329.28 | _____ |
| Return to land, labor, and management | | | | \$572.28 | _____ |
| Return to land and management | | | | \$554.28 | _____ |
| Return to management | | | | \$329.28 | _____ |

... and justice for all

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