



2019 Costs and Returns for Non-Irrigated Safflower, Northern Utah

Mike Pace, Clark Israelsen, Ryan Larsen, and Jacob Hadfield

INTRODUCTION

Enterprise budgets are the building blocks of a farm or ranch. They represent estimates of income and expenses for a specific period of time using a set of production practices and inputs for that enterprise. The budget in Table 1 contains sample costs and returns to establish and produce non-irrigated safflower in Northern Utah. It is intended to be a guide used to estimate income and expenses, list inputs and production practices and provide a framework for the whole farm plan. The sample budget may list production practices, inputs and services or field operations that your farm does not use. If this is the case, delete them and refigure the totals. If you have additional field operations or inputs, add them to the budget along with their costs to get a more accurate cost of production estimate for growing non-irrigated safflower on your farm.

Farm. The 2012 Census of Agriculture show the representative farm consists of 720 acres of farmland that is both leased and owned on which

200 acres are cultivated for safflower production and the remaining acres consist of dryland wheat. The market value for dryland ground varies widely by area, rainfall and soil type. In this budget, land is valued at \$450 per acre.

Receipts. A safflower production average of 1,150 pounds per acre used for the publication was determined by interviews with safflower growers and crop advisors. The safflower prices were determined from interviews with safflower brokers and growers.

Inputs and Services. Inputs and services include crop insurance, fertilizer, pesticides, seed and seasonal employees. Input and chemical prices are determined from interviews with seed, fertilizer and chemical dealers.

Seasonal Employees. One seasonal employee is hired a total of 2,500 hrs. per year and is paid a base wage plus FICA at the rate of \$13.32/hr. including employer's share of payroll tax (USDA ERS). The total annual labor cost is \$1,712 for the 200 acres resulting in an average cost per acre of \$8.56.

Field Operations and Operating Interest. Field operation include things like tillage, seeding, harvesting, and hauling. The practices described are considered as typical for a well-managed farm in the region as determined by interviews with producers and agribusiness representatives. Costs, materials, and practices are not applicable to all situations as management and cultural practices

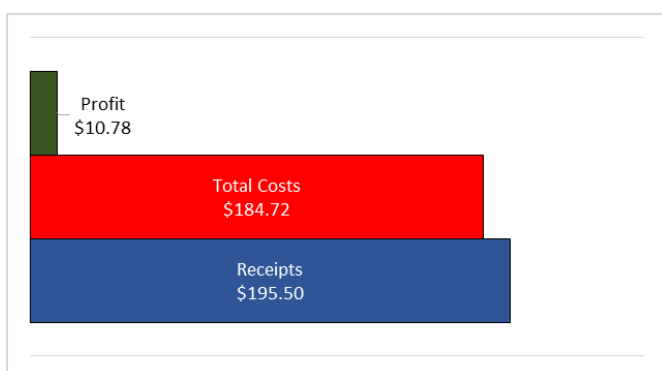


Figure 1. Estimated Receipts, Costs and Profit for a Non-irrigated Safflower Enterprise.

vary among growers and regions. An interest rate of 5% is charged for 6 months on capital needed to produce this crop.

Machinery Costs and Overhead. Machinery operation costs are determined by using average established custom rates to cover machine and equipment operating costs. These rates were obtained from the USU Extension 2018 Custom Rate Survey (Larsen, Nelson, Pace and Holmgren) and conversations with local growers and chemical dealers. Cash overhead consists of various cash expenses paid out during the year. These costs include property taxes, interest on land, office expenses, liability insurance, property insurance and accounting /legal costs.

FINANCIAL AND PRODUCTION TERMINOLOGY

Contribution Margin. This represents the portion of sales revenue from the operation that is not consumed by variable costs and so contributes to the coverage of fixed costs and net profit.

Contribution Margin Ratio. A percentage of total sales that is not consumed by variable costs. For example, a contribution margin ratio of 28.5% from Table 5 means that for each dollar increase in sales, total contribution margin will increase by 28.5 cents.

Fixed Costs (Overhead). These are costs that take place irrespective of production. Fixed costs include depreciation on equipment and buildings, property taxes, interest on land, equipment or buildings as well as overhead, etc.

Net Income or Profit. Sometimes referred to as net profit, this is the operation's total sales per acre minus total costs per acre.

Net Income or Total Sales Ratio. A ratio of profitability calculated as net income per acre divided by total sales per acre. The net income or profit ratio found in Table 3 is very useful in determining profitability, and is displayed as a percentage. A profit margin of 15.7% means the farm has a net income of 15.7 cents for every dollar of sales.

Price Breakeven. Breakeven analysis is a tool used to determine the relationship between the revenue

and costs associated with an enterprise. Price breakeven represents the price point which must be reached to cover costs of the enterprise. In the example budget on page 4 at the bottom of the page, you would need to sell your safflower for \$0.16 per pound in order to breakeven and pay all of your expenses. Of the 16 cents, 12 cents would pay for the operating costs and 4 cents would be needed to pay for the fixed costs. Table 7 on page 5 shows different scenarios based on production yields and total costs. Assume your production records show you have been producing 1,250 pounds of safflower per acre and your total production costs are still about \$185 per acre. According to the table, you would only need to sell your safflower for 15 cents a pound to breakeven and anything over that would be a profit to the farm. However, if your dryland or non-irrigated safflower production is only about 1,050 pounds per acre and your total costs are still \$185 per acre, then you would need to sell the safflower for 18 cents a pound to breakeven. Using this chart and assuming your total costs of production were \$165 per acre and your yield was 1,150 pounds, you would only need to sell it for 14 cents per pound. To use this chart properly, one needs to know their average yields and their total costs of production for growing safflower.

Production or Yield Breakeven. The production breakeven or yield breakeven is the point at which total expenses and total revenue are equal or it is the pounds per acre needed to cover the costs of the enterprise. In the example budget on page 4 at the bottom of the page, it shows that you would need to produce 1,087 pounds of safflower per acre in order to pay all of your expenses. You would need to produce at least 822 pounds to pay input, services and field operations and another 265 pounds to pay for the fixed costs for a total of 1,087 pounds of safflower per acre. Using Table 6 and supposing you were offered a contract price of \$0.17 per pound at the beginning of the growing season and you estimate that your total production costs are closer to \$175 per acre, you would only need to produce 1,028 pounds of safflower per acre to breakeven and the rest of the yield per acre would be profit.

Variable Costs (Operating). Variable or operating costs are those costs that change with production. These costs include fertilizer, seed, chemicals and

other inputs which are directly associated with production.

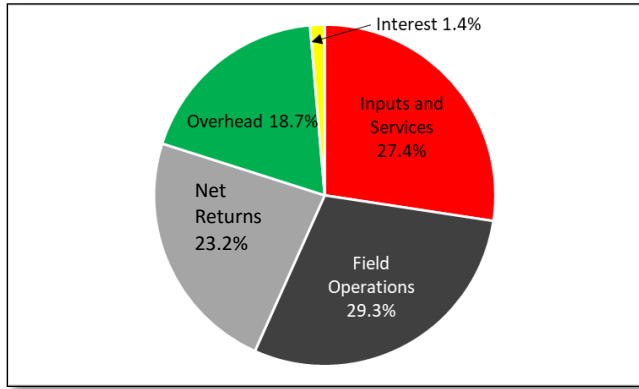


Figure 2. Percent Input and Services, Field Operation and Overhead Costs, etc.

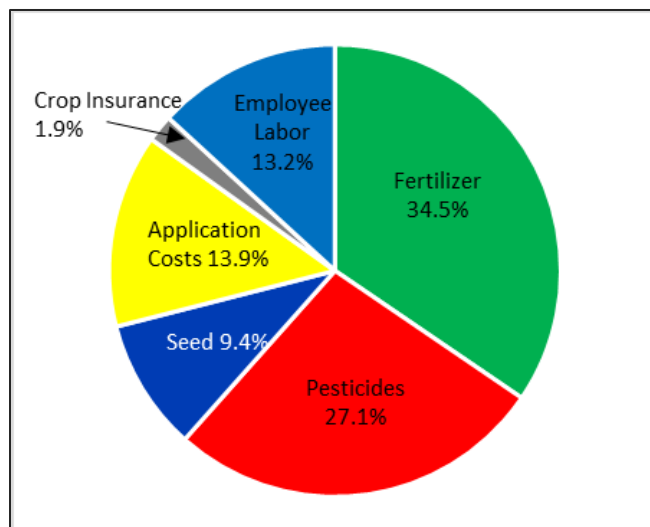


Figure 3. Percent Input and Services Costs

REFERENCES

- Census of Agriculture. 2012. United States Department of Agriculture. National Agriculture Statistics Service. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Utah/cp49003.pdf
- Larsen, R., Nelson, G., Pace, M., and Holmgren, L. (2019). 2018 Custom Rate Survey Department of Applied Economics, Utah State University.
- USDA ERS. (2011). Hourly and annual earnings, selected occupations, May 2011. Online at: <http://www.ers.usda.gov/topics/farm-economy/farm-labor/background.aspx#wages>

Utah State University is committed to providing an environment free from harassment and other forms of illegal discrimination based on race, color, religion, sex, national origin, age (40 and older), disability, and veteran's status. USU's policy also prohibits discrimination on the basis of sexual orientation in employment and academic related practices and decisions.

Utah State University employees and students cannot, because of race, color, religion, sex, national origin, age, disability, or veteran's status, refuse to hire; discharge; promote; demote; terminate; discriminate in compensation; or discriminate regarding terms, privileges, or conditions of employment, against any person otherwise qualified. Employees and students also cannot discriminate in the classroom, residence halls, or in on/off campus, USU-sponsored events and activities.

This publication is issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Ken White, Vice President for Extension and Agriculture, Utah State University.

Table 1. 2019 Costs and Returns for Non-Irrigated Safflower

		Quantity	Unit	Price	Value	Total
Receipts		per acre		per unit	per acre	
	Safflower	1150	Lbs.	\$0.17	\$195.50	
Subtotal Receipts						\$195.50
Inputs and Services						
Fertilizer						
	46-0-0 Urea	40	Units	\$0.56	\$22.40	
	Application	1	Acre	\$5.00	\$5.00	
Herbicides						
	Sonalan (ethalfluralin)	2	Pints	\$8.79	\$17.57	
	Application	1	Acre	\$5.00	\$5.00	
	Seed	18	Lbs.	\$0.34	\$6.12	
	Labor	1	Acre	\$8.56	\$8.56	
	Crop Insurance (NAP)				\$1.25	
Subtotal Inputs and Services						\$65.90
Field Operations						
		Times	Unit	per Unit	Acre	
	Fall Chisel Plow	1	Acre	\$11.00	\$11.00	
	Spring Chisel Plow	1	Acre	\$11.00	\$11.00	
	Planting	1	Acre	\$12.00	\$12.00	
	Harvesting	1	Acre	\$25.00	\$25.00	
	Hauling	1150	Lbs.	\$0.01	\$11.50	
Subtotal Field Operations Costs						\$70.50
Interest on Operating Capital						
		Rate	Term	Principle		
		5.00%	0.5	\$132.91		\$3.32
Total Input, Service and Field Operation Costs						\$139.72
Contribution Margin						\$55.78
Overhead						
	Accounting, liability insurance, vehicle cost, office expense				\$10.00	
	Cash lease for land (includes property tax)				\$35.00	
Total Overhead						\$45.00
Total costs						\$184.72
Net Income to Owner (for unpaid management and risk)						\$10.78
Production or Yield Breakeven (lbs./acre)						
Input, Services and Field Operation		822	Operating Costs			\$0.12
Overhead (Fixed Costs)		265	Fixed Costs			\$0.04
Total Costs		1087	Total Costs			\$0.16

Table 2. Net Income (Total Sales per Acre - Total Costs per Acre)

Total Costs per Acre	Total Sales per Acre				
	\$156	\$176	\$196	\$216	\$236
\$165	\$9	\$11	\$31	\$51	\$71
\$175	\$19	\$1	\$21	\$41	\$61
\$185	\$29	\$9	\$11	\$31	\$51
\$195	\$39	\$19	\$1	\$21	\$41
\$205	\$49	\$29	\$9	\$11	\$31

Table 3. Net Income / Total Sales Ratio (Net Income per Acre / Total Sales per Acre)

Net Income / Acre	Total Sales per Acre				
	\$156	\$176	\$196	\$216	\$236
\$31	19.8%	17.5%	15.7%	14.3%	13.1%
\$21	13.4%	11.8%	10.6%	9.6%	8.8%
\$11	6.9%	6.1%	5.5%	5.0%	4.6%
\$1	0.5%	0.4%	0.4%	0.4%	0.3%
\$9	-5.9%	-5.3%	-4.7%	-4.3%	-3.9%

Table 4. Contributions Margin (Total Sales per Acre - Variable Costs per Acre)

Variable Costs per Acre	Total Sales per Acre				
	\$96	\$146	\$196	\$246	\$296
\$120	\$24.22	\$25.78	\$75.78	\$125.78	\$175.78
\$130	\$34.22	\$15.78	\$65.78	\$115.78	\$165.78
\$140	\$44.22	\$5.78	\$55.78	\$105.78	\$155.78
\$150	\$54.22	\$4.22	\$45.78	\$95.78	\$145.78
\$160	\$64.22	\$14.22	\$35.78	\$85.78	\$135.78

Table 5. Contribution Margin Ratio (Contribution Margin per Acre / Total Sales per Acre)

Contribution Margin	Total Sales per Acre				
	\$156	\$176	\$196	\$216	\$236
\$76	48.7%	43.2%	38.8%	35.2%	32.2%
\$66	42.3%	37.5%	33.6%	30.5%	27.9%
\$56	35.9%	31.8%	28.5%	25.9%	23.7%
\$46	29.4%	26.1%	23.4%	21.2%	19.4%
\$36	23.0%	20.4%	18.3%	16.6%	15.2%

Table 6. Production or Yield Breakeven (Total Costs per Acre / Safflower Price per lb.)

Price per/Pound	Total Costs				
	\$165	\$175	\$185	\$195	\$205
\$0.19	867 lbs.	920 lbs.	972 lbs.	1025 lbs.	1077 lbs.
\$0.18	915 lbs.	971 lbs.	1026 lbs.	1082 lbs.	1137 lbs.
\$0.17	969 lbs.	1028 lbs.	1087 lbs.	1145 lbs.	1204 lbs.
\$0.16	1030 lbs.	1092 lbs.	1155 lbs.	1217 lbs.	1280 lbs.
\$0.15	1098 lbs.	1165 lbs.	1231 lbs.	1298 lbs.	1365 lbs.

Table 7. Price Breakeven (Total Costs per Acre / Safflower Yield per Acre)

Yield per/Acre	Total Costs				
	\$165	\$175	\$185	\$195	\$205
1250	\$0.13	\$0.14	\$0.15	\$0.16	\$0.16
1200	\$0.14	\$0.15	\$0.15	\$0.16	\$0.17
1150	\$0.14	\$0.15	\$0.16	\$0.17	\$0.18
1100	\$0.15	\$0.16	\$0.17	\$0.18	\$0.19
1050	\$0.16	\$0.17	\$0.18	\$0.19	\$0.19