



IS MY FARM PROFITABLE? THE DRIVERS OF FARM PROFITABILITY

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The latest Census of Agriculture reported that 244,974 U.S. farmers utilized more than 14 million acres to grow specialty crops in 2012. In Indiana 2,935 farmers grew specialty crops on 63,252 acres. Indiana's specialty crop industry includes operations that grow fruit and vegetable, tree nut, dried fruit, horticulture, floriculture, and nursery crops. Specialty crops include a long list of agricultural products that are sold through a wide variety of market channels.

A couple of Purdue Extension publications show the results of a survey of Indiana specialty crops farmers. The survey found that most specialty crops farmers sell their fruits and vegetables through farmers markets or other local outlets, tend to be smaller, and grow 20 crops on average. Details are available in *Fruit and Vegetable Farmer Surveys: Characteristics of Indiana Vegetable Farming Operations* (Purdue Extension publication HO-270-W) and *Fruit and Vegetable Farmer Surveys: Characteristics of Indiana Vegetable Farmers* (HO-271-W). Both are available from the Education Store, edustore.purdue.edu.

This article looks at the main factors driving the profitability of specialty crop farms and provides a useful tool to assist farmers' decision-making.

Farm Profitability

Ensuring farm profitability is probably one of the most important tasks of every farm owner. Being profitable means that the farm is generating enough money to pay employees and bills, repay loans, and provide the farmer with enough earnings to make a living.

In a 2012 survey of fruit and vegetable farmers, Torres and Marshall (2016) found that 86 percent of interviewed farmers in Indiana reported annual revenues less than \$250,000. Of them, almost a third made less than \$10,000 annually. Their survey also found that about a third of the farmers reported additional off-farm sources of income while still spending an average of 46 hours per week on farm activities.

Most of the specialty crop farmers are satisfied with their farming systems, but they tend to indicate that they are concerned about the financial health and sustainability of their farm businesses. Using decision-making tools can help farmers evaluate how efficient their farm resources are being used and how financially healthy their businesses are. In other words, to improve profit, it must first be measured.

Calculating farm profitability is a decision-making tool that helps farmers assure financial sustainability. Farmers may use this information to create financial statements and measure their financial positions. Farm profitability provides farmers with a "moving picture" of the farm's gain over time. Farmers can compare their performance to similar successful farms or relate current year's performance to prior years.

For example, farmers can evaluate if their net profits are increasing or decreasing over time. Farmers can also compare the net profits of field-grown tomatoes to those from hydroponic tomatoes.

There are a few ways to calculate profits, but one of the easiest and most common is presented in Equation 1. The net profits – or financial gain – is the result of the total money earned (revenues) minus the total money spent on production, harvesting, and selling activities throughout the growing season (costs).

Equation 1

$$\text{Net profits} = \text{revenue} - \text{costs} \quad \left\{ \begin{array}{l} \text{Revenue} = \text{price} \times \text{quantity} \\ \text{Costs} = \text{variable costs} + \text{fixed costs} \end{array} \right.$$

Costs can be further categorized as variable and fixed costs. **Variable costs** (or operating costs) are those that vary with the level of production; farmers do not incur variable costs if production stops. Examples of variable costs for a tomato farm are the payments for labor, seeds, fertilizers, mulch, cages, irrigation, fuel, and other inputs. Labor costs tend to be the highest input category of costs for specialty crops operations. According to the United States Department of Agriculture (USDA), “wages, salaries, and contract labor expenses represent roughly 17 percent of total variable farm costs and as much as 40 percent of costs in labor-intensive crops such as fruit, vegetables, and nursery products”.

Fixed costs are those that farmers have to incur whether they are producing or not. Fixed costs are usually payments made to capital assets such as equipment, land, buildings, and machinery. For example, if a farmer buys a tractor, she will have to make her payments whether she harvested the tomatoes or not. Other examples of fixed costs are depreciation, insurance, taxes on property, and repairs and maintenance.

Machinery depreciation is calculated as the price paid for the machinery minus the salvage value (the estimated resale value of an asset at the end of its useful life), divided by the years of useful life (see Equation 2). For example, a tractor that costs \$50,000 with a salvage value of \$10,000 at the end of 10 years will have an annual depreciation value of \$4,000 [annual tractor depreciation = (\$50,000 - \$10,000)/10 years].

Equation 2

$$\text{Annual machinery depreciation} = \frac{\text{price of machinery} - \text{salvage value}}{\text{years of useful life}}$$

Farm revenue is the quantity of produce sold multiplied by the prices received. Farmers should keep track of their produce yields throughout the season to accurately quantify farm revenue. The revenue of a farm selling 400 pounds of heirloom tomatoes from May through October at a price of \$2.50 per pound will be \$1,000.

Net profits are equal to the total revenues received throughout the growing season minus variable and fixed costs incurred over the same period. In addition, farmers can calculate their **gross profit** by the variable costs from the total revenues (see Equation 3). Gross profit is useful for measuring the efficiency to cover all the costs related to production. Gross profits does not equal farm [net] profits as they do not include fixed or asset costs, but they provide valuable information on the efficiency of a specific crop or enterprise. Gross and net profits are useful indicators of farm financial health and its ability to generate enough cash to meet obligations.

Equation 3

Gross profit = revenue – variable costs

While farmers are more likely to have control over production yield and variable and fixed costs (internal factors), market prices (external factor) may be one of the least controlled variables in Equation 1. Prices depend on the market characteristics, market demand, competition, consumer perceptions, and produce characteristics.

For example, prices are influenced by the type of market channel (direct sales or retailer markets), the number of customers demanding a product, the number of competitors offering the same produce, the value customers place on the produce, and the quality of the produce offered. For more information on how production costs and customer value affect prices, see “The Top 5 Things to Consider before Pricing Your Products” (www.vegcropshotline.org/article/the-top-five-things-to-consider-before-pricing-your-products/).

Asking customers is a great way to understand their perceptions and the value they place on the produce. Farmers may ask customers at the farmers market stand, at the time of delivery, or by developing surveys on their Facebook business pages. Ideally, farmers will know their production costs before pricing their products.

Farmers should also observe what other farmers and competitors are charging for similar produce. Price points from other vendors and other markets can help farmers benchmark their pricing strategy and evaluate how much money other markets are charging customers. While supermarket prices tend to offer cheaper produce because of their supply chain efficiency, their prices can provide a baseline for minimum prices. Observing produce price at direct markets (e.g., farmers markets) is a great way to compare how prices, and potential profitability, may affect farmers success.

References

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