

# Home-Based Processing to Add Value to Horticultural Products

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## INTRODUCTION

Small farm survival and success depends upon the ability of such farms to capture a greater fraction of the potential market value of their products. The industrialization of the US food system, particularly over the last 60 years, has been accompanied by stagnant prices for raw farm commodities. This in turn has resulted in fewer but larger farms as many farmers have enlarged their operations in an attempt to reduce the costs per unit of production or discontinued farming altogether. One increasingly common alternative is small farmers processing their raw commodities into products to be sold in the retail market, thereby increasing the value and profit margin..

Passage of Kentucky House Bill 391 in 2003 allows for the production and sale of value-added food products generated from raw, farm-grown, horticultural ingredients to be sold at farmers markets. This legislation presents farmers with options and opportunities to add value to most fruits and a limited selection of vegetable crops to potentially increase profits.

## OBJECTIVE

To evaluate the profitability of production and sale of fruit preserves derived from ingredients of the Berea College Farm as a value-added product for sale at the local farmers market.

## METHODS

During the summer of 2008 we evaluated the potential to increase the profitability of fresh fruits by processing them into preserves and selling them at the Berea Farmers Market. We produced and sold strawberry and blackberry preserves and conducted consumer taste tests. Standard and alternative recipes were evaluated, including strawberry preserves sweetened with fruit juice and blackberry preserves with reduced sugar. We recorded all costs and, based on a range of market values, determined if it was profitable to process raw fruit into preserves as a means of generating additional farm income.



**Table 3.** Effect of fruit cost and sell price on net returns of strawberry preserves. In this study, the cost of the fruit was \$2.00 per quart and the market value was \$5.00 per half-pint.

| Cost per quart of strawberries | Sell price per half-pint of strawberry preserves |      |      |      |
|--------------------------------|--|------|------|------|
|                                | \$3  | \$4  | \$5  | \$6  |
| \$1                            | 1.39   | 2.39 | 3.39 | 4.39 |
| \$2                            | 1.17   | 2.17 | 3.17 | 4.17 |
| \$3                            | .95  | 1.95 | 2.95 | 3.95 |
| \$4                            | .74  | 1.74 | 2.74 | 3.74 |

**Table 4.** Effect of fruit cost and sell price on net returns of blackberry preserves. In this study, the actual cost of the fruit was \$7.00 per quart and the market value was \$5.00 per pint.

| Cost per quart of blackberries | Sell price per half-pint of blackberry preserves |      |      |      |
|--------------------------------|--|------|------|------|
|                                | \$3  | \$4  | \$5  | \$6  |
| \$4                            | 0.36   | 1.01 | 1.66 | 2.34 |
| \$5                            | 0.18   | 0.83 | 1.48 | 2.13 |
| \$6                            | -0.01  | 0.64 | 1.29 | 1.95 |
| \$7                            | -0.19  | 0.46 | 1.11 | 1.76 |



## RESULTS & DISCUSSION

Our research indicates that producing preserves from fruit that is somewhat blemished or damaged, such as ripe strawberries after a heavy rain, can turn an otherwise unsellable product into one with greater market value than the fresh, unblemished berries (Table 1). However, if the fruit is blemish-free and in high demand, processing into preserves will likely not add enough value to justify the time and expense of processing, as was the case with blackberries in this study (Table 2). Consumers tended to prefer the standard recipes over those with reduced sugar or fruit juice, though there was clearly some demand for these products as well. Our cost analyses indicate that the production and sale of strawberry preserves profitable even at high fruit costs (\$3-4 per quart) and low retail prices (\$4-5 per half-pint) but that the returns from blackberry preserves are more marginal and will require slightly higher retail prices to be profitable (Tables 3 & 4).



**Table 1.** Costs and returns for home processed strawberry preserves using four gallons of unmarketable strawberries. The cost of the strawberries was relatively low due to rain-damage.

| Inputs                                     | Standard Recipe     | Fruit-Juice Recipe  |
|--|---------------------|---------------------|
| Labor Cost <sup>1</sup>                    | \$12.60 (1.8 hours) | \$12.60 (1.8 hours) |
| Machinery Cost <sup>2</sup>                | \$3.60 (1.2 hours)  | \$3.60 (1.2 hours)  |
| Label Making                               | \$1.40 (0.2 hours)  | \$1.40 (0.2 hours)  |
| Transport                                  | \$0.70 (0.1 hours)  | \$0.70 (0.1 hours)  |
| Strawberries <sup>3</sup>                  | \$16                | \$16                |
| Sugar <sup>4</sup>                         | \$8.75              |                     |
| White Grape Juice Concentrate <sup>5</sup> |                     | \$15.92             |
| Apple Cider Vinegar                        | \$0.40              | \$0.40              |
| Lemon Juice                                |                     | \$0.20              |
| Pectin                                     |                     | \$9.96              |
| Labels                                     | \$0.60              | \$0.60              |
| Half-pint jars <sup>6</sup>                | \$35.56             | \$30.40             |
| Total Expenses                             | \$67.51             | \$75.18             |
| Income <sup>7</sup>                        | \$148.00            | \$176.00            |
| Net income                                 | \$80.49             | \$100.82            |
| Dollar return/Dollar input                 | 2.19                | 2.34                |

<sup>1</sup> Based on an hourly wage of \$7.00  
<sup>2</sup> Machinery costs were derived from [http://www.rainbowlake.ca/content\\_m2\\_s4.html](http://www.rainbowlake.ca/content_m2_s4.html)  
<sup>3</sup> Strawberries were \$2.00 per quart  
<sup>4</sup> Sugar was calculated at a price of \$0.27 per cup  
<sup>5</sup> Used 12oz. containers @ \$1.99 per container  
<sup>6</sup> Sold at a price of \$4.00 per half-pint

