

Produce Profitability Calculator

www.iastatelocalfoods.org/calculator

Users Manual

The Produce Profitability Calculator developed by the Iowa State University Hotel, Restaurant, and Institution Management Extension program is to help produce growers look at their options when planning production for the coming year. The calculator can compare two production scenarios at one time and any number of variables: current and expanded production levels, increased acreage in produce, existing and modified marketing plans, or changes in pricing structures.





The calculator is set up so that each grower can develop multiple scenarios. Each scenario is product-specific but incorporates expenses for the entire produce operation. For additional crops, a new scenario should be generated using information for that specific crop. The calculator also can perform comparisons to evaluate two different crops in an operation, such as carrots versus green beans.

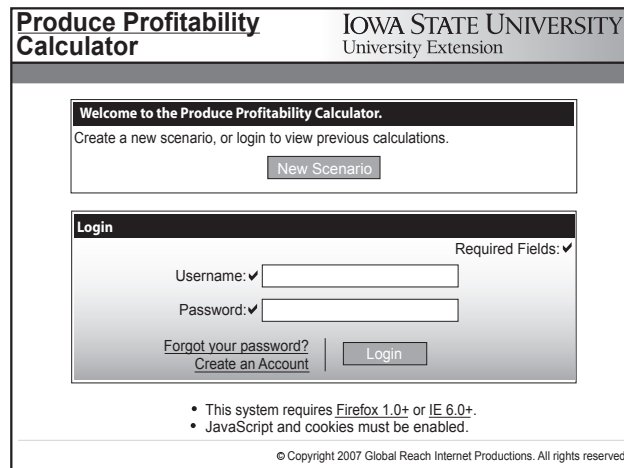
To most effectively use the features of the Produce Profitability Calculator, growers need to have data about their current and projected production levels, income, product-related expenses, and operation-related expenses based on current markets or educated assumptions. A worksheet has been included in this guide to help growers collect the necessary information.

Tips

The calculator can be used without creating a user account. However, scenarios can only be saved only by users who have an account. To set up an account, click *Create an account* at the bottom of the login box on the calculator home screen. Enter the required information and click *Submit*. After the account information has been submitted, use the login and password to access the calculator and begin creating a scenario.

Unfinished scenarios can be saved and accessed or modified at any time. When logging into the system, users are taken to the main scenario screen from which to choose a scenario. The main scenario screen lists all scenarios that have been saved by a particular user. To the right of the scenario are four icons with shortcuts to various functions:

-  Open print version
-  Display summary page
-  Open scenario to edit or finish
-  Delete scenario



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To start a new scenario from the main menu page, click *New Scenario* to the upper right of the scenario list box. This will open a blank scenario page in the browser window. The first page of any scenario collects crop production information that is used for informative purposes and to calculate information for the the remaining sections. All information is related to production.

Set-up

Choose a scenario name that describes the comparison that will be done. For example, “2007 Sweet Potato Expansion” shows the year, crop, and type of comparison used in the calculation.

Current Crop

The information entered in this section relates to the existing crop and production level. Unit of production is how the product is being sold. Watermelons might be “each”; sweet corn might be “dozen”; and green beans might be “pound”. *Acres of this crop* and *acres in produce* will be used to calculate the *percent of acres in this crop*. This value will be used later to prorate operation expenses to this crop. If the acreage is not known, enter the square footage in the *Area Converter* to the right and click *Calculate* to determine the exact acreage.

Expanded Crop

Enter information in this section in a similar fashion. This information will be compared to values in the *Current Crop* section in later steps. The *units if production* in this section should be the same as those in the *Current crop* section.

Terms of Interest...

Current Crop

The baseline production situation to be used in the comparison. These values always will be in the left column.

Expanded Crop

The future or expected situation to be compared to the Current Crop situation. These values always will be in the right column.

The screenshot shows the 'Produce Profitability Calculator' interface. The title bar includes 'IOWA STATE UNIVERSITY University Extension' and a 'Logout' button. The main content area is titled 'Scenario Calculator' and shows a progress bar with 'Step 1' selected. The 'Setup Scenario' section contains: 'Scenario Name: 2007 Sweet Potato Expansion', 'Choose Crop: Sweet Potatoes', and 'Required Fields:'. The 'Current Crop' section contains: 'Units of production: Pound', 'Current number of units produced: 120', 'Current acres of this crop: .01 acres', 'Total acres in produce: 1.0 acres', and 'Percent of acres in this crop: 1.00 %'. The 'Expanded Crop' section contains: 'Units of production: Pound', 'Current number of units produced: 1200', 'Expanded acres of this crop: .1 acres', 'Total acres in produce: 1.1 acres', and 'Percent of acres in this crop: 9.09 %'. An 'Area Converter' box on the right has 'Area (sq. ft.):', 'Area (acres):', and a 'Calculate' button. At the bottom are 'Save', 'Next', and 'Cancel' buttons. A copyright notice at the bottom reads: '© Copyright 2007 Global Reach Internet Productions. All rights reserved.'

Step 1 collects information about the crop. Information entered here will be used throughout the rest of the pages. This page can be edited at any time.

At this step in the calculator, users can see comparative information. The top section shows information about the *Current Crop* and *Expanded Crop* for the selected crop that was entered on Step 1. The second section, *Income*, shows all sources of income for that particular crop. Each row, or line item, represents a different source of income. On later steps, these line items will refer to expense items.

To add a line item, choose the desired descriptor in the drop-down box by clicking on the down arrow and selecting from the options listed. If the item you want does not appear in the list, select *Other* and the descriptor can be entered in a text box. When the line item has been selected from the list, click *Use Option* and it will be added to the sheet with spaces to enter *Quantity*, *Unit*, and *\$/Unit*. To remove a line that has been added, leave the *Quantity* and *\$/Unit* boxes empty. The unwanted line will be removed when the scenario is saved.

Enter the quantity of the item, the unit type, and price per unit in respective boxes in the appropriate columns. *Unit* is how the product is priced. For example, watermelon might be “each”, cucumbers might be “case”, and green beans might be “pound”. *Item* totals and column totals are calculated automatically. Once all forms of product sales have been added and the sales information entered, then click *Save* to save and return to the main page or click *Next* to save and move to Step 3, the Crop-related Costs page.

Terms of Interest...

Line Item

One row on a calculator page. A line item can be used for either column or both while only appearing in the section once.

Add a Line

Choose the descriptor from the drop-down menu and click *Use Option*. Use *Other* and type a descriptor in the box if the desired one is not on the list.

Remove a Line

Delete the values entered in both *Unit* and *\$/Unit* columns for the line item. The line is removed when the page is saved. Do not enter zeros; leave the boxes blank.

Produce Profitability Calculator

IOWA STATE UNIVERSITY
University Extension

Logout

Scenarios

Logout

Scenario Calculator

Home » Scenarios » Scenario Calculator

Step 1 > **Step 2** > Step 3 > Step 4 > Summary

Current Production				Expanded Production			
Crop: Sweet Potatoes				Expanded Units Produced: 1200 (Pound)			
Current Units Produced: 0.01		Current acres of this crop: 0.01		Expanded acres of this crop: 0.1		Total acres in produce: 1.1	
Total acres in produce: 1		Percent of acres in this crop: 1.00%		Percent of acres in this crop: 9.09%			

Income								
Income Sales								
Sales Method	Quantity	Unit	\$/Unit	Item Total	Quantity	Unit	\$/Unit	Item Total
Direct-Foodservice	0.00	Pound	\$0.00	\$0.00	1200.00	Pound	\$1.10	\$1320.00
Farmer's Market	120.00	Pound	\$1.25	\$150.00	0.00	Pound	\$0.00	\$0.00
CSA								
Sales Method Subtotal				\$150.00	\$1320.00			
Income Sales Total				\$150.60	\$1320.00			

Save Next Cancel

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Income will be used to calculate net returns on later pages. If one of the sales methods is not used for either the Current or Expanded production column, leave those fields blank. For this example, current sales are only through farmer's markets. Expanded sales are farmer's markets and direct to foodservice.

Step 3 shows crop-specific expenses. Enterprise-wide expenses are included in Step 4. This section focuses on two categories of expenses—supplies and labor—for three segments: production, harvest, and post-harvest (processing, storage, and distribution). Each cost has its own line item, or row, on the page.

Line items are added to the crop-related expenses page just as they were for types of income in Step 2. Select the desired descriptor and click *Use Option*. Once the descriptors are added the values can be entered into the respective columns. For labor, a text box appears for workers other than the owner/operator so names may be entered to distinguish among different employees. The text box also can be used to describe a group of workers, such as after-school help or volunteers.

Continue through this page, adding appropriate line items and expenses for supplies and labor associated with crop production, harvest, and post-harvest activities. The bottom of the sheet provides a total for crop-related expenses as well as a per-unit cost. The per-unit cost is calculated by dividing the column's total expenses by the number of units produced, which was entered in Step 1. When work with this step is finished, click *Save* to save work and return to the main scenario list or click *Next* to save work and move to Step 4.

Terms of Interest...

Production Cost

Expenses associated with growing the crop. Includes supplies and labor.

Harvest Cost

Expenses related to getting the crop from the field to distribution. Includes supplies and labor.

Post-harvest Cost

Expenses related to processing and distribution. Product packaging could be included as a *Harvest* or *Post-harvest Cost*.

Per-unit Cost

The total expenses divided by the total units produced.

Produce Profitability Calculator				IOWA STATE UNIVERSITY University Extension				
Scenario Calculator								
Home » Scenarios » Scenario Calculator								
Step 1 > Step 2 > Step 3 > Step 4 > Summary								
Current Production				Expanded Production				
Crop: Sweet Potatoes				Expanded Units Produced: 1200 (Pound)				
Current Units Produced: 120 (Pound)				Expanded acres of this crop: 0.1				
Current acres of this crop: 0.01				Total acres in produce: 1.1				
Total acres in produce: 1				Percent of acres in this crop: 9.09%				
Percent of acres in this crop: 1.00%								
Product-Related Costs								
Production Costs								
Supplies								
	Quantity	Unit	\$/Unit	Item Total	Quantity	Unit	\$/Unit	Item Total
Fertilizer	10.00	Pound	\$0.15	\$1.50	100.00	Pound	\$0.15	\$15.00
Seed	0.75	Pound	\$0.60	\$0.45	7.50	Pound	\$0.50	\$3.75
Bulbs								
Supplies Subtotal				\$14.45	\$143.75			
Labor								
	Quantity	Unit	\$/Unit	Item Total	Quantity	Unit	\$/Unit	Item Total
Owner/Operator	2.80	Hours	\$12.00	\$33.60	8.00	Hours	\$12.00	\$96.00
Employee 1: Joe	0.00	Hours	\$0.00	\$0.00	20.00	Hours	\$7.50	\$150.00
Employee 2								
Labor Subtotal				\$33.60	\$246.00			
Production Costs Total				\$48.05	\$389.75			
Harvest Costs								

Product-related Costs are expenses incurred to grow, harvest, process package, store, and distribute this specific product. These expenses are divided into supplies and labor.

The costs accounted for in this section relate to the entire produce operation. If only one type of crop is grown then all costs reported here will be attributed to this crop. Typically, however, producers grow more than one type of crop in a single season. This section tabulates overall costs, and prorates them for the crop in question.

The system uses the values entered in Step 1 to allocate these costs. In Step 1 the amount of acreage for the crop and total acreage were entered. From this information, the system calculated a *Percent of acres in this crop*, which appears in the top portion in Steps 2, 3 and 4. The percent is multiplied by the total operation-related costs entered in Step 4 to generate a prorated cost for this crop.

Each crop may not require the same amount of equipment time or utilities, but all crops contribute to the operation's finances. Often, costs reported here are based on an entire operation rather than on a crop-by-crop basis. Therefore, the system attributes operation-wide costs to the crop based on an estimated percentage of use; in this case, percentage of land used.

Operation-related costs are categorized into four sub-categories: machinery costs, land costs, facility costs, and other costs. Line items for each sub-category are added as in previous sections. Select the descriptor from the drop-down menu and then click *Use Option*. Values are entered for the line items in the respective columns for the current and/or expanded production columns. Machinery costs include any expenses related to equipment used for production, harvest, or processing. These typically would be larger items such as tillers, tractors, or coolers. Land costs relate to renting or purchasing land for production and any facilities used in the operation. Other land costs might include taxes or improvements such as tiling.

The cost of constructing, maintaining, or operating the facilities are included in the next section, facilities costs. Costs related to facilities might include payments, taxes, or utilities. The final section is for other costs such as insurance, depreciation, or interest. The sub-categories are intended to be an organizational aid to prompt users about various costs that influence crop profitability but may be overlooked. Use the *Save* button at the bottom of the page to save the active scenario and return to the main scenarios list. The *Next* button will save

the scenario and move to the final calculator summary.

Produce Profitability Calculator		IOWA STATE UNIVERSITY University Extension					
Scenario Calculator		Logout					
Home » Scenarios » Scenario Calculator		Step 1 Step 2 Step 3 Step 4 Summary					
Current Production			Expanded Production				
Crop: Sweet Potatoes			Expanded Units Produced			1200 (Pound)	
Current Units Produced			Expanded acres of this crop:			0.1	
Current acres of this crop:			Total acres in produce:			1.1	
Total acres in produce:			Percent of acres in this crop:			9.09%	
Percent of acres in this crop:							
Operation-Related Costs							
Machinery Costs							
Cost	Annual Cost	Production in this crop	Cost for Crop	Annual Cost	Production in this crop	Cost for Crop	
Payment	\$150.00	1.00 %	\$1.50	\$150.00	9.09 %	\$13.64	
Repairs/Maintenance	\$50.00	1.00 %	\$0.50	\$50.00	9.09 %	\$4.55	
Fuel							
Cost Subtotal			\$2.00				\$18.19
Machinery Costs Total			\$60.10				\$475.00
Land Costs							
Cost	Annual Cost	Production in this crop	Cost for Crop	Annual Cost	Production in this crop	Cost for Crop	
Rent	\$400.00	1.00 %	\$4.00	\$440.00	9.09 %	\$40.00	
Improvements							

Costs reported in the Operation-related Costs should be specific to, but inclusive of, the produce operation.

This page summarizes the information used to make the comparison. Values on this summary page are subtotals and section totals from the previous steps. You do not need to enter any new information on this page; all information is generated by the calculator. The summary shows a *Return after Costs* value, which is income minus costs. This page also includes a *Return per Unit Produced*. Refer to the top of the summary table for the production unit that was entered in Step 1. When finished with this scenario, click *Done* at the bottom to save the scenario and return to the main page. A printer-friendly version of the entire calculation sheet is accessed by clicking *Print*.

Produce Profitability Calculator		IOWA STATE UNIVERSITY University Extension	
Step 1 > Step 2 > Step 3 > Step 4 > Summary			
Annual Crops - Expense Summary			
Total Acres:	1	1.1	
Units Produced:	120 (Pound)	1200 (Pound)	
Total Income:	\$150.00	\$1320.00	
Production Costs	\$35.55	\$264.75	
Harvest Costs	\$31.20	\$223.50	
Post-harvest Costs	\$183.00	\$276.00	
Total Product-related Costs	\$249.75	\$764.25	
Machinery Costs	\$2.00	\$18.18	
Land Costs	\$4.00	\$40.00	
Facilities Costs	\$2.50	\$22.73	
Other Costs	\$3.00	\$27.27	
	\$11.50	\$108.17	
Total Costs	\$261.25	\$872.42	
Return after Costs	(\$111.25)	\$447.58	
Return per Unit Produced	(\$0.93)	\$0.37	
<input type="button" value="Done"/> <input type="button" value="Print"/>			
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The summary sheet can be printed with the Web browser print function. The Print button generates a printable version of the entire calculator.

User worksheet

The last three pages of this manual are worksheets to record information that users enter into the calculator to make comparisons. This information must be collected for every crop that is to be included in a comparison scenario.

About this project

This tool was developed as part of a 2005 competitive grant from the Marketing and Food Systems Initiative of the Leopold Center for Sustainable Agriculture. Primary investigator for the grant was Jason Ellis, formerly of the Hotel, Restaurant and Institution Management Extension program at Iowa State University. Ellis is now an Assistant Professor at the University of Nebraska–Lincoln. The Users Manual was written by Jason Ellis and edited by Leopold Miller, Leopold Center.

For more producer resources, check the HRIM local foods web site at: <http://www.iastatelocalfoods.org>

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Produce Profitability Calculator

User Worksheet

Step 1:

Starting a new scenario	Current Crop	Expanded Crop
Unit of production		
Number of units produced		
Acres of this crop		
Total acres in produce		

Step 2:

Income	Current Crop			Expanded Crop		
Sales Method	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Farmer's Market</i>						

Step 3:

Product-related Costs	Current Crop			Expanded Crop		
Production supplies	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Seed</i>						
Production labor	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Owner/operator</i>						

Harvest supplies	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Bags</i>						
Harvest labor	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Owner/operator</i>						
Post-harvest supplies	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Pallets</i>						
Post-harvest labor	Quantity	Unit	\$/Unit	Quantity	Unit	\$/Unit
<i>Example: Owner/operator</i>						



Step 4:

Operation-related Costs	Current Crop	Expanded Crop
Machinery costs	Annual costs	Annual costs
<i>Example: Payment</i>		
Facilities costs	Annual costs	Annual costs
<i>Example: Rent</i>		
Land costs	Annual costs	Annual costs
<i>Example: Rent</i>		
Other costs	Annual costs	Annual costs
<i>Example: Insurance</i>		