

Agricultural and Food Policy Center  
Texas A&M University

April 2012

## **ECONOMIC FEASIBILITY OF A SMALL ACREAGE ORGANIC VEGETABLE FARM IN SOUTH TEXAS**



# **AFPC**

Department of Agricultural Economics  
Texas AgriLife Research  
Texas AgriLife Extension Service  
Texas A&M University

*AgriLIFE* RESEARCH  
& EXTENSION  
Texas A&M System

College Station, Texas 77843-2124  
Telephone: (979) 845-5913  
Fax: (979) 845-3140  
<http://www.afpc.tamu.edu>

Supported by the United States Department of Agriculture's  
OASDFR-NIFA Grant No. 2009-39300-20207 and  
OTP-NIFA Grant No. 2010-51106-21803

Any opinion, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the funding source.

Mention of a trademark or a proprietary product does not constitute a guarantee or a warranty of the product by Texas AgriLife Research or Texas AgriLife Extension Service and does not imply its approval to the exclusion of other products that also may be suitable. All programs and information of Texas AgriLife Research or Texas AgriLife Extension Service are available to everyone without regard to race, color, religion, sex, age, handicap, or national origin.

© 2012 by the Agricultural and Food Policy Center

Research Report 12-2

Agricultural and Food Policy Center  
Department of Agricultural Economics  
2124 TAMU  
College Station, TX 77843-2124  
Web site: [www.afpc.tamu.edu](http://www.afpc.tamu.edu)

# **ECONOMIC FEASIBILITY OF A SMALL ACREAGE ORGANIC VEGETABLE FARM IN SOUTH TEXAS**

Luis A. Ribera  
Marc Raulston  
Raul T. Villanueva  
Juan Enciso-Siller  
Barbara Storz  
Juan Anciso



**Agricultural and Food Policy Center  
The Texas A&M University System**

Agricultural & Food Policy Center  
Department of Agricultural Economics  
Texas AgriLife Research  
Texas AgriLife Extension Service  
Texas A&M University

AFPC Research Report 12-2

April 2012

College Station, Texas 77843-2124  
Telephone: 979.845.5913  
Fax: 979.845.3140  
Web site: <http://www.afpc.tamu.edu/>



# ECONOMIC FEASIBILITY OF A SMALL ACREAGE ORGANIC VEGETABLE FARM IN SOUTH TEXAS

The model farm, hereinafter referred to as the farm, was developed using a panel of three local small acreage organic vegetable producers in the Lower Rio Grande Valley (LRGV). The study examines the 2011 revenue stream on a three-acre produce operation that relies on three income streams: a Community Supported Agriculture (CSA) Program, farmers markets, and sales to local restaurant establishments. The farm produces about 30 to 50 different vegetable crops on an 11-month growing season, August to June. Under normal growing conditions, each acre of vegetables can supply about 40 to 50 CSA members. The majority of production (80 percent) is used to supply the CSA, with farmers market and restaurant sales each requiring 10 percent of production. The farm is not certified organic, but follows strict organic production practices.

The farm's CSA fee is \$15/week for 24 weeks. Members pay a \$50 membership fee at the beginning of the season for the opportunity to share in the CSA's bounty for the duration of the season. The membership fee is waived for individuals wishing to pay in full for the entire season. CSA members are entitled to weekly delivery of 6-8 items delivered to a pre-determined drop location throughout the growing season. Items are standardized for various forms of produce and examples may include one pound of carrots, one head of lettuce or cabbage, or a pound of greens. The variety of produce included is one of the most positive attributes of the CSA; typically two-thirds of the items are staple foods commonly used in meal preparation, and the other third is more exotic in nature, allowing the member to expand the horizons of their diet. The farm's current production is assumed to support an average of 100 CSA members, and an estimated 10 percent of members pay in full at the beginning of the season. Based on average income levels, the farm's gross receipts from the CSA are estimated at \$40,500.

On average, the CSA generates 63.6 percent of the farm's total cash receipts. In addition to produce distributed



Rey Anzaldua, owner of Anzaldua Farm and Ranch, selling at a Lower Rio Grande Valley Farmer's Market.



Example of CSA strawberry cultivation.



Example of CSA-grown produce.

**Table 1. Costs of Production for the LRGV Model Farm, 2011.**

	Unit	Units	\$/Unit	Fraction	Total Cost
<b>Production Costs</b>					
Labor	Hours	1,560	\$8	1.00	\$12,480
Seed	\$/Acre	3	\$150	1.00	\$450
Fertilizer	Cubic Yard	84	\$30	0.40	\$1,008
Fish Oil	Gallons	5	\$7	1.00	\$37
Neem Oil	Gallons	1	\$80	0.50	\$40
Emulsifier	Gallons	1	\$60	0.50	\$30
Diatomaceous Earth	50 lb Bags	3	\$20	1.00	\$60
Paper	Rolls	5	\$190	0.50	\$475
Irr Water	\$/Acre	3	\$50	1.00	\$150
City Water	\$/Month	3	\$45	1.00	\$135
Tractor Fuel	\$/Year	1	\$200	1.00	\$200
<b>Overhead Costs</b>					
Delivery Containers	\$/Each	200	\$5	0.50	\$500
Harvest Containers	\$/Each	90	\$5	0.33	\$150
Wash Water	\$/Month	12	\$10	1.00	\$120
Summer Electricity	\$/Month	4	\$200	1.00	\$800
R.O.Y. Electricity	\$/Month	8	\$50	1.00	\$400
Bags, Bands, Etc.	\$/Year	1	\$110	1.00	\$110
Delivery Fuel	\$/Month	12	\$50	1.00	\$600
Maintenance	\$/Year	1	\$500	1.00	\$500
Internet Service	\$/Month	12	\$69	1.00	\$828
Marketing	\$/Year	1	\$490	1.00	\$490
Irrigation Equipment	\$/Year	1	\$500	1.00	\$500
<b>Total Costs</b>					<b>\$20,063</b>

through the CSA arrangement, sufficient quantities are available to supply farmers markets and restaurants. Based on 2011 levels, sales to farmers markets in Harlingen and McAllen, Texas accounted for sales of \$18,021 (28.3 percent of total cash receipts). Income is higher from January to June because leafy greens are a favorite among farmers market patrons; no leafy greens are produced from August to December due to unfavorable growing conditions, thus farmers market sales are lower in those months. Restaurant sales to local establishments account for \$5,185 per year in receipts for the farm.

Production and overhead costs for the entire operation were collected during a thorough interview with the farm's producer panel. These values were developed into a budget, reflecting the farm's total costs of production shown in Table 1. Actual costs of production were utilized in 2011 and were estimated at \$20,063. Labor cost accounts for about 62.2 percent of the total cost of production as two part-time workers are needed to help mainly on the production side of the farm. Not included in the cost of production is the labor provided by the owner which is assumed to work full time.

Costs reflected in the financial statements include principal and interest payments for land and machinery. It is assumed that the farm was purchased in 2005 and took out a 10-year loan for \$43,636 at a fixed interest rate of 8.0 percent. An amortization schedule was developed and principal and interest payments are charged to the farm until the loan is paid off in 2014. Similarly, a 5-year machinery loan for \$28,000 was obtained in 2008 for a 74 HP John Deere tractor and included implements. The tractor is depreciated using a straight-line method over an expected 10-year economic life and assumes a \$5,000 salvage value.

**Table 2. Sensitivity Analysis of the Contribution of CSA Members vs. Farmers Markets and Restaurant Sales on Farm’s Net Income. Shaded Areas Represent Returns Above Cash Expenses (Green) and Below Cash Expenses (Red).**

Net Cash Income											
Reduction in CSA Members	Reduction in FM and Restaurant Sales										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
0%	\$ 41,318	\$ 38,998	\$ 36,677	\$ 34,356	\$ 32,036	\$ 29,715	\$ 27,395	\$ 25,074	\$ 22,754	\$ 20,433	\$ 18,113
10%	\$ 37,268	\$ 34,948	\$ 32,627	\$ 30,306	\$ 27,986	\$ 25,665	\$ 23,345	\$ 21,024	\$ 18,704	\$ 16,383	\$ 14,063
20%	\$ 33,218	\$ 30,898	\$ 28,577	\$ 26,256	\$ 23,936	\$ 21,615	\$ 19,295	\$ 16,974	\$ 14,654	\$ 12,333	\$ 10,013
30%	\$ 29,168	\$ 26,848	\$ 24,527	\$ 22,206	\$ 19,886	\$ 17,565	\$ 15,245	\$ 12,924	\$ 10,604	\$ 8,283	\$ 5,963
40%	\$ 25,118	\$ 22,798	\$ 20,477	\$ 18,156	\$ 15,836	\$ 13,515	\$ 11,195	\$ 8,874	\$ 6,554	\$ 4,233	\$ 1,913
50%	\$ 21,068	\$ 18,748	\$ 16,427	\$ 14,106	\$ 11,786	\$ 9,465	\$ 7,145	\$ 4,824	\$ 2,504	\$ 183	\$ (2,137)
60%	\$ 17,018	\$ 14,698	\$ 12,377	\$ 10,056	\$ 7,736	\$ 5,415	\$ 3,095	\$ 774	\$ (1,546)	\$ (3,867)	\$ (6,187)
70%	\$ 12,968	\$ 10,648	\$ 8,327	\$ 6,006	\$ 3,686	\$ 1,365	\$ (955)	\$ (3,276)	\$ (5,596)	\$ (7,917)	\$ (10,237)
80%	\$ 8,918	\$ 6,598	\$ 4,277	\$ 1,956	\$ (364)	\$ (2,685)	\$ (5,005)	\$ (7,326)	\$ (9,646)	\$ (11,967)	\$ (14,287)
90%	\$ 4,868	\$ 2,548	\$ 227	\$ (2,094)	\$ (4,414)	\$ (6,735)	\$ (9,055)	\$ (11,376)	\$ (13,696)	\$ (16,017)	\$ (18,337)
100%	\$ 818	\$ (1,502)	\$ (3,823)	\$ (6,144)	\$ (8,464)	\$ (10,785)	\$ (13,105)	\$ (15,426)	\$ (17,746)	\$ (20,067)	\$ (22,387)



Saul and Diana Padilla, owners of Yahweh’s All Natural Farm and Garden, selling at a Lower Rio Grande Valley Farmer’s Market.



Example of CSA-grown produce.

The farm experiences positive net cash income in 2011 of \$41,318. Net cash income is defined as total cash receipts minus total cash expenses. This figure does not reflect profit, as principal payments on loans, and employment and income taxes must be paid from this value. The farm experiences a positive annual cash position of \$20,252 in 2011, which includes all the expenses not included in the net cash income such as principal payments on machinery and land loans, and self-employment and income taxes. This analysis does not account for the owner's salary or family living expenses.

Results of a sensitivity analysis examining the contribution of the CSA vs. farmers markets and restaurant sales to the farm's net cash income are reported in Table 2. This sensitivity analysis assumes a constant cash expense. On the vertical axis, reductions on CSA members are shown in increments of 10 percent, while on the horizontal axis reductions on farmers markets/restaurant sales are shown with the same incremental reductions. To illustrate, when both CSA members and farmers markets/restaurant sales present no reduction, the net cash income is \$41,318 as shown previously. However, if there are no CSA members, meaning the only source of revenue is the farmers markets and restaurant sales, the net cash income is only \$820. Conversely, if the only source of revenue were the CSA, then the net cash income would be \$18,113, thus demonstrating the importance of the CSA to the farm's profitability. Moreover, if the number of CSA members is reduced by 40 percent, i.e. 60 members, and the farmers markets/restaurant sales are reduced by 50 percent, then the net cash income would be \$13,515. In order for the farm to remain profitable, it needs to stay within the options highlighted in green.

*The authors would like to express special thanks to Yahweh's All Natural Farm and Garden, Anzaldua Farm and Ranch, and Jaber's Estate Winery for the information to generate this report.*





A policy research report presents the final results of a research project undertaken by AFPC faculty. At least a portion of the contents of this report may have been published previously as an AFPC issue paper or working paper. Since issue and working papers are preliminary reports, the final results contained in a research paper may differ - but, hopefully, in only marginal terms. Research reports are viewed by faculty of AFPC and the Department of Agricultural Economics, Texas A&M University. AFPC welcomes comments and discussions of these results and their implications. Address such comments to the author(s) at:

Agricultural and Food Policy Center  
Department of Agricultural Economics  
Texas A&M University  
College Station, Texas 77843-2124

or call (979) 845-5913.

Copies of this publication have been deposited with the Texas State Library in compliance with the State Depository Law.

Mention of a trademark or a proprietary product does not constitute a guarantee or a warranty of the product by Texas AgriLife Research or Texas AgriLife Extension Service and does not imply its approval to the exclusion of other products that also may be suitable.

All programs and information of Texas AgriLife Research or Texas AgriLife Extension Service are available to everyone without regard to race, color, religion, sex, age, handicap, or national origin.