July 2008

PFMR 08-01

Production and Farm Management Report

Colorado State University

Extension

Department of Agricultural and Resource Economics, Fort Collins, CO 80523-1172
http://dare.colostate.edu/pubs

ENTERPRISE BUDGETING FOR SMALL FARMS: A MARKET BASKET APPROACH

Jennifer Lloyd and Dawn Thilmany[1]

Introduction

In recent times agricultural enterprises have moved away from traditional commodity production, as producers realize the opportunities made possible by a greater range of production and marketing alternatives. Specialty crop production has seen renewed interest, and some small vegetable producers perceive higher revenue or profit potential from direct marketing opportunities such as community supported agriculture (CSA) and farmers markets.

A CSA is targeted at the consumers who have been motivated by the "buy local" movement, as consumers can purchase 'shares' in a farm's production over a season, thereby assuring support for local farms and foods. The purchaser receives a market basket each week which has some share of the operation's produce yield, depending on the supply at that time. Essentially the consumer is taking on some of the farmer's production risk in exchange for a fixed price across the season for a well balanced basket of a variety of crops. For many farmers, producing multiple vegetable crops suits their comparative advantage of intensive management on small land parcels, easing the relative capital and land scarcity of their production systems.

Traditional budgets aimed at larger scale, single crop production systems are not appropriate for these farmers given their management intensive, minimal input and capital approaches. 'Market Basket' budgeting, where a number of crops are incorporated into one budget assuming small parcels committed to a number of different crops, is intended to help producers evaluate their enterprise as a whole. This fact sheet explores a budget template that has been created to address this production approach. In summary, this fact sheet will explore the details of this budget tool as well as benchmark costs for a number of crops to supply local, direct marketing opportunities.

Data and Budgeting Approach

The focus of this project was to integrate production numbers across several crops that may share a limited land parcel and evaluate a CSA as a complete enterprise. Existing enterprise budgets from other states were used as references and provided a good baseline to determine production costs, but these numbers were augmented with some primary production data collected at the CSU Horticulture Farm. University Extension publications throughout North America were gathered and compared to start building in

[1] Graduate Research Assistant and Professor in the Department of Agricultural and Resource Economics, Colorado State University.

representative costs for six crops; broccoli, tomatoes, bell peppers, potatoes, carrots and cantaloupe. These crops are commonly found in CSA share boxes and farmers market stands, and are important staples for many Colorado produce operations. In addition two ‘crop choices’ are included in the model for crops important to a specific enterprise. While not incorporated in the baseline model, these sheets remain blank for producers to use if desired. It is clear most farmers have one or two crops that are their “specialties” but not typical in a CSA share box. But, producers can represent their own enterprise more accurately by adding information for these crops. Alternatively, ‘miscellaneous crops’ category covers other crops in the operation, representing a potential large number of crops with very small production that it would be unrealistic to budget independently.   Miscellaneous crops represent two of the five acres in the baseline, interchangeable model. A discussion of each of the crop’s production costs is presented below.

The Specialty Crops Program at Colorado State University’s Horticulture Farm provided some valuable insight in determining realistic production costs and labor needs. Labor data has been collected over the last few years and the fact that labor costs are higher on small operations due to the scarcity of small scale equipment was taken into consideration. The specialty crops labor data helped to adjust the labor costs from the enterprise budget collected from other sites.

Major sources of production costs were University of California; Davis, Iowa State University, University of Florida, Pennsylvania State University and Clemson University. The University of California, Davis has many organic budgets available on a number of crops that are also grown in Colorado. University of Florida is one of the only universities to be publishing budgets and informational resources for small parcels of farm production. They include vegetable crop budgets grown in 100 foot rows rather than the traditional acre budgets, but following conventional rather than organic production practices, yet, the appropriate scale of these budgets led us to use them for the crops available; tomatoes, peppers and melons.

Budget Assumptions

The model is designed to be interchangeable for individual enterprises, allowing producers to vary the share of acreage in major crops, the level of production efficiency or the share of hours paid in cash versus provided by family, friends or CSA members in-kind. Figure 1 presents one section of the budget setup page to show factors that producers can initially enter to represent their operation.

Setup

1. Land			
Total Land Area in Production:	5.0	acres	
Division of Land Area:			**Share of land (share of fixed costs)~:**
Tomatoes	0.5	acres	10%
Broccoli	0.5	acres	10%
Potatoes	0.5	acres	10%
Carrots	0.5	acres	10%
Peppers	0.5	acres	10%
Melons	0.5	acres	10%
Crop Choice 1	0.0	acres	0%
Crop Choice 2	0.0	acres	0%
Miscellaneous crops	2.0	acres	40%
	5.0	acres	100%

Figure 1. Budget Setup Assumptions

The acres of each crop and total acreage for the baseline budget example were established considering the size of relevant Colorado operations and the scale used in referenced enterprise budgets. For example, a Massachusetts study of CSA production determined the average CSA cropland per enterprise to be 5.59 acres in 2001 (Lizio and Lass, 2005).

Fixed Costs

Beyond the direct costs of production, it is standard to allocate a proportion of the fixed costs   associated with running an enterprise to individual crops. This was especially relevant for the market basket budget that evaluates a mix of crops as a whole enterprise. For this budget, we assume fixed costs are allocated to each crop based on the land area invested in that crop. A breakdown of fixed costs and associated values was determined and built into the model. As seen in Figure 2, these included depreciation, taxes, equipment and equipment costs for a representative five acre plot.

Lizio and Lass (2005) published relevant fixed costs associated with CSAs, so their categories and production numbers were used and adjusted to a per acre basis and then scaled to the production area of this budget (five acres).

Fixed Costs	Per Acre	Area of Budget
Real Estate Expenses	215.94	1,079.68
Depreciation	393.82	1,969.11
Repairs for vehicles, equip etc	174.87	874.36
Farm Supplies and Tools	212.56	1,062.81
Misc. expenses	77.56	387.78
Registration fees and license fees for vehicles	29.64	148.18
Rental or lease of equipment	30.37	151.83
Property and excise taxes	11.67	58.35
Total Fixed Costs	1,146.42	5,732.09

Figure 2. Fixed Costs for 5-Acre Produce Plot

2. Production for CSA

	Total Production	CSA Proportion	Pounds to CSA	Lbs per FSE	Lbs per FSE/per week	Value to Market Basket	Value from Crop
Tomatoes	12,500	50%	6,250	59.52	4.96	15%	$5,775
Broccoli	13,000	50%	6,500	61.90	5.16	15%	$5,775
Potatoes	-	50%	-	-	-	10%	$3,850
Carrots	2,000	50%	1,000	9.52	0.79	10%	$3,850
Peppers	11,200	30%	3,360	32.00	2.67	10%	$3,850
Melons	28,000	30%	8,400	80.00	6.67	10%	$3,850
Crop 1	-	50%	-	-	-	0%	$0
Crop 2	-	50%	-	-	-	0%	$0
Misc.		75%	-			30%	$11,550
	66,700.00		25,510.00	242.95	20.25	100%	$38,500

Figure 3. CSA Share Revenues and Receipts from Production Overages

Marketing Assumptions

An additional setup page has been included to reflect the marketing options available to the producer. The main market is the CSA membership receipts. Figure 3 shows that a proportion of production can be allocated to the CSA shares, but the rest is sold through other opportunities (farmers markets) depending on yields and excess supplies beyond membership shares.

The model assumed a 16 week supply period for the CSA, equivalent to 12 full weeks when accounting for the low supply shoulders of the season. 'FSE' denotes full share equivalents; which was estimated at 105, including 70 full shares and 70 half shares.

'Value to market basket' allows the user to reflect the relative value they think a crop adds to a market basket for CSA customers. For example a basket without tomatoes would not be as valuable as if that weight was made up in extra pounds of broccoli. The total CSA revenue of $38,500 reflects prices a share price of $350 per full time share and $200 per half time share, but these can be changed easily to meet the price points of any CSA.

By analysing individual crops we were able to get some basic ideas on the major costs facing vegetable production. Many similarities were noted such as labor being a relatively large cost, and expenses pre- and post- harvest were around half of variable costs each. Transplants and irrigation were the major pre harvest costs for all four crops. Bell peppers and broccoli have similar costs and are a lot higher than melons or tomatoes. Carrots and potatoes both have low returns and costs but are important part of an appealing market basket. Each of the crops are discussed individually below. The individual crop budgets are shown as appendices (pages 13 to 18).

Tomatoes

As is the case with many fresh produce items, the highest expense for tomato production was harvesting, accounting for 29% of all variable costs. For the half acre of production, 125 hours of labor are needed to raise and harvest the crop for market assuming 12,500 lbs of production. Given the choice to establish with transplants, these inputs were a large variable cost (17%), followed by irrigation and pest control. A screenshot for the tomato budget is seen in Appendix 1.

There are significant returns to be made in other direct markets aside from the designated allocation of tomatoes to the CSA basket. The relatively high grocery price of $2.39 per lb for organic tomatoes keeps their market value high, but realistically, you may need to decrease expected returns for the parts of the season where there is an oversupply in local markets (late summer in most areas of Colorado and the US). Still, the use of transplants to harvest relatively early will help secure greater value from this crop early in the season.

Broccoli

Pre harvest costs for Broccoli were 41% of total expenses compared to 44% for harvesting and packing costs. The major pre harvest labor cost is weeding, especially when hand weeding is used on small farms. Planting, pest control and land preparation also have labor requirements, e.g. application of fertilizer or agrichemicals and scouting for pests.

The large share of labor input required to harvest broccoli is one reason for producing a market basket of crops, since it allows a producer to plan for a balanced harvest schedule that spreads labor needs more evenly throughout the whole season.

Aside from labor costs, the transplants themselves are a major expense, representing 21% of variable costs. Transplants help to mitigate risks from invasive weed populations, shorten the growing season and yield crop earlier for sale, which is important when the value of a market basket to the consumer can depend on having a consistent supply of many crops. But, it is still important that producers assess whether the additional costs are offset by these benefits for their operations. Other major expenses were pest control (7% of variable costs), including insecticide and pesticides as well as harvesting materials such as boxes (10% of variable costs).

Cantaloupe/Melons

Harvest labor was also a significant cost for Cantaloupe/Melon crops, but relatively less compared to other crops because of the relative weight of melons, with harvest costs representing only 1/3 of total variable costs. Harvest labor made up 12% of variable costs at a total of 56 labor hours. The cartons and other harvest materials were the largest cost at 19% of variable costs.

The major pre harvest costs were mulching and irrigation. Mulching includes the cost of polyethylene mats and five labor hours to lay the mulch. Transplants were another major expense, with 20 labor hours required in addition to the cost to plant the seedlings. Total variable costs were just less than $2,000 per half acre, illustrating a similar cost structure to tomatoes.

Melons were assumed to contribute 10% of the market basket value for the CSA shares given comparable retail prices. However we assumed less production was allocated to CSA shares (only 30% of production) while the rest are sold in other marketing channels. There is seemingly less seasonal variation in prices with melons compared to tomatoes, so it is more likely that all surplus melons could be sold in direct markets without a need for heavy discounting.

Bell Peppers

Harvest costs made up half the variable costs for bell peppers considering materials, harvesting and packing/grading. Harvesting and packing/grading each required 140 labor hours which are fairly significant labor requirements. Again, with good planning, this can be an opportunity to more effectively manage labor needs across the season.

Similar to other crops, the pepper plants were the major pre harvest cost (15% of total variable costs). Irrigation and mulching were the other major expenses at 5% and 11% of variable costs, respectively. Total variable costs were just over $3,100 for bell peppers making them comparable to broccoli, both with higher costs than tomatoes and melons.

Potatoes

Potatoes had very low variable costs at less than $2,000 for a half acre of land. Pre harvest costs made up almost 71% of the total variable costs for potatoes. This reflects the relatively lower harvest requirement, and thus costs, compared to other crops. With significantly less labor hours harvesting, packing and grading this crop, it is relatively cheaper to grow potatoes than the other five items analyzed. This may be important in planning labor requirements on a CSA farm.

Weeding represented 25% of all variable costs and plants represent almost 16%. Irrigation, while the same in dollar value to other crops, is almost 18% of variable costs for potatoes due to the lower overall cost for this crop. While the returns relative to the costs may make potato production attractive, consumers are not likely to desire large quantities ore perceive as high of value from potatoes in their market basket unless unique cultivars are made available (purple, fingerlings, Yukon Gold).

Carrots

Carrots show the lowest return of the six crops analyzed. Despite this low return, there is still over $2,500 in variable costs for the crop. This illustrates the point of a 'loss leader'. Carrots are a staple in the American vegetable diet and would be expected in a market basket in order to be attractive to potential customers. Harvest and pre harvest costs are roughly an equal weight of variable costs for carrots. Mulching and weeding represent the significant pre harvest costs at 11% of total variable costs each. Overall, harvesting and grading is the most significant cost at almost 24% of total variable costs.

Miscellaneous Crops

'Miscellaneous crops' represents salad greens, sweet corn and other high end crops that may be seen in market baskets and in production in fairly small quantities on small multi-product farms. These numbers are fairly broad summaries, but given conversations with small-scale producers, this type of budgeting approach is a more realistic approach to how they plan than having detailed, crop by crop budgets for each product grown. The crops we have analyzed in this study represent the core components of a representative market basket offered by CSAs in Colorado and peer states. Generic numbers have been used in the budget at this stage following those reported by Lizio and Lass (2005). Their model assumes half of the five acres of production are in a broad array of miscellaneous crops, and includes variable costs as well as a fixed cost allocation.

Miscellaneous crops do not represent a major source of profit for a CSA; the value is created from the bigger staple crops which produce enough to secure surplus revenues through other direct marketing. Yet, by having the miscellaneous crops to fill out the baskets, a producer can increase the perceived value to CSA members, or explore crops they want to grow in greater volume in the future based on perceived interest in the market. In effect, this part of the production is another "loss leader" getting consumers to invest in this marketing channel, while the staple crops provide most of the returns to the producer. Because of this, variable costs were significantly higher for this "composite" of crops compared to that of the other six crops budgeted.

Other Model Setup Specifications

Labor hours are separated into paid and non paid hours. This allows time spent by family and management that was unpaid to be considered within the costs of production as desired. There is a column for both sets of hours in each budget, and those hours can be recorded without including them as a cash cost. This hourly rate is currently set to $0 to reflect cash accounting costs to the producer. By changing the hourly rate of family labor, the enterprise can be evaluated considering true economic costs, as opportunity costs are included. Labor costs used throughout the budget are seen in Figure 4.

2. Interest		
Interest Rate on Variable Costs	9%	
3. Labor		
Paid Employees	$8.00	hr
Non cash hours*	$0.00	hr

Figure 4. Additional Setup Assumptions for the Budget

In addition Figure 4 shows the interest rates to be assumed at 9%. This interest is added to the total variable costs of each crop as the cost of carrying a line of credit, but can be changed to reflect the producers' true credit costs.

‘Harvest Efficiency’ was also used to create a model that more realistically reflects real production situations. Harvest efficiency reflects the fact that the level of production is often below what is possible, but is either not optimized given some input constraint (including labor) or is produced but not harvested because of insufficient markets. These assumptions are seen in figure 5.

Crop	Harvest Efficiency
Tomatoes	100%
Broccoli	100%
Potatoes	100%
Carrots	100%
Peppers	100%
Melons	100%
Crop Choice 1	100%
Crop Choice 2	100%
Miscellaneous crops	100%

Figure 5. Harvest Efficiency Setup

The model assumes that all produce is efficiently produced and harvested, but also allows an operation to be evaluated with less than 100% of the crop harvested. This allows producers to determine unrealized revenue and reflect the amount of crop produced compared with the amount of crop that actually makes it to market for sale. This innovation emerged from presentations from new farmers who are trying to assess the trade-off of off-farm employment, and the true costs of having their labor and management diverted from their production enterprise.

Market Basket Approach

Intensive management of specialty crop production is becoming more common in agriculture as land and water become increasingly bigger constraints on production in many regions. Subsequently, evaluating returns and enterprises on a smaller unit basis considering a broad set of crops that “share” the fixed costs of the operation, may be more appropriate for small farmers. This budgeting approach can be seen as a way for small farmers to assess the total returns to their investment (limited land assets and their own management time). For instance, the total revenues secured from the CSA and direct marketing activities can be used to estimate an asset turnover ratio for their land (showing how effectively they create value from their limited land resource). For management, they can directly see how the time spent managing the whole portfolio of cropping and marketing activities creates returns above costs or how changes in efficiency and unpaid, “sweat equity” labor translate to an increase in profits or equity. A summary page is shown in Figure 6 so to reflect the ‘market basket’ enterprise as a whole.

This summary includes a summary of all costs and breaks down revenue between receipts from the CSA shares and sales at other marketing channels, such as farmers markets.

Labor hours are also useful in illustrating the potential differences between crops. As shown in the broccoli investment, labor input is relatively intensive in comparison to cantaloupes (melons). So, if labor is a constraint this may affect production decisions about the amount of land area in each crop. Overall, the assumptions of the model can be easily altered to test and evaluate some of these potential management changes and resource allocation choices.

Recommendations and Options for Using the Budget

This fact sheet has explored the development of a CSA budget and how various factors uniquely affecting CSA operations have been incorporated into our model. With consideration of the unique production choices and marketing options facing small-scale producers, the budget is more appropriate for fresh produce farms producing a number of crops for CSA shares and other markets.

Individual crop budgets provide information on the costs for small acreage vegetable production. Bell peppers and broccoli have higher variable costs of $3,100 and $3,900 per half acre area, respectively while melons and tomatoes have lower variable costs at $1,800 and $1,700 respectively. Potatoes have very low costs at less than $1,000 per half acre, but the associated returns are also low per land area. Carrots have the lowest returns despite average variable costs. The major costs of production were relatively consistent between crops; the one clear message is that harvest costs are the most significant due to the high labor requirement on small, intensively managed land areas. Pre-harvest costs were between 41-70% of total variable costs. Irrigation, mulching (where appropriate to crop) and transplants/plants were the prominent pre-harvest costs. Noting the labor requirements of these crops may suggest a need for seasonal planning to balance the workload for employees and ensure all saleable yield is able to be harvested. Similarly, on the market side, it also important to have a balance of crops available throughout the season in order to attract CSA customers and have sufficient supplies to pursue other market opportunities.

In order to create a useful budgeting tool for small farmers, this project approached planning and accounting from a slightly different angle than a traditional crop budget. By combining all the production and marketing assumptions together with a broad set of factors of production; the template allows all factors in a multi-crop enterprise to be adjusted while considering them as part of an interdependent production system. Using whole farm and marketing assumptions allows summary information to be presented across the enterprise. Managerially, it is important to consider the crops as they interrelate and evaluate costs and returns across input factors such as labor rates, interest rates and harvest efficiency.

The new value for managers for this budgeting tool is its system approach, and the ability to delineate revenues between membership shares and direct sales, labor hours between non cash and paid labor, and assessing the efficiency level they perceive they currently operate under given time and/or resource constraints. The baseline budget numbers are useful in generating some general guide to vegetable production costs, but the spreadsheet tool was formatted so that any of the numbers can easily be changed as more operational and site-specific information becomes available.

To request access to this budgeting spreadsheet, please contact the authors at Jennie Lloyd, lloydj@simla.colostate.edu or Dawn Thilmany, thilmany@lamar.colostate.edu. During its first year of availability, we will provide limited access in exchange for feedback on the tool's usability, and if possible, operational cost estimates to help Colorado State University in establishing reliable production cost estimates for the state's small produce farms.

References

Chase, C. (2007). *Price Determination for CSA Share Boxes*. Iowa State University Extension, Iowa State University, Ames, IA. 3pp. Available: http://www.extension.iastate.edu/agdm/wholefarm/html/c5-19.html

Lass, D. and Sanneh, N. (1997). *Costs and Returns for CSA Operations in the Northeast: Preliminary Results from the 1996 CSA Survey.* Department of Resource Economics, University of Massachusetts, Amherst, MA. 6pp. Available: http://www.umass.edu/resec/faculty/lass/csa1.html

Lizio W. and Lass, D. (2005). CSA 2001: *An Evolving Platform for Ecological and Economical Agricultural Marketing and Production.* Department of Resource Economics, University of Massachusetts, Amherst, M. 23pp. Available: http://www.nesawg.org/pdf/CSA_2001_report.pdf

Miller, G. (2006). *Vegetable and Melon Enterprise Budgets - South Carolina October 2006*. Department of Applied Economics & Statistics, Clemson University, Clemson, SC (Online). Available: http://cherokee.agecon.clemson.edu/f&v_bud.htm

Ministry of Agriculture, Fisheries and Food (2002). Enterprise Budgets – Planning for Profit. Province of British Columbia, Canada (Online). Available: http://www.al.gov.bc.ca/busmgmt/budgets/specialty_organic.htm

Monroe Organic Farms (2007). http://www.monroefarm.com/

Orzolek, M., Bogash, S Harsh, M., Kime, L. and Harper, J. (2006). *Agricultural Alternative Publications.* The Pennsylvania State University College of Agricultural Sciences

Agricultural Research and Cooperative Extension, PA (Online). Available: http://agalternatives.aers.psu.edu/

Smith, J. and England, G. (2007). *Small Farms and Alternative Enterprise: Enterprise Budgets.* University of Florida, Gainesville, FL (Online). Available: http://smallfarms.ifas.ufl.edu/planning_and_management/budgets.html

Tourte, L. Smith, R., Klonsky, K. and Moura, R. (2004). *Current Cost and Return Studies: Organic Broccoli and Broccoli*. University of California, Davis: Davis, CA (Online). Available: http://coststudies.ucdavis.edu/current.php

APPENDIX: Individual Screenshots

1. **Summary of Crop Returns across the Enterprise**

Summary Information

	Tomatoes	Broccoli	Potatoes	Carrots	Peppers	Melons	Crop 1	Crop 2	Miscellaneous crops	Total
Total Labor Hours										
Paid employee hours	220.00	488.00	234.00	406.00	334.00	115.00	0.00	0.00		1797.00
Non-cash hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Total Hours	220.00	488.00	234.00	406.00	334.00	115.00	0.00	0.00	0.00	1797.00
Variable Costs	1,754.50	3,960.53	953.50	2,515.50	3,123.94	1,813.59	-	-	8,801.85	$ 22,923.41
Fixed Costs	573.21	573.21	573.21	573.21	573.21	573.21	-	-	2,563.39	$ 6,002.65
Expenses	2,485.75	4,890.18	1,612.52	3,315.10	3,978.30	2,550.02	-	-	11,365.25	$ 30,197.14

2. Tomatoes

Planting Year Costs	LABOR Paid Employee Hours	Non Cash Hours	Total Labor Costs	Other Costs	per Acre	Proportion of VC	per Land Area Invested
Transplants	0.00	0.00	0.00	600.00	600.00	17.10	$ 300.00
Fertilization	0.00	0.00	0.00	115.00	115.00	3.28	$ 57.50
Fert application	0.00	0.00	0.00	30.00	30.00	0.85	$ 15.00
Planting, staking and tying	20.00	0.00	160.00	90.00	250.00	7.12	$ 125.00
Mulching	0.00	0.00	0.00	286.00	286.00	8.15	$ 143.00
Irrigation (annual tape replacement)	0.00	0.00	0.00	200.00	200.00	5.70	$ 100.00
Irrigation set up (assumes 5 year life for system)	10.00	0.00	80.00	50.00	130.00	3.70	$ 65.00
Weeding	25.00	0.00	200.00	0.00	200.00	5.70	$ 100.00
Land Prep	4.00	0.00	32.00	68.00	100.00	2.85	$ 50.00
Pest Control	5.00	0.00	40.00	310.00	350.00	9.97	$ 175.00
Total Pre-Harvest Costs			512.00	1,749.00	2,261.00	64.43	$ 1,130.50
Harvest							
Harvest labor	125.00	0.00	1,000.00	0.00	1,000.00	28.50	$ 500.00
Other labor	31.00	0.00	248.00	0.00	248.00	7.07	$ 124.00
Total Harvest Costs			1,248.00	0.00	1,248.00	35.57	$ 624.00
Variable Costs							
Per Area					3,509.00	100.00	$ 1,754.50
Per Pound					0.28		$ 0.14

3. Broccoli

Planting Year Costs	LABOR Paid Employee Hours	Non Cash Hours	Total Labor Costs	Other Costs	per Acre	Proportion of VC		per Land Area Invested
Transplants	0.00	0.00	$0.00	1657.05	1,657.05	20.92	$	828.53
Fertilization	0.00	0.00	$0.00	260.00	260.00	3.28	$	130.00
Planting, laying burlap	9.00	0.00	$72.00	0.00	72.00	0.91	$	36.00
Irrigation (annual tape replacement)	0.00	0.00	$0.00	200.00	200.00	2.52	$	100.00
Irrigation set up (assumes 5 year life for system)	10.00	0.00	$80.00	50.00	130.00	1.64	$	65.00
Weeding	24.00	0.00	$192.00	0.00	192.00	2.42	$	96.00
Land Prep	4.00	0.00	$32.00	200.00	232.00	2.93	$	116.00
Pest Control	3.00	0.00	$24.00	500.00	524.00	6.62	$	262.00
Total Pre-Harvest Costs			$400.00	2867.05	3,267.05	41.25	$	1,633.53
Harvest								
Materials	0.00	0.00	$0.00	800.00	800.00	10.10	$	400.00
Harvesting and Packing	438.00	0.00	$3,504.00	0.00	3,504.00	44.24	$	1,752.00
Other	0.00	0.00	$0.00	350.00	350.00	4.42	$	175.00
Total Harvest Costs			$3,504.00	1150.00	4,654.00	58.75	$	2,327.00
Variable Costs								
Per Area					7,921.05	100.00	$	3,960.53
Per Pound					0.61		$	0.30

4. Cantaloupe/Melons

	LABOR						
Planting Year Costs	Paid Employee Hours	Non Cash Hours	Total Labor Costs	Other Costs	per Acre	Proportion of VC	per Land Area Invested
Plants	0.00	0.00	0.00	422.82	422.82	11.66	211.41
Fertilization	0.00	0.00	0.00	285.36	285.36	7.87	142.68
Planting	20.00	0.00	0.00	200.00	200	5.51	100.00
Irrigation (annual tape replacement)	0.00	0.00	0.00	200.00	200	5.51	100.00
Irrigation set up (assumes 5 year life for system)	10.00	0.00	80.00	50.00	130	3.58	65.00
Mulching	5.00	0.00	40.00	620.00	660	18.20	330.00
Land prep	4.00	0.00	32.00	85.00	117	3.23	58.50
Weed Control	0.00	0.00	0.00	170.00	170	4.69	85.00
Pest control	3.00	0.00	24.00	130.00	154	4.25	77.00
Total Pre-Harvest Costs			176.00	2,163.18	2339.18	64.49	1,169.59
Harvest							
Materials - cartons	0.00	0.00	0.00	704.00	704.00	19.41	352.00
Harvest labor	56.00	0.00	448.00	0.00	448.00	12.35	224.00
Packing and Grading	17.00	0.00	136.00	0.00	136.00	3.75	68.00
Total Harvest Costs	73.00	0.00	584.00	704.00	1288.00	35.51	644.00
Total Variable Costs							
Per area					3,627.18	100.00	1,813.59
Per lb					0.13		0.06

5. Bell Peppers

Planting Year Costs	LABOR Paid Employee Hours	Non Cash Hours	Total Labor Costs	Other Costs	per Acre	Proportion of VC	per Land Area Invested
Plants	3.00	0.00	24.00	900.00	924.00	14.79	$ 462.00
Fertilization	0.00	0.00	0.00	313.20	313.20	5.01	$ 156.60
Planting, laying burlap	9.00	0.00	72.00	125.00	197.00	3.15	$ 98.50
Irrigation (annual tape replacement)	0.00	0.00	0.00	200.00	200.00	3.20	$ 100.00
Irrigation set up (assumes 5 year life for system)	10.00	0.00	80.00	50.00	130.00	2.08	$ 65.00
Weeding	24.00	0.00	192.00	108.00	300.00	4.80	$ 150.00
Land prep	5.00	0.00	40.00	0.00	40.00	0.64	$ 20.00
Mulching	0.00	0.00	0.00	664.68	664.68	10.64	$ 332.34
Pest control	3.00	0.00	24.00	225.00	249.00	3.99	$ 124.50
Total Pre-Harvest Costs			432.00	2585.88	3017.88	48.30	$ 1,508.94
Harvest							
Materials - Cartons	0.00	0.00	0.00	990.00	990.00	15.85	$ 495.00
Harvest labor	140.00	0.00	1120.00	0.00	1120.00	17.93	$ 560.00
Packing and Grading	140.00	0.00	1120.00	0.00	1120.00	17.93	$ 560.00
Total Harvest Costs			2240.00	990.00	3230.00	51.70	$ 1,615.00
Total Variable Costs							
Per bed					6247.88	100.00	$ 3,123.94
Per lb					0.56		$ 0.28

6. Potatoes

Planting Year Costs	LABOR Paid Employee Hours	Non Cash Hours	Total Labor Costs	Other Costs	per Acre	Proportion of VC	per Land Area Invested
Plants	0.00	0.00	300.00	0.00	300.00	15.73	$ 150.00
Fertilization	0.00	0.00	160.00	0.00	160.00	8.39	$ 80.00
Planting, laying burlap	80.00	0.00	0.00	0.00	0.00	0.00	$ -
Irrigation (annual tape replacement)	0.00	0.00	0.00	200.00	200.00	10.49	$ 100.00
Irrigation set up (assumes 5 year life for system)	10.00	0.00	80.00	50.00	130.00	6.82	$ 65.00
Weeding	60.00	0.00	480.00	0.00	480.00	25.17	$ 240.00
Land prep	10.00	0.00	45.00	0.00	45.00	2.36	$ 22.50
Mulching	0.00	0.00	0.00	0.00	0.00	0.00	$ -
Pest control	4.00	0.00	32.00	0.00	32.00	1.68	$ 16.00
Total Pre-Harvest Costs			1097.00	250.00	1347.00	70.63	$ 673.50
Harvest							
Materials - Cartons	0.00	0.00	0.00	0.00	0.00	0.00	$ -
Harvest labor	50.00	0.00	400.00	0.00	400.00	20.98	$ 200.00
Packing and Grading	20.00	0.00	160.00	0.00	160.00	8.39	$ 80.00
Total Harvest Costs			560.00	0.00	560.00	29.37	$ 280.00
Total Variable Costs							
Per bed					1907.00	100.00	$ 953.50
Per lb					0.24		$ 0.12

7. Carrots

Planting Year Costs	LABOR Paid Employee Hours	Non Cash Hours	Total Labor Costs	Other Costs	per Acre	Proportion of VC		per Land Area Invested
Plants	0.00	0.00	0.00	100.00	100.00	1.99	$	50.00
Fertilization	5.00	0.00	40.00	200.00	240.00	4.77	$	120.00
Planting, laying burlap	6.00	0.00	48.00	125.00	173.00	3.44	$	86.50
Irrigation (annual tape replacement)	0.00	0.00	0.00	200.00	200.00	3.98	$	100.00
Irrigation set up (assumes 5 year life for system)	10.00	0.00	80.00	50.00	130.00	2.58	$	65.00
Weeding	60.00	0.00	480.00	108.00	588.00	11.69	$	294.00
Land prep	50.00	0.00	400.00	0.00	400.00	7.95	$	200.00
Mulching	20.00	0.00	160.00	400.00	560.00	11.13	$	280.00
Pest control	5.00	0.00	40.00	100.00	140.00	2.78	$	70.00
Total Pre-Harvest Costs			1248.00	1283.00	2531.00	50.31	$	1,265.50
Harvest								
Materials - Cartons	0.00	0.00	0.00	500.00	500.00	9.94	$	250.00
Harvest labor	100.00	0.00	800.00	0.00	800.00	15.90	$	400.00
Packing and Grading	150.00	0.00	1200.00	0.00	1200.00	23.85	$	600.00
Total Harvest Costs			2000.00	500.00	2500.00	49.69	$	1,250.00
Total Variable Costs								
Per bed					5031.00	100.00	$	2,515.50
Per lb					2.5155		$	1.26