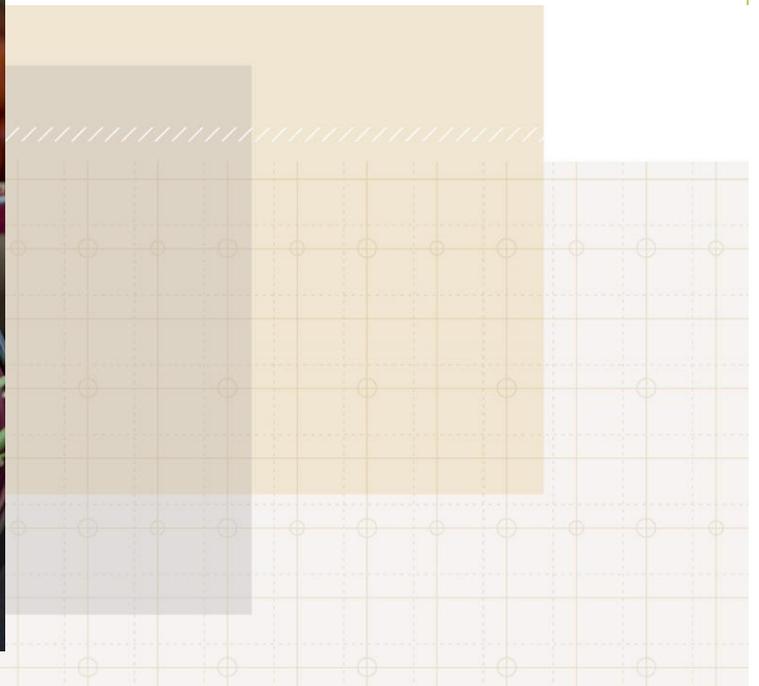




Financial Benchmarks and Economic Impact of Local Food Operations

A STUDY OF THE FINANCIAL PERFORMANCE OF 11 COMMERCIAL VEGETABLE OPERATIONS IN CENTRAL MINNESOTA

Authored by Ryan Pesch and Brigid Tuck



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December 2015

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University of Minnesota Extension, Issue Area Grant Funds
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A special thanks to all growers who participated in this research and shared information about their operations.

We hope this research helps existing growers improve their operations and assists prospective operators in planning their businesses.

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EXECUTIVE SUMMARY

A University of Minnesota Extension investigation of 11 mixed vegetable enterprises in Central Minnesota found that most operate profitably, and growers are making an outsized contribution to their local economies. Eleven is a small sample size, however, and the reader should take care not to consider this sample representative of either the entire central region of Minnesota or the state itself.

The 11 operations in the study gross \$9,335 per acre in vegetable sales and retain \$4,192, on average, after deducting annual cash expenses. Their average net return, after considering depreciation, stands at \$2,199 per acre. The lion's share of vegetable sales (75%) comes from direct marketing channels, such as farmers markets, farm stands, and CSA arrangements. Wholesale marketing channels, however, account for 25% of total vegetable sales.

Whole farm financial measurements, which encompass all enterprises (not only mixed vegetable production), show a significant split between some of the farms that make efficient use of their assets to realize good returns and those that make a meager income for the size and extent of their operations. Generally, the group is not overleveraged and has reasonable debt to farm ratios; all saw positive increases in net worth during 2014. Farm income, however, is not enough in most cases to cover family living expenses. Study participants garnered an average non-farm income of nearly \$39,000 to support farm and family financial needs.

Measures of the economic impact of small-scale local farm operations indicate that small farms return \$232,550 more to the local economy per million dollars of output than conventional agriculture. Every \$1,000,000 in output for small farms produces an additional \$608,000 for the local economy, whereas conventional agriculture contributes \$375,450 per million. The total impact of an estimated 65 small-scale vegetable farms in our 13-county study area brings in an estimated \$1.1 million in wage and proprietor income.

METHODOLOGY

Detailed information was collected from 11 operators in Central Minnesota about farm operating costs, sales by market channel, and labor inputs in 2014. The study's scope was limited to operations that raise vegetables for sale on less than 12 acres in the 13-county region of Central Minnesota, including Becker, Benton, Cass, Crow Wing, Douglas, Hubbard, Kanabec, Mille Lacs, Morrison, Otter Tail, Stearns, Todd, and Wadena counties. Extension's research team collected records related to the whole farm (including non-produce enterprise, such as dairy or crops), as well as the vegetable enterprise in particular.

Considering the sensitivity of data collected, Extension ensured that each participant's information remained confidential. Therefore, no farms are named in this report, and all identifying details are withheld.

Data Collection Procedure

During winter and spring of 2015, 11 participants were recruited through phone calls, email, and a mailing. The mailing was based on contact information compiled from the online directories Minnesota Grown and www.localfoods.umn.edu, as well as the SPROUT Food Hub mailing list. Although difficult to find an exact census, we estimate from public directories and Census of Agriculture statistics that about 65 operations exist in the 13-county region that meets our study criteria: (1) grow mixed vegetables in the field, (2) cultivate less than 12 acres of vegetables, and (3) be commercial vegetable operations. Assuming 65 operations in the region, then the 11 included in this study account for a 17% response rate.

Participants received data collection spreadsheets to fill out. The spreadsheets captured the information necessary to complete beginning and ending balance sheets and 2014 income statements. Since most participants were sole proprietors, operators were also asked to disclose non-farm income and spending to encompass all cash entering and exiting the household. Individual financial records were used to complete the spreadsheets, and while most respondents kept very accurate records, participants estimated figures at times, based on past production experience.

At least one member of the Extension research team individually interviewed each participant at their operation. All financial information was entered into FINPACK, the University of Minnesota's farm financial software program, for subsequent analysis. After an initial compilation and analysis during summer 2015, at least one member of the research team conducted a follow-up interview and business coaching session with available participants (eight of the 11). During the follow-up session, participants identified potential inaccuracies in their individual reports and shared their major challenges and keys to success. The Extension team used this input to both fix report inaccuracies and provide context for the findings.

Data Caution

Readers should understand that findings in this report are based on a small sample size of 11 farm operations. The data is not statically significant and not representative of all farms doing commercial vegetable production in the central region of Minnesota or the state. Though not representative, little public information exists about the finances of Minnesota vegetable farm operations or the financial returns of vegetable enterprises in general. Our intention is that these report findings help current vegetable operators improve farm management and help prospective operators establish a starting place for business planning.

ABOUT THE FARM OPERATIONS

The 11 participating farms ranged in size and the mix of enterprises they managed. Most integrated at least one livestock-based enterprise, such as broiler production or dairying, with their vegetable enterprise. Others combined crop-based enterprises, such as fruit production or value-added processing with vegetable growing. All told, sales through these other endeavors account for \$144,000, or 45% of total sales for all farms (see "Marketing Mix" section).

Farms ranged in size from five to 160 acres and dedicated between a quarter and six acres to vegetable production during 2014. Following the lead of previous research on vegetable enterprise returns (Hendrickson, 2003), we identified some results according to two size categories:

Market Gardens grew produce on three or fewer acres. Five of our 11 participating farms fell into this category.

Market Farms grew between three and six acres of vegetables. Six of our participants grew at this scale.

All participants had some off-farm income (almost all had one spouse employed in an off-farm job) and engaged in commercial vegetable production for various reasons. All participants shared reasons other than simple monetary return for farming, including the opportunity to socialize at farmers markets, the ability to act on environmental values, the convenience of working at home near children, the quality of life, and the importance of providing good food to their local communities.

Study participants had been involved in agriculture for an average of 13.7 years, ranging from four to 43 years. Two or three participants had significant experience in agriculture before they got involved in commercial horticulture, so the average time in horticulture would be less than 13 years.

KEY CHALLENGES AND SUCESES

At the time of follow-up meetings with study participants, Extension asked farm operators about their keys to success in building their farm businesses and requested they share their major challenges.

Keys to success

Considering all operators have built their businesses for years and established themselves in commercial vegetable production, we asked participants to share their keys to success. They provided the following suggestions:

- *Develop a wide network:* Off-farm jobs or other networks give growers an initial base of customers when starting their business.
- *Consider a NRCS grant for a high tunnel:* A couple operators mentioned this grant allowed them to jump into commercial production.
- *Share your vision with your spouse:* Considering the many competing tasks on a mixed vegetable operation, a shared understanding of priorities with your business partner is very valuable.
- *Concentrate on select crops:* Two participants shared they were more successful after cutting back on crop variety. Both focused on select vegetables that they could grow well, based on customer feedback and sales.

Major Challenges

Vegetable production is a time-intensive enterprise and labor issues were the most common management challenge cited. On small-scale vegetable farms with a wide mix of vegetables, proprietors try to follow tight planting and harvesting schedules with little to no hired labor. Other challenges of vegetable production included the following:

- *Weather and pests:* Most participants shared that weather and pests are perennial challenges.
- *Time management:* Participants shared their frustration with having “too many irons in the fire.” Many felt challenged by so many competing demands for time between farm and home and the difficulty of establishing priorities for each. A few mentioned the significant time investment needed for harvesting and the inability to find even casual labor.
- *Marketing:* A few identified the difficulty of selling products and developing promotional strategies.

FINANCIAL RETURNS TO MIXED VEGETABLE ENTERPRISE

All growers participating in this study separated the sales and expenses for their vegetable business from other enterprises they manage. Extension used these figures to calculate the financial returns for the vegetable side of the operation. Considering the variability of the data, we present the range, average, and median measures for the whole group and by size category (see Table 1 and Appendix 1 for details).

Table 1: Financial returns to mixed vegetable enterprise by size category and all farms (n=11)

	<i>Market Garden (less than 3 acres)</i>		<i>Market Farms (3-6 acres)</i>		<i>All Farms</i>	
	Range	Average	Range	Average	Average	Median
Gross revenue/acre	\$2,200-\$45,952	\$15,901	\$1,460-\$5,641	\$3,864	\$9,335	\$ 4,669
Net cash income/acre	\$673-\$16,812	\$7,188	\$83-\$3,423	\$1,695	\$4,192	\$2,200
Gross margin	31%-81%	52%	3%-78%	43%	45%	47%
Net cash income/hour	\$1.05-\$10.22	\$5.21	\$0.21-\$7.56	\$4.30	\$4.71	\$4.60
Depreciation/acre	\$369-\$8,358	\$3,030	\$669-\$1,932	\$1,128	\$1,993	\$908
Net return/acre	\$304-\$8,453	\$4,158	\$(590)-\$1,750	\$567	\$2,199	\$1,321

Gross Sales

The farms in this study reported an average of \$9,335 per acre but with wide variation between operations. For example, one farm grossed \$1,460 per acre and another took in \$45,952 per acre. Comparing the two size categories, market gardens had significantly more sales per acre than market farms, bringing in an average of \$15,901 and \$3,864, respectively. Generally, we found that operators more intensively grew and marketed vegetables on the small-market gardens than the relatively larger market farms. Their gross sales for market gardens are higher per acre, but so are their labor and input expenses. (More detail on the source of sales is included in the “Marketing Mix” section.)

Net Cash Income

Net cash income is calculated as gross sales minus annual cash expenses, both direct and overhead expenses. This does not include non-monetary expenses, such as depreciation and changes in inventory. The average cash income for all farms is \$4,192 per acre, with market gardens garnering more than \$7,000 and market farms realizing nearly \$2,000 (see Table 1).

Net Cash Income/Hour

Extension asked study participants to estimate the total time invested in their vegetable enterprise for both production and marketing. Responses were used to calculate a rate of return for their labors. The unpaid labor of farm families averaged \$4.71 per hour with little difference between market gardens and market farms. Market gardens had higher operating revenue per acre but invested more time per acre to nearly equal the same return as market farms.

Gross Margin

A common way of presenting net cash income is through a measure of gross margin. Calculated as operating revenue divided by gross revenue, gross margin is a percentage of gross sales after taking out the cash expenses to produce a crop. For example, market gardens in this study kept 52 cents of every dollar sold, and therefore had a gross margin of 52%. Study participants experienced a gross

margin of 3% to 81%, with average and median gross margins of 45% and 47%, respectively (see Table 1).

Depreciation

Depreciation is the cost due to the wear and age of assets. In this study, we included the depreciation of machinery and buildings on the farm divided by the vegetable crop acres. Many participants used older machinery with only its salvage value left; we used this market value to calculate machinery depreciation across all farms for an ‘apples-to-apples’ comparison. Depreciation averaged nearly \$2,000 per acre.

Net Return

Net return is the return to the enterprise after deducting operating expenses and depreciation. Nearly all farms had a positive net return, averaging \$2,199 per acre.

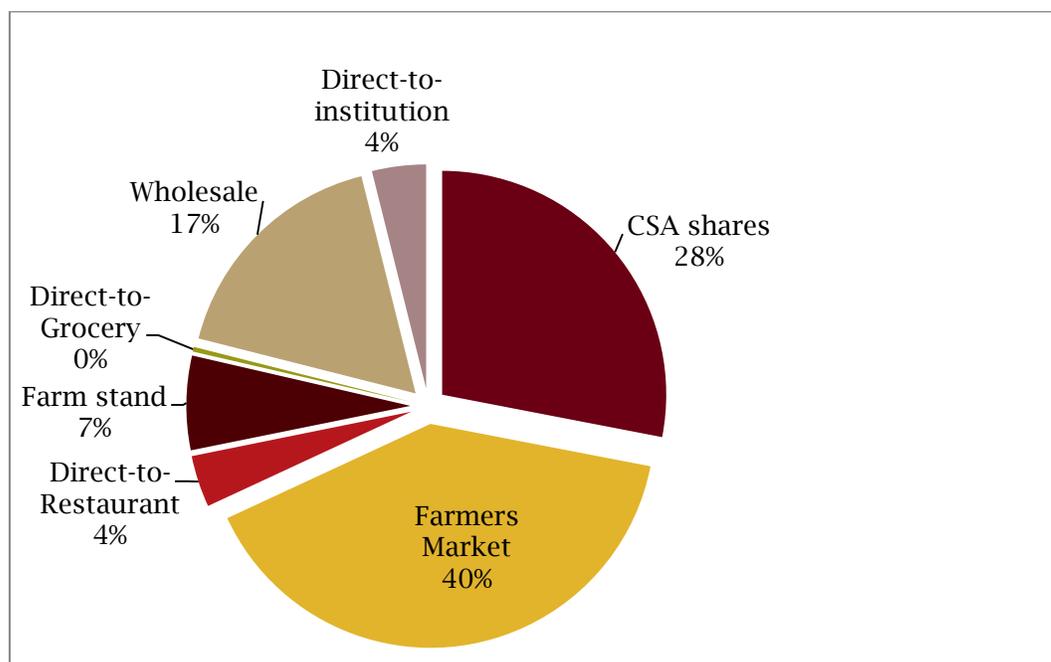
MARKETING MIX

The 11 operations participating in the study market their products through various marketing channels. Produce accounts for a majority of sales for each farm, except for two that do more livestock-related sales.

Looking closely at the marketing mix of vegetable sales, 75% of all sales were through direct marketing channels, such as CSA arrangements, farmers markets, and farm stands. The remaining 25% were through wholesale marketing channels, which, in this report, refer to sales direct to institutions, restaurants, and grocers, as well as an intermediary, such as a food hub.

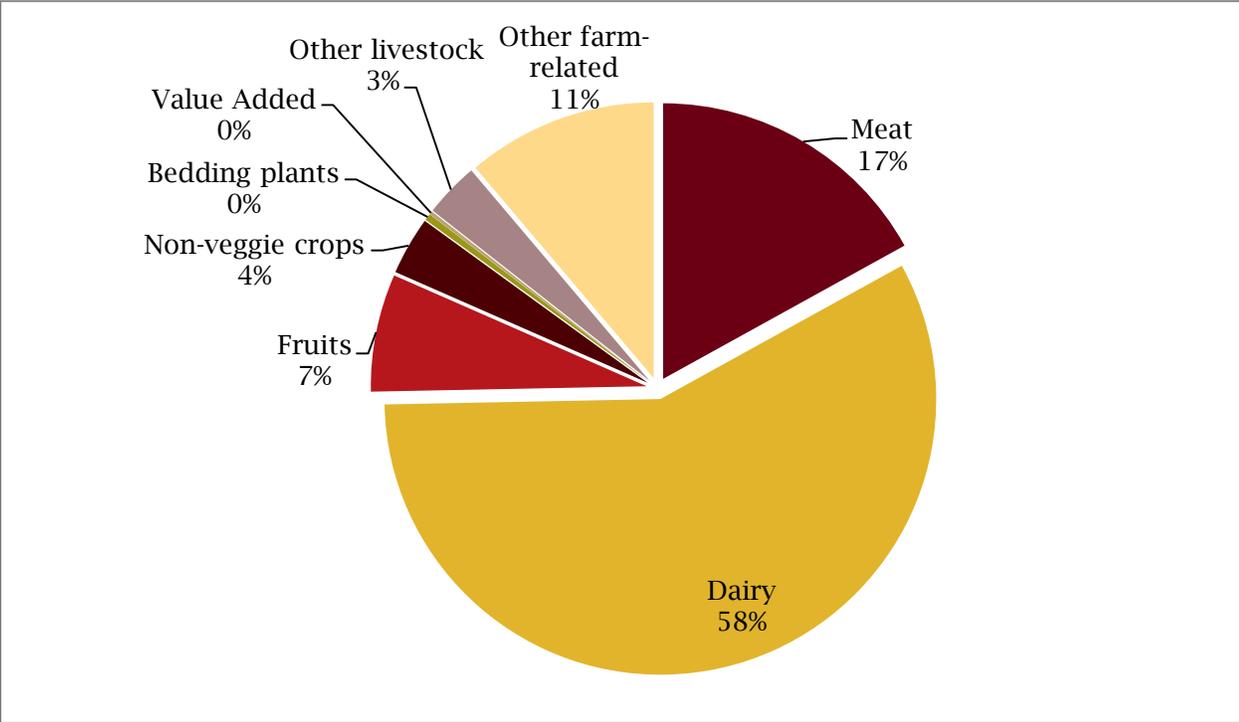
There was a split, however, between operations that engaged in substantial wholesale marketing and those that did not. Five operations made a significant amount of sales from wholesale accounts, whereas the remaining six operations had no wholesale sales, and one had only 2% of its total sales from a wholesale account (see Figure 1).

Figure 1: Distribution of Total Produce Sales by Market Channel (n=11)



Operators also made sales through other enterprises, which accounted for 45% of total farm sales in 2014. Many of these other sales came from livestock-based enterprises, although other crops were important to some operations (see Figure 2).

Figure 2: Other Sources of Sales for Participating Farms (n=11)



Marketing Costs and Marketing Mix

A common concern for produce operators is the marketing cost of selling in direct marketing channels. The direct costs to transport produce and sell at a farmer's market or to deliver CSA boxes decrease profit margins, even though operators are capturing retail prices. In contrast, although wholesale market channels offer a lower price, growers may spend less to sell the product.

The findings from our study, however, show little difference in marketing costs between farms that direct market exclusively and those that market at least some of their products through wholesale channels (see Table 2).

Table 2: Marketing Costs by Direct-Marketing and Wholesaling Groups

	Direct marketing > 80% of sales	Direct marketing <80% of sales
No. of farms	6	5
Total produce sales	\$66,604	\$ 107,643
Total produce expenses	\$40,835	\$52,998
Marketing costs	\$11,840	\$14,899
Transportation	\$9,084	\$11,128
Advertising	\$2,186	\$2,810
Dues/Memberships	\$570	\$961
Marketing costs as % of total expenses	29%	28%
Market costs as % of total Sales	18%	14%

We split the 11 participants into two groups, one that marketed almost exclusively through direct market channels and one that marketed at least 20% of their sales through wholesale market channels. We tallied the typical marketing costs of transportation, advertising, and dues/membership (common for those selling at markets). The proportion of these marketing costs as a percentage of total expenses was nearly identical and fairly close as a percentage of total sales. This finding may not be surprising, however, since even those that market through wholesale channels still engage in direct marketing to a large extent. In contrast, however, a producer who sold all his produce wholesale had the lowest marketing costs of all participants.

This comparison shows that those marketing wholesale, at least in part, had greater overall sales. This explains how marketing costs are a lower proportion of their total sales and makes intuitive sense, as these farms have a wider mix of market opportunities through which to sell their produce.

Labor Inputs and Returns

Each grower estimated how many man hours were spent to produce and market a vegetable crop in 2014, including themselves and family members. As noted in the expense benchmarks section, few operations paid for production labor. Instead, almost all labor came from farm proprietors and family help.

None of the farms had a time log that they used to track time. Each operator estimated the time they worked on a week-by-week basis throughout the season to gauge the total annual time for this report. This is a shortcoming of the data, and readers should view these labor figures as well-

educated estimates. Extension researchers may improve this data in the second year of the study by sampling hours at select times throughout the season to improve figures.

Table 3: Labor Invested by Size Category and Time Expressed as Hourly Wage

	<i>Market Garden (less than 3 acres)</i>		<i>Market Farms (3-6 acres)</i>		<i>All Farms</i>	
	Range	Average	Range	Average	Average	Median
Total hours	464-2,500	1,029	480-4800	2,193	1,664	1,200
Total hours per acre*	265-3,652	1,628	137-960	426	973	477
Gross sales per hour	\$3.44-\$13.01	\$9.40	\$5.97-\$16.44	\$10.24	\$9.86	\$10.64
Operating revenue per hour	\$1.05-\$10.52	\$5.21	\$0.21-\$7.56	\$4.30	\$4.71	\$4.60
Net return per hour	\$0.48-\$7.65	\$3.43	\$(4.30)-\$4.36	\$0.76	\$1.97	\$1.50

*Time for two farms on a per acre basis is unrealistically inflated due to being less than one acre in size.

Clearly, farm operators spend a lot of time to grow, harvest, and market vegetable crops. Growers spend 1,664 hours, on average, on vegetables per farm, which equates to more than one full-time job, assuming these hours are logged over eight to nine months and a full-time equivalent job is 2,080 hours (40 hours per week for 52 weeks). At nearly \$10 gross sales per hour, this appears to be a valuable endeavor, however this wage slips to \$4.71 per hour after deducting cash expenses and \$1.97 after deducting depreciation.

EXPENSE BENCHMARKS

One purpose of this project was to develop benchmarks against which farms could compare themselves. Extension calculated the average and median expenses for direct and overhead cash expenses per acre, based on the mixed vegetable acres of the 11 participating farms (see Table 4).

Table 4: Expense Benchmarks—Average and Median Cash Expenses Per Acre (n=11)

Direct:	<i>Average/acre</i>	<i>Median/acre</i>	<i>Percent of total average expense</i>	<i>No. of farms with expense</i>
Crop chemicals	\$ 45	\$-	1%	3
Custom hire	\$100	\$-	2%	1
Distribution (trucking, shipping)	\$62	\$-	1%	3
Fertilizer	\$77	\$12	1%	6
Fuel and oil	\$190	\$133	4%	9
Repairs, maintenance	\$310	\$25	6%	7
Seeds & plants purchased	\$575	\$320	11%	11
Supplies	\$1,118	\$340	22%	11
Production Labor	\$106	\$-	2%	3
Overhead:				
Auto & truck (transportation)	\$1,288	\$750	25%	10
Interest	\$9	\$ -	0%	2
Insurance, farm share	\$115	\$-	2%	5

Property tax, farm share	\$142	\$23	3%	8
Utilities, farm share	\$590	\$29	11%	6
Other Expense:				
Advertising	\$195	\$49	4%	7
Dues/memberships	\$72	\$41	1%	6
Professional services	\$137	\$-	3%	5
Education	\$13	\$-	0%	3
Total	\$5,144	\$2,522	100%	11
Direct	\$2,583	\$1,500	50.2%	11
Overhead	\$2,561	\$1,210	49.8%	11

Perhaps the most notable information about these expense benchmarks is that data is missing from the list, including land rents and salaried employees. These common farm expenses were simply not incurred during the 2014 season.

The highest direct expense category was supplies, which included packing and harvesting items, such as crates and wax boxes, small tools and equipment, as well as growing supplies, such as drip tape, plastic mulch, and irrigation hose. Another significant expense was auto and truck costs, which primary involved transportation for product delivery.

WHOLE FARM ANALYSIS

Whole farm measures help explain how the entire operation is doing, combining the vegetable side of the business with costs and revenues from other enterprises. Conducting a whole farm analysis of participant data is more comprehensive than an enterprise analysis, since it is based on an accrual income statement and balance sheet changes.

Accrual Income Statement: An income statement measures profitability and is inclusive of all dollars in and out of the household or business, including non-farm income and family living expenses in the case of sole proprietorships. This statement is adjusted to reflect only the revenues and expenses related to the 2014 season. Done through a process of accrual, expenses or revenues are added or subtracted based on the year in which they are associated. For example, soil mix purchased in late 2013 would accrue to the 2014 season, since the input was used during 2014.

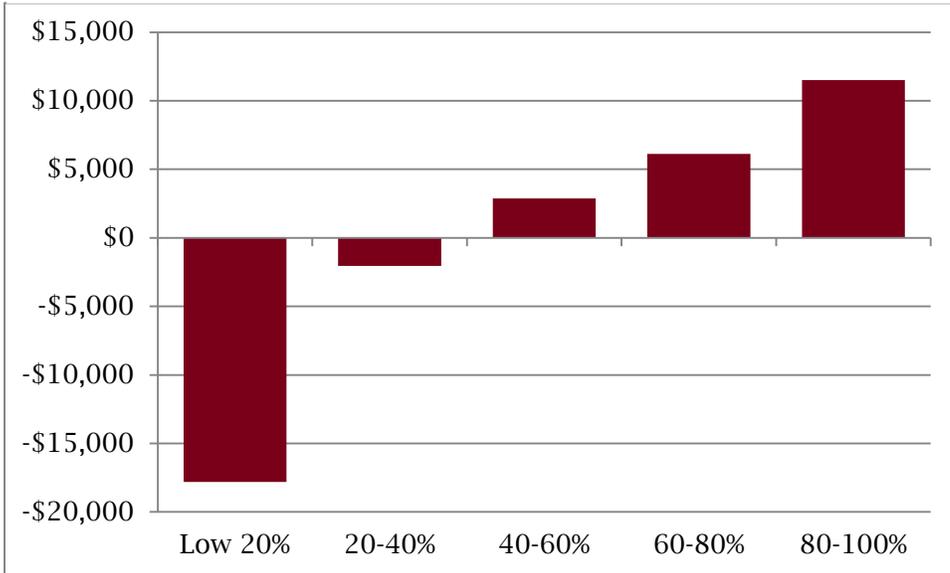
Beginning and Ending Balance Sheets: A balance sheet measures the financial position of a business by comparing total assets and liabilities. It indicates net worth (simply defined as what you own minus what you owe), liquidity (measure of cash flow), and solvency (your ability to pay back debts).

Examining an income statement and balance sheet provides a sophisticated analysis of the whole farm, because it takes into consideration not only revenues and expenses, but also changes in the value of the operation. For example, an income statement may show a seasonal loss, but part of that loss may be attributed to the capital purchase of a large piece of equipment. In this case, income decreases and a liability may be incurred, but the value of the new equipment may outweigh both to increase the overall net worth of the operation.

Profitability: Net Farm Income and Operating Profit Margin

Net farm income for the whole farm is the bottom line for an accrued farm income statement. After taking into consideration all expenses and revenues for all enterprises (not only the vegetable enterprise) and any accrual adjustments to inventory, net farm income gives an accurate accounting of farm profit or loss. Together with non-farm income, these are the dollars available to farm families to cover all family living expenses, taxes, and payments on principal.

Figure 3: Net Farm Income Sorted by Net Farm Income by Quintile (n=9)



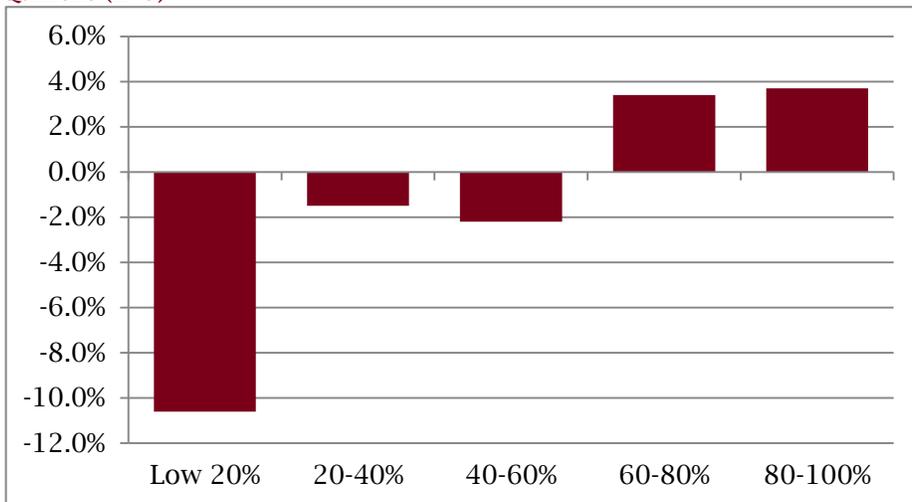
Looking at the financial summary of nine of our 11 study participants, sorted by net farm income (Appendix 2), median net farm income stands at \$4,392. We removed two outliers from the summary to better represent the group. The bottom two groups had farm losses in 2014, whereas the top three quintiles had profits, with the top quintile seeing a median net farm income of

\$11,513. One reason the top quintile saw the highest net farm income was the mix of income sources, including other farm income and a wider mix of enterprises than the other farms (see Appendix 2).

Operating profit margin measures how efficient a farm produces income from its expenses. Calculated as profit as a percentage of total production, the average operating profit margin for the group was 23.0%, although only the two highest quintiles had positive operating margins.

Rate of Return on Farm Assets

Figure 4: Rate of Return on Farm Assets Sorted by Net Farm Income by Quintile (n=9)



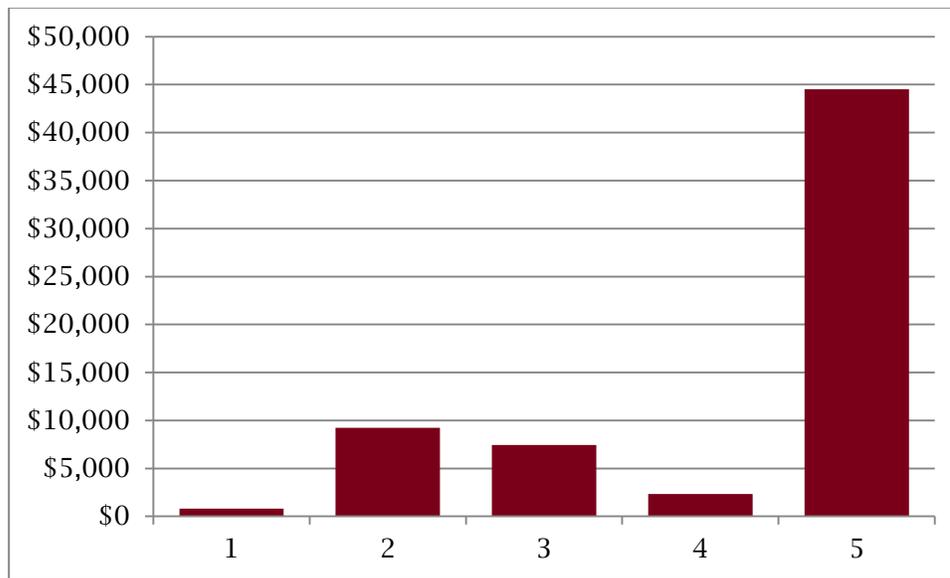
Another measure of profitability, in addition to net farm income, is rate of return on farm assets. This is like an interest rate earned during the year on the total amount of money invested in the farm. For our study participants, the average rate of return

was 0.2%, a ratio putting study participants into the “vulnerable” category, according to the Center for Farm Financial Management (Becker, et al., 2014). Two of the five quintiles had a positive rate of return on its assets.

Changes in Net Worth

Net worth measures the solvency of a business, or whether its assets cover total liabilities, as measured by a farm’s balance sheet. A change in net worth can come from multiple sources, including retained earnings, a change in asset valuations, or additions or subtractions of assets and liabilities. For example, paying off an operating loan increases net worth by decreasing liabilities. Likewise, the appreciation of an asset, such as stored crops, also has the same affect.

Figure 5: Change in Total Net Worth from Beginning to End of 2014, Sorted by Net Farm Income by Quintile (n=9)



Participating farms had an average of \$334,916 in total assets, and \$111,178 in total liabilities for an average net worth of \$223,738. Interestingly, the two most profitable farms had the highest positive net worth change (17% increase), but also the highest debt to asset ratio. Consequently, it seems they are able to capitalize on the

debt they are taking on. Overall, all farms realized a 7% increase in their net worth from the beginning to the end of 2014.

A related measure of solvency is the farm’s debt to asset ratio. Farms with a ratio of 60% or more are considered vulnerable (Becker et al., 2014); our study participants have an average of 37%, indicating the group is not over-leveraged. A ratio below 30% is considered strong.

Please see Appendix 2 for details of all whole farm financial measures.

ECONOMIC IMPACT

Input-output models are traditionally used to measure the economic impact or contribution of an industry. With increasing demand by consumers for local foods, many decision makers are turning to input-output models to measure the economic impact of small-scale farming operations. However, many researchers have argued that input-output models do not accurately reflect these operations, since the base data in models are national in scope. University of Minnesota Extension agrees. The goal of this part of the research is to create an input-output model that more adequately reflects the farms, oftentimes small-scale, which supply local food markets.

Input-Output Models and Failures Related to Small-Scale Farming

Input-output models trace the flow of goods and services throughout an economy. The primary way this is accomplished is via a production function. Production functions, in essence, show the breakdown of producers' expenses to create one dollar of output. Production functions are critical to the calculation of economic contribution, and changes in it can significantly impact analysis results. An accurate production function is critical for an accurate economic impact analysis.

The input-output calculation is as follows:

Output = Intermediate Inputs + Value Added

Intermediate inputs are the goods and services needed to produce an item. In agriculture, intermediate inputs include seeds, animal feed, fertilizer application services, and land rentals, for example.

Value added includes the labor required to produce an item, along with taxes and other property income. Input-output models account for two types of labor income—employee compensation (usually measured in wages, salaries, and benefits) and proprietary income (income of the owner-operator). Taxes included in the value added component are indirect business taxes, or taxes paid in the process of producing the final product. Other property income accounts for payments in terms of royalties and dividends, again as a direct result of the production process. Agricultural check-off funds, for example, are included in other property income.

Input-output models rely on national, state, and local data sources to create production functions. Due to data requirements, many production processes are aggregated into one production function for an industry. A clear example of this is agriculture. Small-scale farming operations producing primarily for local markets (such as CSA farms, farm-to-school, or farmers markets) are incorporated into a production function, along with large-scale farming operations producing primarily for sale into national wholesale marketing channels. One can imagine that small-scale farming operations have very different practices for producing one tomato versus large-scale farming operations. In an input-output model, however, they are reduced to having the same production function, which is an average of both types of operation.

In recent years, many universities across the United States have explored options for improving the production function to more adequately reflect the small-scale farming operation. In this report, University of Minnesota Extension follows a process first described by Cornell University (Schmit, Jablonski, and Mansury, 2013).

Developing a Production Function for Small-Scale Farming Operations in Central Minnesota

The first step in quantifying a production function for a small-scale farming operation is gathering data on spending per operation. Interviews with small-scale farmers to develop financial benchmarks also yielded information on expenditure patterns. This information can be used to modify the default production functions in the input-output model.

Table 5 shows the production function for small-scale farmers, based on interviews with 11 operations in Central Minnesota. For every dollar of output generated, small-scale farmers spend 63 cents on intermediate inputs and 37 cents on value added. Primary intermediate input expenses include purchases from other agricultural producers and wholesale trade. The primary value added expenditure is for labor income.

According to the input-output model, IMPLAN, conventional agricultural producers spend 61 cents on intermediate inputs and 39 cents on value added. A key difference is in labor income where traditional agricultural producers spend 36 cents on labor versus 34 cents for small-scale farmers.

Primary intermediate input expenses for traditional agricultural producers include manufacturing and other agricultural producers.

Table 5: Purchases per dollar of sales, small-scale farms vs. conventional agriculture for central region of MN

	Local Foods	Conventional agriculture
Intermediate Inputs	\$0.625	\$0.608
Agriculture, Forestry, Fishing, and Support Services	\$0.219	\$0.194
Utilities	\$0.016	\$0.011
Manufacturing	\$0.037	\$0.242
Wholesale Trade	\$0.112	\$0.048
Transportation and Warehousing	\$0.076	\$0.024
Finance and Insurance	\$0.060	\$0.025
Real Estate and Rental	\$0.003	\$0.036
Professional Services	\$0.041	\$0.007
Educational Services	\$0.006	\$0.001
Other Services	\$0.055	\$0.003
All Other Industries	\$0.000	\$0.017
Value Added	\$0.376	\$0.394
Labor Income	\$0.344	\$0.358
Indirect Business Taxes	\$0.032	\$0.001
Other Property Type Income	\$0.000	\$0.035
Total	\$1.00	\$1.00

Local foods production function values derived from our survey of small-scale farmers. Conventional agriculture production function values are from the IMPLAN model for Central Minnesota.

When comparing intermediate input expenditures, there are clear differences between small-scale farmers and traditional agricultural producers that include the following:

- **Agriculture, forestry, fishing, and support services.** Small-scale farmers spend, on average, about 2.5 cents more per dollar on purchases from other agricultural producers. Some of this may result from more direct farm-to-farm sales; for example, small-scale operations may be more likely to purchase transplants or animal feed directly from other local farming operations, as opposed to using a wholesaler.
- **Manufacturing and wholesale trade.** Small-scale farmers make significantly fewer lower purchases from the manufacturing industry than the wholesale trade industry. This may partially be explained by differences in classifications by the analyst—what the creators of the IMPLAN model view as a manufacturing purchase may appear to the modeler of this analysis as a wholesale trade purchase. Another likely explanation is that large-scale operations are making more investments in expensive equipment, which would be categorized as a purchase from the machinery manufacturing sector.
- **Transportation and warehousing.** On a per dollar basis, small-scale farmers spend three times as much on transportation and warehousing costs than traditional conventional agriculture producers. This may be explained by the need, on the part of small-scale farmers, to transport agricultural products to diverse geographic locations. Small-scale farmers are typically responsible for transporting their product to their customers. Large-scale farms, on

the other hand, typically transport to one primary location, at which point the wholesaler becomes responsible for the cost of transportation to the final consumer.

- **Real estate and land rental.** Small-scale operations spend noticeably less on real estate and rental than conventional agriculture. Small-scale farmers typically own the land used in production. Large-scale operations, however, are more active in renting additional land for production.
- **Services.** On average, small-scale operators also spend more on services than traditional producers. A fraction of this difference may be attributed to the advertising costs of small-scale producers to reach their target audience. Tracking customers and their preferences may also lead to additional record-keeping.

Local Spending by Small-Scale Farming Operations

Production functions detail how the average operation produces one dollar of output. A second distinction of the input-output model is the ratio of expenditures made locally or within the study area economy. When calculating economic impact, expenditures made outside of the designated study area are leakages and do not generate any additional impacts. Expenditures made within the region, however, trigger changes at local businesses and thus create additional economic activity.

Not surprisingly, small-scale farm operations tend to purchase locally in higher ratios (see Table 6). For example, small-scale farms report purchasing 80 percent of their utilities from local businesses versus 60 percent for traditional agricultural operations.

Table 6: Percent of Purchases Made within the Study Area, by Industry, of Small-Scale Farms versus Conventional Agriculture Sector, 13-County Region

	Local Foods	Conventional agriculture
Intermediate Inputs		
Agriculture, Forestry, Fishing, and Support Services	85%	86%
Utilities	80%	60%
Manufacturing	85%	9%
Wholesale Trade	95%	52%
Transportation and Warehousing	98%	62%
Finance and Insurance	72%	51%
Real Estate and Rental	100%	86%
Professional Services	70%	45%
Educational Services	23%	74%
Other Services	68%	56%
All Other Industries		NA

Local foods values derived from survey of small-scale farmers. Conventional agriculture values are from the IMPLAN model for Central Minnesota.

Measuring Economic Contribution Using a Modified Production Function

Following the methods of Schmit, Jablonski, and Mansury (2013), a model for the 13-county study area was created and aggregated to the 2-digit NAICS code in IMPLAN.

Using analysis-by-parts, a model for the conventional agriculture sector was built relying on the default production function and ratios of local spending. A second model was also built using the data for small-scale farms and associated ratios of local spending.

A \$1 million impact was then analyzed for each model. The results are detailed in Table 7. One million dollars in sales by small-scale farmers will generate \$1.6 million in the regional economy (the 13-county study area). The same \$1 million dollars in sales will support \$568,600 of labor income and 100 jobs. We should note, however, that the input-output model counts any job (even part-time) as one job, and participants in our study employed, on average, 2.7 people, all of whom worked part-time.

Comparatively, \$1 million in sales by conventional agriculture farms will generate \$1.4 million in the local economy and support \$506,600 of labor income and nine jobs.

Table 7: Economic Contribution of \$1 million in Sales, Local Foods Farms versus Conventional Agriculture Sector, 13-County Region

	Local Foods	Conventional agriculture
Output		
Direct	\$1,000,000	\$1,000,000
Indirect and Induced	\$608,000	\$375,450
Total	\$1,608,000	\$1,375,450
Employment		
Direct	95	6
Indirect and Induced	5	3
Total	100	9
Labor Income		
Direct	\$376,000	\$394,000
Indirect and Induced	\$192,600	\$112,600
Total	\$568,600	\$506,600

Estimates by University of Minnesota Extension

This comparison analysis is important on two levels. First, it confirms what many analysts have suspected—that the production functions for small-scale farming and conventional agriculture are different and impact their respective economic contributions differently. Second, it demonstrates that small-scale farming, with higher local purchasing ratios, makes marginally higher contributions to the local economy.

Economic Contribution of Small-Scale Farms in the 13-County Region

With a more accurate production function, it is possible to measure the economic contribution of small-scale farming in the 13-county region. Assuming the 11 farms represent all 65 small-scale farming operations in the 13-county region, small-scale farms directly produce \$1.9 million of sales in the region.¹ As a result, more than \$3.1 million of output is generated in the region (see Table 8).

Small-scale farms support 188 jobs in the region, primarily at the farms themselves. In the input-output model used, one job is one job, regardless if that job is full-time, part-time, or seasonal. Small-scale farms may use a considerable number of employees for very short time periods; for example, a crew of high school students might pick berries for one week, or children of the farm

¹ Assuming the 11 farms are representative of all farms is a major assumption. A larger sample size of small-scale farming operations would improve the validity of this analysis.

owners pitch in at busy times. Each of those students or children would count as an employee in the model.

Table 8: Economic Contribution of Small Scale Farms, 13-County Region

	Output (millions)	Employment	Labor Income (millions)
Direct	\$1.9	180	\$0.7
Indirect	\$1.1	7	\$0.3
Induced	\$0.1	1	\$0.1
Total	\$3.1	188	\$1.1

Estimates by University of Minnesota Extension

Small-scale farming operations directly pay \$0.7 million in labor income, including wages, salaries, and benefits for their workers and themselves. As a result of this income, small-scale farmers support \$1.1 million of labor income in the region.

Cautions and Considerations

The analyses performed above relied on responses from 11 small-scale farm operations in Central Minnesota. The 11 responses provide an opportunity to examine the role of small-scale farming in the region and to prove the importance of accurate production functions. However, this is an extremely small sample size, and care should be taken in interpreting the results. Extension plans to repeat interviews with small-scale farm operations in 2016. Additional data points would be valuable to the input-output analysis and would strengthen the ability to apply the model to other situations.

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APPENDIX 1: Vegetable Enterprise Data per Participating Farms (n=11)

	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6	Farm 7	Farm 8	Farm 9	Farm 10	Farm 11	Total				
Size category	Farm	Garden	Farm	Farm	Garden	Farm	Garden	Garden	Garden	Farm	Farm	34.8				
Hours on veggies	4,800	640	2,860	2,400	700	480	464	840	2,500	1,420	1,200	18,304				
Gross Sales (all enterprises)	\$ 28,645	\$ 9,250	\$ 43,782	\$ 17,268	\$ 3,497	\$ 7,209	\$ 9,972	\$ 10,569	\$ 46,147	\$ 39,243	\$ 102,693	\$ 318,275				
Produce sales	\$ 28,645	\$ 2,200	\$ 33,844	\$ 17,268	\$ 3,497	\$ 5,109	\$ 6,012	\$ 10,569	\$ 32,518	\$ 23,343	\$ 11,242	\$ 174,247				
Produce as % of total gross sales	100%	24%	77%	100%	100%	71%	60%	100%	70%	59%	11%	55%				
Produce sales/acre	\$ 5,729	\$ 2,200	\$ 5,641	\$ 2,878	\$ 11,657	\$ 1,460	\$ 3,435	\$ 45,952	\$ 16,259	\$ 4,669	\$ 2,811					
													Average	Median	% of Total Cash Expense	No. of Farms with Expense
Direct Expenses /acre:																
Crop chemicals	\$ 22	\$ -	\$ 422	\$ -	\$ -	\$ -	\$ -	\$ 57	\$ -	\$ -	\$ -	\$ 45	\$ -	\$ -	1%	3
Custom hire	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,104	\$ -	\$ -	\$ -	\$ 100	\$ -	\$ -	2%	1
Distribution (trucking, shipping)	\$ 9	\$ -	\$ 29	\$ -	\$ -	\$ -	\$ -	\$ 643	\$ -	\$ -	\$ -	\$ 62	\$ -	\$ -	1%	3
Fertilizer	\$ -	\$ -	\$ 27	\$ 80	\$ -	\$ -	\$ -	\$ 217	\$ 458	\$ 12	\$ 50	\$ 77	\$ 12	\$ -	1%	6
Fuel and oil	\$ 118	\$ 10	\$ 258	\$ 177	\$ -	\$ 133	\$ 6	\$ 709	\$ 347	\$ 335	\$ -	\$ 190	\$ 133	\$ -	4%	9
Repairs, maintenance	\$ 175	\$ -	\$ 283	\$ 19	\$ -	\$ 64	\$ -	\$ 196	\$ 2,650	\$ -	\$ 25	\$ 310	\$ 25	\$ -	6%	7
Seeds & plants purchased	\$ 320	\$ 252	\$ 126	\$ 637	\$ 1,287	\$ 149	\$ 234	\$ 1,513	\$ 1,209	\$ 347	\$ 248	\$ 575	\$ 320	\$ -	11%	11
Supplies	\$ 340	\$ 55	\$ 269	\$ 457	\$ 1,187	\$ 54	\$ 91	\$ 8,583	\$ 739	\$ 400	\$ 121	\$ 1,118	\$ 340	\$ -	22%	11
Production Labor	\$ 725	\$ -	\$ 86	\$ 350	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 106	\$ -	\$ -	2%	3
Overhead Expenses/acre:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0
Auto & truck	\$ 555	\$ 1,210	\$ 158	\$ 456	\$ 750	\$ 762	\$ 207	\$ 8,022	\$ 941	\$ 1,111	\$ -	\$ 1,288	\$ 750	\$ -	25%	10
Interest, Other	\$ 73	\$ -	\$ -	\$ 30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9	\$ -	\$ -	0%	2
Insurance, farm share	\$ 432	\$ -	\$ 324	\$ 123	\$ -	\$ -	\$ -	\$ -	\$ 325	\$ 61	\$ -	\$ 115	\$ -	\$ -	2%	5
Property tax, farm share	\$ 128	\$ -	\$ -	\$ 300	\$ 828	\$ -	\$ 23	\$ 82	\$ 172	\$ 9	\$ 17	\$ 142	\$ 23	\$ -	3%	8
Utilities, farm share	\$ 120	\$ -	\$ 34	\$ -	\$ -	\$ 29	\$ -	\$ 6,120	\$ 60	\$ 122	\$ -	\$ 590	\$ 29	\$ -	11%	6
Other Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0
Advertising	\$ 442	\$ -	\$ 7	\$ 167	\$ -	\$ 49	\$ -	\$ 909	\$ 507	\$ 70	\$ -	\$ 195	\$ 49	\$ -	4%	7
Dues/memberships	\$ 96	\$ -	\$ 80	\$ -	\$ 417	\$ 41	\$ 86	\$ -	\$ 75	\$ -	\$ -	\$ 72	\$ 41	\$ -	1%	6
Professional services	\$ 30	\$ -	\$ 35	\$ -	\$ -	\$ -	\$ -	\$ 987	\$ 300	\$ -	\$ 150	\$ 137	\$ -	\$ -	3%	5
Education	\$ -	\$ -	\$ 80	\$ -	\$ -	\$ 5	\$ -	\$ -	\$ -	\$ 55	\$ -	\$ 13	\$ -	\$ -	0%	3
Total Cash Expenses/acre	\$ 3,587	\$ 1,527	\$ 2,218	\$ 2,796	\$ 4,468	\$ 1,286	\$ 647	\$ 29,141	\$ 7,781	\$ 2,522	\$ 611	\$ 5,144	\$ 2,522	\$ -		
Direct/acre	\$ 1,710	\$ 317	\$ 1,500	\$ 1,719	\$ 2,473	\$ 400	\$ 331	\$ 13,022	\$ 5,402	\$ 1,094	\$ 444	\$ 2,583	\$ 1,500	\$ -	50%	11
Return over Direct	70%	86%	73%	40%	79%	73%	90%	72%	67%	77%	84%	70%	72%	\$ -		
Overhead/acre	\$ 1,877	\$ 1,210	\$ 718	\$ 1,076	\$ 1,995	\$ 886	\$ 317	\$ 16,119	\$ 2,379	\$ 1,428	\$ 167	\$ 2,561	\$ 1,210	\$ -	50%	11
Return over Direct and Overhead	37%	31%	61%	3%	62%	12%	81%	37%	52%	46%	78%	46%	45%	\$ -		
Depreciation per acre	\$ 820	\$ 369	\$ 1,673	\$ 669	\$ 3,683	\$ 764	\$ 760	\$ 8,358	\$ 1,980	\$ 908	\$ 1,932	\$ 1,993	\$ 908	\$ -		
Machinery Depreciation	\$ 820	\$ 287	\$ 1,208	\$ 257	\$ 2,750	\$ 523	\$ 531	\$ 2,803	\$ 227	\$ 565	\$ 550	\$ 957	\$ 550	\$ -		
Building Depreciation	\$ -	\$ 82	\$ 465	\$ 412	\$ 933	\$ 241	\$ 229	\$ 5,555	\$ 1,754	\$ 343	\$ 1,382	\$ 1,036	\$ 412	\$ -		
Net return per acre	\$ 1,321	\$ 304	\$ 1,750	\$ (587)	\$ 3,505	\$ (590)	\$ 2,028	\$ 8,453	\$ 6,498	\$ 1,239	\$ 267	\$ 2,199	\$ 1,321	\$ -		
Return to Labor																
Gross Sales per Hour	\$ 5.97	\$ 3.44	\$ 11.83	\$ 7.20	\$ 5.00	\$ 10.64	\$ 12.96	\$ 12.58	\$ 13.01	\$ 16.44	\$ 9.37	\$ 9.86	\$ 10.64	\$ -		
Net Cash Income per Hour	\$ 2.23	\$ 1.05	\$ 7.18	\$ 0.21	\$ 3.08	\$ 1.27	\$ 10.52	\$ 4.60	\$ 6.78	\$ 7.56	\$ 7.33	\$ 4.71	\$ 4.60	\$ -		
Net Enterprise Income per Hour	\$ 1.38	\$ 0.48	\$ 3.67	\$ (1.47)	\$ 1.50	\$ (4.30)	\$ 7.65	\$ 2.31	\$ 5.20	\$ 4.36	\$ 0.89	\$ 1.97	\$ 1.50	\$ -		

Financial Summary
Area Issue Grant Benchmark Report
(Farms Sorted By Net Farm Income)

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>20 - 40%</u>	<u>40 - 60%</u>	<u>60 - 80%</u>	<u>High 20%</u>
Number of farms	9	1	2	2	2	2
Income Statement						
Gross cash farm income	20,427	9,250	8,953	16,100	16,236	46,008
Total cash farm expense	13,578	2,614	7,842	10,588	12,778	28,587
Net cash farm income	6,849	6,636	1,111	5,512	3,459	17,421
Inventory change	207	-7,595	-279	521	5,389	-902
Depreciation	-4,927	-16,850	-2,870	-3,156	-2,714	-5,006
Net farm income from operations	2,129	-17,809	-2,039	2,877	6,134	11,513
Gain or loss on capital sales	-	-	-	-	-	-
Average net farm income	2,129	-17,809	-2,039	2,877	6,134	11,513
Median net farm income	4,392	-17,809	-2,039	2,877	6,134	11,513
Profitability (cost)						
Rate of return on assets	0.2 %	-10.6 %	-1.5 %	-2.2 %	3.4 %	3.7 %
Rate of return on equity	-1.7 %	-10.6 %	-1.6 %	-6.8 %	2.4 %	6.6 %
Operating profit margin	1.8 %	-1,383.8 %	-31.0 %	-12.5 %	28.0 %	23.1 %
Asset turnover rate	11.3 %	0.8 %	4.9 %	17.9 %	12.3 %	15.8 %
Profitability (market)						
Rate of return on assets	2.2 %	2.9 %	-5.6 %	-0.7 %	2.3 %	8.0 %
Rate of return on equity	1.9 %	2.9 %	-6.0 %	-1.7 %	1.1 %	22.7 %
Operating profit margin	23.0 %	604.7 %	-120.7 %	-5.0 %	23.9 %	52.7 %
Asset turnover rate	9.5 %	0.5 %	4.7 %	14.2 %	9.5 %	15.2 %
Liquidity & Repayment (end of year)						
Current assets	3,083	2,145	1,287	1,129	4,325	6,060
Current liabilities	5,629	-	2,630	336	3,888	18,476
Current ratio	0.55	-	0.49	3.37	1.11	0.33
Working capital	-2,546	2,145	-1,344	794	437	-12,416
Working capital to gross inc	-12.5 %	152.7 %	-15.5 %	4.6 %	2.2 %	-27.6 %
Term debt coverage ratio	1.59	-	-0.42	-0.27	1.94	3.66
Replacement coverage ratio	1.28	-1.73	-0.30	-0.25	1.42	3.66
Term debt to EBITDA	7.76	-	10.50	9.18	5.09	8.54
Solvency (end of year at cost)						
Number of farms	9	1	2	2	2	2
Total assets	250,042	159,595	199,057	141,200	310,886	394,247
Total liabilities	109,607	1,509	84,120	138,757	63,890	205,710
Net worth	140,435	158,086	114,938	2,443	246,996	188,536
Net worth change	6,449	-23,633	16,461	-12,307	3,160	33,524
Farm debt to asset ratio	43 %	-	6 %	63 %	39 %	74 %
Total debt to asset ratio	44 %	1 %	42 %	98 %	21 %	52 %
Change in earned net worth %	5 %	-13 %	17 %	-83 %	1 %	22 %
Solvency (end of year at market)						
Number of farms	9	1	2	2	2	2
Total assets	334,916	310,645	265,433	212,584	362,985	510,799
Total liabilities	111,178	1,509	84,120	138,757	70,958	205,710
Net worth	223,738	309,136	181,313	73,826	292,027	305,088
Total net worth change	14,217	817	9,236	7,457	2,344	44,529
Farm debt to asset ratio	37 %	-	6 %	50 %	32 %	70 %
Total debt to asset ratio	33 %	0 %	32 %	65 %	20 %	40 %
Change in total net worth %	7 %	0 %	5 %	11 %	1 %	17 %
Nonfarm Information						
Net nonfarm income	38,629	9,350	61,277	21,671	42,806	43,404
Farms reporting living expenses	2	-	-	-	1	1
Total family living expense	23,776	-	-	-	18,491	29,060
Total living, invest, cap. purch	23,776	-	-	-	18,491	29,060
Crop Acres						
Total crop acres	7	37	2	3	6	4
Total crop acres owned	7	37	2	3	6	4
Total crop acres cash rented	-	-	-	-	-	-
Total crop acres share rented	-	-	-	-	-	-
Machinery value per crop acre	3,409	880	7,434	15,285	3,022	6,080

Farm Income Statement
Area Issue Grant Benchmark Report
(Farms Sorted By Net Farm Income)

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>20 - 40%</u>	<u>40 - 60%</u>	<u>60 - 80%</u>	<u>High 20%</u>
Number of farms	9	1	2	2	2	2
Cash Farm Income						
Bedding Plants	31	-	138	-	-	-
Vegetables, Assorted	14,816	9,250	7,839	16,072	10,206	27,931
Chickens, Egg Production, Chicks	1,333	-	-	-	-	6,000
Hogs, Finish Feeder Pigs	158	-	-	-	-	710
Sheep, Feeder Lamb Prod, Fdr Lambs	100	-	-	-	-	450
Sheep, Market Lamb Prod, Mkt Lambs	139	-	625	-	-	-
Chickens, Pullets	441	-	-	-	-	1,983
Misc. livestock income	20	-	64	28	-	-
CRP payments	512	-	-	-	-	2,303
Other government payments	761	-	-	-	3,050	373
Custom work income	222	-	-	-	1,000	-
Patronage dividends, cash	32	-	-	-	-	143
Other farm income	1,863	-	288	-	1,980	6,117
Gross Cash Farm Income	20,427	9,250	8,953	16,100	16,236	46,008

Farm Income Statement (continued)
Area Issue Grant Benchmark Report
(Farms Sorted By Net Farm Income)

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>20 - 40%</u>	<u>40 - 60%</u>	<u>60 - 80%</u>	<u>High 20%</u>
Number of farms	9	1	2	2	2	2
Cash Farm Expense						
Seed	1,299	452	436	994	2,114	2,076
Fertilizer	167	-	25	-	241	488
Crop chemicals	54	-	7	55	181	-
Irrigation energy	173	-	-	-	778	-
Packaging and supplies	998	220	1,256	1,171	200	1,755
Custom hire	97	50	412	-	-	-
Hauling and trucking	1,738	-	1,992	249	1,369	4,213
Marketing	356	-	-	-	356	1,246
Crop miscellaneous	275	-	923	-	-	317
Feeder livestock purchase	244	-	-	-	-	1,100
Purchased feed	797	100	598	488	-	2,453
Veterinary	76	130	153	-	-	123
Supplies	137	-	-	-	-	619
Interest	1,998	-	-	184	3,241	5,567
Fuel & oil	552	150	314	375	535	1,184
Repairs	1,245	1,512	134	1,827	238	2,650
Hired labor	485	-	-	1,135	1,050	-
Real estate taxes	649	-	188	387	1,413	935
Farm insurance	564	-	-	1,080	370	1,090
Utilities	400	-	791	299	-	712
Dues & professional fees	23	-	-	-	-	105
Organic certification	43	-	-	-	-	195
Miscellaneous	1,204	-	617	2,347	693	1,763
Total cash expense	13,578	2,614	7,842	10,588	12,778	28,587
Net cash farm income	6,849	6,636	1,111	5,512	3,459	17,421
Inventory Changes						
Prepays and supplies	74	-	55	-925	275	930
Accounts receivable	-	-	-	-	-	-
Hedging accounts	-	-	-	-	-	-
Other current assets	358	250	-	200	1,250	35
Crops and feed	149	-	-	145	60	465
Market livestock	221	-395	400	-	-	790
Breeding livestock	-778	-7,450	-703	1,429	-	-500
Other assets	375	-	-	-355	3,805	-1,762
Accounts payable	-193	-	-18	-	-	-849
Accrued interest	1	-	-14	28	-	-11
Total inventory change	207	-7,595	-279	521	5,389	-902
Net operating profit	7,056	-959	831	6,033	8,848	16,519
Depreciation						
Machinery and equipment	-1,777	-1,100	-1,629	-2,508	-1,199	-2,109
Titled vehicles	-1,427	-12,000	-	-368	-54	-
Buildings and improvements	-1,723	-3,750	-1,241	-280	-1,461	-2,897
Total depreciation	-4,927	-16,850	-2,870	-3,156	-2,714	-5,006
Net farm income from operations	2,129	-17,809	-2,039	2,877	6,134	11,513
Gain or loss on capital sales	-	-	-	-	-	-
Net farm income	2,129	-17,809	-2,039	2,877	6,134	11,513