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EXTENSION CENTER FOR COMMUNITY VITALITY

Institutional Healthcare Market for Local Produce

An analysis of the market potential for fresh fruits and vegetables in healthcare institutions based on a survey of food service directors in Becker, Clay, Otter Tail, and Wilkin Counties in Minnesota

Presented by Ryan Pesch, Extension Educator, University of Minnesota

In partnership with: The EDA CENTER at the University of Minnesota, Crookston

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AN ANALYSIS OF THE MARKET POTENTIAL FOR FRESH FRUITS AND VEGETABLES IN HEALTHCARE INSTITUTIONS BASED ON A SURVEY OF FOOD SERVICE DIRECTORS IN BECKER, CLAY, OTTER TAIL, AND WILKIN COUNTIES IN MINNESOTA

December 18, 2012

Presented by Ryan Pesch, Extension Educator, University of Minnesota

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ABSTRACT

University of Minnesota Extension conducted a survey of food service directors in Becker, Clay, Otter Tail, and Wilkin Counties **to profile the fresh fruit and vegetable purchasing habits of healthcare institutions and estimate the size of the regional market**. Respondents vary in size from 100-1,400 meals served daily, yet all purchase many of the same fresh fruits and vegetables, such as cucumbers, tomatoes, and strawberries. Although respondents have processing requirements for select kinds of produce (lettuce especially), many are willing to purchase fresh fruits and vegetable in whole form. Extension identified 54 healthcare facilities that serve meals on site in the four-county area, and we estimate that they purchase 385,140 pounds of fresh produce annually. This represents a market opportunity for local growers, although realistically only at certain times of the year when fresh local produce supply is available. The market potential for local growers ranges between $93,245 and $207,115, based on a standard summer growing season and an extended growing season respectively.

BACKGROUND

Healthcare institutions, such as hospitals, assisted living facilities, and long-term care facilities, promise a significant market for local foods as more organizations orient their menus to local and whole food sources. This re-orientation of food-purchasing organizations has been evident in K-12 schools (IATP, 2012). Healthcare facilities offer a promising market open year-round (George, et al., 2010).

Institutions in the four-county region fit this national trend. Stephanie Loupe, Research Assistant with the University of Minnesota's Department of Public Health, interviewed 20 healthcare food service directors about their use of local foods in Becker, Clay, Otter Tail and Wilkin Counties in summer 2012 and found a similar orientation to local sourcing. According to her interviews, 95 percent of participants have an interest in sourcing local foods, yet only 20 percent currently do so. Furthermore, 44 percent of respondents indicated a preference to source produce locally, a rate higher than meats, breads, or dairy. Interviewees also indicated a number of barriers to local sourcing, including convenience (ranked #1), policy (#2), and cost (#3).

Considering the supply challenges identified through this qualitative research, University of Minnesota Extension conducted a product survey of the same population of food service directors in fall 2012. The survey gathered a sample of food purchase data from healthcare facilities that serve meals on site. Participants were asked to name the number of meals served daily and share information about their purchasing habits for fresh fruits and vegetables, including amounts purchased weekly, preferred form, and whether they would consider purchasing in whole form. Extension did *not* ask respondents to indicate whether purchases were from local sources, since the study's purpose was to only estimate the *total* fresh produce purchases in the region (local or otherwise). Extension also limited its inquiry only to crops that growers are able to produce in West Central Minnesota (see Appendix 1).

METHODOLOGY

In fall 2012, 13 food service directors who were previously interviewed and whose organizations serve more than 100 meals daily received a request to participate in this survey. Extension contacted food service directors by mail, first sending a cover letter and survey form, followed up with a postcard reminder. Extension also included $10 cash as an incentive to participate.

Extension received 10 responses total from the survey sample, but only 8 of those 10 were *complete* responses, including one from a food service director who provided sales records regarding the institution's distributor instead of the completed survey form. One other facility outside of the survey sample but in the four-county region also completed a survey, for a total of 9 complete and usable records out of a total of 54 facilities in the four-county region.

Considing the purpose to measure the size of the fresh produce market at healthcare facilities, Extension also estimated the total number of meals served at all other healthcare facilities in the four-county region. To do so, we first identified all other healthcare institutions through the Minnesota Department of Health's (MDH) *Heath Care Facility and Provider Database* (http://www.health.state.mn.us/divs/fpc/directory/fpcdir.html). Next, we researched the size of the facility and whether meals were served on site, using correspondence with facility management and MDH records.

Lastly, Extension extrapolated results from the survey sample to estimate the total number of meals served in the region and to estimate the total amount of fresh produce purchased annually. We further refined these estimates according to availability of crops during a standard summer growing season and an extended growing season to identify a realistic market potential for local growers.

SUMMARY OF RESULTS

Information about the fresh fruit and vegetable market will be of primary interest to growers interested in supplying institutional customers, although we expect results will also be of interest to food service operators and others involved in facilitating the sale of local produce to institutions and local food development in general. A summary of major findings follows:

- A large majority of respondents are willing to purchase fresh fruits and vegetables in whole form (unprocessed), although larger institutions have a stronger preference for processed form – or less flexibility – than smaller institutions.
- All institutions are willing to purchase cucumbers, tomatoes, melons, strawberries, potatoes, apples, winter squash, beans, and radishes in whole form.
- Lettuce is the produce item most preferred in a processed form (shredded), although 60 percent of respondents are still willing to purchase in a whole form.
- The 54 healthcare facilities operating in the four-county area annually source an estimated 385,140 pounds of fresh fruits and vegetables that can be grown in the region. This estimate does not include healthcare facility purchase of fresh vegetables and fruits, such as pineapples and bananas, grown only outside the region.

- The total market potential of the fresh produce market at heathcare institutions in the four-county area is estimated to range from $93,245 for a standard summer produce season to $207,115 for an extended season – employing growing season extension technologies and techniques, such as high tunnels, black plastic ground cover, row covers, as well as post-harvest storage facilities.

Application of results

University of Minnesota Extension intends growers, food service operators, and local food supporters to use these study results to facilitate local foods purchases for heathcare facilities. Recommendations include:

- Growers seeking to sell to healthcare institutions should target high-demand crops, including tomatoes, potatoes, onions, cucumbers, apples, melons, strawberries, carrots and lettuce. Aside from carrots, onions and lettuce, all of these crops are acceptable to all our respondents in a whole form.
- Season extension offers growers an opportunity to meet market demand from healthcare institutions *if* growers use season extension to produce quality products consistently. More than half of the total market potential for selling fresh produce to healthcare institutions lies outside the traditional summer growing season in West Central Minnesota. Growers can meet this demand only through season-extending production methods and storage technologies.
- The success of local foods in the institutional food market hinges on strengthening relationships between institutional buyers and local growers. Growers should contact healthcare facility food service directors to clearly communicate product availability and ability to get products to buyers. In turn, institutional food buyers should communicate their product needs and requirements to growers.
- To make the exchange between institutional buyers and local growers successful, both food sellers and buyers should be flexible and willing to learn. Growers most familiar with direct-marketing channels, such as farmers markets, may need to learn packing and product standards common in food service and work to meet those standards. Conversely, institutional food buyers may need to be flexible about menu planning or packing and delivery standards in order to maintain a working relationship with growers who are unfamiliar with mainline distribution practices.
- Aggregation of foods from multiple farms could facilitate the distribution of quantities necessary to meet demand from institutional food markets. Growers may investigate one of many online tools to facilitate the aggregation and distribution of products from multiple farms. See http://food-hub.org/pages/food-tech-landscape for information about some of the available tools.
- Further research using similar methods would illuminate the size and scope of the healthcare institutional food market throughout Minnesota and provide for more accurate and detailed profiling.

SURVEY FINDINGS

Number of meals served

The nine food service directors who responded serve nearly 3,500 meals daily, or more than 100,000 meals each month, with counts ranging from 105 meals served daily at the lowest-volume facility to 1,400 at the highest. All respondents are employed at long-term care facilities or healthcare campuses that include a hospital, outpatient clinic, and a long-term care facility.

Products currently purchased

The survey asked food service directors about their purchasing habits for a range of fresh fruits and vegetables commonly grown in Minnesota (see Appendix 1 for listing). About half of the fruits and vegetables – apples and potatoes, for example – are in high demand and so are targets for consistent sales to healthcare institutions, whereas other crops – such as beans and radishes – would be of interest to only a minority of food service directors (see Figures 1 and 2).

Figure 1: Products Currently Purchased by Percent of Respondents

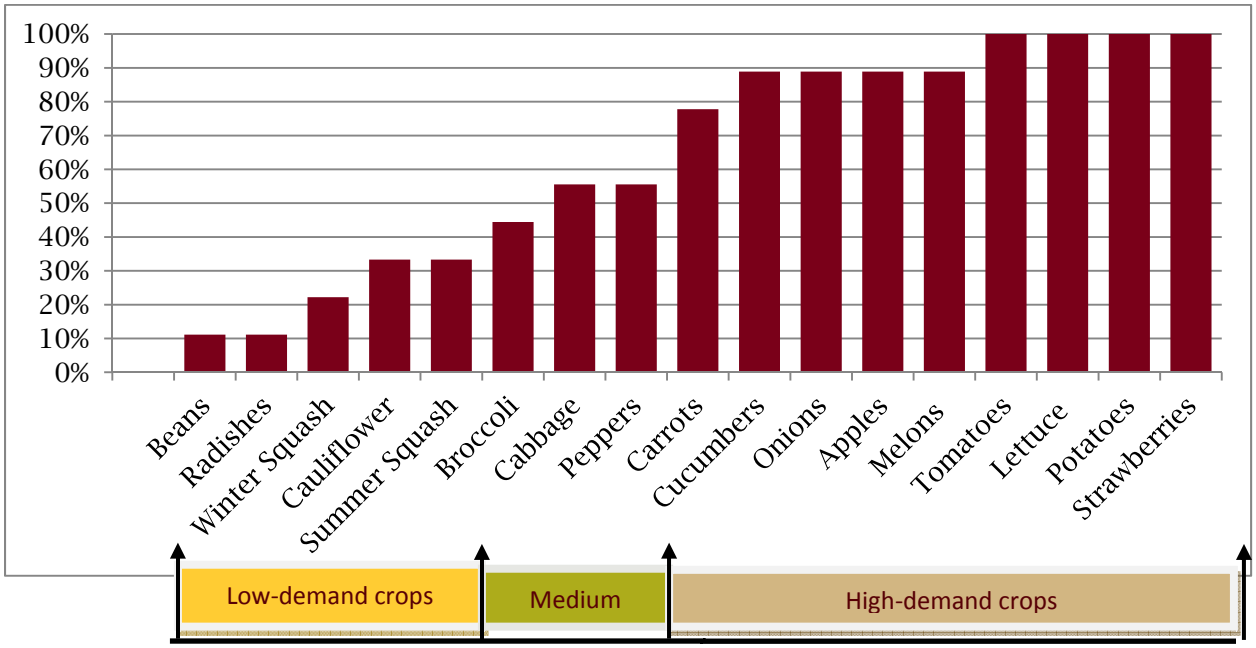


Figure 2: Products Purchased Weekly by Number of Respondents

Low-demand crops	Medium-demand crops	High-demand crops
• Cauliflower (n=3) • Summer Squash (n=3) • Winter Squash (n=2) • Beans (n=1) • Radishes (n=1)	• Cabbage (n=5) • Peppers (n=5) • Broccoli (n=4)	• Tomatoes (n=9) • Lettuce (n=9) • Potatoes (n=9) • Strawberries (n=9) • Cucumbers (n=8) • Onions(n=8) • Apples (n=8) • Melons (n=8) • Carrots (n=7)

Preferred form and acceptance of whole food form

The preference for pre-processed produce is often cited as a major barrier to supplying institutional customers with local foods; this barrier has been noted in past research and surveys of local growers seeking to supply food service establishments (George, et al., 2010). Therefore, the survey asked food service directors to indicate both their preferred form for a product (shredded cabbage, for example) and whether they would consider purchasing the same product in whole form. Because very few local growers have processing capacity, the intention here was to describe current buying habits and gauge the flexibility among institutions to purchase local foods in unprocessed form.

Many respondents did not indicate their preferred form, but the sensitivity to form varies greatly from product to product. Respondents clearly preferred a whole form for some products, such as potatoes, strawberries, and cucumbers, while respondents split on their preference for other products. Respondents show clear preference for shredded lettuce, for example, by a margin of three to one see Figure 3.)

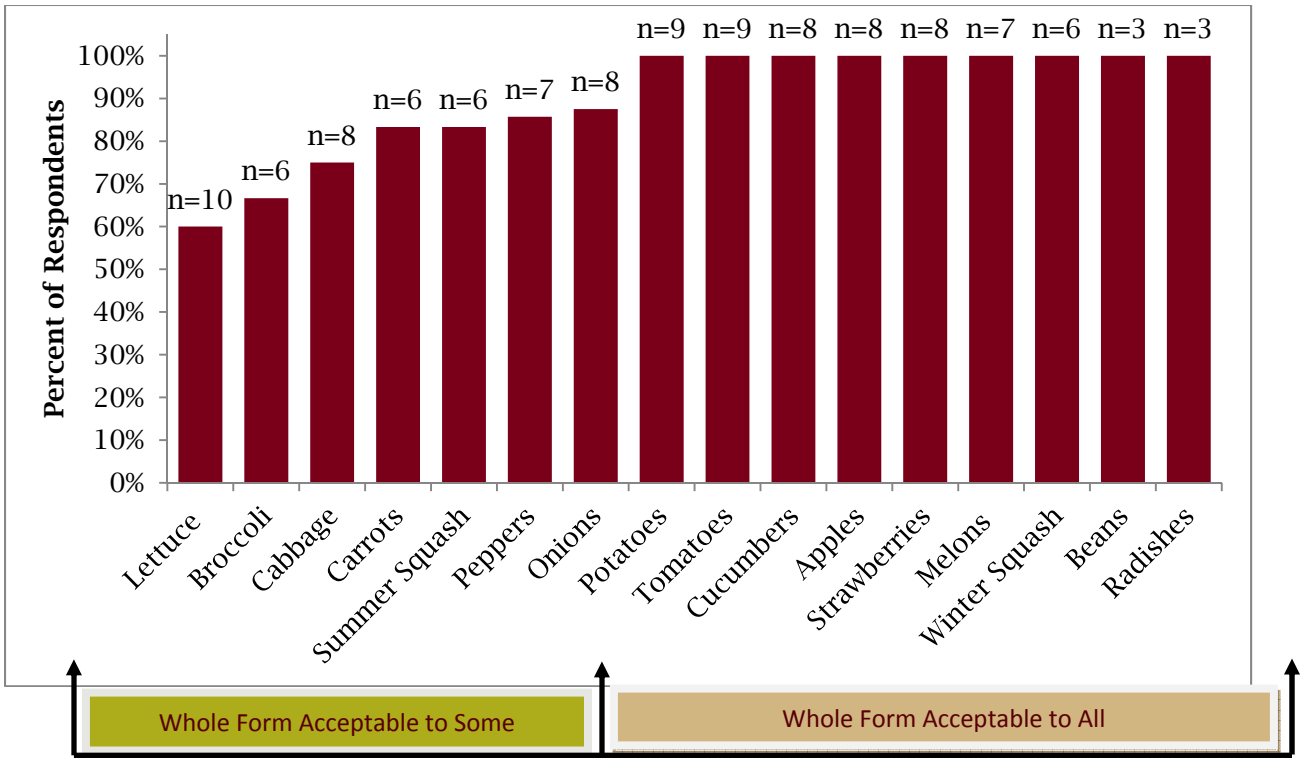
Figure 3: Preferred Form of Products by Number of Respondents

Product	Preferred Form		
Beans	Whole (n=1)		
Broccoli	Florets/cut (n=4)		
Cabbage	Shredded (n=5)	Whole (n=2)	
Carrots	Baby (n=2)	Whole (n=2)	
Cauliflower	Florets/cut (n=4)	Whole (n=1)	
Cucumbers	Whole (n=8)		
Tomatoes	Sliced (n=1)	Whole (n=6)	
Peppers	Diced (n=1)	Whole (n=5)	
Lettuce	Shredded (n=6)	Whole (n=2)	
Potatoes	Whole (n=7)		
Onions	Diced (n=1)	Diced/whole (n=2)	Whole (n=3)
Radishes	Whole (n=1)		
Summer Squash	Diced (n=1)	Whole (n=2)	
Winter Squash	Whole (n=3)		
Apples	Whole (n=4)		
Melons	Cubed (n=2)	Whole (n=3)	
Strawberries	Whole (n=4)		

When asked whether whole forms were acceptable, respondents say they are very willing to buy the range of fruits and vegetables identified in whole form. A total of 9 of 16 products were acceptable in whole form to respondents who answered the question about preference (see Figure 4). For example, only three survey takers responded to the question of preference for radishes, but all three indicated radishes are acceptable in a whole form. Even whole lettuce is acceptable to 60 percent of all respondents.

Based on survey findings, growers should pay close attention to the form preferences of institutional produce buyers; however, they should also understand that a majority of respondents find whole foods quite acceptable.

Figure 4: Products Respondents Would *Consider* Buying in Whole Form



MARKET ESTIMATES

Extension was able to estimate the market potential for fresh fruits and vegetables at healthcare institutions by extrapolating product estimates from our survey research to account for the total number of meals served throughout the region.

Identifying the total number of meals served daily for region

We used the Minnesota Department of Health's *Health Care Facility and Provider Database* (downloaded April 2012) to identify within the four-county region all healthcare facilities supplying both housing and services, including assisted living, nursing home, hospital, and semi-independent living. We used two methods to identify the size of the establishment and the number of meals: interviews with, or surveys of, food service directors, and estimates based on correspondence with facility management. These two methods are explained below.

Counting meals reported through interviews or surveys

In summer 2012, Stephanie Loupe, research assistant at Otter Tail Public Health Department, used MDH's database to identify food service directors to be interviewed about their interest in purchasing local foods and the potential barriers to those purchases. Loupe interviewed 20 food service directors and recorded the number of meals served daily at their institution. The food service directors that Loupe interviewed oversaw the majority of meals served daily in healthcare facilities in the four-county region — 4,818 meals out of an estimated total of 8,680.

In fall 2012, Extension sent its survey to the 13 institutions from Loupe's interview effort that served more than 100 meals daily. In addition, another facility participated in our product survey, for a total of 21 institutions serving 6,190 meals, or 71 percent of the estimated 8,680 meals served daily.

Estimating meals based on correspondence with facility management

Extension contacted the remainder of the organizations listed in the MDH facilities database via email or researched them online to identify the size of their establishment by units and number of residents, as well as determine whether they serve meals. We created an estimate of meals served for each institution based on the assumption of three meals per day per resident, unless otherwise noted. (For example, some semi-independent living facilities provide a noon meal only three times a week). The total number of meals identified through this process was 2,490, or 29 percent of the estimated 8,680 meals served in the four-county region.

Total estimated size of healthcare food service market

As noted, we identified a total of 54 facilities in the four-county region that serve an estimated total of 8,680 meals daily. As the healthcare industry changes, the type of the facility also becomes more difficult to identify. Traditional nursing homes are transitioning to include assisted living and semi-independent units, while hospitals are also providing some form of long-term care through facility expansions and renovations. That said, the 54 facilities break down by type as follows:

- 27 assisted living
- 16 nursing homes
- 7 semi-independent apartments
- 3 healthcare campuses (hospitals with long-term care facilities)
- 1 hospital

Estimating product demand for the region

The nine participating institutions that provided complete responses to Extension's product survey account for 40 percent of the estimated meals served daily by healthcare institutions in the four-county region, and we used their reported fresh fruit and vegetable purchases as a sample to estimate the market potential for the whole region. The following purchasing profile includes the amount purchased monthly and annually for the entire group of respondents.

For example, only one facility reported purchasing fresh beans on a weekly basis (see Figure 2), so the amount of beans for all respondents only includes the amount bought

CALCULATING product estimates in three steps:

1. Convert the number of pounds purchased weekly for each fruit and vegetable into the amount purchased per meal on a monthly basis.
2. Calculate the average number of pounds per meal for those facilities that purchased a particular product. For example, eight of nine facilities that purchased fresh apples averaged less than one hundredth of a pound for all meals served monthly (0.0069 lb. per meal per month).
3. Apply average pounds per monthly meal to total number of meals in region

by that particular facility. To estimate the amount purchased annually, we assumed that respondents bought a mix and amount of produce every month consistent with survey responses. This is a reasonable assumption because participating food service directors indicated anecdotally that their weekly fresh produce purchases are fairly consistent across seasons, and the survey instrument asked for the average amount purchased per week irrespective of the month.

Table 1: Purchasing Profile by Product of Nine Survey Respondents

Product:	Pounds purchased per month	Estimated pounds purchased per year
Beans	160 lbs	1,920 lbs
Broccoli	379 lbs	4,548 lbs
Cabbage	518 lbs	6,216 lbs
Carrots	490 lbs	5,880 lbs
Cauliflower	336 lbs	4,032 lbs
Cucumbers	444 lbs	5,328 lbs
Tomatoes	1,103 lbs	13,236 lbs
Peppers	245 lbs	2,940 lbs
Lettuce	1,180 lbs	14,160 lbs
Potatoes	3,972 lbs	47,664 lbs
Onions	553 lbs	6,636 lbs
Radishes	20 lbs	240 lbs
Summer Squash	834 lbs	10,008 lbs
Winter Squash	690 lbs	8,280 lbs
Apples	693 lbs	8,316 lbs
Melons	1,707 lbs	20,484 lbs
Strawberries	673 lbs	8,076 lbs
Total purchased	**13,997 lbs**	**167,964 lbs**

We assume our sample of survey respondents is representative of all healthcare facilities in the four-county region, when applying the purchasing profile to the region. In doing so, we assume other healthcare facilities purchase fresh fruits and vegetables in the same proportion; for example, we assume 78 percent of all facilities purchase fresh carrots, the same as the proportion of our survey respondents. We also assume all facilities purchase the same volume of fresh fruits and vegetables by meal as the average for our nine respondents.

MARKET POTENTIAL BASED ON TWO GROWING SEASONS

Estimating fresh fruit and vegetable purchases for the entire year greatly overemphasizes the size of the healthcare market potential for local growers because of growing conditions in West Central Minnesota. To account for this, we made estimates based on two scenarios for growing seasons. In our first scenario, we used a standard West Central Minnesota growing season based on when a fruit or vegetable is typically available for sale, assuming a field-grown fruit or vegetable without any season-extending technology or methods. In our second scenario, we used an extended growing season that could reasonably be realized through readily available technologies and methods for growing a fruit or vegetable over an extended season or storing a crop for later sale.

Scenario 1: Standard fruit and vegetable growing season

The standard growing season in West Central Minnesota is relatively short compared with other parts of the nation, generally about 4-5 months from June to October. This is the time that field-grown produce is available, but does not include produce grown hydroponically or through some other kind of non-soil-based growing technique.

Table 2: Market Potential Scenario for a Standard West Central Minnesota Season

Product:	Total Months Available	Lbs of Produce	Average Retail Price	Market Potential
Beans	2.5	1,102	$1.47	$1,620
Broccoli	4	2,351	$1.55	$3,644
Cabbage	4	3,441	$0.81	$2,787
Carrots	4	4,182	$0.85	$3,555
Cauliflower	4	1,653	$1.10	$1,818
Cucumbers	2.5	2,593	$0.67	$1,737
Tomatoes	2.5	6,879	$1.30	$8,943
Peppers	2.5	1,018	$1.41	$1,435
Lettuce	4	11,771	$1.33	$15,655
Potatoes	3	29,722	$0.89	$26,453
Onions	3	3,828	$0.68	$2,603
Radishes	4.5	482	$1.00	$482
Summer Squash	2.5	5,718	$1.29	$7,376
Winter Squash	2	1,521	$0.94	$1,430
Apples	2	3,199	$1.35	$4,319
Melons	2	7,984	$0.56	$4,471
Strawberries	1	1,678	$2.93	$4,917
Total		**89,122**		**$93,245**

Using retail pricing from USDA statistics for the range of produce listed (USDA Agricultural Marketing Services, 2012), we are able to estimate a market potential not only in volume of produce but also value in dollars. The average retail price data is derived from national supermarket price checks and represents reasonable benchmarks for an analysis such as this; certainly local market conditions may vary significantly between growers and buyers.

The low demand for some crops among food service directors means low market potential – for example, beans ($1,620 annually) and radishes ($482) would generally not be strong sellers for any grower looking to serve healthcare institutions. Others are not strong targets for growth due to their low average retail price, such as onions and cucumbers. However, some crops are either in great demand or have reasonable average retail prices, and therefore have significant market potential – for example, lettuce ($15,655) and potatoes ($26,453).

Scenario 2: Extended fruit and vegetable season

Over the past decade, growers and researchers have concentrated significant effort on developing season-extension techniques and technologies as demand for local produce increases and growers work to maintain consistent supply (Coleman, 2009; Nennich, 2004). New and rediscovered

technologies such as high and low tunnels, as well as cold frames and post-harvest storage facilities, are being deployed to lengthen the produce season, even in cold Minnesota.

For this study, University of Minnesota Extension based the length of the extended season on reasonable produce availability for growers using the aforementioned technologies and also based on information from correspondence with USDA resources and University of Minnesota faculty and researchers. Cindy Tong, a post-harvest handling specialist with the University of Minnesota's Department of Horticulture, provided resources on storage capabilities, including USDA Handbook 66 (www.ba.ars.usda.gov/hb66/contents.html) and the Minnesota Toolkit for School Foodservice (http://www.extension.umn.edu/farm-to-school/toolkit/sourcing-food/foods-in-season.html).Steve Poppe, a horticulture scientist with the West Central Research and Outreach Center, estimated strawberry availability based on first-year trials with day-neutral strawberry production near Morris, MN (day-neutral plants produce fruit throughout the growing season).

In the extended season scenario, both the amount of produce and the market potential in terms of dollars more than double, when compared to the standard, West Central Minnesota growing season. Although most products – tomatoes, for example – increase their growing season by only a month under the extended scenario, the season for some high-volume products more than doubles, which has a significant impact on the total market potential and pounds of produce per season. This is true for potatoes, onions, and strawberries. Each of these crops are in high demand among food service directors. In terms of availability under the extended scenario, onions and potatoes increase from three months to nine months under ideal storage conditions. Strawberries are also in great demand, and day-neutral varieties grown in low tunnels for season extension promise a four-month picking season.

Table 3: Market Potential Scenario for Extended Season

Product:	Total Months Available	Lbs of Produce	Average Retail Price	Market Potential
Beans	4	1,764	$1.47	$2,592
Broccoli	6	3,527	$1.55	$5,467
Cabbage	7	6,022	$0.81	$4,898
Carrots	9	9,410	$0.85	$7,998
Cauliflower	6	2,480	$1.10	$2,728
Cucumbers	4	4,148	$0.67	$2,779
Tomatoes	4	11,007	$1.30	$14,272
Peppers	4	1,629	$1.41	$2,297
Lettuce	6	17,656	$1.33	$23,394
Potatoes	9	89,166	$0.89	$79,507
Onions	9	11,485	$0.68	$7,810
Radishes	8	857	$1.00	$857
Summer Squash	4	9,148	$1.29	$11,756
Winter Squash	5	3,803	$0.94	$3,581
Apples	5	7,998	$1.35	$10,805
Melons	3	11,976	$0.56	$6,707
Strawberries	4	6,712	$2.93	$19,666
		198,789		**$207,115**

Estimate of acres

Data from a 2012 report on farm financials for assorted produce operations in Minnesota allows us to roughly estimate the necessary acres needed to meet institutional demand for produce. The report data comes from FINBIN, a farm financial database developed by the University of Minnesota Center for Farm Financial Management (see Appendix 2, FINBIN, 2012). The gross return per acre or total sales per acre for reporting farms in 2011 was $8,719. Using this as a basic benchmark, growers in the region would need to dedicate a total of 11 to 24 acres to meet potential market demand under the two scenarios as outlined above.

LIMITATIONS AND FUTURE RESEARCH

The primary purpose of this study is to provide basic estimates for the size of the fresh produce market for healthcare facilities in Becker, Clay, Otter Tail, and Wilkin counties. These estimates may not reflect the market in other regions of Minnesota or the nation.

These market estimates are based on sound survey research methods and reliable secondary data sources. However, some assumptions and secondary data used to estimate market size may not accurately represent the conditions of individual healthcare institutions or growers. Individual growers may face factors quite different from those used to produce the estimates for this report, especially when it comes to production and pricing; these factors can have a significant impact on the ability of growers to serve the healthcare market.

It's important to take these caveats into consideration and calculate carefully before making any individual business planning and marketing decisions related to the local food market among healthcare institutions in the four-county area. Any sales arrangements between individual institutional buyers and growers should be based on mutually agreed-upon terms and conditions, such as price, delivery times, and product quality. It's also important to consider the individual needs of potential institutional buyers when entering the healthcare market for produce.

Research opportunities exist to more clearly define the size and scope of the institutional fresh produce market in Minnesota. First and foremost, replicating this study across the state would provide a larger sample size and therefore a more accurate picture of the market statewide. The continuation of this research in Minnesota could both identify particular purchasing habits of regions and profile the market for each type or size of healthcare institution. Second, researchers could employ the same methods to other subsectors, such as educational institutions, to better profile the whole institutional food market.

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APPENDIX 1: SURVEY INSTRUMENT

Instructions: We do not need exact information, so please feel free to estimate and answer to the best of your knowledge. Once complete, please return in the stamped and self-addressed envelope included with the survey. We appreciate your participation.

1. We understand that the number of patients or residents can vary, but please estimate how many meals on average you serve daily. *For example, serving 50 guests 3 times a day would be 150 meals.*

   _____ meals per day

2. How much of the following fresh fruit and vegetables *on average* do you purchase each week? *Please note that the list is focused on produce we commonly raise in Minnesota. We are not interested in bananas or mangos, for example, since we cannot grow them.*

Product	Average Amount Purchased per Week (lbs)	Preferred form (shredded, diced, etc)	Would you consider buying in *whole* form (circle)?
Fresh Vegetables:			
Beans			Yes / No
Broccoli			Yes / No
Cabbage			Yes / No
Carrots			Yes / No
Cauliflower			Yes / No
Cucumbers			Yes / No
Tomatoes			Yes / No
Peppers			Yes / No
Lettuce			Yes / No
Potatoes			Yes / No
Onions			Yes / No
Radishes			Yes / No
Summer Squash (zucchini, yellow)			Yes / No
Winter Squash (acorn, buttercup)			Yes / No
Other vegetable(s):			Yes / No
_____			Yes / No
Fresh Fruits:			
Apples			Yes / No
Melons			Yes / No
Strawberries			Yes / No
Other fruit: _____			Yes / No

Please return in the stamped and self-addressed envelope included. If lost, please return to Ryan Pesch, University of Minnesota Extension, 715 11th Street North, Suite 107C, Moorhead, MN 56560

APPENDIX 2: 2011 FINBIN REPORT ON ASSORTED VEGETABLE OPERATIONS

Crop Enterprise Analysis
(Farms Sorted By Years)

Vegetables, Assorted

	Avg. Of All Farms	2011
Number of fields	8	8
Number of farms	6	6
Acres	4.13	4.13
Yield per acre ($)	6,962.22	6,962.22
Operators share of yield %	100.00	100.00
Value per $	1.25	1.25
Total product return per acre	8,719.11	8,719.11
Gross return per acre	8,719.11	8,719.11
Direct Expenses		
Seed	532.94	532.94
Fertilizer	248.88	248.88
Crop chemicals	29.79	29.79
Irrigation energy	11.95	11.95
Packaging and supplies	328.12	328.12
Fuel & oil	639.05	639.05
Repairs	246.22	246.22
Custom hire	11.18	11.18
Hired labor	1,024.82	1,024.82
Land rent	21.52	21.52
Machinery leases	6.21	6.21
Utilities	224.73	224.73
Hauling and trucking	148.97	148.97
Marketing	51.76	51.76
Operating interest	9.15	9.15
Miscellaneous	372.88	372.88
Total direct expenses per acre	3,908.15	3,908.15
Return over direct exp per acre	4,810.96	4,810.96
Overhead Expenses		
Hired labor	364.98	364.98
Building leases	44.24	44.24
RE & pers. property taxes	39.64	39.64
Farm insurance	95.49	95.49
Utilities	133.58	133.58
Dues & professional fees	116.05	116.05
Interest	380.89	380.89
Mach & bldg depreciation	457.85	457.85
Miscellaneous	147.09	147.09
Total overhead expenses per acre	1,779.82	1,779.82
Total dir & ovhd expenses per acre	5,687.97	5,687.97
Net return per acre	3,031.14	3,031.14
Government payments	-	-
Net return with govt pmts	3,031.14	3,031.14
Labor & management charge	2,460.61	2,460.61

Net return over lbr & mgt	570.53	570.53
Cost of Production		
Total direct expense per $	0.56	0.56
Total dir & ovhd exp per $	0.82	0.82
Less govt & other income	0.82	0.82
With labor & management	1.17	1.17
Net value per unit	1.25	1.25
Machinery cost per acre	1,343.07	1,343.07
Est. labor hours per acre	362.28	362.28

Data Source(s): Riverland Community and Technical College, 5 farms
South Central and Mn West Community and Technical College, 1 farms

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Report Summary

1. Report number	245097
2. Location	
State:	Minnesota
3. Farm Characteristics	
Year(s):	2011
Farming practice:	All