A Survey of Dry Bean Supply Chains in Minnesota:
Producers, Farmers Markets, Distributors, CSA's, Co-ops, and Restaurants

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Executive Summary

Research staff at the Regional Sustainable Development Partnerships and the U of MN Agronomy Department examined the potential market channels for local, organic edible legumes. Market areas surveyed included farmers markets, dried bean distributors, community supported agriculture ventures, cooperative grocery stores, and restaurants. The goal of this research was to identify shortcomings and areas where future research is needed.

The dry bean market has changed both nationally and in Minnesota. The U.S. is both a dried bean importer and exporter. In recent years, the Midwest has captured more of the dried bean market with Minnesota and North Dakota now growing approximately half the national acreage of harvested dry beans. Consumption has slightly fallen in the past few years, but has steadily risen since the 1990's. Consumers with lower income levels consume a greater share of beans relative to their population size.

Institutional shifts are a major factor that has affected dry bean demand. The Healthy, Hunger-Free Kids Act (HHFKA) has produced a greater institutional demand for beans. Under the new school lunch rule ½ cup legumes are required per student per week for students in grades kindergartener through 12th grade. Given the steady rise in national school lunch participation since 1970, the institutional demand for beans is likely to grow in the coming years and dried beans may be able to fill part of this demand.

Results of the market areas surveyed revealed important considerations for each area. A few considerations important to all market areas were also determined:

- Specialty heirloom varieties are of the most interest to multiple venues surveyed.
- Major challenges include: high equipment costs, low market value, and difficulty differentiating organically grown dried beans from conventional.
- Consistency of supply, adequate volume, purchasing price, and locating sources for local dried beans are issues for both co-ops and restaurants interested in local dried beans.

Introduction & Background

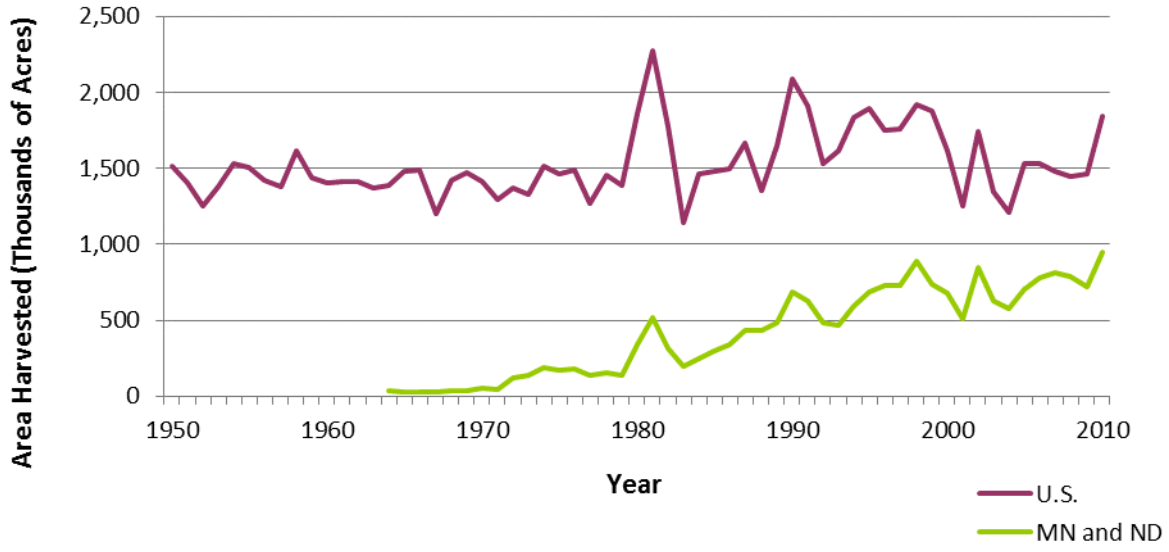
As part of a federally-funded research project on the agro-ecological value of edible legumes in organic cropping systems, research staff at the Regional Sustainable Development Partnerships and the U of MN Agronomy Department examined the potential market channels for local, organic edible legumes. This report will examine trends in the dry bean market nationally and in Minnesota, changing patterns of dry bean consumption, and institutional shifts affecting dry bean demand. Primary research reported includes the use of dry beans in farm-to-school programs in Minnesota, and Minnesota CSA operator experiences and interest in dry beans. Use of local and/or organic dry beans by Minnesota distributors, farmers' market vendors, and restaurateurs will also be reported.

Trends in U.S. Dry Bean Markets

The U.S. is both a dry bean importer and exporter. According to USDA ERS, in the early 2000's an average of 19% of the U.S. dry bean supply was exported annually. In 2007-2008, this dry bean surplus was worth $131 million. While traditionally not a large importer, the early 2000's saw a rise in U.S. dry bean imports. In 2007-2008, dry bean imports were valued at $141 million. These imports now account for 17% of dry bean consumption.[1]

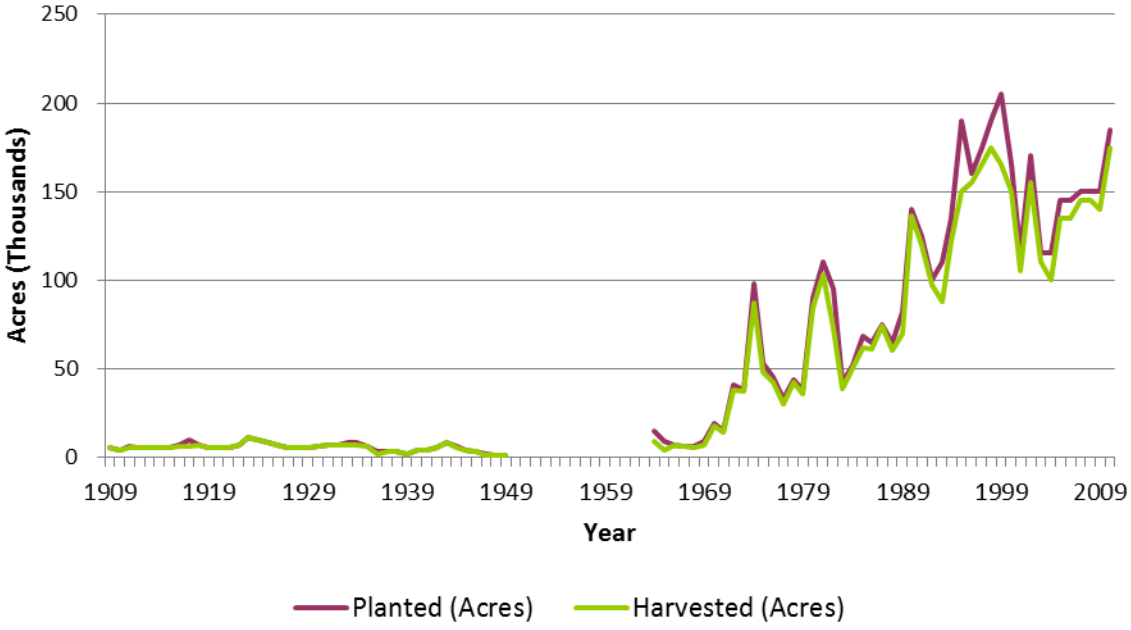
The Upper-Midwestern United States has steadily captured a larger share of national dry bean production. According to USDA dry bean production data (**Figure 1**), Minnesota and North Dakota now account for roughly half of the national acreage of harvested dry beans, whereas 50 years ago these two states had almost no dry bean production annually. **Figure 2** illustrates the rapid growth in dry bean acreage in Minnesota over the last 40 years.

Figure 1: Area of Dry Beans Harvested, US Total with MN and ND Total



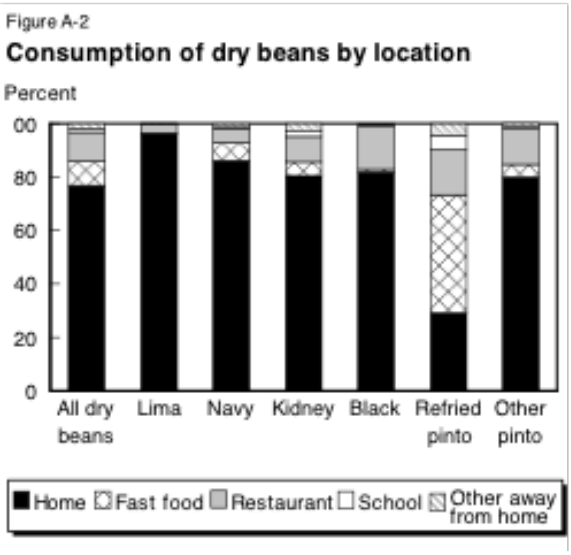
[1] USDA ERS, http://www.ers.usda.gov/topics/crops/vegetables-pulses/dry-beans.aspx#consumption

Figure 2: MN Dry Bean Production, 1909-2010



Dry Bean Consumption

In 2006-2008 Americans consumed, on average, 6.5 lbs of dry beans per person per year. This figure has fallen slightly since the late 1990's but follows several decades of steady rises in dry bean consumption.[2] The majority of these beans (roughly 75%) are purchased at retail stores and consumed at home. A very small fraction of beans (approximately 1%) are consumed in schools. From 2006-2008, roughly 14% of the U.S. population consumed dry beans.



[2] USDA ERS, http://www.ers.usda.gov/topics/crops/vegetables-pulses/dry-beans.aspx#consumption

Dry beans are more highly consumed in the southern and western United States, and consumption is less frequent in the North and Midwest. People at lower income levels consume a greater overall share of beans relative to their population size, as beans are an inexpensive source of protein.[3] Beans are consumed more frequently by Latinos due to the cultural significance of beans as a traditional staple food.

Forces Affecting Demand for Legumes in Schools

The Healthy, Hunger-Free Kids Act (HHFKA), the largest school lunch reform passed in decades, creates a new institutional demand for beans. Prior to HHFKA, beans could be counted toward the meat/meat alternative or the fruit/vegetable requirement, but no precise amounts of legumes were required. Following the implementation of HHFKA, fruit & vegetable serving requirements have increased and fruits and vegetables began to be defined as separate categories. Within the vegetable requirements, sub-categories were established with separate weekly serving requirements. These sub-categories include dark green vegetables, orange vegetables, and legumes. Under the new school lunch rule ½ cup legumes are required per student per week for students in grades kindergartener through 12th grade.[4] Beans may still be counted toward the meat/meat alternate category as well as its own vegetable sub-category, but may not be double-counted or used to meet both requirements in the same meal.[5]

In 2012, 31.6 million lunches were served each day through the national school lunch program, according to the USDA. If school lunches incorporated ½ cup beans per week into their meal plans, the nation's public schools will need at least 568,800,000 cups of cooked beans every year. While these beans are likely to be canned or pre-cooked, if all the required beans served in schools were purchased as dry beans, this would result in a need for roughly 284.4 million pounds of dry beans (142,200 tons). Given the steady rise in national school lunch participation since 1970, the institutional demand for beans is likely to grow in the coming years and dried beans may be able to fill part of this demand.

[3] Factors Affecting Dry Bean Consumption
[4] USDA, "Nutrition Standards in the National School Lunch and School Breakfast Programs; Final Rule", Federal Register/Vol. 77, No. 17/Thursday, January 26, 2012/Rules and Regulations, 4111.
[5] USDA, "Nutrition Standards in the National School Lunch and School Breakfast Programs; Final Rule", 4092.

Dried Bean Producer Survey

Research was conducted from September 2012 - March 2013 to examine the experiences of edible dried bean producers. Producers contacted to be a part of this research were those who are listed on the U of M Farm to School website. Wholesale bean producers listed on the state's local food directory website, Minnesota Grown, were also contacted and asked to participate in this research project.

The U of M Farm to School Toolkit included 20 self-identified growers of edible dried beans who were available to provide beans for farm-to-school programs. Of these growers, four had valid numbers but could not be contacted and two had disconnected or incorrect contact information. Of those contacted, three growers never grown edible dry beans or not grown them recently. The remaining 11 growers were asked whether they were growing dried beans, whether they grow organically, and whether they had been contacted by schools regarding dried beans.

Results

Results indicate that very few growers in the U of M Farm to School Toolkit have experience selling local dry beans to Minnesota schools. Of the 11 interviewed, only one had experience selling dried beans to local school districts. When this grower was asked whether or not they were contacted via the U of M Farm to School Toolkit, the grower stated that her relationship with the local school district was a result of personal initiative and not the result of the school coming to her. Several of the remaining growers claimed to grow beans in recent years only for personal use and were not aware they were listed in the U of M Farm to School Toolkit as capable of selling edible dry beans to schools. Other remaining growers had never been contacted by schools via the U of M Farm to School Toolkit or through any other avenues.

Conclusion

Of those producers contacted using the Minnesota Grown wholesale dry bean growers list, each of the 14 growers contacted was a fresh green bean grower and not an edible dry bean grower. While the base of dry bean growers could not be expanded, nor the relative success of the U of M toolkit versus the Minnesota Grown directory compared, a result of this investigation has been the addition of a specific category to differentiate and promote local wholesale dry bean growers separate from fresh beans in the Minnesota Grown directory.

Farmers Market Vendor Survey

A study of Minnesotan Farmers' Market vendors began in January 2014 to further understand the potential demand for edible dry beans at these markets. The Operations Manager for the Minnesota Farmers' Market Association, Kathy Zeman, emailed 606 vendors a link to the survey, of which 66 participated in the survey, for a response rate of 10.8%.

The survey included both quantifiable and free responses to elicit a full perspective of vendors' experiences selling dried beans. Of the vendors who participated, 18 reported that they were currently growing and selling dry beans. Those not growing dried beans were directed to separate questions to complete the survey and are not included in the following results.

Results

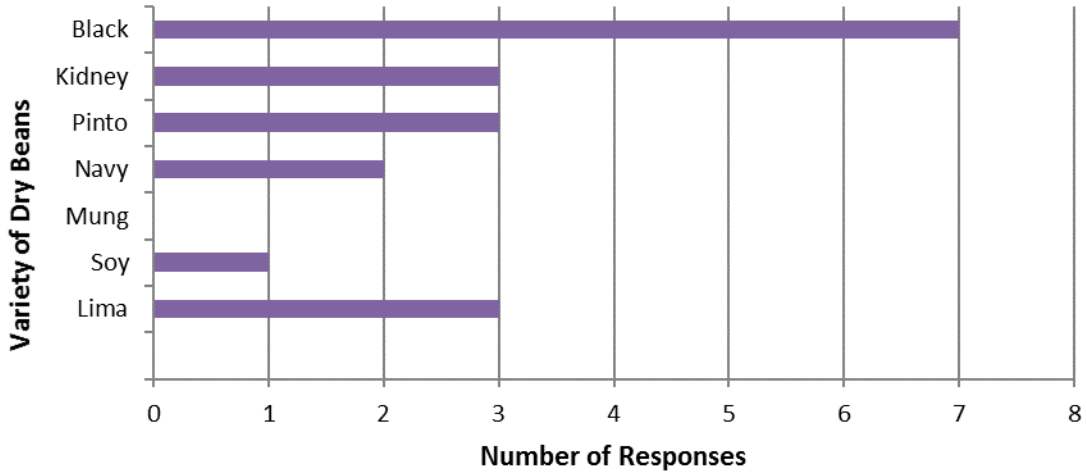
Operation

Results of the survey show that Minnesota growers have a range of experience in producing dried beans, with 30% cultivating these beans for more than six years to 10% of respondents currently in their first growing season. Size of operation also varied from small growers with less than one acre to larger operations planting over 40 acres of dried beans. A majority of growers (63%) produced many different products on 1-5 acres. Of this majority, land planted in dry bean varieties was less than one acre, with the largest area being a 1/2 acre of dried beans. Only 7.6% of survey participants currently sell their dried beans at the farmers market.

The varieties of dry beans grown in 2013 are illustrated in **Figure 3**. Black beans were the most cultivated variety with 50% of surveyed farmers planting black beans, followed by kidney, pinto, and lima varieties. Six farmers indicated they grew heirloom varieties, and, of these, peregion and cranberry varieties were most grown. Two farmers mentioned that their black bean varieties were the best-selling variety at farmers markets.

Organic growing methods were widely used among surveyed farmers, however only one maintained USDA certification. While USDA certified organic produce can provide marketing opportunities for growers, many small farms forgo the lengthy certification process although they grow according to organic methods. In many cases, participation in the steps toward USDA organic certification are difficult because of time and monetary barriers faced by small farmers. Instead, growers cultivate successful relationships with local consumers and use this interaction to provide consumers with details about on-farm growing practices.

Figure 3: Bean Varieties Organically Grown by Minnesota Farmers



Sales

The estimated retail value of the dry beans harvested ranged widely among the seven participants. One participant, for example, had zero gains because their crop was lost to flooding while another participant estimated the retail value of their crop at $300 after a few weeks of market sales. It was difficult to analyze the data regarding total sales of dry beans as it was early in the season with only a few weeks of market sales. At the time of the survey, farmers had made sales from $12-$100. One grower sold beans as seed packets and earned more through this method as opposed to packaging it in bulk for consumption. The packets contained enough seed for a 10 foot row and sold for $2.00 per packet. Of those selling for direct consumption, prices ranged from $1.50-$6.00 per pound.

According to vendor self-estimates, current sales were on-par with previous years. Half of the respondents said they were able to sell a "decent amount" of their beans in previous years. One grower reported selling the majority of their dried beans, and another sold all of their dried beans. Only one person indicated they sold some, but not many dried beans at farmers markets. Customers continue to show enthusiasm towards dried beans at farmers markets, as in previous years, reporting satisfaction in their purchase to vendors.

While some vendors have made profit from selling edible dry beans at farmers markets, they related the difficulty in growing these beans. Farmers report dried beans as labor intensive and lacking a high return compared to other crops. One farmer commented that Minnesota's wet fall weather can cause pods to mold easily, decreasing crop yield. However, a different grower with two years of experience, increased their dried bean production by four times the previous year.

Conclusion

The experience edible dried bean growers have selling their product at farmers markets varies in many respects. These include what bean varieties they supply and how they are market these products to consumers. Specialty heirloom varieties are not as widely available as other varieties and can be sold for more than non-heirlooms varieties. Certain heirloom varieties, like Jacob's

Cattle, feature unique colorings that are attractive to consumers. Successful sale of dried beans can also depend on marketing and merchandising methods used by vendors. Appealing packaging designs can enhance the product's attractiveness and can communicate a higher quality product to the consumer.

This research indicates growers have varying success in selling beans at farmers markets. One barrier may be that farmers markets are not recognized by consumers as a source of dried beans since only 7.6% of vendors surveyed reported selling dried beans at farmers markets. Demand for dried beans may increase if more consumers see farmers markets as a place they can purchase locally grown dried beans.

Dried Bean Distributor Report

This report is an analysis of interviews with nine bean distributors in Minnesota. The interviews were part of a project coordinated by the University Of Minnesota Department Of Agronomy to examine market channels for edible dry beans. Responses from bean distributors were intended to help improve understanding of the role distributors play in the dry edible bean market.

A total of 16 bean distributors were identified and contacted for information. Two of these distributors were no longer selling dry beans, leaving a total of 14 bean distributors. Distributors were called and given the opportunity to set up a phone interview or complete an emailed survey. Six respondents completed phone interviews, two completed in-person interviews, and one completed an emailed survey, resulting in a 64.3% response rate.

Results

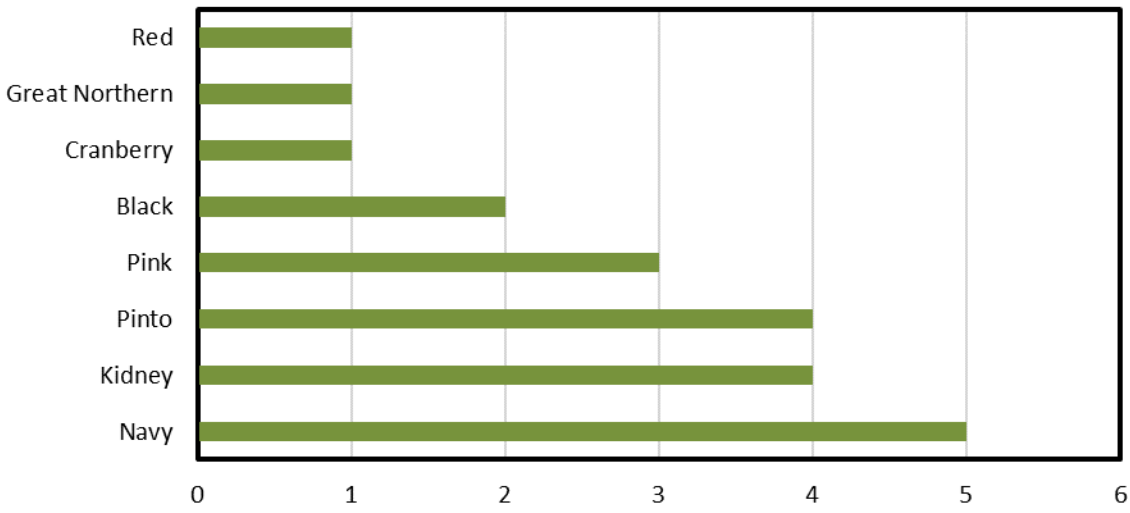
Infrastructure and Capacity

Distributors employed as few as three to more than 400 full-time employees. The median number of full time employees was seven. Distributors sold between 10 million pounds and 300 million pounds of dry beans each year. Two respondents did not report their annual volume. One of these respondents claims to be one of the largest, if not the largest, producer in the state. The median number of beans produced was 20-28 million pounds. Most distributors were reluctant to give a dollar estimate of their 2012 dry bean sales, but estimates ranged from $5-$15 million.

Varieties of Beans Sold

Most distributors deal with limited varieties of beans. Four respondents distributed only one variety of dried bean, four distributed three varieties, and one distributed six varieties. One respondent said that, in addition to the three varieties of beans that they distribute, they will handle other varieties of beans on a consignment and custom basis. **Figure 4** shows the varieties of beans sold by distributors. The most distributed beans in Minnesota were Navy, Kidney, and Pinto varieties, but the nine respondents surveyed sell a total of eight varieties of beans.

Figure 4: Varieties of Beans Sold



Services provided by companies

Most distributors prefer to be involved with the farmer throughout the production process. Six respondents reported selling seed to growers. Seven respondents said that they offer some agronomic services. The extent of these services varied by distributor. Some distributors have agronomists on staff, others will help with simple agronomic issues such as answering questions about spraying and defoliation. One respondent said that they would offer help with harvesting for farmers who are new to the bean business and who may not want to invest in expensive equipment. Respondents indicated that they offer these agronomic services because they want to ensure a consistent quality. All distributors reported purchasing products from growers using contracts or on the open market. Distributors provide aggregation, sorting, cleaning, packaging, and marketing of the product. One distributor is willing to process beans for growers and then allow those growers to market their own product. This is typically done for specialty varieties.

Source of product

All of the distributors reported sourcing all or most of their beans from farmers. Companies represented worked with 25-400 farms in a given year, depending on the distributor. The median number of farms was 40-50. Distributors reported contracting with growers that had between 20 and 20,000 acres devoted to beans. Respondents were asked to list the most important factors they consider when purchasing from growers. **Figure 5** displays their responses to this question.

Figure 5: Question - What important factors do you consider when purchasing beans from growers?

Figure 5 shows that the most important factor for bean distributors is quality, as it was listed by seven of the nine respondents. For distributors interested in purchasing beans for canning, moisture content is very important. Beans that are too dry or too wet split more easily.

Distributors showed a strong preference for contracting with farmers over purchasing beans on the open market. While most reported sourcing their beans in a variety of ways, distributors

emphasized that they prefer to source dried beans through contracts rather than the open market. Contracting with growers allows distributors to offer agronomic services which helps them ensure that the dried beans are of a high quality. In addition, contracts give distributors an idea of how many beans they will be selling early in the season. Six out of eight respondents reported getting at least some of their beans through contracts. Five of these six growers reported getting the majority of their beans through contracts. Other growers get some beans from brokers, buy beans from farmers on the open market, or allow growers to bring overrun to an open storage contract. One distributor emphasized that he would only purchase beans without a contract from farmers with whom he had a relationship.

Buyers of Beans

All distributors sell all or most of their beans to processors. Eight out of nine distributors said the processors they sell to are canners. One did not specify. Another distributor said that in addition to selling beans to canners, they sold some to dry processors. When asked why they focused on canners, most distributors said that there is generally more money in canning. One distributor of navy beans explained that beans grown in Minnesota have a less attractive color than beans grown in Michigan. Color is less important for canners than it is for dry processors. For this reason, Minnesota beans are considered ideal for canning and Michigan beans are considered ideal for dry processing. No distributors reported selling beans directly to retailers. Generally, retailers buy their beans from processors. One large distributor reported selling some beans to food aid institutions. Two respondents reported selling small amounts of beans to government institutions. One of these respondents said that they will sell to prisons and school lunch programs, but this is a small portion of their business. Finally, one distributor reported selling a significant amount of beans to brokers.

Distributors were not asked where their beans were sold, but three mentioned that they sold a significant amount of beans overseas. When asked for a specific region, two said that the beans were sold all over the world. One mentioned marketing their black beans in Mexico because there is a high demand for black beans in that country. These were three of the largest distributors interviewed. This indicates that larger distributors may have more access to international markets, but additional interviews would be necessary to establish a clear pattern.

Organic dry beans

Only two out of nine distributors reported working with organic dry beans. One distributor said that organic dry beans accounted for 1-3% of their total volume. The second said that the company sold organic dry beans, but not through their Minnesota facility, and organic dry beans accounted for less than 3% of their total dry bean sales. This distributor mentioned that some Minnesota farmers sell organic beans to their organic facilities in Idaho and Colorado, but only a few truckloads.

One of the two distributors who processes organic beans does not purchase organic product. They work with growers so that the growers can do their own marketing. The other distributor, who only distributes organic beans grown in Idaho and Colorado, sells the majority of their organic beans to canners and food services. This distributor mentioned that the Chipotle restaurant chain was one of their biggest customers.

Many distributors were unsure whether or not there was unmet demand for organic dry beans. Out of the seven distributors who answered the question, three said they were unsure, two said there was a significant demand, one said that there was a very small demand, and one said that there was not a significant demand. The distributor who indicated that there was a very small demand, indicated that organic farmers struggle to supply a quality product and quality is the most important factor for consumers. One distributor who said that there was a demand elaborated to say that it is a growing segment of the bean market that is getting harder to source, and he believes that buyers will pay double for organic beans. However, he sees organic production declining because farmers can also get a good price for conventional beans that are significantly less expensive to produce. He sees production of organic beans not keeping up with production of organic corn and soy and does not know if the market will bear the price farmers need to make a living producing organic dried beans.

Local dry beans

A majority of respondents sourced product from local growers. Six respondents reported sourcing 100% of their product locally. Two respondents reported sourcing 60-80% of their product locally. Only one respondent reported sourcing the majority of their beans from non-local sources. The definition of local was not strictly defined for this study. Some distributors consider a product to be local if it is sourced from within 100 miles of their facility. Others consider anything grown in Minnesota, North Dakota, or South Dakota to be local. Four respondents reported sourcing beans from towns within 100 or 120 miles from their facility. One reported sourcing beans from all over Minnesota. Three respondents reported sourcing beans from Minnesota, North Dakota, and South Dakota. One sources beans from Minnesota, North Dakota, the western United States, South America, and China.

Generally, distributors did not see much unmet market demand for local beans. Four said they were unsure whether or not there was much unmet market demand, four said that they did not know, and one said that there was unmet demand. The respondent who reported perceiving unmet market demand for dry beans said that he receives requests from brokers and marketers who wanted local product in larger quantities than he can distribute. Distributors who said there was no unmet market demand for local beans or that they were unsure, generally sell a lot of local product. Local beans are not marketed any differently from non-local beans, but distributors tend to source locally because this reduces transportation costs for producers.

Maintaining the identity of a farms product

Distributors were asked whether or not they would maintain the identity of a given farms product until it left their facility. Of the five who answered this question, two said no and four said yes. Distributors who said yes required at least one to five semi loads for it to be feasible. Most were unsure how much added cost would be involved. One guessed that it would add 10-15% to the cost; another estimated an increase of a dollar for every few hundred dollars per hundredweight.

Small producers entering the market

Distributors were asked if they thought that it was possible for small producers to enter into the market. This question was interpreted one of two ways: some distributors interpreted the question as asking whether or not it was possible for small producers to sell beans, and others thought it was asking whether or not it was possible for small producers to be financially solvent. Those who interpreted the question the first way all said yes. Bean distributors generally will

purchase beans in small quantities, although it is preferable for farmers to at least produce in semi-load quantities. (One semi-load is equivalent to about 25 acres of beans.) One respondent added that they would be more interested in purchasing organic beans in small quantities, but that they would also take conventional beans. Another respondent said that small producers would probably want to sell through small food cooperatives, but because quality is important for cooperatives, their success would depend on the year.

Most growers did not respond to the question asking what varieties of beans small producers could sell. Those who did usually responded with the types of beans that they distribute. One exception was a kidney bean distributor who recommended selling black beans because per capita consumption of black beans is up. Another distributor mentioned that he would not recommend heirloom or other specialized varieties of beans since there is not a significant volume of specialized beans being produced and distributors require large volumes.

Quality issues with local beans

Distributors generally did not report experiencing quality differences with local beans compared to non-local beans. Distributors reported some unavoidable weather issues and emphasized that quality depended on the growing conditions of the year. One distributor mentioned that he had some issues with beans being commingled with corn and soy. This producer has had to reject loads contaminated with corn and soy because his buyers will not accept them. Only one respondent reported having quality issues due to the inexperience or lack of equipment of local farmers, but it should be noted that this distributor sourced less than 1% of his beans locally.

Conclusion

The *Dry Bean Retail Report* concluded that there is a strong demand for specialized organic beans, especially heirloom varieties, with Minnesota co-ops. Small producers who wish to meet this demand will have trouble working with the distributors interviewed for this report since, generally, these distributors work with limited varieties of beans and have little interest in working with small volumes or specialty varieties. In addition, none of these distributors had direct experience selling to retailers.

Small organic producers might be able to work with some distributors to process their beans on a consignment basis. These producers could then do their own marketing. Several interviewed distributors seemed open to the idea, and one had experience processing on consignment. Producers unable to find a distributor willing to process on consignment could investigate selling beans through United Natural Foods Incorporated (UNFI) or the Whole Grain Milling Company, since these companies are the main suppliers of Minnesota co-ops. (No attempt was made to contact UNFI for this survey because they are not based in Minnesota and Whole Grain Milling Company did not respond.). More research is needed to identify other potential distributors of organic specialty beans. In addition, research into how farmers can process beans at low volumes in a cost effective way would benefit producers who are unable to produce semi-load quantities.

There was openness among distributors surveyed to the idea of working with smaller producers growing conventional beans. Small producers new to dried bean production who can produce beans in semi-load quantities and who are open to producing non-organic products, may benefit from a contract with one of these distributors since many are willing to work with inexperienced farmers and offer agronomic services.

Dry Bean CSA Report

This report is an analysis of a survey of CSA farmers in Minnesota. The survey was part of a project coordinated by the University of Minnesota School of Agronomy that looked at market channels for dry edible beans in Minnesota, North Dakota, and South Dakota. Responses from CSA farmers were intended to improve understanding of direct-to-consumer market channels.

The survey was distributed to 121 CSA farmers via email in May 2013. Of the farmers contacted, 37 completed the survey, for a response rate of 30.6%. The survey included questions about general business operations, current and past production of dry edible beans, incorporation of dry beans into CSA shares, and perceived barriers to producing and marketing dry beans. The questions were distributed in the form of an email survey to make it easier for farmers to respond. Respondents were given the ability to write in responses for some open-ended questions, such as those about perceived barriers to production and marketing of dry beans.

Results

General Operations

The farmers who responded to the survey represent owners of both new and established CSA farms. Of respondents surveyed, 35% had been operating their CSA for seven years or more and 24% had been established for four to six years while 32% had been operating their farms for two to three years. Only 8% of farmers had been operating their farms for one year or less.

Farmers were asked if they had plans to increase the number of shares sold in the coming year. Overall, there was a slight increase in the number of shares that farmers plan to sell in 2013 versus the number sold in 2012. **Figures 6 and 7** compare the number of shares sold in 2012 with the shares farmers planned to sell in 2013.

Figure 6: Question - How many full CSA shares did you sell in 2012?

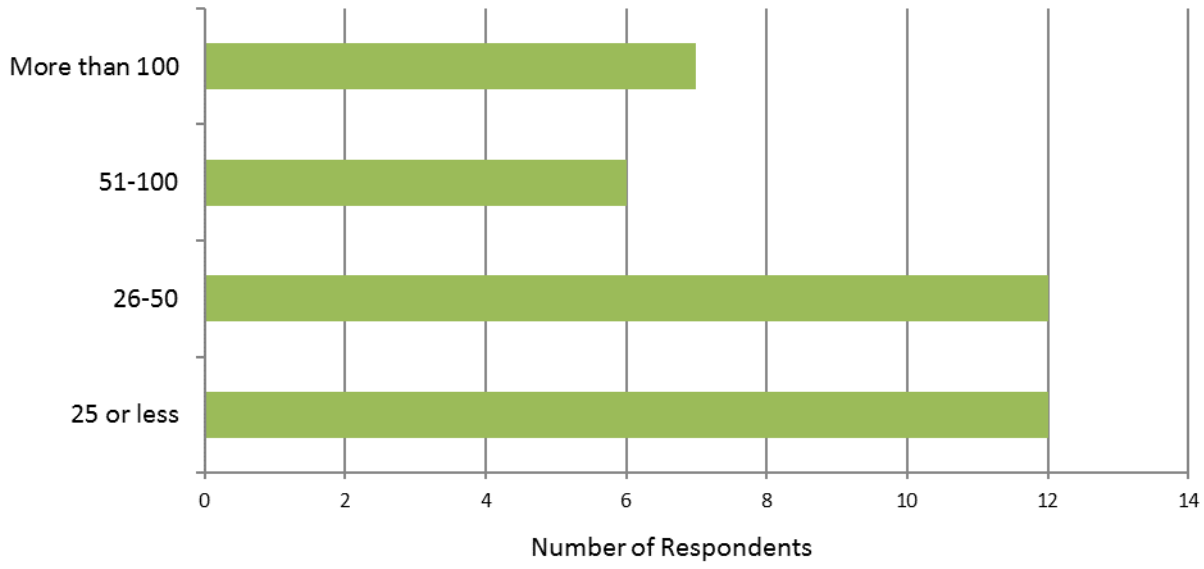
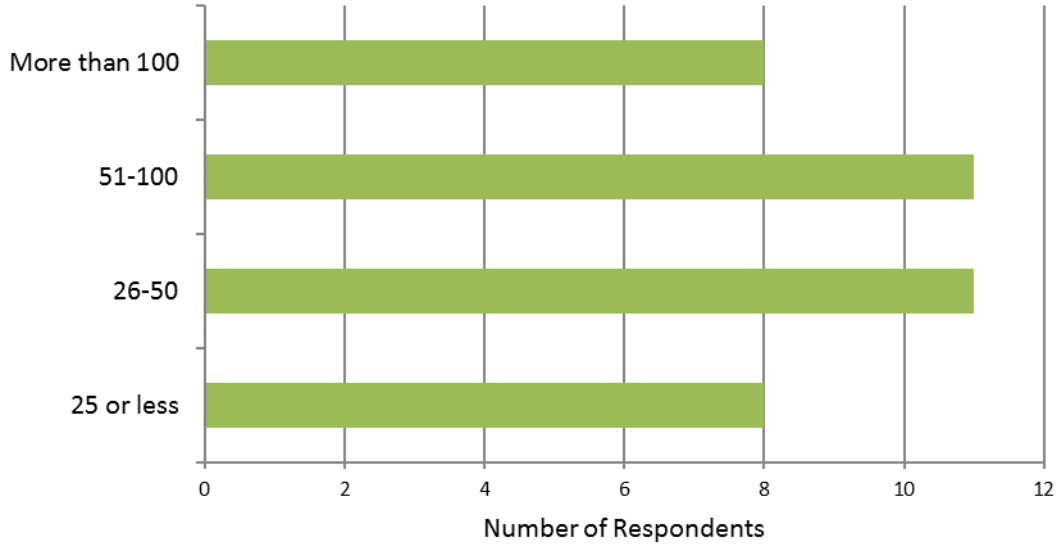


Figure 7: How many full CSA shares do you intend to sell in 2013?



While only 25% of CSA farms surveyed were certified organic, 64% of respondents produced according to organic standards. Becoming certified organic is expensive and is often seen as unnecessary for CSA farmers because their clients are already familiar with their agricultural practices. An additional 11% of farmers use a mixture of organic and conventional methods. None of the respondents reported using exclusively conventional methods.

Dry bean production for CSA shares

Of the participating CSAs, 57% have experience growing dry beans, with 95% of these beans grown according to organic standards. Only 5% of these beans were grown exclusively for sale, 38% of beans grown both for sale and for personal consumption, and 57% grown for personal consumption. Just under half of the respondents have grown and distributed dry beans through their CSA shares, but 83% of respondents have considered growing and distributing dry beans.

Farmers who included dry beans in their CSA shares were asked whether they had received any feedback from their members. Two farmers included the dry beans as a soup mix and received very positive feedback from their members. Several other farmers distributed beans from the previous year in the spring when the shares were filled mostly with leafy greens, and their members enjoyed receiving a heartier product that they could cook. Other farmers distributed unshelled dry beans in the fall, cutting any processing time, but these farmers received no feedback on include the unshelled beans. One farmer included lima beans in his shares and felt that people enjoyed them but would not want to receive them on a regular basis. No farmers reported overtly negative feedback.

Purchasing locally sourced beans for CSA shares

There are many barriers to producing organic dry beans on a CSA farm. Organic beans are a labor-intensive crop and can be difficult to produce on a small scale. Because of this, the possibility of purchasing locally sourced dry beans from other producers and using them to fill

CSA shares was investigated. Responses indicated that 10% had purchased dry beans to fill CSA shares in the past.

Barriers to producing and marketing dry beans

Since results demonstrated that there are many more farmers who have considered producing dry beans than have actually produced them, farmers' perceptions of the barriers to producing and marketing dry beans were analyzed. As seen in **Figure 8**, the most common barriers listed by respondents included lack of time, land, or resources and lack of knowledge about how to grow dry beans. Numerous other barriers were listed including worries about cost effectiveness, preference for fresh products amongst CSA members, labor-intensive harvesting and processing, impracticalities of working on a small scale, worries about quality, and worries about the ability to make a profit selling a labor-intensive crop that is not highly valued.

Figure 8: Question - Which of the following do you perceive as barriers to growing dry beans?

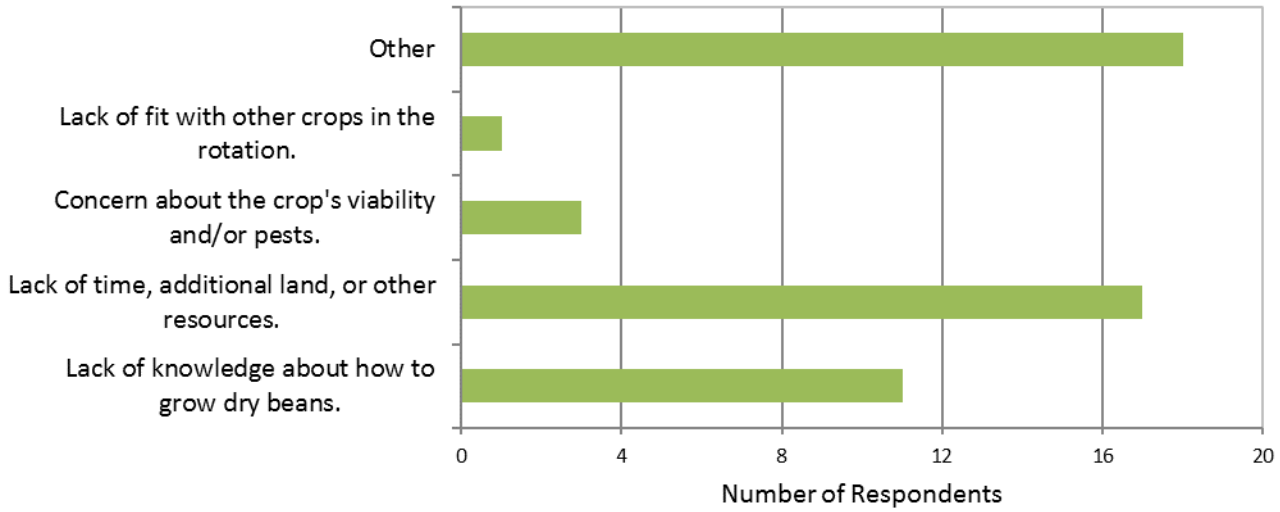
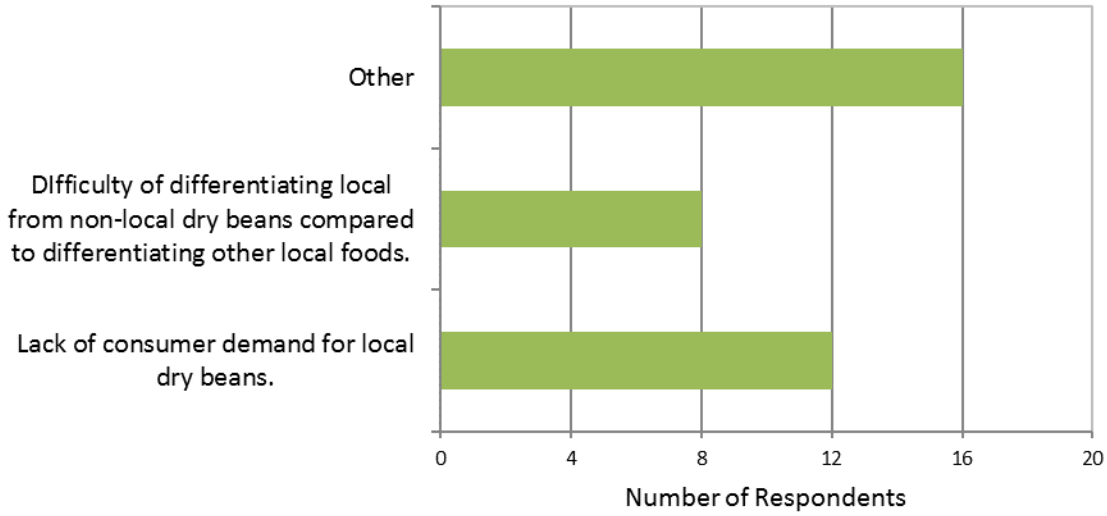


Figure 9 illustrates the perceived barriers to marketing dry beans. Lack of consumer demand for local dry beans was the most common barrier to marketing dry beans listed by respondents. This lack of demand may be related to the second most common barrier, which was the difficulty in differentiating between local and non-local dry beans compared to other foods. Other barriers to marketing dry beans included difficulty setting a price that would make it profitable for small growers, problems with marketing local organic beans, issues related to quality, difficulties related to the labor-intensive processing that is required, and the low value of beans relative to the amount of land required for production.

Figure 9: Question - Which of the following do you perceive as barriers to marketing dry beans?



Conclusion

While a substantial number of CSA farmers had considered growing beans for their CSA shares, fewer than half of them actually did so. A slim majority of farmers have grown dry beans at some point, but this was primarily for personal consumption.

There are numerous barriers to producing dry beans on a CSA farm. Beans are labor-intensive and require a large amount of land relative to their market value. Equipment can be purchased to make the bean processing more practical. However, this equipment is too costly for CSA farms that only have a small acreage devoted to beans. In addition, while beans are costly to produce, they have a relatively low market value. Local organic producers would have to be able to convince customers to pay a premium for their product, but this could prove difficult since it is difficult to differentiate locally grown, organic dried beans from conventional grown ones.

CSA farmers would benefit from reducing the cost of processing beans. This could involve sharing their equipment, bringing beans to a centralized processor, or purchasing beans from a larger local producer to add to their shares. More research looking into the feasibility these options would be beneficial. CSA farmers would also benefit from a program that helps them market local organic beans to consumers.

Co-op Grocery Store Study

This report is an analysis of a survey of co-op grocery stores in Minnesota. The survey was part of a project coordinated by the University Of Minnesota Department Of Agronomy that looked at market channels for dry edible beans in Minnesota, North Dakota, and South Dakota. The responses from co-ops were intended to help improve understanding of retail market channels.

The survey was distributed to 21 co-op managers and bulk buyers representing a total of 24 co-ops in Minnesota and North Dakota. These co-ops were identified using the National Cooperative Growers Association list of co-ops. A total of 11 responses were received (52.4% response rate). One of the respondents was the bulk buyer for a co-op with three locations, so a total of 13 stores were represented. All respondents were located in Minnesota. Respondents were initially contacted via telephone and given the option of scheduling a telephone interview or completing an emailed version of the survey.

In total, seven respondents completed emailed surveys, four completed phone interviews, and one completed part of a phone interview and then emailed more information. Respondents who responded via email were generally able to give more specific information about the volume of beans sold, but respondents who completed phone interviews gave more detail and were able to answer follow-up questions.

Results

General business information

The respondents represented both large and small co-ops. These ranged in size from 3,300 to 21,900 square feet of retail space. The smallest co-op had seven full time and 20 part time employees. The largest had 200 full time and 175 part time employees. The five largest co-ops, both in terms of square footage and total employees, were located in Saint Paul, Minneapolis, or surrounding suburbs.

Sourcing of dry edible beans

All of the co-ops reported sourcing most or all of their beans through distributors. Not all respondents shared the name of their distributor, but the most common sources were United Natural Foods Inc. (UNFI) and Whole Grain Milling Company. UNFI is the largest natural foods distributor in the country. Whole Grain Milling Company is a Minnesota-based distributor that specializes in organic grains and offers some unique varieties of beans. One co-op reported sourcing beans through a small distributor in Iowa. Three co-ops said that some of their beans were purchased from local farmers, but these beans represented a small percentage of their total purchasing.

Co-op managers consistently reported that they chose their distributor because they were able to get a reliable product in the quantities that they required. Other major concerns when choosing a distributor included availability of organic product, price, and quality. All but two respondents seemed open to sourcing from local growers, but all respondents said that local sources were unavailable or very limited.

Varieties of dry edible beans

Table 1 shows that 18 varieties of beans and two blends are sold in co-ops across Minnesota. The varieties sold in the highest quantities at the most stores include black turtle, kidney, garbanzo, navy, and pinto beans. Generally, co-ops are more likely to have local sources for these common varieties of beans.

Table 1: Number of Pounds of Various Dry Edible Beans Varieties Sold Annually by 11 co-ops (A-K)

Co-op Sales of Dried Beans (in pounds)											
Bean Variety	Co-op A	B	C	D	E	F	G	H	I	J	K
Adzuki	594.08	100	421	659			150	900	?		
Anazasi	31.8										
Baby Lima	165.88										
Black Eyed Peas	681.8	100		952					?		
Black Turtle	**2,646.11** and 1,071.39	**1,200**	1,888	**4,993**	246		**500**	5,200	?		?
Cannellini	813		769	1,281			400	1,600			
Fava	318.78			520			200				
Garbanzo	1,049.10	**800**	1,095	3,584	198	?	500	4,000	?		?
Great Northern	1023.16	500		628	90				?		
Kidney	**1,087** and 278.67	**440**	878	**1320**	189	?		1,600	?		?
Lima		100		361		?					
Mung	596.44		521	848				1,050	?		
Navy	959.32	400	959	1,492	128	?	300	1,550	?		?
Pinto	2,391.54	400		2,722	153	?	300	3,000	?		?
Small Kidney							200				
Small Red/Chili	630.82			1,200		?		1,200			
White Cannellini											?
White Kidney								?			
White Lima							200				
Heirloom Blend		**300**									
Other Blend			458								

Table 1 shows the varieties and number of pounds sold annually at 11 co-ops. These co-ops have been assigned a letter instead of being named. Varieties identified as local are indicated in **bold**. Some bean varieties have two numbers, one indicating pounds sold of a local product and the other indicating pounds sold of a non-local bean of the same variety. The "?" symbol indicates that respondents knew that they sold a specific variety of bean but were unsure of the volume.

Mark-up factors

Respondents were asked for their mark-up factor and whether or not their mark-up factor was the same for local and non-local products. Only five respondents felt comfortable giving their exact mark-up. All mark-up factors were 40% plus or minus 5%. Other respondents indicated that their mark-up may vary slightly by variety, but that it would not be deliberately higher for local

products. Two respondents said that they would have a lower mark-up for local products in order to encourage customers to buy them.

Organic dry edible beans

All but one respondent answered questions related to organic beans. All respondents who answered the question said that 100% of their beans are organic. Most respondents indicated that they would not consider selling products that were not certified organic.

Local dry edible beans

While only three co-ops sourced beans directly from local producers most were able to sell some local product. Seven respondents said that they sold local dried beans, three said that they did not, and one was unsure. Only six of the respondents who sold local beans were sure what percentage of their beans were local. This percentage ranged from 16% to 63% with a mean percentage was 27.6%. Respondents stated that they were only able to find local sources for limited varieties of beans. Four respondents listed varieties that that they were able to source locally. All four had a local source for black beans, three had a local source for kidney beans, one had a source for garbanzo beans, and one had a source for an heirloom blend. None of the co-ops charge a premium for local beans and one co-op reported selling some local beans at a lower margin.

Respondents were asked if they perceived any unmet market demand for local beans. Five respondents gave a definitive "yes", one said that there could be, and three said "no." Four respondents said that they felt their customers would be willing to pay a premium for local beans, two said that customers would be willing to pay a premium for local heirloom beans or other unique varieties, two were not sure whether or not their customers would be willing to pay a premium, and one said that they would not be willing to pay. Respondents were reluctant to guess how much of a premium customers would be willing to pay, but guesses ranged from 10% more to double the typical cost. Several respondents mentioned that because beans are a staple product, it is important to keep their cost low.

When asked if it would be possible for a small local producer to sell through their store, eight respondents said that it would be possible and two said that it was doubtful. In order for co-ops to feel comfortable sourcing from small producers, they would have to be able to get a reliable supply of product in the volumes that they require. Because co-ops may require frequent small orders, transportation will be a huge barrier for local producers. Some managers were also concerned that small producers would not be able to provide a quality product at a competitive price, but were open to working with them if they were able to do so. When asked what varieties small producers could sell and if there was a market for heirloom beans, seven respondents said that there was a market for heirloom beans. Two respondents mentioned that it was also very possible for small producers to sell staple varieties such as black, kidney, and garbanzo beans.

Conclusion

Based on these responses, it seems there is room for small producers to enter into the dry bean market by selling through co-ops. Eight respondents said that they would be open to sourcing beans from local producers, but there were conditions that must be met. Floor space is at a premium at the co-ops surveyed. The addition of a new local product would necessitate

replacing an existing product. Co-ops are generally unwilling to do this if they cannot receive a consistent supply. Farmers would need to be able to provide co-ops with a sufficient volume of beans to meet demand. Storage space is also limited. This means that farmers would need to be able to supply co-ops with these beans through regular small shipments. Depending on the location of the producers and the co-ops, transportation costs could become prohibitively expensive.

In addition, small producers may struggle to produce product that is price-competitive. Some co-ops are willing to reduce their mark-up for local products in an effort to make them more competitive, but it is questionable whether this could completely compensate the cost to produce and transport these beans. Co-ops generally reported that customers may be willing to pay a premium for local product. However, the premiums customers are willing to pay for staple products, such as beans, are low. Co-ops value being price-competitive on these staple products because it helps them attract and retain customers. Farmers who wish to sell through co-ops need to take measures to be as price competitive as possible. This likely will involve producing large volumes of beans to bring down equipment and transportation costs.

Respondents seemed interested in sourcing any variety of beans through local producers. However, there seems to be more unmet demand for specialty varieties. The most common locally sourced beans were varieties such as black turtle and kidney beans. Seven respondents felt that there would be a demand for locally sourced heirloom beans, but only one co-op offered an heirloom blend.

Focusing on meeting unmet demand for specialty varieties of beans could help farmers be more price competitive. Small producers may have trouble producing common varieties of beans at competitive prices because consumers are not willing to pay a large premium for staple products. These farmers may find it easier to market specialty beans. Higher-priced specialty crops also sell in lower volumes. This could help small producers who are unsure of how much they can produce meet the co-ops' demands to provide sufficient volume of product.

Restaurant Study

This report is an analysis of a survey of restaurant managers in the Twin Cities and in Greater Minnesota who actively procure and advertise the use of locally grown products. The survey was part of a project coordinated by the Regional Sustainable Development Partnerships that looked at usage and potential future usage of locally grown edible dry beans in Minnesota restaurants focused on serving dishes with local ingredients. The responses from restaurant managers were intended to help improve understanding of direct-to-consumer market channels.

The survey was distributed to 74 restaurants in the Twin Cities and Greater Minnesota via email in August 2013, with follow-up e-mails throughout September**.** Of these restaurants, 29 completed the survey, giving the study a response rate of 39%. The survey included questions about use, qualities desired, amount purchased and varieties used of edible dried beans. Surveys were distributed by e-mail for ease of response. The survey gave respondents the ability to write in responses to the more open-ended questions, such as questions about experience purchasing edible dry beans and reasons for not purchasing locally grown edible dry beans in the past.

Results

Of the 29 survey respondents, 26 (90%) used dried beans in their restaurant. One respondent who did not use dried beans stopped purchasing them because of the length of time it takes to cook dried beans. Instead, this restaurant switched to dishes that did not use dried beans. Ten of the respondents who stated that they used dried beans purchased their beans from local producers.

Demographics of the Restaurants Surveyed

Managers who responded to this survey represented a variety of restaurant sizes. The number of employees hired by the restaurants surveyed ranged from 8 to 200 employees. The mean number of employees was 48 while the median number was 30 employees.

Frequency of Purchase, Amount Purchased, and Use in Menu Items

Restaurant managers were asked to report the frequency with which they purchase dried beans, how much they purchase at one time, and how frequently beans are incorporated in menu items. Answers given by the 25 respondents are shown in **Figure 10, Figure 11,** and **Figure 12**.

Figure 10: How frequently did you purchase dry beans in the past year?

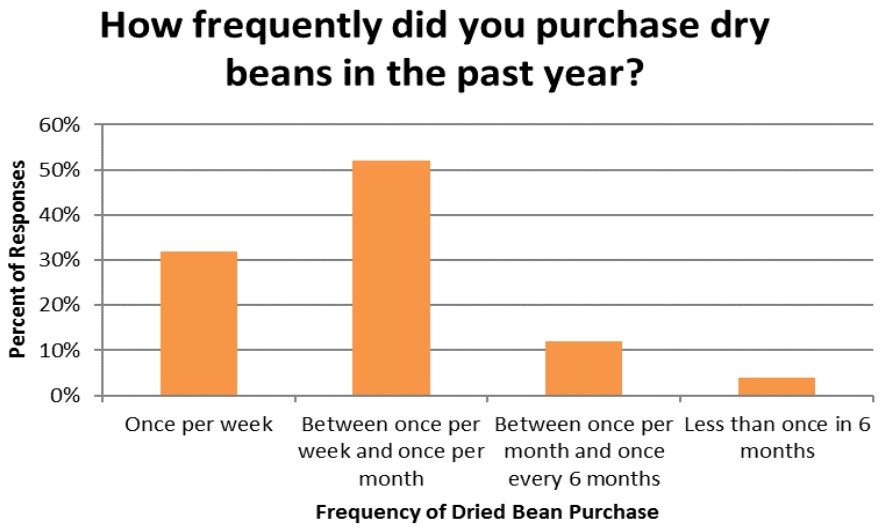


Figure 11: Pounds of dried beans purchased per month

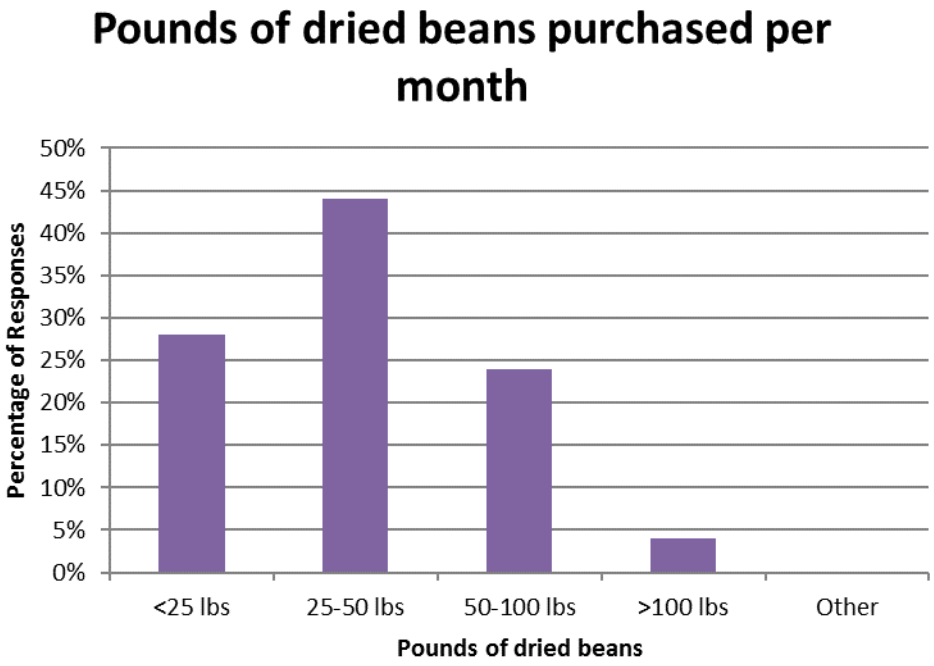
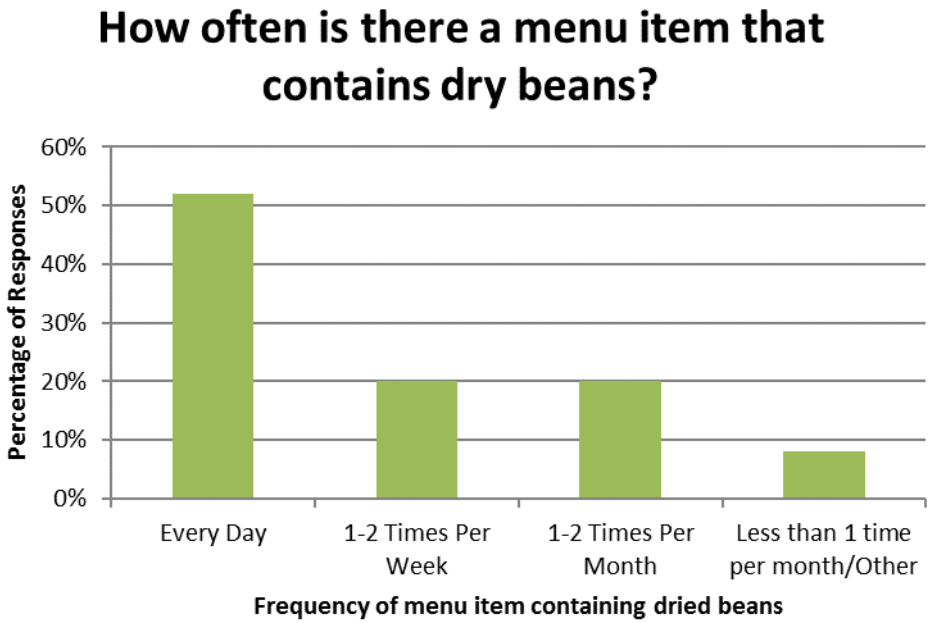


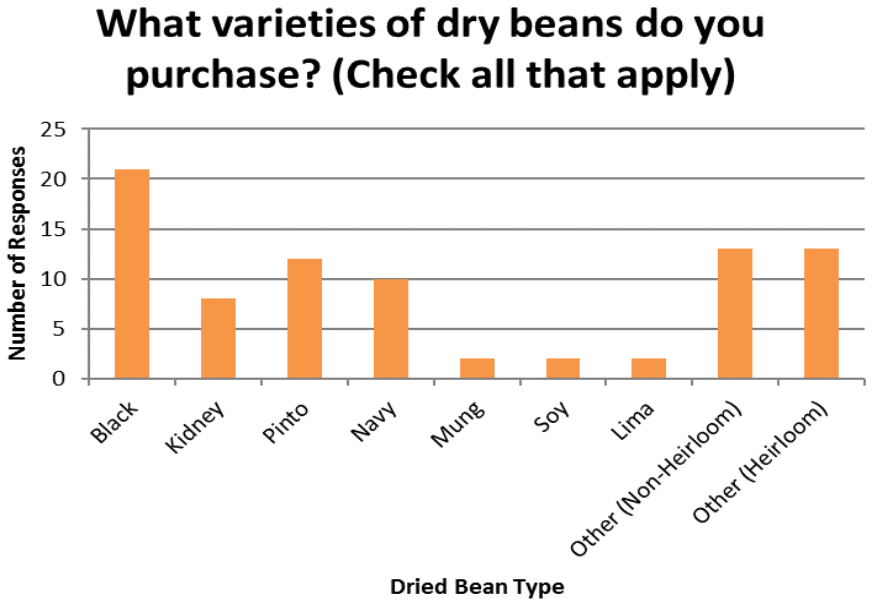
Figure 12: How often is there a menu item that contains dry beans?



Varieties of Beans Purchased

Respondents were asked to check all varieties of beans that they purchase (**Figure 13**) as well as list any beans that were not listed. These other responses were broken into heirloom and non-heirloom bean varieties.

Figure 13: What varieties of dry beans do you purchase? (Check all that apply)



Other Non-Heirloom

Great Northern
Chickpeas
Garbanzo
Red
Cannellini
Black-eyed peas
Saisson
Flageolet
Purvian White Beans
Lentils
Split Peas

Other Heirloom

Cattle
Cranberry
Calypso
Italian Varieties
Rattlesnake
Pebble
True Red Cranberry
Miscellaneous local heirloom varieties
Jacobs Cattle
Tiger Eye
Boston Bush
Rattlesteak
Yellow eye
Huterite

Purchasing Experiences

Survey respondents were invited to comment on their experiences purchasing edible dry beans.

Respondent Experiences with Purchasing Edible Dry Beans:

"Sorting and washing is key. A stone in my beans could mean a costly dentist bill, while I know it happens and I find stones in the beans I buy, that would be bad."

"I usually buy through UNFI or Hilgendorf's Whole Grain Milling. I like the quality of organic freshly cooked dry beans over canned beans any day!"

"Farmers are great, reality is I need to go through Sysco or etc. Reason: I need to keep number of vendors down for a realistic business plan. Plus the time factor of dealing with multiple vendors. Plus a lot of farmers want cash up front verses doing invoices. Accounting challenge and time factor."

"Make sure there are no bugs!!!!! We had a moth infestation that came in on some local dried beans that lasted over a month."

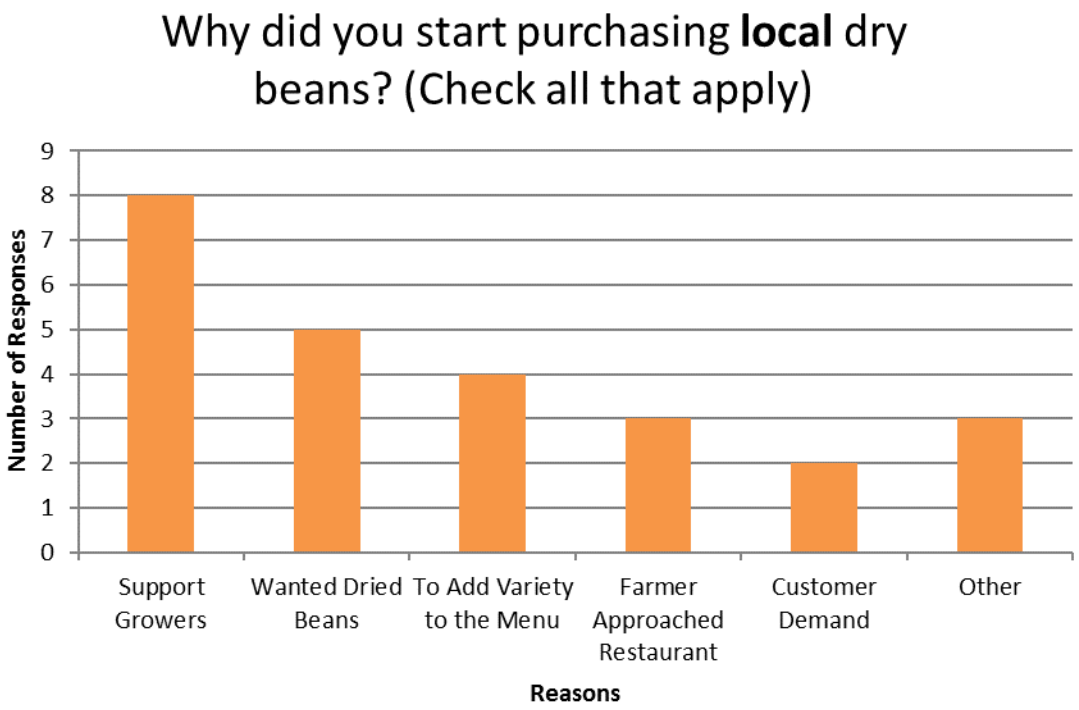
"I currently have access through the greater growers at Whole Grain Milling in Welcome, MN. We love to tell their story – and I'd hope more restaurants around the state get involved! It's not so surprising that we can grow dry beans here in MN – but many folks aren't aware of it!"

"I usually buy in bulk, so this I the reason for my sporadic ordering. I also work in catering and my purchasing is dictated by what the client wants."

Locally Grown Dried Beans

Ten of the 26 respondents who used dried beans in their restaurant purchased dried beans from local producers. The farmers currently using local dried beans were asked to select all relevant reasons for why they began using local dried beans and were invited to add other reasons not listed in the survey. As shown in **Figure 14**, the most selected response was to support local growers, followed by wanting to use dried beans and adding menu variety. Comments made in the "other" box indicated that restaurant managers also used dried beans because it fit with the philosophy of the restaurant and owner, the taste was better, and the restaurant was owned by a farm that grows heirloom dried beans.

Figure 14: Why did you start purchasing local dry beans? (Check all that apply)

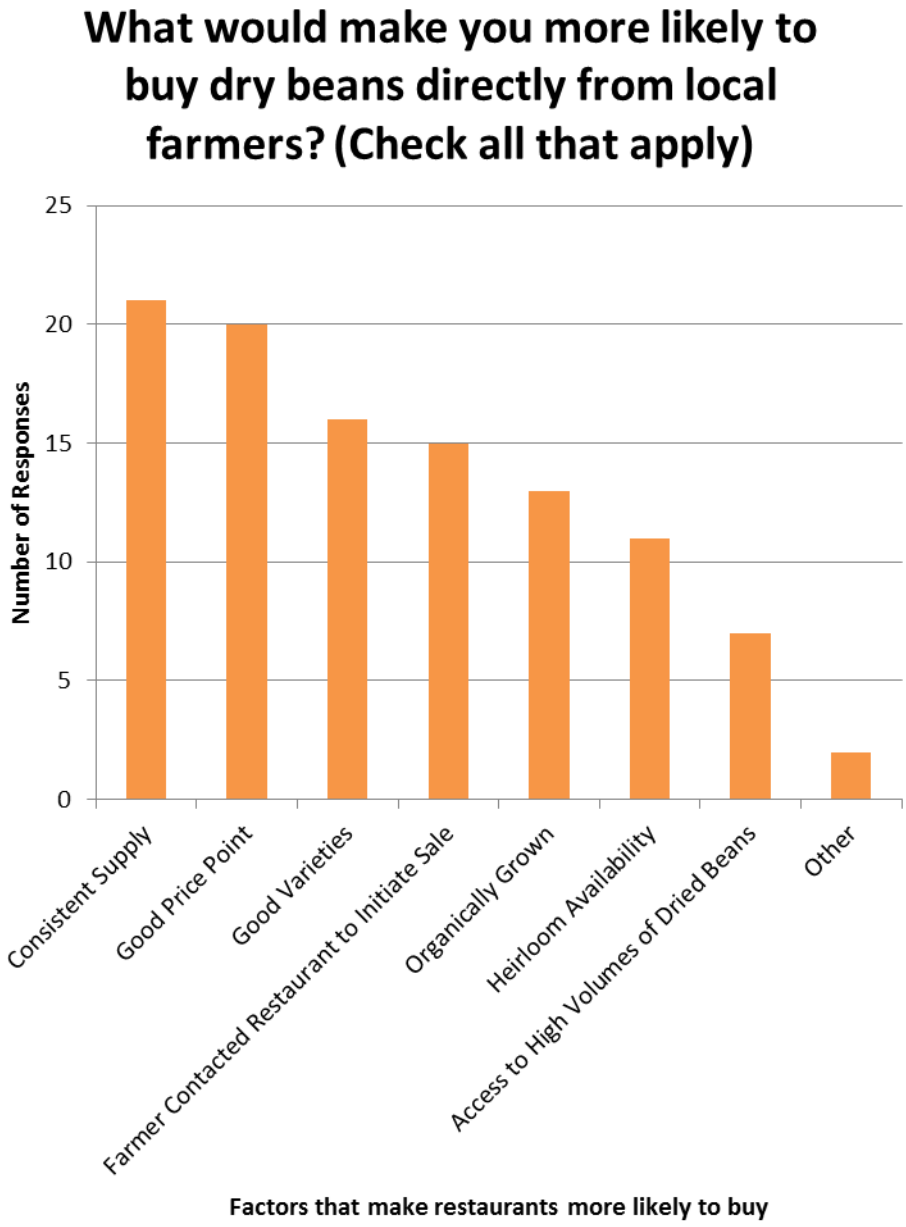


Those respondents who did not use locally grown dried beans gave reasons such as locally dried beans weren't available, the restaurant was not able to source beans from a supplier, they didn't know where to find locally grown dried beans, and that the restaurant had not formed a relationship with a local grower.

Conditions that would Increase Purchasing of Locally Grown Dried Beans:

Consistent supply was noted as a top factor for restaurants when considering increasing their purchasing of locally grown dried beans, followed by having a good price point, and being able to choose from a number of dried bean varieties (**Figure 15**).

Figure 15: Factors that make restaurants more likely to buy dried edible beans



Estimated Willingness-to-Pay for Locally Grown Organic/Heirloom Dried Beans:

When asked about willingness-to-pay (WTP) for locally grown organic heirloom and organic non-heirloom beans, participant responses resulted in an average WTP of **$2.85 per lb** (Maximum $10.05/ Minimum $1.18/ Standard Deviation $2.04) **for non-heirloom, organic dried beans**. For **organic, heirloom beans**, these restaurant owners were willing to pay a higher price with a WTP of **$4.78 per lb** (Maximum $13.01/ Minimum $1.50 / Standard Deviation $3.00).

Conclusion

Many restaurant managers in Minnesota who are focused on utilizing local ingredients incorporate dried beans into their menu items, but fewer of these source their dried beans from local growers. Roughly half of the managers surveyed used dried beans in their dishes every day, but only 10 out of 26 (38%) used locally grown dried beans. Some managers stated they were unable to use locally grown dried beans because they couldn't source them from their supplier and weren't available. Factors that would make them more likely to purchase local beans were obtaining a consistent supply, purchasing these beans for a good price, and being able to select from different varieties of dried beans.

Those restaurants who already bought dried beans from local growers stated a variety of reasons for doing so. The top three reasons were to support growers, that they wanted dried beans for their restaurant, and to add variety to the restaurant menu.

Overall Conclusions

The results of these studies indicate there is room for more local production and sales of edible dried beans, but local farmers will obtain the most success by taking key factors into account:

Themes throughout the Research

- Specialty heirloom varieties are of the most interest to multiple venues surveyed.
- Major challenges include: high equipment costs, low market value, and difficulty differentiating organically grown dried beans from conventional.
- Consistency of supply, adequate volume, purchasing price, and locating sources for local dried beans are issues for both co-ops and restaurants.

Farmers Markets

- Attractive packaging, unique coloring, or other interesting traits, can attract customers.

Distributors

- Challenges may arise since distributors work with a limited variety of beans and may not have experience selling direct to retailers, although there was openness among distributors surveyed to the idea of working with smaller producers growing conventional beans.
- Small producers new to dried bean production who can produce beans in semi-load quantities and who are open to producing non-organic products, may benefit from a contract with one of these distributors. Many are willing to work with inexperienced farmers and offer agronomic services.
- Specialty variety producers who wish to work with distributors may find some who will process their on a consignment basis, but producers will need to handle marketing.

CSAs

- CSA farms looking to include dried beans may benefit from sharing equipment, processors, or purchasing from a larger local producer to supply their shares. Effective marketing of dried beans will also be a benefit.

Co-ops

- Black turtle and kidney beans are the most common locally sourced beans, but there is an unmet demand for specialty varieties.
- Periodic delivery of the product is needed since there is limited storage capacity.
- Since co-ops can only mark-up local product to the extent their customers are willing to pay, farmers must be as price competitive as possible by producing larger volumes, bringing down equipment and transportation costs, or marketing higher-valued specialty varieties.

Restaurants

- Restaurants that use locally grown dried beans do so to support growers while also addressing their interest in adding variety to the menu.