Ramping up the Minnesota hazelnut industry through market development

Interview and Focus Group Summary

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Executive summary

Hazelnuts are a perennial, high value crop that holds great potential for maintaining or improving soil and water quality in agricultural areas and contributing to a more robust and diversified food system in Minnesota. In addition to their ecological benefits, hazelnuts produce a healthy and tasty kernel that is rich in oil and has a variety of uses for consumers. They also produce a hard shell, which may have a number of uses, though little work has been done to explore these options. If adequate markets can be established to encourage more widespread production, hazelnuts have the potential to help bolster the security and sustainability of Minnesota’s food system and environment.

Since current MN hazelnuts crops are limited, growers with the Minnesota Hazelnut Foundation (MHF) have expressed interested in identifying markets that offer good prices and have the potential to work with small quantities and scale up over time. Although there is concern about developing a market before a sizable crop is available, there is also concern that current growers, and those whose hazelnuts will soon begin to produce larger crops, lack access to adequate markets, and that failure to develop a market will deter future investment in hazelnut crops. The MHF approached the University of Minnesota’s Sustainable Regional Development Partnerships (RSDP) to work with a graduate student who could begin to assess existing markets and help chart a course for further development of the Minnesota hazelnut industry. The research presented here is the result of that partnership.

A total of 7 interviews with chefs, and restaurateurs interested in using local foods were conducted, along with a focus group of 3 participants to discuss the use of hazelnut shells as mulch.

Key findings of the chef interviews include:

- All chef are currently using hazelnuts in their restaurants or catering businesses, and all of them are importing those nuts from the western U.S.
- All interview participants were interested in purchasing local hazelnuts but did not know where they could buy them.
- Participants use a range of 5-20 pounds of hazelnuts per week, depending on the season and nature of their business and would expect to continue to use the same amount of local nuts.
- There is a high degree of interest in hazelnut oil, although price will be a limiting factor.
- Participants emphasized the importance of locally grown nuts, sustainable production methods, health aspects of hazelnuts and oil, connections with growers, and the story that can be told about the products.
- Consistent supply and convenience of delivery will also be important factors in establishing a market for local hazelnuts among local food chefs.

Key findings from the hazelnut shell focus group include:

- The shells are an attractive color and durable, but may be too heavy, sharp and lack the volume required to enter into the home-scale landscaping market.
- There may be other opportunities to use the shells including as use as mulch in wildlife gardens or along roadsides, in erosion control tubes, for biomass energy production, fiberboard or pressed wood production, compost, or water filtration.
- It may be worth pursuing research on how the shells perform and break down in a variety of conditions.
Perhaps the most important insight provided by this work is that growers, or those wishing to sell MN hazelnuts, hazelnut products or shells, must be careful about making assumptions about their target market. This effort to understand buyers should take place before investing in any equipment. Producers should consider the products and quantities desired, prices that buyers are willing to pay and distribution concerns. Growers should also consider the story they are able to tell about their hazelnuts or products. Stories may be especially important for new crops like Minnesota hazelnuts or shells that have not been widely available to buyers in the past. They create a point of interest and connection that helps buyers feel good about their purchase and to want to continue to invest in the product.

Interest in Minnesota hazelnuts was high among all participants in this research. With proper investment, and by avoiding over-promising or entering into markets too large to satisfy, MN hazelnut producers have many opportunities to establish a small scale market for their products, with the potential to grow and develop along with the crop.

Fig. 1 A variety of culinary hazelnut products.

Clockwise from back left: Whole roasted hazelnut kernels, hazelnut oil, whole raw hazelnut kernels, ground hazelnut meal from roasted kernels. Blanched and peeled kernels are not shown. Interview participants were offered samples of each product and feedback if they were interested in sampling the items, asked for feedback.

The oil and raw kernels were of the greatest interest to interview participants. Few participants were familiar with hazelnut meal and hoped to experiment with the product. Roasted kernels, while praised in flavor, were unappealing as a purchased product because chefs preferred to roast their own kernels.
Section 1. Introduction and purpose of study

Hazelnuts are a perennial, high value crop that holds great potential for maintaining or improving soil and water quality in agricultural areas and contributes to a more robust and diversified food system in Minnesota. Hazelnuts are particularly well suited to Minnesota’s changing climate, with hybrids emphasizing cold hardiness and disease tolerance as well as emphasizing low water requirements. The woody shrubs can thrive in marginal areas poorly suited to row crop agriculture where they may serve as windbreaks, reduce soil erosion, improve water quality and improve habitat quality (Braun & Jensen, 2015).

In addition to their ecological benefits, hazelnuts produce a healthy and tasty kernel that is rich in oil and has a variety of uses for consumers. The oil has culinary, massage and cosmetic uses, whole kernels can be eaten, and kernels can be processed for use as nut meal or for inclusion in products like cereal. Hybrid hazelnuts are rich in heart-healthy monounsaturated fatty acids, vitamins E and B-6, and phytochemicals that may help to reduce the risk of cancer (Braun & Jensen, 2015). Hazelnuts also produce a hard shell, which may have a variety of uses, though little work has been done to explore these options.

Although two wild hazelnut species exist in Minnesota (Corylus americana and Corylus cornuta), they typically produce very small, difficult to crack nuts. By crossing native species with the domesticated European Corylus avellana, hybrids have been developed that have the potential to provide the consistency and taste of European nuts with the climate suitability and disease resistance of the native species. If adequate markets can be established to encourage more widespread production, hazelnuts have the potential to help bolster the security and sustainability of Minnesota’s food system and environment.

Significant advancements have been made to improve crop genetics and understand potential markets for locally produced hazelnuts. A core group of hazelnut growers in the Upper Midwest have been planting, growing, and harvesting hybrid hazelnuts since the 1990’s, but there has been no systematic effort to understand the existing or potential markets for hazelnut products in Minnesota. Availability of quality plant material has been named by current growers and researchers as a major factor hindering increased production of hybrid hazelnuts, but there is also interest in learning more about existing markets and market potential.

Since current MN hazelnuts crops are limited, growers with the Minnesota Hazelnut Foundation (MHF) have expressed interested in identifying markets that offer good prices and have the potential to work with small quantities and scale up over time. Although there is concern about developing a market before a sizable crop is available, there is also concern that current growers, and those whose hazelnuts will soon begin to produce larger crops, lack access to adequate markets, and that failure to develop a market will deter future investment in hazelnut crops. The MHF approached the University of Minnesota’s Sustainable Regional Development Partnerships (RSDP) to work with a graduate student who could begin to assess existing markets and help chart a course for further development of the Minnesota hazelnut industry. The research presented here is the result of that partnership.
Section 2. Methods

2a. Interviews

Several interviews were conducted with chefs at high-end and local-food restaurants to determine whether such restaurants could serve as a viable start up market for MN hazelnuts. A small focus group with garden center owners and landscapers was also conducted to focus on identifying potential uses for hazelnuts shells, a current waste product that accounts for approximately two thirds of the in-shell nut.

Restaurant chefs were selected as the target group for interviews by a hazelnut research team consisting of several RSDP staff, researchers from University of Wisconsin Extension, and the Minnesota Hazelnut Foundation. Chefs were chosen because it was hoped that they would be able to offer a relatively high price for a unique local product like MN hazelnuts, and be able to accommodate the small quantities currently available. We chose to focus on the Twin Cities metropolitan area because this was generally understood to be the region with the highest concentration of potential consumers.

Chefs and restaurateurs who restaurants were in the mid-high end price range and who had an established reputation for using locally grown products were the target for interview recruitment. Chefs were contacted by email using a recruitment letter and inviting them to participate in the research. Follow-up emails were sent if no response had been received within 2 weeks to offer a reminder about the study invitation. Seven chefs and restaurateurs participated in the interviews representing a range of high-end and mid-range restaurants and catering services (Table 1).

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Interviewed</th>
</tr>
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<tbody>
<tr>
<td>Chefs</td>
<td>6</td>
</tr>
<tr>
<td>Restaurateurs</td>
<td>2</td>
</tr>
<tr>
<td>Men</td>
<td>6</td>
</tr>
<tr>
<td>Women</td>
<td>1</td>
</tr>
<tr>
<td>Dine-in restaurant</td>
<td>5</td>
</tr>
<tr>
<td>Catering service</td>
<td>2</td>
</tr>
<tr>
<td>High-end (&gt;=$20/plate)</td>
<td>4</td>
</tr>
<tr>
<td>Mid-range ($10-$20/plate)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total interviewed</strong></td>
<td><strong>7</strong></td>
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Interviews were semi-structured using an interview script (Appendix A) and were designed to last approximately 30-45 minutes. Interviewees were asked about their current use of hazelnuts or hazelnut products including oil and ground meal. They were also asked about their interest in using MN hazelnuts, expectations for prices and quantities, and were given samples of raw kernels, roasted kernels, hazelnut oil and hazelnut meal. Participants were asked to provide feedback on the samples if they chose to try them during the interview.

Interviews were conducted one-on-one and notes were taken. Interviews were not recorded. Summaries of each interview were written, including quotes only when full quotes had been captured in the interview notes. Interview summaries were analyzed for broad emergent themes using an abbreviated grounded theory approach (Charmaz, 2006, Corbin & Strauss, 2008). Themes were kept broad and there was no specific research question beyond the general interest in hazelnut market potential with chefs and restaurateurs.
2b. Focus groups

Although the focus of this research was chef interviews, conversations among the research team led to many questions about using hazelnut shells, a necessary byproduct of hazelnut processing. A small focus group was developed to brainstorm possible uses for hazelnut shells and discuss whether they might have usefully applications in a landscaping context.

Email invitations to participate were sent to independent landscapers, and garden center owners, particularly those known through personal connections, business advertising and word of mouth to be interested in local and sustainably source materials. Follow up emails were sent within 2 weeks to those who had not already responded. In cases were email was not available, individuals were called and invited to participate.

Although there were five interested participants, given scheduling constraints, only three were able to attend the scheduled focus group (Table 2). There was no alternative time when more participants could meet. The group was held in the University of Minnesota’s Center for Urban and Regional Affairs conference room in the Humphrey Building in Minneapolis.

Table 2. Focus Group Participants

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden centers</td>
<td>1</td>
</tr>
<tr>
<td>Lanscapers</td>
<td>2</td>
</tr>
<tr>
<td>Men</td>
<td>2</td>
</tr>
<tr>
<td>Women</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total participants</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Two researchers were on hand for the focus group, one to conduct the group, and the other to provide support and take notes. The focus group was not audio recorded. Notes were typed during the group to capture as much of the discussion as possible. The notes served as the focus group summary.

The focus group summary was not analyzed for broad themes in the same way as the interviews. Instead, a specific list of brainstormed ideas was generated from participants responses during the group. Participants reasons for offering their suggestion were also identified and are included as results in section 3b of this report.

![Fig. 2 Hazelnut shells. These shells were brought to the focus group for participants to see and feel.](image-url)
Section 3. Findings

3a. Interview findings

Current hazelnut use

Interest in hazelnuts, especially locally sourced nuts, was high among all participants. All participants were using hazelnuts at the time of the interview, and all were importing those nuts from outside Minnesota and the upper Midwest. In fact, most participants were purchasing from the same supplier, Bergin nut Company which brings in filberts from the western U.S. All participants were purchasing blanched and peeled nuts rather than raw kernels to help cut down on processing time and because the peels bring an unwanted bitterness when left on the nuts. Only one participant was using hazelnut meal/flour and hazelnut oil, and was importing these products as well. No participants were purchasing roasted nuts.

Most participants said they use between 5 and 10 pounds of hazelnuts per week on average throughout the year. However, actual use fluctuates and quantities change with the seasons. Interviewees indicated that depending on the time of year and menu item, they could go through up to 15 or 20 pounds per week, while during other times of year they might use hardly any, or go weeks without using them. Several participants purchase 10 pounds of hazelnuts at a time and store what they don’t use immediately in panties. One likes to keep at least 20 pounds of blanched and peeled nuts on hand at any given time. Caterers were less confident in assessing average or likely quantities used because usage can fluctuate significantly depending on clients. One participating caterer could envision using hazelnuts “in half the dishes on our menu, but then it still comes down to the customers. There are some things on the menu that people just never order.” The only participant who was using hazelnut meal estimated using approximately 35 pounds per month. This participant also uses hazelnut oil in relatively small quantities, relying more on sunflower, walnut and canola oil.

Participants were using hazelnuts in a variety of ways. The kernels were included in a wide range of desserts, salads, and occasional pasta dishes. They were sometimes chopped or ground to use as a crust for fish or goat cheese. The meal was used similarly, in crusts or desserts. Hazelnut oil was used to add flavor to a dish or dress a salad.

Preference for hazelnuts over other nuts depended on the participant. While one indicated that hazelnuts and walnuts were the two favorite nuts, another described the hazelnut as having a less popular flavor; “[i]n terms of popularity, they’re maybe B- or C-list.” Several use more walnuts than hazelnuts, which one participant explained was likely because hazelnuts are “less versatile [than walnuts], they’re a harder nut. But they’re a good opportunity to add crunch to a dish, kind of like almonds...that might be a disadvantage to hazelnut, in terms of being harder to work with.”

Tasting MN hazelnuts

Interviewees were offered samples of raw and roasted kernels, hazelnut oil and hazelnut meal. Not all participants chose to sample each product during the interview. No participants sampled the meal, preferring instead to experiment with it in the kitchen. Every interviewee preferred the flavor of MN hazelnuts and oil to imported nuts and oil.

Hazelnut oil: Participants were asked what they like about each product they sampled. The oil, while not the item that most interviewees would be most likely to purchase, was a favorite for flavor. Participants were offered a sample of an expeller pressed oil made from raw nuts. Several participants expressed positive surprise at the flavor, proclaiming it “absolutely delicious!” and “much better flavor than the oil
I've worked with...it just tastes so much more fresh!” and in some cases, taking multiple spoonfuls. One chef would “like to have a bottle on hand here [at the restaurant] and some at home!” Participants described the oil as “fresh,” “raw,” “delicious,” “more flavorful,” and “clearly superior [to imported hazelnut oil].” Another participant, however, was less impressed with the hazelnut oil. For this participant, the oil “...really has the flavor of the raw nuts. Do you think you can roast them before making the oil for better flavor?” While this participant sought greater depth of flavor, others were satisfied with the fresh taste of the oil.

**Hazelnut kernels:** A clear preference for the flavor of roasted nuts did come through, however, in regard to the kernels. While participants enjoyed the fresh flavor of raw nuts, a few described the roasted flavor as “richer,” “more interesting,” and “roasty.” Still, the raw kernels were enjoyed in their own right. According to one participant, the raw nuts “have sort of a soft, fresh nut flavor – almost pecan-y if that makes sense? The filbert don’t have that. Filbert can have more of a dominant flavor that make them hard to incorporate into some dishes.” Whether the kernels were raw or roasted, all participants preferred the taste of MN hazelnuts and hazelnut products over the imported filberts they had on hand. The MN nuts were described as “clean,” “delicious,” “fresh,” “rich,” “nutty,” “hazelnutty,” “mellow,” “pecan-y,” and “soft.” By contrast, a few participants compared the MN nuts to the filberts they had in their pantries and described those filberts as “almost mildew-y,” “stale,” “like they’ve been sitting in a bag for 6 months,” and “lack[ing] the depth of flavor of [MN] nuts.” One interviewee proclaimed that MN hazelnuts, “have a sweeter, fresher flavor that’s really nice.”

Although participants were offered both raw and roasted kernels, there was great interest in blanched and peeled kernel, to compare with that each participant was able to purchase through suppliers. One participant who enjoyed the taste of both raw and roasted nuts would prioritize purchasing MN hazelnut oil and meal over either raw or roasted nuts. However, this same participants remarked that “I would like to try them blanched and peeled, that might be the preference, but if those weren’t available, then the raw nuts, I think we’d be really likely to use those.” Other participants echoed this sentiment, noting that while the nuts have excellent flavor, sometimes you don’t want the peel because it can introduce extra bitterness. Removing the peels in the kitchens was generally considered to be too labor intensive, especially given the small size of MN hazelnuts. One participant, however, preferred the unpeeled nuts In part, this was because the peels create an “more interesting” look. And another indicated that using the raw nuts with peels would “not be a problem,” indicating no preference for blanched and peeled nuts over the simply raw kernels sampled during the interview.

**Hazelnut meal/flour:** Hazelnut meal is meant to be used in a variety of cooking preparations, but not eaten straight. Thus participant shied away from tasting the meal during the interviews. However, many were excited to try cooking with it. One chef even exclaimed, “I’m not giving it to the bakery, I want to use it myself!” Several interviewees had never used the meal or flour before and were curious to learn more about how it would hold up to a variety of different preparations.

**Interest in purchasing Minnesota hazelnuts**

Every interviewee expressed a strong interest in locally sourced hazelnuts or hazelnut products; however none of them were aware of where they could purchase a consistent local supply. In fact, one participant was happy to receive the interview invitation because, “I was just talking to my pastry chef the other day asking if he knew where we could get local hazelnuts because we really want them!”

When asked about their preferences, every participant who tried both samples unanimously preferred the roasted nuts over raw, and preferred the MN nuts over imported filberts. However, preferences for specific products varied by participant. Several participants were interested in purchasing raw,
unblanched kernels, though only two indicated that these raw nuts would be the product they would be most interested in buying. And while five participants expressed the greatest interest in blanched and peeled kernels, another was not nearly as interested in them as in raw kernels, oil and meal. Given participants’ lack of familiarity with hazelnut meal, it was unsurprising that few participants expressed a preference for this product. However, the one participant already using hazelnut flour at the time of the interview as very interested and considered the meal, oil, and blanched and peeled nuts to be top priorities. There was also a range of interest for the oil, which was prioritized by one participant, and described by three participants as the product they were second most interested in. Where participant responses did align was in their likelihood to purchase roasted nuts. All participants unanimously indicated that they would be least likely to purchase roasted nuts out of all the other products sampled and discussed. One participant explained that while the roasted ones have great flavor, they “wouldn’t want the roasted ones to just be sitting around. I think it would be better to have the raw nuts and then we can roast or do whatever when the time comes.” Another explained that doing the roasting in-house is preferable because, “It always turns out better when you can control every step of the process.”

The locally grown nature of MN hazelnuts was an important selling point for all interviewees. This was a predictable result, given that the interviews targeted restaurants who advertise as selling local foods. Although unsurprising, participants were asked to describe why local foods were important to them. Many described an emphasis on local ingredients as part of their overall philosophy toward food, and expressed an interest in supporting local economies. For one, exploring the world of local foods is a way to “actively search for and play with new flavors.”

When asked specifically about why they had an interest in local hazelnuts, participants gave a wide variety of reasons ranging from sustainability to connections with the farmers to health aspects of hazelnuts and even the story that can be told about MN hazelnuts.

Sustainability was an important selling point for several participants. Many shared the perspective that, “local and sustainable foods play a large role here,” and looked to MN hazelnuts as a food that could meet both those criteria. Several participants had attended or read about the most recent Midwest Organic and Sustainable Education Service (MOSES) Conference where, they said, hazelnuts were “all the rage.” For some, the MOSES conference was the first time they realized hazelnuts could be produced as a crop in Minnesota. For others, the presentations emphasized the sustainable nature of hazelnuts. One chef, who was “looking for environmentally sustainable crops,” learned a great deal about hazelnuts at the conference and developed a fondness for them because of their environmental benefits “I like that they’re perennial, that’s good for soil, water and biodiversity.” Although this participant was aware of the ecological benefits of hazelnuts, most others were unfamiliar with the plants, their benefits, and how they grow. Many participants also placed a strong emphasis on organic production. Several even suggested that organic nuts should be processed and sold separately from the rest of the hazelnuts. One participant asked, if hazelnuts could be grown organically in Minnesota and thought it would be “a shame and a lost opportunity if an organic nuts get mixed in with others.” Several others echoed the sentiment that organically grown nuts should be kept in separate processing streams, and that there would be demand and willingness to pay for organic hazelnuts and hazelnut products.

Participants also appreciated the potential of locally produced hazelnuts and products to promote connections with growers. One participant is “actively sourcing from native producers to support them as small entrepreneurs,” and values those relationships. This was not the only participant to believe that chefs as purchasers of ingredients, have a responsibility to consider the people who grow the food, understand what is required of farmers in order to raise a crop, and to try to support local economies. Many also enjoy getting to know their farmers and said “it feels good to know the growers.” A key part of developing a connection with the farmers, many participants said, was trust. As one participant put it, “local means knowing where it comes from and that means trust.” Trust, several suggested, develops out
of having a relationship with the grower, receiving consistent, high quality products and knowing how they grow or produce their crops and finished products.

Related to the desire to feel connected to the source of local foods was an emphasis placed on the story that can be told about those foods. For many, the story is the aspect of the relationship between chef and local producer that reaches the consumers. As one participants described, “if we could tell our customers the story of how eating MN grown hazelnuts is good for soil and water, and tell them about the farmer who grew the nuts, it would help justify the cost.” Different forms of production can tell different stories, and there was much interest among participants in organic crops because “it’s a better story to tell our customers,” which lends the product a better market value. In fact, several participants indicated that “the story matters...it absolutely affects my willingness to pay a certain price for a product.” For some, this emphasis on the story that can be told about MN hazelnuts is closely connected with product branding.

“I’m not going to be very interested in generic branding that sounds like it could be from anywhere or is a big, industrialized product,” said one participant. Others urged different branding for organic nuts. However, at least one participant felt that as long as the products were good and produced well then the branding would not matter.

There was also some interest in MN hazelnuts related to health. Several participants shared the view that “native foods tend to be healthier,” or that “wild foods are often higher in omega 3s, they’re good for you, hearth healthy…and even taste better.” Only two participants were aware of the health benefits of hazelnuts specifically, however several others “assume[d] they’re probably good for you, or better for you,” since hazelnuts are a native crop. Many participants asked about the health benefits of hazelnuts.

**Willingness to buy MN hazelnuts**

**Raw hazelnut kernels:** Interviewees are currently paying between $9 and $12/lb for blanched and peeled kernels. None are currently purchasing just raw kernels. Only one interviewee would not consider paying more for MN hazelnuts. All others would prefer cheaper nuts, but would generally be comfortable paying between $14 and $16. Participants offered a full range of expected prices from $10 to $20 per pound of blanched and peeled, or raw hazelnut kernels. One participant explained the reasoning behind paying more for local nuts, “[I could] justify paying more for these because they’re local and sustainable, maybe if they were organic even more, but really the flavor is better, it’s a nicer product, you pay more for better products.” There was also some willingness to pay slightly more for a blanched and peeled nut than raw kernels. While many participants said that price matters and would be the limiting factor, for others it was not the most important criteria when selecting products, “we look first at product quality, then the agricultural methods, then proximity, convenience, and then price,” said one participant. Many emphasized that “the price has to be workable, but that doesn’t necessarily mean cheap,” especially for a high quality, sustainably grown product with a good story. One participant suggested that prices for filberts from the western U.S. have been steadily rising with the draught, which may provide an opportunity for MN producers to enter the market at a competitive rate. All participants anticipated using the same amount of kernels as they currently use, so generally between 5 and 10 pounds per week, but up to 20 pounds per week depending on the season.

**Roasted hazelnut kernels:** There was no interest in purchasing roasted hazelnuts, so participants were not asked about their price expectations or quantities they would be likely to purchase.

**Hazelnut oil:** Only one interviewee regularly purchases hazelnut oil and provided a current price of $23.16 for 500ml and would expect a somewhat similar price for oil from MN nuts. Among other interviewees, expected prices ranged from $15-$30/liter. Some compared their expectations to what they would pay for very high quality olive, walnut or pistachio oil. But expecting a high price and actually
being able to afford it are two different things. As one participant said, “[I] wouldn’t bat an eye at $15-$20 per liter, but it could limit how much we want to buy.” Willingness to pay for the oil will also depend on freshness. The fresh flavor was described by all interviewees as the primary selling point for the oil. Price was more of a consideration for the oil than for hazelnut kernels. One participant put it succinctly, “its price limits its use.” And another explained, “price would be a factor in how much we use [because] oil doesn’t fill people up.” So adding oil to a plate may enhance the flavor, but does so at significant cost, and it may be hard for customers to understand why their meal costs so much. Since few interviewees were currently using hazelnut oil, several indicated that they couldn’t say how much they would be likely to use. One participant suggested it would be possible to go through one or even two liters of oil per week, while another suggested 500 ml per month, again depending on price.

Hazelnut meal: Only one interviewee currently purchases hazelnut meal, and provided a current rate of $16.38/lb. No other participants had a sense of what price to expect for the meal since they were not using it. They also could not provide an estimated quantity since many had never used the meal before and were not sure how to use it best.

Difference between catering and dine-in

It is important to point out that there were some noticeable differences between participants associated with dine-in restaurants, and those associated with catering services. Caterers were significantly less confident about quantities they would be able to use because although they might include an item on their menu, it could be that no one orders it, and their menus do not change with the same frequency of a dine-in establishment. One catering participant also suggested that since there is a lag time between when their food is prepared and when it reaches the customer, the fine nuances of a dish don’t always carry through that lag time, and their customers “aren’t looking for those intricate flavors so much.”

Areas of concern for a developing market

Consistent access to products and the convenience of getting them were two key caveats to chef interest in purchasing local hazelnuts. Participants did not want to develop dependence on a local market that could not meet purchasing demands with relative consistency. At least 3 participants had been able to purchase hazelnuts from local producers, only to have the producer run into issues and have to stop selling. In some cases, this was because the producer had not put in place the necessary Hazard Assessment Critical Contamination Plan and thus could not qualify for a wholesale license. Many participants were wary of entering into such an undeveloped market because, as one participant put it, “if we put the work into creating and advertising a dish, talking about the new product, I don’t want to have to tell people that we suddenly can’t make it anymore.” Participants wanted to feel confident that they would be able to continue to access local hazelnuts on a regular basis, even if that consistency revolved around seasons. Many were used to working with seasonal availability for other crops, but with an understanding of when those crops would be available every year and for approximately how long.

Convenience was another important factor for participants. Busy chefs didn’t want to have to search hard for a source of local hazelnuts. And they wanted distribution and delivery systems to be in place that would be convenient for them. In fact, one participant even suggested that “[c]onvenient distribution matters. Most people will decide what to buy based on price and convenience.” Several participants suggested that MN hazelnut growers would be well served to connect with existing distributors, or establish a co-op that could handle processing and distribution. One participant cautioned that a co-op would only be successful if all members of the co-op agreed not to undercut the co-op and sell individually and directly to customers.
3b. Focus group findings

Focus group participants were asked to describe qualities of hazelnut shells that could be positive or negative for use as mulch. A basket of shells was provided so the group could have a physical example during the discussion. Because it can be considered a sustainable product, they often compared the hazelnut shells to cocoa shell mulch, another product that is often marketed as sustainable.

The group identified several positive attributes of hazelnut shells. These included good color, an aspect which seemed to impress all participants, as well as apparent durability. This, they said, would be an asset in a mulch because it would be less likely to rot and break down quickly in people’s gardens. The group also felt that the local and sustainable nature of the shells could be an important selling point and that some customers would be very interested in a local, sustainable source of mulch. And the sharp edges of the shells might deter slugs or cats. It would also be an alternative to cocoa shell mulch which breaks down quickly and is toxic for dogs.

However, they also had some concerns about hazelnut shells as mulch. Immediately they suggested that it could attract a lot of undesired wildlife. With all the bits of nut that are left in the shells, it would be an invitation for squirrels, deer or other animals to enter the garden and possibly damage any nearby plants. They also noted that it was very heavy, which could be hard on users, and it could also make people feel as though they aren’t getting as much for their money. A 25 pound bag of hazelnut shell mulch would not look as large as a 25 bag of cocoa shell mulch which is lighter. And the group expressed some concern about the limited quantities of hazelnut shells as mulch. One participant said that if someone creates a garden in their yard and the mulch eventually starts to break down or they want to expand the area, they need to be able to return to their garden store and purchase more of the same product; otherwise the difference will be visible. This means there would need to be a long-term, steady supply of hazelnut shell mulch and that might require quantities that simply aren’t available at this time. One participant also suggested that the sharp edges of the shells could be a deterrent for people who enjoy being barefoot in their yards and gardens.

Participants did suggest that some of the negative attributes could be partially addressed by mixing the hazelnut shells with other mulch materials like coir – the hairy part of a coconut - which is very light and a similar color to the shells. One participant even suggested combining them with cocoa shell mulch to create “nutella mulch” for the fun selling point. However, since cocoa shells break down and become slimy within a year, the combination might not be ideal.

There was limited discussion about prices. Participants were struggling to find a similar product to compare the hazelnut shells to for purposes of suggesting a starting price. One participant purchases cocoa shell mulch by the pallet at $2.15/cubic foot, and it is typically sold in bags of 2 cubic feet. However, the hazelnut shells were suspected of being too heavy for a 2 cubic foot bag. Another participant said that pine bark is $45/yard and that shredded cedar or hardwood goes for $30-$40 wholesale.

Overall, participants did not recommend exploring the home-scale landscaping market as an entry point for hazelnut shells. Although they could see some customers interested in the shells and thought they would look nice and be durable, they had too many concerns about the limited quantities, weight, and attractiveness for wildlife.

Participants were then asked to brainstorm other potential uses for the shells. Here, the group was able to generate much more enthusiasm.
A mulch for wildlife gardens: Participants did, half jokingly at first, suggest that since the mulch would likely attract wildlife, it could be used effectively in a wildlife garden. Anyone interested in encouraging more wild animals to enter their garden and who is not planting many delicate flowers or herbaceous plants might find hazelnut shells to be an effective mulch.

Biomass for energy production: The group suggested that some money could be made selling the shells to biomass energy producers. They suggested that these producers may be willing to pay for the material. Since no group members were experts on waste energy production, they were not able to provide more specific thoughts on this potential opportunity.

Pressed wood/fiberboard: One participant said that coconut shells can be used for this purpose and suggested that people who manufacture these materials might be excited by hazelnut shells.

Roadside mulch: Participants were more optimistic about hazelnut shells’ potential use as a roadside mulch rather than a residential mulch. They suggested that for roadside applications, the weight would be much less of a concern because road crews would have access to heavier machinery to make lifting the material easier.

Component in erosion control tube: Similar to the roadside mulch idea, a participant also suggested that the shells could work well for erosion control, especially as a component in the long, stuffed tubes often seen on eroding hillsides to hold soil in place. Their heavy weight would be an advantage here, and again, work crews would be better equipped to move them around that a home gardener would. One participants also suggested that the shells could be inoculated with mycorrhizae to help them break down over time.

Replacing rocks as filters: Given the perceived durability of hazelnut shells, participants thought they might hold up well to filtering water in planters or green roofs. In this sense, they could replace the rocks that people typically use to create a layer that allows water to filter out of the system. They would be lighter than the rocks, though they would need to be replaced more often.

Brown matter for compose: Participants saw a very easy opportunity to use the shells as brown matter for compost. They indicated that brown matter is in high demand and the shells could work well for that. However, they also noted that many composters are looking for free materials, so they suggested that on-site compost production could yield a higher-value end product than trying to market the shells themselves for composting. Developing compost on-site where hazelnuts are shelled could provided an additional stream of revenue. And the group was enthusiastic about opportunities to market the compost as local and sustainable.

Miscellaneous ideas: The group had a number of suggestions that were made in passing, as jokes, or that they simply didn’t know enough about to discuss. These included finding ways to use the shells a animal feeds, or in beer or whisky making and using them to make bitters.

Questions: Participants also had a number of questions that they suggested should be investigated before moving forward to try to sell the shells. They wondered about the actual durability of the shells, whether they float or hold water, and how they break down in and interact with the soil.
Section 4. Conclusion and Recommendations

In considering the results of this study, it is important to bear in mind that the sample of participants was carefully selected for individual with an interest in local products. There is a great deal of overlap between those who value local food and garden mulches, and those who value sustainable products. The participants in both the interviews and the focus group, therefore, cannot represent the views of all chefs and garden center owners or landscapers. In light of this limitation, however, several important recommendations can still be made based on this research.

Perhaps the most important insight provided by this work is that growers, or those wishing to sell MN hazelnuts, hazelnut products or shells, must be careful about making assumptions about their target market. Entering into this project, we had not anticipated the high demand for blanched and peeled nuts, or the complete lack of demand for roasted nuts. Talking to potential buyers before developing a final product is key. There is simply no better way to understand potential buyer motivations, concerns and interests than by talking to them.

This effort to understand buyers should take place before investing in any equipment. Producers should consider the products and quantities desired, prices that buyers are willing to pay and distribution concerns. For example, anyone wishing to sell hazelnuts to the kinds of chefs interviewed for this project would be wasting money by investing in a roasting oven, but might benefit by investing in equipment and processes to blanch and peel nuts. Similarly, investing in large bags for packaging mulch might not be as effective as establishing on-site composting and selling that compost in smaller, lighter bags. It is also important to be sure that distribution systems can be developed to serve both the producer and the consumer. Investing in equipment to prepare goods for a market that the grower then struggles to access could be detrimental to the grown of Minnesota’s hazelnut industry.

Finally, the importance of story should be kept in mind. Producers should consider the story that they are able to tell about their product. It may be helpful to ask several questions: Is the story honest? Is it the story I want to be able to tell? Is it appealing to my target customers? Does it help justify the price I am asking for my product? Importantly, these stories are closely connected to the sense of trust that chefs and restaurateurs value so highly. It is thus very important that these stories be true and serve to facilitate a trusting, positive relationship between buyer and seller. Stories may be especially important for new crops like Minnesota hazelnuts or shells that have not been widely available to buyers in the past. They create a point of interest and connection that helps buyers feel good about their purchase and to want to continue to invest in the product.

Interest in Minnesota hazelnuts was high among all participants in this research. With proper investment, and by avoiding over-promising or entering into markets too large to satisfy, MN hazelnut producers have many opportunities to establish a small scale market for their products, with the potential to grow and develop along with the crop.
Appendix A: Chef and Restaurateur Interview Guide

Thank you for taking the time to meet with me today. I have several questions for you about using hazelnuts and hazelnut products in your restaurant. This interview is part of a project supported by the University of Minnesota Center for Urban and Regional Affairs, Regional Sustainable Development Partnerships, and the Minnesota Hazelnut Foundation. The goal is to understand the market potential and consumer interest in Minnesota grown hazelnuts and hazelnut products. If at any point you would like to skip a question or end the interview, please feel free to do so. You are under no obligation to participate and choosing not to participate will not affect your relationship to the University of Minnesota in any way. Do you have any questions for me before we get started?

Okay, before I get into my questions, I did bring a few samples that you may or may not want to refer to while we proceed through the questions. I have samples of MN grown hazelnuts, raw and roasted, as well as hazelnut oil. Feel free to sample them before we begin, or at any time during our conversation. If you do try any of these items, I’d like to hear your thoughts on them.

Alright, my first questions are about your restaurant and cooking style.
1) First, can you describe your cuisine for me?
2) Do locally sources foods play an important role on your menu?

Okay, now I have a few questions about the use of hazelnuts and hazelnut products in your restaurant. “Hazelnuts products” refers to hazelnut pieces, oil and defatted meal or flour.
3) Do you currently use any hazelnuts or hazelnut products here?
   If yes:
   a. Can you describe what you use?
   b. What is the advantage of using [hazelnuts/pieces/oil/meal/etc]?
   c. How much would you estimate you use per week?
4) Have you used any [others] in the past?
   If yes:
   a. Why did you stop using them?
   b. How much were you using per week?
5) Have you ever considered using hazelnuts or hazelnut products here [in addition to those you mentioned previously]?
   a. Why or why not?
   b. What stopped you from doing so?

[Ideal time to sample hazelnut products and ask the sample questions at the bottom of this page]

These next questions are somewhat hypothetical.
6) If you were to incorporate any hazelnuts or hazelnut products into your cooking here, what do you think you would be most likely to use?
   a. Can you explain why?
   b. Are there any hazelnut products you would not consider using?
For each item mentioned above:
7) How much do you think you could use per week?
8) What would you expect to pay for high quality [nuts/pieces/oil/meal/etc]? 
9) How important would it be for you to get that product from a local source?

Okay, we’re almost done. I just have two wrap-up questions here.
10) Is there anything else I should know about your use of or interest in hazelnuts and hazelnut products?
11) Do you have any questions for me now that we’re covered all of my questions for you?

Tasting/sampling questions (these will ideally come between questions 5 and 6, though if participants are interested in sampling them earlier, or if they do not wish to try any samples, they will not be asked in that slot) to be asked for each product sampled:
1) What do you think of [product]?
2) Have you ever tried [MN grown hazelnuts/oil/meal] before?
3) Is it what you were expecting?
4) Can you imagine a use for it in your restaurant?