



Using Focus Groups to Learn About Landowner Knowledge/Willingness to Establish Chestnut Orchards and Enhance Technology Transfer Efforts



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As the challenges toward earning a viable living from farming continue to mount in rural areas, natural resources professionals, consumers and agricultural producers are seeking alternative methods of food and crop production to enhance market potential for rural, agricultural-based communities (Raedeke, Green, Hodge and Valdivia 2003).

Agroforestry, a set of integrated land management practices, is one possible solution to helping landowners remain successful on agricultural lands. The practice combines trees and crops together in strategically planned settings as an income-producing alternative to “conventional farming practices,” such as traditional monocropped farming (Raedeke et. al 2003). Agroforestry provides short-term income from products like nuts, specialty mushrooms, and medicinal herbs, while also establishing opportunities for long-term income, such as a timber harvest, livestock production and lease hunting or recreational opportunities. For example, wheat or bluegrass hay can be planted in between rows of pecan trees in the agroforestry practice of alley cropping. The wheat and nut crops are harvested for income while the trees mature for later timber harvest, offering increased market potential to even a smaller acreage of land. In addition to short and long-term income opportunities, agroforestry provides environmental and ecological benefits (Garrett et. al 2000).

Agroforestry is well suited to smaller acreages rather than larger farms, due to the intensity of management required for success with simultaneous crops – yet the market potential to small farmers is also strong. In the United States, 91 percent of all farms fall into the category of “small family farm” (Valdivia and Poulos 2005). Despite the large percentage of smaller farms, efforts to increase awareness of the financial and land stewardship benefits agroforestry can provide to smaller farmers, and more than two decades of research into benefits the practices can provide, adoption of the practices of agroforestry remains limited in scope (Denning 2001). The field of agroforestry has made significant scientific and technological progress in the past 30 years, but despite this progress, levels of successful adoption and implementation of agroforestry in rural areas across the globe remains inconsistent and insufficient (Pattanayak 2003). The desertion of agroforestry practices following adoption is also a concern. A need exists for a more solid knowledge base and understanding of the reasons agricultural landowners decide on appropriate land use (p. 173).

Founded in 1998, The University of Missouri Center for Agroforestry (UMCA) is one of the world's leading centers contributing to the science underlying agroforestry. Research on the benefits of agroforestry is supported from a broad spectrum of disciplines: forestry, fisheries and wildlife, entomology, plant pathology, agronomy, animal science, horticulture, soils, atmospheric science, agricultural economics and rural sociology. Linked with the Center's solid science and research programs are several key collaborations and partnerships with landowners, natural resource professionals, federal and state agencies and non-profit organizations. Through these critical relationships, UMCA and its partners are producing an expanding list of positive outcomes for landowners, the natural environment and society as a whole.

Goals of the Center for Agroforestry

Goals of the agroforestry program include generating income and developing new market opportunities for farm and forest landowners, protecting the environment by reducing non-point source pollution, creating and improving natural habitats for wildlife and mitigating against the impacts of periodic flooding. To translate these goals into action, the technology transfer program hosts workshops and trainings for landowners and natural resource professionals, consults with state and nation-wide committees and organizations and produces technical guides for landowners – in addition to speaking at events and conferences across the country. The Center seeks to develop the scientific basis for designing and prescribing agroforestry practices within a “systems context,” which allows technology to be used most effectively. To achieve this goal, research efforts have been organized into eleven research clusters to enhance creativity and productivity among a range of investigators from many disciplines.

The Nut Tree Research Cluster features research on pecan, black walnut and chestnut, including field studies, market research and outreach. UMCA supports the nation's most comprehensive research programs for developing the eastern black walnut and Chinese chestnut as nut crops for agroforestry practices. Primary research is conducted at the 660-acre Horticulture and Agroforestry Research Center, New Franklin, Mo., and includes experimental black walnut orchards grown on a trellis system; a chestnut orchard and chestnut repository with more than 50 cultivars under trial; and a pecan orchard, among dozens of other agroforestry demonstrations. In addition to cultivar research, the Center's Socioeconomic Cluster is pursuing ways to increase landowner adoption and understanding of agroforestry practices. Research during the past few years has included the development of detailed profiles of the four University of Missouri research sites in which agroforestry demonstrations are established.

It is within this environment that the Center for Agroforestry seeks to determine how to most effectively disseminate information about growing and marketing Chinese chestnuts, a significant and

promising research area. As a member of the Center's technology transfer team, I seek to use focus groups and surveys of the Center's literature as a tool for understanding agricultural producers' reactions to current literature regarding growing Chinese chestnuts, and to determine the most appropriate and targeted methods for offering ongoing information for establishing, managing and marketing chestnuts.

State of the Chestnut Industry

Many people are familiar with the American chestnut tree, once an abundant source of lumber and nut production across the southeast and eastern regions of the U.S. In addition to harvesting the tree for lumber, rural communities stored hundreds of pounds of chestnuts for livestock feed and selling to consumers, making the nut a substantial source of economic viability. Unfortunately, in 1904, the chestnut blight (introduced from Asia) was discovered in the American Chestnut tree, and the species was eliminated from the American forest by 1950. All that remains are root sprouts and small trees that succumb to blight before they ever reach commercial size.

However, Missouri soils and climate are excellent for production of the sweet, starchy and versatile Chinese varieties of the chestnut, which can be planted in an orchard or alley cropping practice. The Chinese chestnut trees are blight-resistant, much smaller in structure than the American Chestnut, and spread outward like a large fruit tree while producing a significant quantity of nuts. Through the production of fresh and dried chestnuts, along with chestnut value added products – such as bread mixes, sauces, honeys, and gluten-free flour – chestnut producers are in an excellent position to earn additional income from this unique crop.

UMCA has been working to establish a viable chestnut industry since 1996, focusing its efforts on three key areas: national market research, production techniques/orchard management and increasing consumer demand and awareness. The long term objective is to change the image of chestnuts from that of a holiday tradition to a healthy year round food. The outcome of this effort will be an active program that reaches out to potential producers and establishes a multi-million dollar chestnut industry within the state of Missouri and surrounding states.

Current and Previous Producer-Focused Research:

Ultimately, this project can lead the Center to acquire an interested landowner base of potential chestnut growers to work with in coming years. Regions were selected for focus groups due to current landowner and orchard-manager potential to understand the intricacies of orchard production, especially because fruit tree management is similar to chestnut orchard management. As a relationship is built with these growers, the Center will be in a position to discuss specific soil types and information that will enable the creation of a GIS-based soil map showing the most suitable chestnut ground in the state, a groundbreaking project for the Center.

Using national research conducted with surveys, the Center's market research endeavors have revealed several key insights about the chestnut industry. Results analyzed by Gold, Cernusca and Godsey (2006) show that the U.S. chestnut industry is in its infancy, with most chestnut producers having been in business less than 10 years and just beginning to see commercial-level production. In the U.S., production volume is less than 1.5 million pounds and most respondents work within small, manually harvested operations to sell fresh chestnuts. U.S. chestnut producers are mainly hobbyists or part-timers, with only 20% of respondents being full-time farmers. Nineteen percent of respondents sell processed products such as chestnut flour, dried chestnut kernels or frozen chestnuts. Nearly 40 percent of respondents (38%) sell fresh chestnuts on the farm. However, demand exceeds supply, with prices reaching more than \$3.50 per pound at the wholesale level. A key barrier to success respondents indicated is lack of information for producers, retailers and consumers – in addition to a lack of available cultivars. Recommendations include the collaborative efforts that can be achieved through chestnut growers' associations, state and federal agencies and universities for polling funding and support for industry development. While overall production is low, producers expressed no difficulty in selling their fresh chestnuts following harvest. Potential for profit remains a draw for individuals to enter into the business, as well as interest in chestnuts and chestnut trees.

Consumer surveys were conducted in 2003, 2004 and 2006 at the annual Missouri Chestnut Roast event. The festival is used as an opportunity to assess consumers' attitudes towards chestnuts along three consecutive years. The most significant change was obtained for the frequency of consumption, which increased from 2003 to 2006. The percentage of participants that have never tasted a chestnut before decreased from 67% in 2003 to 46% in 2004, and 45% in 2006, indicating that the message about chestnuts is reaching consumers.

Chestnuts in the Agritourism Sector

While production and market research work continues at the Center, an initiative is underway in the Mississippi River Hills region of the state to identify and promote the unique regional flavors that make the area special – resulting in increased tourist expenditures and increased farm product sales. This project, called the Missouri Regional Cuisines Project (MRCP), is modeled after the highly successful food/culture industries created in France and Europe and is an effort by the University of Missouri Rural Sociology Department to increase rural agricultural economic opportunity in Missouri and establish a sense of regional identity in pilot region of the state, specifically focused on promoting the local foods, agriculture, and landscape of a specific region - its unique sense of "place."

Services, including tourism, now account for over 60 percent of world production and 20 percent of international trade – cross-border trade in services, including tourism, totals over \$900 billion annually. (Evans and Cleverdon 138). On a rural level, small-scale tourism development may be an important tool among a set of tools for protecting and preserving the fragile natural and social

environments of these areas. Once seen as a small component of national economic progress and development, tourism is now in the spotlight a major source of income and investment, and as a critical element of development plans for specific regions. While farmers' share of profit continues to shrink, interest in rural areas for recreation and entertainment continue to rise. Rural communities may now be poised – or finding it necessary – to utilize community-based tourism and recognize a renewed interest in sense of place and regional identity. Dimitris Skuras and Efthalia Dimara (2004) explain this interest in place as a factor for purchasing regionally identified products, especially for the urban consumer:

The consumption of regional food and drink may also indicate “nostalgia” for life in the near nature, as enjoyed in the past, for the place where the consumer was born and raised, or for the place where he spends his holidays or has his country home. Thus the consumption of regionally denominated food and drink feeds the urban consumer’s dreams and imagination and reminds him of his origins [. . .] (804).

A pilot region has been selected for Missouri’s innovative regional identity initiative, called the Mississippi River Hills region. These six counties in the southeast portion of the state have been identified for their agricultural potential and existing resources to help promote regional foods. Ecologically, the region is well suited for the production of chestnuts, mushrooms, and other agroforestry-produced food products that will contribute to the sense of regional foodways and culture. Civic and local organizations have already formed active committees and subcommittees to investigate the promotion of their regional foodways. A series of meetings has brought landowners, vintners, hospitality and tourism representatives together to discuss the promotion of the project and pool resources.

Complimenting the farm-based tourism and recreation opportunities agroforestry practices can provide, the Missouri Regional Cuisines project is investigating initiatives such as rural-based tourism as successful alternatives to traditional farming. Within these initiatives are value-added food products and niche market products, like locally-produced meats, cheeses, wines, nuts products, jams and jellies and packaged mixes featuring locally grown mushrooms. Chestnuts, an ancient crop, lend themselves to a European-style ambiance that pairs well with Missouri wines, cheeses, and other gourmet food products. Project developers plan to expand this work to other regions of the state, and landowners with chestnut orchards will be in a position to capture this special market. It is hoped that the process used to establish regional identity in the MRCP pilot region can also be applied to those areas in which chestnut growers are establishing orchards, further enhancing the agritourism and niche agricultural product opportunities for Missouri landowners. In turn, the process in which chestnut growers are identified, and perhaps areas well-suited to chestnut mapped and recorded, can be applied toward determining the state’s best-suited soils for growing wine grapes, further enhancing the state’s agricultural niche crop base. Individuals working to expand the chestnut industry and those working to

establish markets for regional agricultural products in Missouri may have many opportunities to collaborate and share processes.

Value of Focus Groups

Focusing on the introduction of knowledge about new agricultural practices, like agroforestry, is not sufficient for encouraging adoption of the practice. The attitudes and perceptions of farmers must be explored, in addition to the community-based structures and social institutions farmers live and work within (Raedeke et. al 2003). Focus groups are an excellent tool for determining people's opinions, attitudes and beliefs toward a subject. Unlike surveys, focus groups allow for open-ended, in-depth questions in an informal discussion setting – allowing the researcher to record a wide range of participants' information from a valuable face-to-face environment (Krueger 1988). The focus group “can help the researcher learn the vocabulary and discover the thinking pattern of the target audience,” allowing the researcher “to get in tune with the respondent” (p. 39). The focus group allows the researcher to better understand the complex multiple meanings assigned by the participants to a subject, and explanations for behavior. Participants are specially selected because they have certain characteristics, and are encouraged to share their point of view without pressure to agree. Focus groups are successful as tools for research because they encourage people to disclose their thoughts and feelings in a comfortable, non-threatening environment.

For the Center, using focus groups will help determine what potential chestnut growers think about implementing the crop and to define the conditions and influences that impact their satisfaction with the Center's publications and technology transfer efforts toward promoting the industry. Once information is known about how people receive and use growers' information, the technology transfer team can design instruments accordingly. If done correctly, the message is conveyed in a focus group that the Center is an organization that cares about Missouri agriculture and wants to listen. The use of literature surveys for existing chestnut producers offers additional insights.

Project Goals:

Research shows that productive apple and peach ground is also productive chestnut ground. **Therefore, in addition to extensive cultivar and market research, UMCA is leading this project based in the Lexington, Mo., apple/peach growing region and the Springfield, Mo. region to:**

- Determine landowner perceptions, attitudes and opinions toward establishing chestnut orchards and the level of knowledge of chestnuts landowners in the selected regions currently possess.
- Determine how landowners wish to receive information from the Center for Agroforestry technology transfer team regarding establishing and managing chestnut orchards.
- Learn if landowners are interested in pursuing chestnuts, in conjunction with apples, peaches, etc., by participating in regional chestnut festivals.

- Determine landowner attitudes and opinions toward current Center for Agroforestry chestnut literature.

Significance of Focus Groups to Project Goals

Important aspects of the Center's technology transfer program are landowner guidesheets, presentations, workshops/field tours and face-to-face contact, whenever possible. Specifically, the Center offers three materials for instructing readers about growing chestnuts and the chestnut industry: Growing Chinese Chestnuts in Missouri, updated in 2006 with new cultivars; a Chestnut Market Analysis, featuring the nationwide survey data; and a Why Chestnuts nutritional guide, designed to offer producers information they can relate to sellers and appeal to their desires to purchase healthful foods. The primary outreach event for educating landowners and consumers about chestnuts is the annual Missouri Chestnut Roast, featuring tours of the HARC farm; informative presentations, demonstrations and booths; and several opportunities for tasting chestnut products and purchasing seedling trees. Dozens of informative talks and presentations are made each year by the Technology Transfer Team, including value added opportunities for nut crops, integrating nut crops into agroforestry practices, the status of the chestnut industry, and the Center's nut tree research program.

Implementing focus groups among apple, peach or nut growers that are efficient, purposeful, and well-centered can help the Center expand the breadth and depth of its technology transfer efforts. Within the context of an understanding of the opportunities and limitations of a focus group, this research work will be an excellent foundation toward additional focus group work conducted by the Center in an attempt to increase adoption of the five agroforestry practices or launch new industries, such as for Eastern black walnut.

In addition, learning how potential growers prefer to receive information can help the Center streamline its technology transfer efforts and maximize its resources. For example, information gleaned from the focus groups and the literature surveys sent to participants is invaluable in learning the effectiveness and satisfaction level of these publications, and suggestions for improvements. As participants have suggested, it is helpful to have a detailed resource guide to refer back to, especially if this guide remains updated with current scientific research. Resource dollars spent to improve and update publications are best utilized when reader feedback is gathered. Comparing potential growers' survey responses with those sent to existing growers may reveal insights toward disseminating information that the Center had not previously considered.

Methods:

Steps followed to conduct the project are listed in a timeline (see Appendix A), which begins with achieving IRB certification and ends with the completion of the project. These steps are discussed below. In summary, potential participant lists and focus group questions were developed,

while simultaneously, a literature survey for potential producers and a survey for existing producers were prepared and implemented. Participants to the focus groups took home the Center's current chestnut materials and literature survey as "homework," meanwhile, existing producers were mailed and emailed a survey.

Project Process

Forseeing a need to determine agricultural producers' interest in establishing orchards, focus groups were selected because they allow for homogeneity - but with sufficient variation among participants to allow for contrasting opinions. They also allow the Center, as Morgan states (1998), not to infer, but to understand; to determine the range of opinions toward a subject; and to provide insights about how people in the groups perceive a situation. Literature surveys were selected to compliment the focus groups in order to glean more information from the focus groups than the two-hour time slot permitted.

These surveys, sent home with potential growers, allow the project to achieve more in-depth information and to find out more precisely exactly what growers need to establish chestnut orchards. Surveys were also mailed to existing chestnut growers in order to leverage and compare the information potential producers are seeking with information current growers found most useful and important. Challenges potential growers perceive toward growing or marketing a crop can be compared with actual challenges current growers are facing – providing the Center with information that is important to include in printed materials but may have been overlooked. Focus groups questions and surveys were also seeking to determine the interest level of participants in a regional chestnut festival to promote the industry and generate consumer awareness. By instituting both focus groups and surveys following the groups, we can compare landowner willingness to establish orchards on a pre-information level and a post-information level.

Choosing the Participants

Initially, focus group participants were to be gleaned from two lists: 1) the apple and peach growers listed on the AgriMissouri brochure of Missouri Orchards; and 2) the members of the Missouri Horticulture Society. Extension agents in the counties surrounding the focus group locations sent a few suggestions of growers they had worked with as well. Active orchardists were sought, preferably apple and peach, because this type of soil is generally favorable to chestnut production and these growers will have knowledge of working with tree crops. To determine locations for the groups, the map of apple/peach orchard was examined to find key cluster areas where the majority of producers were located. In consideration of the possibility of a regional chestnut festival or chestnuts incorporated into a larger regional identity project, the Lexington corridor along I-70 seemed a good choice, as a group there is already forming to promote apples, peaches, wineries, nuts and value-added

agricultural products from a local culture perspective. This region was primarily chosen, however, due to concentrations of apple/peach growers and presumed suitable soils.

The pilot region of the Missouri Regional Cuisines project along the Mississippi River Hills area would also have been an excellent choice for locating potential chestnut growers, due to the existence of this active, regional food-based tourism initiative; however, there were few practicing apple/peach growers listed for this region and therefore some “unknowns” of the soil suitability for chestnuts. This region, however, can be included among future chestnut endeavors across the state.

After mailing the pre-announcement letter to these growers, and talking with members of the Missouri Nut Growers Association (MNGA), we began to doubt that the size of our initial mailing (80 apple/peach growers) would be sufficient for achieving a decent response rate. The decision was made to broaden the pool to include Missouri nut growers, as listed in the MNGA members’ directory. Members were selected who chose a “yes” for including their contact information in the printed directory (72 names), per the request of the newsletter coordinator. Among this group, members were further selected for location in the state. Only those living within one hour’s drive of the apple and peach growers’ clusters were chosen, to keep the group aligned geographically and centered around agricultural producers with potentially good chestnut ground. Nut growers were excluded in initial plans for the focus groups because we desired to specifically and intensely target apple/peach orchardists due to soil qualities and the likelihood that these growers were in a better position to establish commercial-level chestnut production. The Center participates in several MNGA events, and has found these growers tend to be more hobbyists who are less likely to implement a new crop, due to age and land limitations.

The majority of responses to participate in the focus groups came, however, from recipients of the packet via their association with Missouri Nut Growers Association (MNGA). Perhaps this reinforces literature exploring the connection between farmer-to-farmer contacts and community-based organizations and the integration of new agricultural practices. The personal connections participants displayed with each other during the focus groups were almost exclusively formed through participation in this organization; some participants actually mentioned deciding to attend the focus group in hopes of seeing fellow members. Approximately 43% of participants from Mt. Vernon were exclusively nut growers; and 38% of participants from Pleasant Hill were nut growers. Of the two groups, more than half of participants from each session were contacted through membership in MNGA.

Preparing for the Groups

Initial contact for the project began with a meeting between Dr. Elizabeth Barham, Rural Sociology department, and spearhead of the Missouri Regional Cuisines Project. On a larger scale, it is hoped that the Center’s work to identify appropriate soils for agricultural production and to identify

and engage producers can be repeated as a process in the six counties involved in the Missouri Regional Cuisines Project. At this meeting, Dr. Michele Warmund proposed the idea of utilizing existing apple/peach growers for the focus groups along the I-70 corridor, choosing centralized areas, which was reinforced by Dr. Ken Hunt on the premise that apple/peach ground is also productive chestnut ground. Lists were gathered and plans made for securing focus group locations located nearby to the biggest concentrations of orchardists. A pre-announcement letter was drafted and mailed, in order to begin generating interest from potential participants in the project. The pre-announcement packet contained recent media articles featuring the Center's work with chestnuts and a growers' guide. Approximately six weeks following the pre-letter, 152 official invitation packets were mailed, which included a background survey, consent form and additional chestnut materials.

During the planning process, area MU Extension agents were contacted for input. They helped suggest locations and names of specific growers they had worked with. They were enthusiastic about the project, and made suggestions such as "establish a few local champions for your effort and use them to be your local organizers," "find people that can carry the message" and "get on the radar at other conferences growers will attend." Extension agents in and near the counties targeted for the focus groups were invited to attend as observers.

Questions for the focus groups and surveys were prepared with assistance from members of the Socioeconomic cluster, with the project serving under the larger "Develop a Framework to Analyze Markets for Traditional and Nontraditional Midwestern Agroforestry Products" project. Approval for the work was requested and obtained by the IRB, with plans to include results in future published articles. One challenge to the process was developing concise, pertinent questions to address the project goals. The initial list of questions was too lengthy and required categorizing into our top priorities. Further categorization was needed to place the questions in a logical order of least important to most important, while still allowing time for a break and discussion. Various resources were consulted in learning about the question process, moderating and analyzing results.

During the planning process, a survey for existing chestnut growers was also developed. Thirty-one surveys were emailed and mailed to chestnut producers, using the mailing list for the Chestnut Growers of America organization. Growers were selected at random, using the email portion of the membership list. This information regarding how they received information to establish their orchards, their level of production and challenges they face was requested in order to make comparisons from potential growers' knowledge.

Data Analysis:

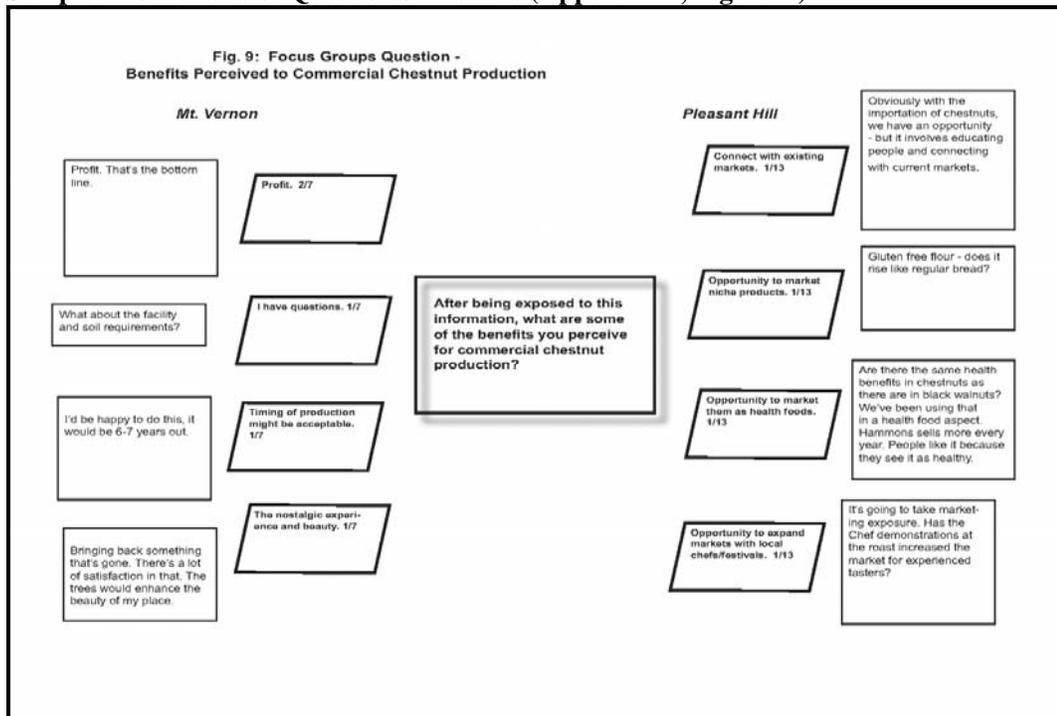
The first step in compiling project data involved the transcription of the tape recorded groups, in addition to typing handwritten notes from the focus groups. Each participant was assigned a number

prior to typing the notes and scripts. Transcribing the tapes from the handheld recorder took several hours, but revealed interesting insights and comments.

Using typed notes and transcriptions, the data was placed into an Excel format, with participants identified by number and their comments for each question. A “label” category was then developed alongside the comments, allowing similar responses to be grouped accordingly and a percent of respondents assigned for each label. At this point, data is now grouped with key themes able to be seen. Portions of this data were then fed into SPSS to achieve percentages for formulating graphs and pie charts in the chart maker function of Excel.

Next, for each focus group question, a flow chart was created in Adobe InDesign. In the center, the question is listed; to the left are the categories and some specific comments received from Mt. Vernon; on the right, are the main categories and corresponding comments for Pleasant Hill. In each of the main category (or label boxes, a number of total participants who gave that response is shown). It is not necessary to use InDesign to complete the flow charts; this is simply the program the researcher chose instead of using a chart creator program offered in Microsoft Word format. (To view these flow charts, see Appendix B, Figures 1-25). Flow charts were also created to show the main themes emerging from the literature surveys and existing producers’ surveys. Here is an example of a flowchart in response to the focus groups question, “What are the benefits you perceive for commercial chestnut production?” The question is in the center, with categories of answers in the middle boxes, followed by comments in the outer boxes for the Mt. Vernon and the Pleasant Hill groups.

Sample: Flow charts of Questions/ Answers (Appendix B, Fig. 1-25)



Instruments used: (See Appendix C for the following documents)

- 1) **Focus Groups questions:** 16 questions were developed, moving from least important or introductory questions to most important, or key questions. After one hour of questions, a brief Powerpoint presentation was offered to summarize the key points of the Center's chestnut literature. At this time, a 12-minute DVD of the 2006 Missouri Chestnut Roast was also presented. Key questions were offered following this presentation. I served as moderator, with fellow colleague as co-moderator, and the accompaniment of Dr. Hunt and Dr. Gold to lend expertise on growers' requests for technical information. Interview locations were a city building in downtown Pleasant Hill, Mo., and the MU Southwest Center at Mt. Vernon. Only one participant was registered for the third group, to be held in Lexington, Mo., but this individual attended at Pleasant Hill. The locations were excellent, and a light meal and chestnut snacks were served as part of the participant incentives. Additional incentives included free in-shell chestnuts, chestnut materials and two free seedling trees. Interviews were recorded via tape recorders during each evening focus group.
- 2) **Literature Survey for Focus Groups' Participants:** A folder with the key technology transfer chestnut documents was presented, along with a brief literature survey and stamped envelope to serve as "homework" to participants. This was given at the end of the focus groups, along with incentive packets that featured additional literature, an agroforestry DVD and fresh chestnuts.
- 2) **Existing Producers' Survey:** A survey was emailed and mailed to 31 producers selected at random from the mailing list of the Chestnut Growers of America.

Research Results:

Results for each of the instruments are presented below as: focus group, [Research Results Section 1](#); literature survey, [Research Results Section 2](#); and existing producers' survey, [Research Results Section 3](#). Within each of the three sections, results are presented according to corresponding project goal(s). Because not all questions were asked in each group, and the dynamics and size of each group were different, percentages for focus groups answers are given as a figure of total participants for that individual group and not combined for the two groups.

For easier readability, a comprehensive table showing the answers for the focus groups questions is given as Appendix C, Fig. 26. Answers are grouped using commonly occurring phrases that encompass the landowners' responses and attitudes. To view participants' comments in more detail, refer also to Appendix B, Figures 1-25.

Turnout for each group was excellent. There were seven attendees at Mt. Vernon, representing 78% percent of confirmed registrants; there were 13 attendees at Pleasant Hill, representing 100% of confirmed registrants. Following the groups, nine literature surveys were received by focus groups participants, a response rate of 45%. Fifteen out of 31 surveys were received from existing chestnut producers, a response rate of 48%. The majority of total participants were exclusive nut growers, followed by growers of both nut and niche crops, as presented below:

Type of production participants are engaged in:						
Type of Producer	Mt. Vernon		Pleasant Hill		Totals:	
Exclusive Nut Grower	3/7	43%	5/13	38%	8/20	40%
Nut and Niche Crop Grower	3/7	43%	2/13	15%	5/20	25%
Commercial Fruit Grower	0		3/13	23%	3/20	15%
Nursery Grower	0		3/13	23%	3/20	15%
Commodity Farmer	1/7	14%	0		1/20	5%

Enthusiasm for sharing knowledge and opinions remained high throughout the groups, offering the challenge as moderator to keep the groups on task and focused on the questions at hand. Often, they entered into lengthy discussions about events they had attended in their area and challenges specific to the crops they currently grow. I found it difficult to carefully intervene without dampening the enthusiasm. Questions not included in the “key” questions category took a longer time for discussion than anticipated, especially during the larger group, and so not every question was asked. Though it was explained during the introduction that the purpose of the focus groups was to allow us to glean information, and that there would be a question/answer time following the group, many participants could not resist asking us the questions during the group. Guests stayed for thirty minutes following the conclusion of the focus groups to ask their questions.

Research Results Section 1: The Focus Groups Instrument

Project goal:

Determine landowners’ perceptions, attitudes and opinions toward establishing chestnut orchards.

Approximately equal percentages for both Mt. Vernon and Pleasant Hill (Appendix B, Q. 4) are shown for the comment “diversification is a good thing” (14%, Mt. Vernon; 15%, Pleasant Hill). The lack of awareness by consumers for chestnuts is something the producers especially considered (Q. 5) when they thought about chestnuts. Both groups listed concerns about consumer awareness with chestnuts (57% for Mt. Vernon and 46% for Pleasant Hill). Both groups reported knowing the song and legends associated with chestnuts, though in each case they were referring to American chestnuts. Building the agritourism experience associated with chestnuts through existing or new festivals emerged as another common theme (Q. 5), with 29% of participants at Mt. Vernon mentioning this and 23% mentioning this at Pleasant Hill. (See Appendix B for additional information).

Results show potential producers are interested in diversification, but concerned about labor limits and resource availability – though a much higher percentage (57%) of participants at Mt. Vernon as compared to only 8% of participants at Pleasant Hill list this as a concern to diversification (Q. 4). Geographic production areas and comments about cultivar types and pesticides emerged at Pleasant Hill as responses to “what do you think of when you hear the word chestnut,” (Q. 5) but these responses did not emerge at Mt. Vernon for this question. Not surprisingly, 43% of participants at Mt. Vernon said they knew about chinkapins when asked what they thought of when they considered chestnuts, while this answer did not come up at Pleasant Hill. Only one-third of respondents at Mt. Vernon had considered adding chestnuts to their operation.

The key perceived benefit to commercial production was listed by Mt. Vernon participants as profit (29%); in contrast, participants at Pleasant Hill were perceived a chance for connecting with existing markets, for selling niche products and marketing chestnuts as niche foods as benefits to commercial chestnut production (Q. 9).

Challenges to commercial chestnut production (Q. 11) were perceived as generating consumer response by Mt. Vernon growers (29%), yet Pleasant Hill growers said the “typical crop challenges” of deer, rabbits and insects were the top challenges (33%).

Selected Comments:

- *If we get people talking about chestnuts, give them information on them, then they'll want something if they think they are on the cutting edge and it's good for them.*
- *Cooperative is a good thing. Let's get growers together to use a mill and get things done.*
- *I think about the experience - donkey, cart, going into the orchard, children/families picking up, seeing them roasted on-site. Let them come to the farm.*
- *There aren't signs everywhere "chestnuts bought/sold here" like they do for black walnut.*
- *This is wrong geographical area to grow them. Try somewhere like out east where they are known. Out east, is more crops and more interest.*
- *Obviously with the importation of chestnuts, we have an opportunity - but it involves educating people and connecting with current markets.*
- *Who is going to buy? I need a market.*

Project Goal: Determine how landowners wish to receive information from the Center for Agroforestry technology transfer team regarding establishing and managing chestnut orchards

Because potential chestnut growers couldn't be asked what information they needed to establish a chestnut orchard, we asked them during the focus groups what information they needed to establish their nut or fruit orchard. We also wanted to know what information we could give them to encourage them to get started. We can compare this information to information needed and used by existing producers (See Research Results section 3).

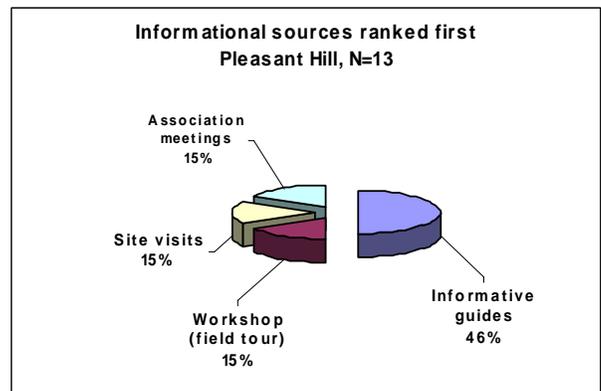
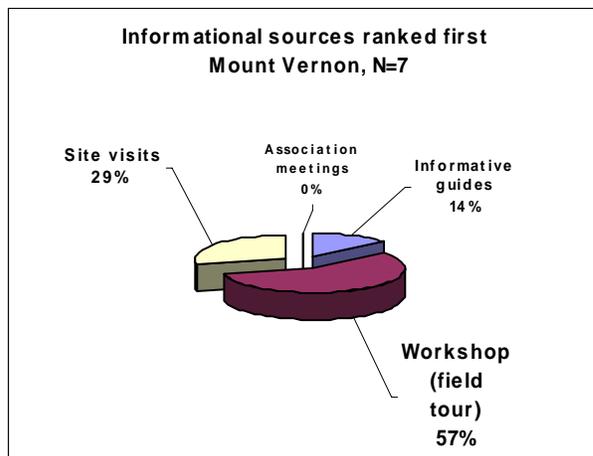
During establishment of fruit or nut orchards, (Q. 2) potential chestnut producers from Mt. Vernon placed equal importance on market knowledge, utilizing an existing orchard, personal growing experience and knowledge from associations (29% for each category.) Similarly, producers in Pleasant Hill utilized personal experience, someone they knew or associations as information sources to get started (23%).

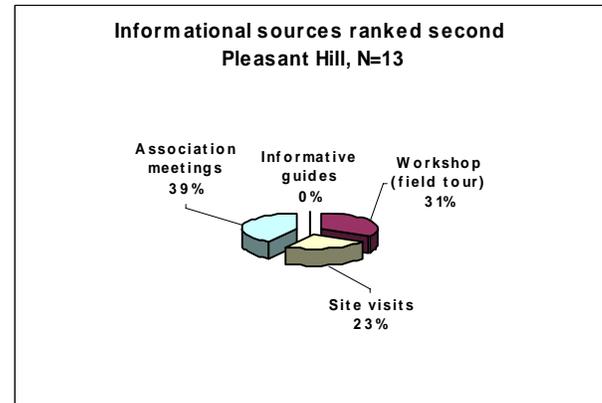
When asked to give information about important lessons that have learned but didn't know in the beginning, (Q. 3) producers in Mt. Vernon felt they had learned most about utilizing existing markets (43%) and building a quality reputation (43%) during the production of their current crops. Producers from Pleasant Hill, however, have learned the most about selecting appropriate site conditions that are well-matched to the crop (31%).

Information about specific growth rates/ growth tasks emerged (Q. 12) as information producers in Mt. Vernon would like to know before beginning to grow chestnuts (29%), along with information about growing organically (29%); while producers at Pleasant Hill desire specific cultivar/rootstock information (31%).

It is important for the Center to know if producers prefer informative guides, workshops/site visits or information through associational meetings when they are considering adopting a new crop such as chestnuts. We asked participants to rank their top choices (Q. 13) from informative guides, workshops or field tours, site visits and association meetings. Workshops/field tours are the first preference of growers at Mt. Vernon (57%); in contrast, producers at Pleasant Hill feel informative guides (46%) are the most important tool they can use at this time. Information from associations is a second choice for both producers at Mt. Vernon and Pleasant Hill. First and second choices of receiving information for Mt. Vernon and Pleasant Hill are displayed below:

Ranking of Preferred Information Sources





Participants mentioned preferring printed guides as resources they could keep, in contrast to more temporary or harder to read Internet resources. They also mentioned that getting involved in associations helps you to hear both sides of growers' challenges. Here are selected comments regarding preferred methods of receiving information:

Selected Comments:

- *I really like guides because I don't choose to be online by choice. Can refer back to the guides.*
- *Growers guides first, but keep them periodically updated. I like materials so I can read about what I'm doing. Then follow up with workshops/field tours.*
- *I want to go on a field tour to see how it's done. Growers guides are nice because can read when you have time. I hate going to a web site.*
- *Get involved in association (MNGA) where you can hear both sides, good and bad. Attend yearly meetings.*
- *Research your trees first. Don't just order them from a catalog. Choose better varieties based on research. Find out what grows well in your area.*
- *Visiting other growers is the best way to learn anything, if there are any sites to visit, right now, seems like it's just HARC.*

Project Goal: Learn if landowners are interested in pursuing chestnuts as an agritourism crop, in conjunction with apples, peaches, etc., by participating in regional chestnut festivals.

In light of the success of the annual Missouri Chestnut Roast, the Center is considering trying to launch consumer interest in chestnuts by hosting regional chestnut festivals near metropolitan areas around the state. More interest was expressed at the Mt. Vernon focus group (Q. 10), with 57% saying they would be interested in regional chestnut festivals; while the Pleasant Hill group expressed more concerns for this type of initiative, especially labor requirements. However, when "yes" responses are averaged for the two groups, approximately 30% of focus group participants are interested in regional chestnut festivals, according to focus group question results. Following the literature survey, the percentage of respondents interested in pursuing a regional chestnut festival increased to 44%. (See Research Section 2).

Comments from Potential Producers: Regional Chestnut Festivals	
Advantages	Challenges
<ul style="list-style-type: none"> • <i>Have chestnut roast "babies." Organize four festivals in October around the state, concentrate on other growers.</i> • <i>Exposing the Kansas City area, I believe, would be a boost to chestnut production in Missouri. At the focus group meeting we initiated discussion on location - such as an orchard in Lexington area. Closer to KC.</i> • <i>I think "deep" Kansas City location as in City Market would prove central, high visibility for participants and exposure to people familiar willing to look into chestnuts as a culinary choice and good dietary option.</i> • <i>I am sure there are many benefits-cooking and eating chestnuts educates the people on their value.</i> • <i>I feel it would be a necessary marketing tool for local markets.</i> 	<ul style="list-style-type: none"> • <i>Tough to put in another fall festival. Best to use existing festival, like the black walnut festival.</i> • <i>We can figure out the growing stuff, but you better cross the growers' groups and approach this as a mix, a growing challenge, to sell things to the public.</i> • <i>If it's in October, have four of them – Columbia, Kansas City, St. Louis, Springfield, would be the way to jumpstart this thing. You have to get to the consumers. Maybe in 5 years, there'll be something produced. If we all start planting now, by the time they get to production, people have had enough information that they will be ready to buy.</i> • <i>Stores don't care. Don't take care of produce at Walmart. Fruit is on a hot rack. Needs to be chilled. Lost cause trying to educate stores about keeping fruit refrigerated.</i>

Project Ultimate Goal: Determine if producers would be interested in pursuing this activity through future focus groups.

During the focus groups, a combined total of 29% of participants asked this question said they would be interested in pursuing additional focus groups. Comments received at the conclusion of the groups were positive:

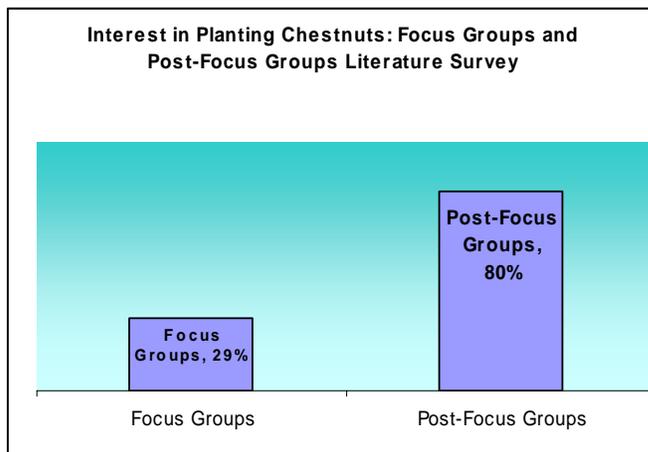
Selected Comments:

- *It was great, because, the information I've seen so far ... I've read it all, so any additional info is nice and nice to know you guys are supporting and helping and looking further into this."*
- *We have to fight a mindset that if it's local grown it can't possibly be as good as what comes in from Calif., Europe or somewhere else."*
- *You need to be part of puzzle. You all realize that you're not just doing chestnuts in Columbia. You have elk, wineries, you're selling fall which chestnuts are apart of. The issue is that is has to be part of a bigger draw.*
- *Try to get more growers together. I hate meetings, but I like getting together with other growers for field tours. There has to be a happy medium, a time for all of us to communicate.*
- *I like roundtables, or forums. Where people can throw out suggestions.*

Research Results Section 2: The Literature Survey Instrument

Project Goal: Determine landowner perceptions, attitudes and opinions toward establishing chestnut orchards.

A significant increase in desire or interest to plant chestnuts is shown when focus groups answers are compared with post-focus group literature surveys. During the focus groups, the number of participants outwardly declaring interest in planting chestnuts was 29%; however, 80% of post-focus group survey respondents would start planting chestnuts.



While key questions to evaluate this goal were addressed during the focus groups, comments received from qualitative literature survey questions are interesting:

Selected Comments:

- *I need to know quite a bit, I'm not much good at sales but I have my hands full getting my trees started now.*
- *I don't feel I can afford to plant too many tree (cost and time wise). If I were looking at it as a business, I should have started before age 63.*
- *I agree with the conclusion "Serious lack of expertise and 5-10 year lag time for return on investment.*
- *Since I am in my upper 70s marketing nuts will probably done by my heirs; main interest is in getting a small orchard started.*

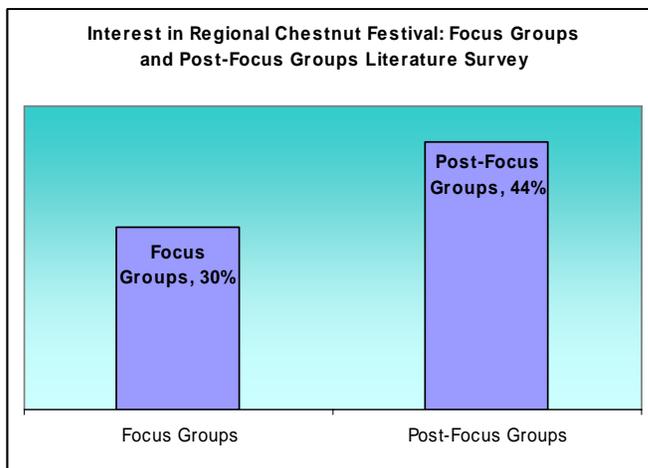
Project Goal: Determine how landowners wish to receive information from the Center for Agroforestry technology transfer team regarding establishing and managing chestnut orchards.

Results from the literature surveys indicate information needs for specific cultivar production, with one respondent stating “in my case I would wait to know the price of the recommended grafted trees for this area,” and another requesting more information about “sources of scion wood.” Similar information about specific growth rates/ growth tasks emerged during the focus groups as information producers in Mt. Vernon would like to know before beginning to grow chestnuts (29%); while

producers at Pleasant Hill most desire specific cultivar/rootstock information (31%). (For additional information, see Appendix B, Fig. 12 and 19).

Project Goal: Learn if landowners are interested in pursuing chestnuts, in conjunction with apples, peaches, etc., by participating in regional chestnut festivals.

Nearly half (44%) of literature survey respondents said they are interested in participating in a regional chestnut festival. In comparison, only 30% of participants expressed interest in a regional chestnut festival when asked during the focus groups. This increase in interest in a regional chestnut festival may be attributed to having a few weeks to process information gleaned from the focus groups, or from reading the literature provided.



The potential for a regional chestnut festival to increase interest in chestnuts emerged as a key benefit (67%). Approximately one-third of literature survey respondents (33%) expressed concern about competition with other festivals, and 22% have concerns about the logistics of a chestnut festival, including labor. (See Appendix B, Fig. 18).

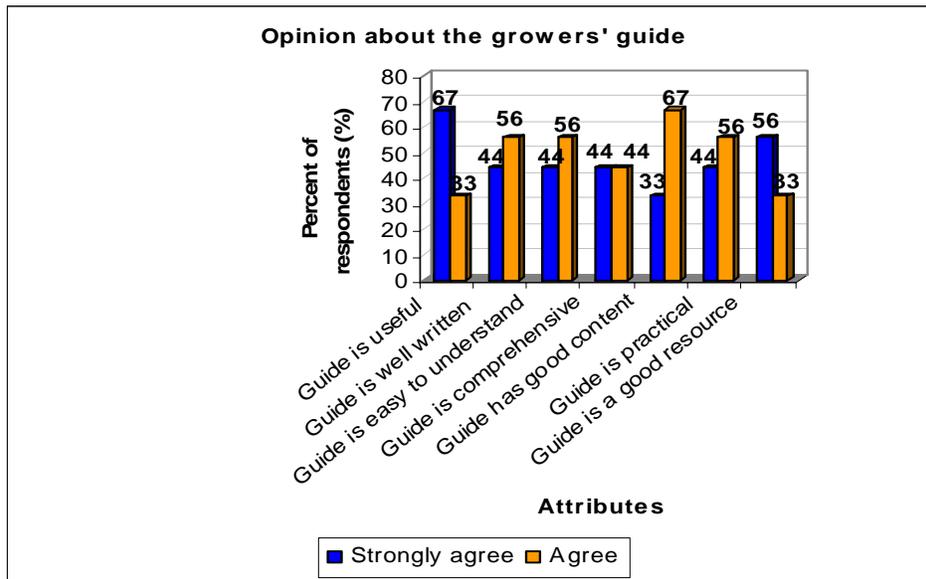
Project Goal: Determine landowner attitudes and opinions toward current Center for Agroforestry chestnut literature.

The Center offered participants a “homework” folder at the conclusion of each focus group, which included key chestnut publications used for technology transfer and a brief literature survey. Publications included:

- *Agroforestry in Action: Growing Chinese Chestnuts in Missouri*
- *Chinese Chestnut Market Analysis: Producers’ Perspective*
- *Why Chestnuts nutritional guide (consumer focused)*

The purpose of this assignment was to receive participant feedback after they had a chance to read the materials. This feedback can be used to determine if current technology transfer publications on chestnut are useful and informative. Nine literature surveys were received, achieving a response rate of 45%.

Growing Chinese Chestnuts in Missouri: For the growers’ guide (Growing Chinese Chestnuts in Missouri), 89% of respondents said they felt encouraged to plant chestnuts after reading this material. Of total participants, 100% said they would recommend this guide to others. Participants chose either “strongly agree” or “agree” for each criteria, including guide is useful (67% strongly agree), well-written, comprehensive, easy to understand and a good resource. No participants selected “neither,” “disagree,” or “strongly disagree,” for any of the Center’s publications in regard to usefulness, quality, readability or practicality attributes. (See Appendix B, Fib. 16).

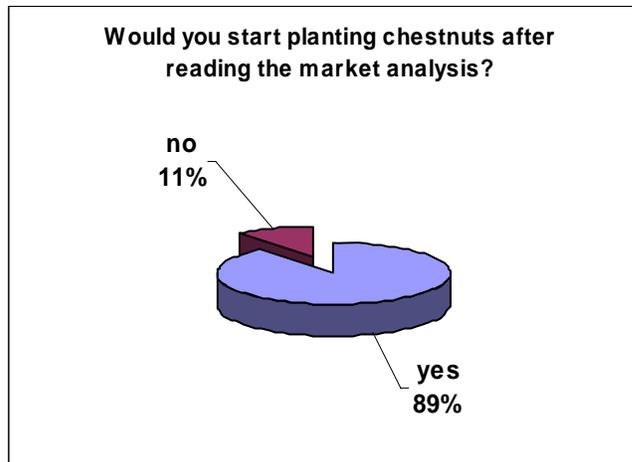


Selected Comments, Growing Chinese Chestnuts in Missouri:

- *The guide is put together well. I would not change anything.*
- *It seems to cover the basics.*
- *I like the comprehensive overview of the varied topics in chestnut production.*
- *I like the event calendar. I will probably add my own notes as I learn things.*
- *P.7, Fertilization. Maybe some brand names. I have found out that being a hobbyist small amount of N can be difficult to get by itself. Buying Fruit & Nut tree fertilizer is not cheap.*
- *A lot of information is provided on hedgerow style cultivation, but it is said to be “unproven in Missouri”. That leaves a new grower wondering whether or not it’s what he should try.*
- *It might be in the guide and I just missed it, but how about something concerning the Missouri Nut Growers Association?*

Market Analysis: A second document included in the literature packet and survey is the Chinese Chestnut Market Analysis: Producers’ Perspective, a document reflecting results from national market surveys conducted by the Center. The document helps paint a picture of the opportunities and

challenges in the chestnut industry, as well as its market potential. Of total participants, 89% said the information presented in the market analysis did favorably affect their interest in growing Chinese chestnuts.



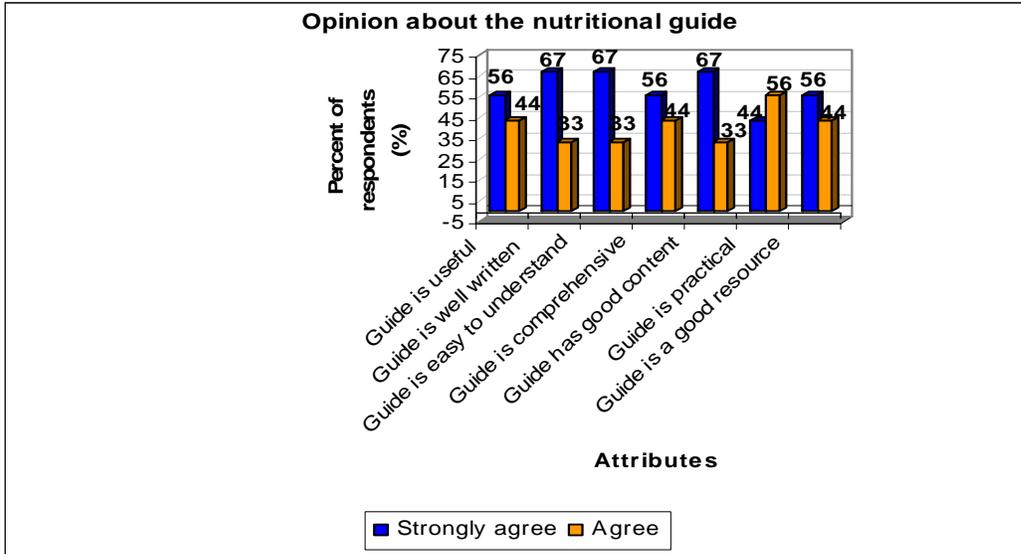
While most landowners found the market analysis to be helpful, the feeling generated by reading their comments is that they perceive marketing as another arena; a part of growing chestnuts they are inexperienced in, or even find somewhat intimidating. (See Appendix B, Fig. 17).

Selected Comments, Market Analysis:

- *The market outlets section is good. But connecting to the market might be hard for the small farmer. Maybe a Hammons-type company that would act as a buyer and then handles the marketing because they are professionals at that business.*
- *I will study it since I'm weak in this area, use it for ideas, etc.*

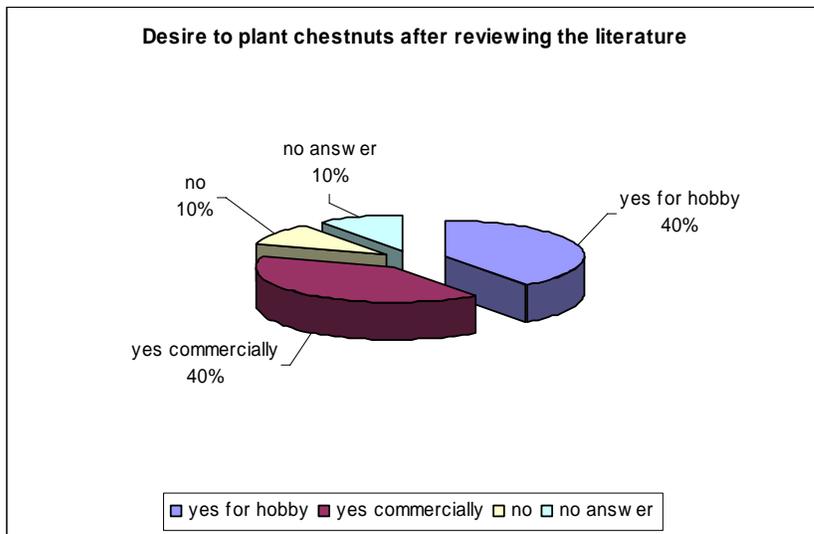
“Why Chestnuts” Guidelinesheet: The Center’s “Why Chestnuts” guide is intended to be consumer-friendly, acting as a tool to encourage consumers to try chestnuts for their health properties. It also offers direction in preparing chestnuts and resources for chestnut recipes. This document can be made available in-store and at events where producers sell chestnuts.

Of total survey respondents, 100% said they do feel encouraged to try chestnuts after reading this guide, and 100% of respondents would recommend this guide to others. Respondents selected “strongly agree” or “agree” for all categories, including usefulness, ease of understanding (67% strongly agree), practicality and quality of content (67% strongly agree). For the attribute of “well-written,” 67% said “strongly agree.”

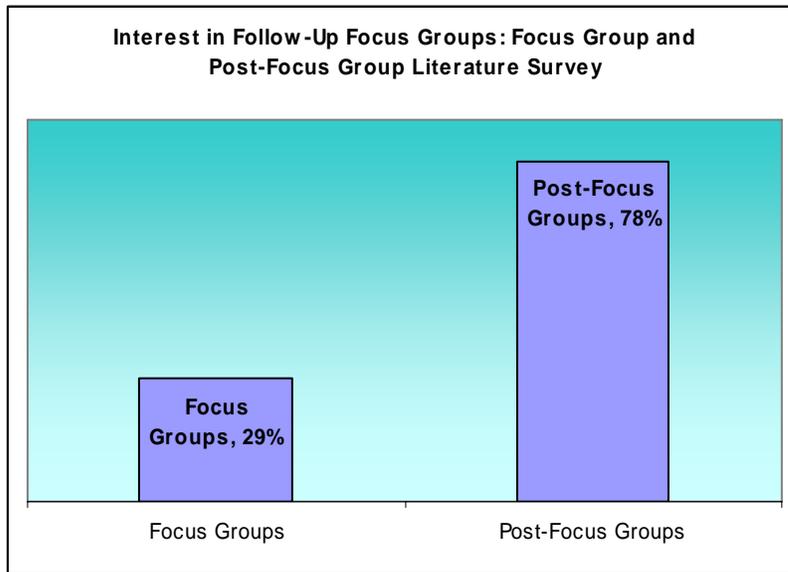


Project Ultimate Goal: Create an interested landowner base of potential chestnut growers to work with in coming years in establishing a chestnut industry in the region.

Approximately 80% of survey respondents would start planting chestnuts, according to the post-focus group literature surveys. Prior to reading the literature and completing the survey, this number reached only 29%. This favorable increase in interest toward planting chestnuts could be attributed to information provided in the Center’s literature. Of the 80% who are interested in planting chestnuts, 40% are interested on a hobby level and 40% on a commercial level.



A significant increase in interest level for participating in future groups addressing chestnut production is shown between the focus group session and the post-group literature survey, suggesting the discussion during the group and the supplementary literature participants received may have helped generate enthusiasm toward establishing chestnuts. When asked if they would be interested in participation in a follow-up focus group, 78% of literature survey respondents said “yes.” In comparison, only 29% of focus group participants said they would be interested in follow-up focus groups when the question was asked during the meetings.



Summary: Below is a table showing participants’ responses to three key questions during the focus group as compared to responses after completing the literature survey:

Comparison of Key Questions: Focus Groups and Post-Focus Groups Literature Survey		
Question	Focus Group	Post-Focus Group Survey
Desire to plant chestnuts	29% Yes (Mt. Vernon)	80% Yes
Interest in regional festival	30% Yes	44% Yes
Interest in follow-up focus groups	29% Yes	78% Yes

Research Results Section 3: The Existing Producers’ Survey Instrument

Project Goal: Determine landowner perceptions, attitudes and opinions toward establishing chestnut orchards.

Fifteen surveys were received out of 31 sent to existing growers, a response rate of 48%. Information gleaned from the existing producers’ survey is helpful in gaining further insights into what type of information -- and how best to present it -- to potential growers. It is especially interesting to note what existing producers cited as benefits and challenges to chestnut production.

Most existing producers of chestnuts would plant chestnuts again (87%). Below is a list of comments written by existing producers, which can be perceived as benefits to chestnut production, and a list of comments selected from potential producers focus groups responses. In only two areas do the respondents distinctly align – the belief that chestnuts can be profitable, and that there is potential to market them in the restaurant arena and as health foods.

Comments from Existing Producers (Benefits to Growing Chestnuts)	Comments from Potential Producers (Benefits to Growing Chestnuts)
<ul style="list-style-type: none"> • <i>It’s even better than I thought it would be.</i> • <i>There is a big demand for organic chestnuts.</i> • <i>Much groundwork has been done in all aspects. Americans, food editors are discovering chestnuts. Trend for healthy living is encouraging.</i> • <i>It’s been a real learning experience and we’ve met some wonderful people. It’s also given us the opportunity to travel and call it a “business.”</i> • <i>It’s an interesting crop to grow and has been profitable.</i> • <i>The time I spend with my chestnuts is good for my mental health.</i> 	<ul style="list-style-type: none"> • <i>Profit. That’s the bottom line.</i> • <i>Bringing back something that is gone. There is a lot of satisfaction in that. The trees would enhance the beauty of my place.</i> • <i>Possible to connect with existing markets. (including local chefs, demonstrations)</i> • <i>Opportunity to market them as health foods.</i>

Predator (33%) and terrain (20%) problems were listed by existing producers as challenges to production, in addition to storage (20%). In contrast, potential producers offered the highest response toward generating consumer interest in chestnuts (10%). Here is a table showing the perceived challenges toward commercial chestnut production, as listed by potential producers in focus groups, and challenges listed by existing producers. It is interesting to observe that only in one category did potential and existing producers overlap – that of the time and labor involved:

Challenges with chestnut production: Potential producers focus group responses compared to existing producers' survey responses		
Challenge	Potential Producers	Existing Producers
Finding a market.	1/20 (5%)	
Cooperatives are needed.	1/20 (5%)	
Generating consumer response.	2/20 (10%)	
Time involved/ labor & equipment.	1/20 (5%)	1/15 (7%)
Organic challenges.		1/15 (7%)
Cultural barriers.		1/15 (7%)
Small sized nuts.		1/15 (7%)
Shipping challenges.		1/15 (7%)
Availability of pollinating species.		2/15 (7%)
No problems/few problems.		2/15 (13%)
Supply of nuts.		2/15 (13%)
Price. (Set too low).		2/15 (13%)
Terrain challenges.		3/15 (20%)
Storage challenges.		3/15 (20%)
Predator problems.		5/15 (33%)

Project Goal: Determine how landowners wish to receive information from the Center for Agroforestry technology transfer team regarding establishing and managing chestnut orchards.

Because we are directly seeking to impact potential chestnut producers in Missouri, questions pertaining specifically to this goal were not asked on the existing producers' survey. However, we can consider the sources and types of information existing producers listed as knowledge from the beginning of their operations -- and knowledge they "wish they had known" -- as we evaluate what potential producers listed for these questions.

It is interesting to note from the table below that the three knowledge sources utilized by both potential producers and existing producers at orchard establishment are: agricultural knowledge from personal experience; knowledge from associations; and knowledge from someone the grower knew, i.e., fellow grower or neighbor. Knowledge gained from associations was the most often mentioned source of information for both groups upon orchard establishment, with 25% of potential producers listing it and 33% of existing producers listing associations as an information source. (See Appendix B, Fig. 20-21). The message can be derived here that associations are a valued and regarded source from which growers gain knowledge. When asked which sources of knowledge they currently use for marketing chestnuts, existing producers listed knowledge from growers' associations most frequently (37%). (See Appendix B, Fig. 22).

Knowledge sources utilized by producers at the time of orchard establishment: Potential producers and existing producers		
Knowledge Source	Potential Producers	Existing Producers
Market knowledge from personal experiences. (farmers' markets, current online sales, etc.)	2/20 (10%)	
Printed literature.	2/20 (10%)	
Someone I knew.	3/20 (15%)	3/15 (20%)
Agricultural knowledge from personal experience.	2/20 (10%)	5/15 (33%)
Knowledge from associations.	5/20 (25%)	5/15 (33%)
Information about imports.		1/15 (7%)
Took a marketing course.		1/15 (7%)
Family knowledge.		1/15 (7%)
From the Internet.		1/15 (7%)

When asked what participants did not know at the time they started production, and wish they had known, existing producers said more information about cultivars as their most frequent response (27%). (See Appendix, Fig. 25)

Similarly, potential producers from Pleasant Hill listed “site adaptability” as a key lesson they have learned since beginning to grow their tree crops (31%). Mt. Vernon producers, however, were more focused on utilizing existing markets and connecting with consumers as lessons they have learned along the way. (See Appendix, Fig. 3).

Existing producers responded to the question: “What advice would you give to a friend who is just starting to plant chestnut trees?” Similarly, focus groups participants were asked “What information can we give you, if you were going to start planting chestnuts tomorrow?” (See Appendix, Fig. 12). Comments overlapped in areas of seeking out markets and soil suitability. Existing producers also mentioned not exceeding your limits as a grower and selecting a firm price among advice they would offer.

Comments from Existing Producers (Advice they would give a friend just starting).	Comments from Potential Producers (Information they would want to start growing chestnuts tomorrow.)
<ul style="list-style-type: none"> • <i>Plant as many trees as you can take care of.</i> • <i>Grow the best and biggest chestnuts. Be very persistent in finding and coddling buyers. Spread the word.</i> • <i>Treat it like a business, not a hobby. Don't give your crop away just because you can. Some of us are trying to make money at this.</i> • <i>Do it right or don't do it at all. Talk to multiple growers for advice before you start.</i> 	<ul style="list-style-type: none"> • <i>What is the cost, how to get the price down for establishment?</i> • <i>Which one tastes best?</i> • <i>Which cultivars are suitable for different areas of Missouri?</i> • <i>Information about matching soil types with cultivars.</i> • <i>Rootstock availability - where to get trees and seed.</i>

<ul style="list-style-type: none"> • Know your soil and find help. • Make sure you are up to the task of marketing. And harvesting. • Know your soil, make sure it is suitable for chestnuts. Make sure you know what's involved in growing chestnuts. • Budget for a deer fence. • Know your target market. Have a firm price per pound and be willing to defend your price. 	<ul style="list-style-type: none"> • How important is irrigation? Soil type? Is irrigation essential? How do these trees do in China? • Who is going to buy? I need a market.
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Project goal: Learn if landowners are interested in pursuing chestnuts, in conjunction with apples, peaches, etc., by participating in regional chestnut festivals.

No specific question in the existing producers' survey addressed this issue.

Project Goal: Determine landowner attitudes and opinions toward current Center for Agroforestry chestnut literature.

No specific questions in the existing producers' survey addressed existing Center for Agroforestry literature as a tool for establishing chestnuts, as most producers surveyed have been in production for several years before the development of these publications. In addition, chestnut producers surveyed do not grow chestnuts in Missouri, for which the literature is intended.

Summary and Recommendations:

As researchers Valdivia and Poulos (2005) observe, a large number of small landowners exist who are unable to earn an economic base through large-scale commodity crops, but are in a position to reap economic benefit from high-value, niche products produced through agroforestry. In accordance with the significance of this study, Valdivia and Poulos conclude that "Understanding the characteristics of landowners consistent with interest in the various agroforestry practices can assist in targeting extension programs and policies to facilitate adoption. The array of practices may be matched to a diversity of landowners seeking not only environmental, but economic benefits" (p. 1-2).

This knowledge will be used to implement additional focus groups among apple and peach growers that are efficient, purposeful, and well-centered around the research project goals. Requests have been made for groups near St. Louis and in the Bootheel region, as well as northwest Missouri. As the Nut Tree Research cluster continues to expand its efforts for establishing eastern black walnut, a similar process can be instituted for identifying potential producers.

Project Goals: Summary and Recommendations

- ***Determine landowner perceptions, attitudes and opinions toward establishing chestnut orchards and the level of knowledge of chestnuts landowners in the selected regions currently possess.***
 - **Summary:** Current landowner knowledge about chestnuts is limited and seems confused by some growers with the traditions and legends surrounding the American chestnut. Negative or neutral responses were generated in regard to knowledge about chestnut (prickly, small, better market elsewhere) more often than openly positive responses. More than half of focus groups participants cited a lack of consumer awareness and the need for more growers in their opinions about chestnuts.
 - If landowners have prior knowledge about growing tree crops like chestnuts, it has been learned through associations and fellow growers.
 - Focus group participants believe diversification is a good thing, but concerns arose around lack of consumer awareness for chestnuts as a significant issue.
 - Landowners may be unsure if Missouri is suited geographically for chestnuts. They have heard of import markets along the East and West coasts, and mentioned needing to tap into these existing markets while allowing one in the Midwest to grow.
 - Consumer education toward chestnuts is a common concern, with the belief that chestnuts may be a “hard sell” market without educating consumers as an ongoing effort.
 - Producers seemed to suggest their own “solution” for this challenge, with both groups believing there is marketing potential for chestnuts through selling/creating an agritourism experience around chestnuts or regional chestnut festivals like the Missouri Chestnut Roast.
 - Cooperatives are perceived as a positive and necessary step toward establishing a chestnut industry in Missouri, and a need for consumer education also emerged in producers’ comments and discussions.
 - With 40% responding they would plant chestnuts on a hobby level, and 40% saying they would plant them on a commercial level, there is an opportunity for the Center to expand hobbyists’ interests into commercial-level production.
 - **Recommendations:**
 - A future modification of this project could focus on surveying and interviewing farmers identified as “leaders” in the community, such as those leaders designated through speaking with peers or looking at leadership roles in local organizations.
 - Perhaps these leaders could be brought together in a focus group to determine their attitudes and opinions toward leading agricultural efforts in their communities.
 - Working with Extension specialists, technology transfer staff could consider building farmer cooperatives or hosting farmer forums to help encourage adoption of agroforestry crops. As a next step, these leaders could be asked for assistance in generating regional chestnut festivals or grower participation in existing area festivals to promote chestnuts.

- ***Determine how landowners wish to receive information from the Center for Agroforestry technology transfer team regarding establishing and managing chestnut orchards.***
 - **Summary:** Knowledge gained through associational meetings emerged as one commonly-preferred method for both focus groups.
 - Site visits and workshops/field tours are also preferred methods. (See Appendix B, Fig. 13)
 - Comments include a favorable opinion toward receiving informational guides in printed form and a desire to know where additional orchards could be viewed, aside from the HARC farm.
 - **Recommendations:**

- The Center can strive to continue hosting talks and outreach events during associational meetings across the state, including fruit and nut growers' meetings to help build a presence and a sense of trust.
 - If landowners who participated in focus groups establish chestnut orchards, they can be utilized for peer-to-peer growers' workshops and site visits.
 - The Center can encourage all potential chestnut growers (and fruit and nut growers) to become involved in the Chestnut Growers of America organization and attend the annual meeting for hands-on field tour and interaction opportunities.
- ***Learn if landowners are interested in pursuing chestnuts, in conjunction with apples, peaches, etc., by participating in regional chestnut festivals.***
 - **Summary:** Growers are interested in a regional chestnut festival, with an increase in interest expressed on the post-focus groups' literature survey.
 - Nearly 70% of respondents listed potential to boost consumer interest and markets as a benefit to hosting regional chestnut festivals; yet concerns arose about conducting these festivals in conjunction with others happening at the same time.
 - Many suggested that festivals near Kansas City, Springfield and St. Louis would be beneficial toward generating consumer interest in chestnuts.
 - However, concerns were raised, including what impact did the Missouri Chestnut Roast have on Columbia markets for chestnuts and how would the labor involved be handled.
 - Additional concerns raised involved competing with several existing fall festivals; growers commented that they could share in festivals that already feature seasonal fall items, like black walnuts.
 - **Recommendations:**
 - The Center can utilize Technology Transfer and Event Planning staff to host "how-to" workshops for educating landowners in the process of hosting a successful festival at various regions across the state. Landowners interested in regional festivals can be encouraged to join up and network with growers involved in the Missouri Regional Cuisines Project.
- ***Determine landowner attitudes and opinions toward current Center for Agroforestry chestnut literature.***
 - **Summary:** The guides included in producers' homework packets received only "strongly agree" or "agree" for attributes including well-written, useful, practical, easy to understand and comprehensive.
 - All survey respondents would recommend the growers' guide and the nutritional analysis to others.
 - Comments received included a desire for printed literature that can be stored and referred back to, instead of Internet-based information, and a desire to have informational guides available at all site visits, workshops and field days.
 - Specific improvements to the growers' guide included more clarity on fertilizer brands and more information about costs of establishment and about specific cultivars' suitability to soil types. Respondents also said they felt the guides were thorough and that it is important to keep up to date on current science.
 - **Recommendations:** Interest in establishing chestnuts seemed to increase when participants were given literature to read. The Center should work closely with MU Extension agents and natural resource professionals hosting workshops across the state to ensure adequate printed materials are available, as well as keep current guides up to date.
 - The Center's current literature seems to be thorough enough, according to this sample of respondents, but perhaps could be improved if landowners were given the opportunity to "preview" literature before it is printed.

- Participants' opinions toward ways they wish to receive information can directly impact potential funding from the USDA Sustainable Agriculture Research and Education program. Using this information, the Center can demonstrate that area growers already have an interest in future focus groups and workshops/site visits, and that they find the Center's current informational guides useful. Results from these focus groups may help successfully achieve SARE funding for establishing chestnuts as a niche crop.
- ***Ultimate goal: Determine if producers would be interested in pursuing this activity through future focus groups.***
 - **Summary:** With 80% of post-focus group survey respondents stating they would plant chestnuts (compared to 29% during the focus groups) momentum has been generated from this initial project toward establishing chestnuts.
 - During the focus groups, 29% of persons who responded to the question "Would you be interested in follow-up focus groups" said yes; however, following the focus groups, 78% of total respondents to the literature survey said they would be interested in follow-up and additional groups.
 - **Recommendations:** The Center can act now while interest is high to encourage landowners from the focus groups to plant chestnuts. A follow-up growers' workshop would be timely for summer of fall 2007, perhaps just prior to the annual Missouri Chestnut Roast.
 - Once a relationship has been started with focus group participants, soil knowledge can be gained by visiting landowner properties. This knowledge can be placed into GIS framework to determine the ideal soil properties for chestnut orchards. This data can be measured against each county in the state, producing a GIS mapping of chestnut ground in Missouri. Journal articles may be prepared both for the focus groups process, and the GIS mapping of chestnut ground in Missouri – a project not previously performed. This process can be repeated to supplement efforts from the Missouri Regional Cuisines Project to increase production and markets for niche agricultural products.

Future Focus Groups Work:

While the focus groups hold potential for expansion of the Center's niche agricultural product work, it is important to recognize improvements to the process. Suggestions include dividing groups into large or small acreages; proximity to urban or rural markets; and perhaps hosting focus groups for wine growers who may be interested in establishing chestnuts. It may be helpful in the future to separate out hobby growers from serious growers via pre-survey before choosing focus group participants. To encourage more participation from active apple/peach orchardists, the Center may want to consider attending meetings of these growers' groups regularly and becoming a familiar face. Presentations on chestnut growing and marketing could be targeted to groups including the Mid-America Fruit Growers.

While nut growers seem readily in tune with the idea of growing chestnuts, perhaps apple and peach growers, who have faced more difficult crop years and prices, may need extra encouragement and outreach. This could occur in the form of a HARC chestnut orchard field tour exclusively for members of an association like MAFG, a setting in which attendees will feel comfortable and at-ease

– as was experienced by members of the NNGA during the focus groups. The role of MU Extension in this process can be further strengthened by including Extension agents as assistant moderators or in contacting potential participants on a personal basis.

Future work with crops including shiitake mushrooms and black walnuts may strive to recruit a larger number of focus groups to achieve a more diverse array of responses. It would also be beneficial to map out the specific type of comparisons researchers will be looking for prior to conducting the focus groups, especially if literature or external surveys are involved as a tool. This focus groups project with potential chestnut growers can provide a method for copying this process in other agroforestry areas; hopefully results will render a similar increase in desire/momentum to implement agroforestry practices.

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Appendices:

- **Appendix A:** Timeline of activities
- **Appendix B:** Fig. 1-25, Flow charts for focus groups questions, literature survey and existing producers survey
- **Appendix C:** Fig. 26, Focus group questions and answers; and Fig. 27, Information sources used by existing producers.
- **Appendix D:** Instruments used -- Focus groups protocol; literature survey; existing producers' survey

Appendix A: Timeline of Activities

16 weeks prior to focus groups:	Complete IRB training. Ongoing review of focus groups literature and resources.
12 weeks prior:	Meet with experts/colleagues to share ideas; prepare amendment to existing IRB project.
11 weeks prior:	Prepare focus groups questions, literature survey and existing producers' survey; submit to IRB for approval. Meet with colleagues to accept revisions/suggestions to the questions.
10 weeks prior:	Identify address lists for participants; contact MU Extension agents in counties with significant orchard numbers to notify them of the project and receive suggestions; determine final locations and dates. Add Extension names to existing list. Make meeting room reservations.
8 weeks prior:	Initial letter of recruitment sent to sample, with media samples and literature.
6 weeks prior:	Begin gathering incentives, bags and materials; prepare "Homework" folders and "Additional Resources" folders; acquire and test tape recorders. Study moderating skills and techniques.
3 weeks prior:	Send official invitation packets; includes additional literature, background survey and consent form. Check on locations, order food and meet with events coordinator to cover the "bases."
10 days prior:	Reminder postcard mailed to all participants, encouraging their participation.
7 days prior:	Call participants not yet heard from, to encourage participation (left phone message).
5 days prior:	Postcard sent to participants with reminder of time, date, location, and details
One Day before session held:	Reminder phone call made to participants.
2 weeks after sessions:	Prepare notes and transcripts. Remind participants to return their "homework" literature survey. Begin placing this data from scripts into an Excel format; then place into SPSS for further clarification. Prepare flow charts from this data.
3 weeks after sessions:	Being compiling existing producers' surveys in same format.
8 weeks after sessions:	Prepare and ship seedling trees as a final "thank you."

Appendix B:

Flow Charts, Figures 1-25

Displays information received from focus groups, literature survey and existing growers' survey.

Fig. 1 : Focus Groups Question - Introductory Information

Mt. Vernon

Pleasant Hill

Hay farmer, has not farmed orchards. Has diversified production. Is curious about chestnuts.

Commodity farmer. 1/7

Nut grower. 5/13

In the walnut business. Have a few pecans. Have 10-12 acres of grafted black walnuts and pecans. Have 12 or 15 chestnut trees. Started to graft pecans. Wants 2-6 acres of chestnuts. Hopes for a retirement business.
Short leaf pine. Pecans, hazelnut, english walnuts, heartnuts. Curious. Retired. Interested in chestnuts from the Chestnut Roast.

Walnut grower with 60 acres now, 60 acres to plant. Most interested in the enjoyment of it.

Nut grower. 3/7

State your name, city of your apple/peach/nut operation, do you grow anything else besides peaches and apples, why are you here tonight?

Nut and fruit/vegetable grower. 2/13

Does garden produce. Starts hundreds of plants in the spring. Chestnut Roast converted me.
Trying to rework the soil and add irrigation. Want to learn about pest control.
100 acres of CRP trees and 20 acres pecan and black walnuts. Few peaches, few apples, few chestnuts. Can we market/sell chestnuts?

Cattle and hog farm. Sells wild walnuts to Hammons. Has a row crop operation too. Lease hunting. Old pecan groves on property. Wants to alley crop pecan/hay. Conservation knowledge.

Nursery grower. 3/13

Science teacher with a wildflower seed production company. Has tree nurseries and grows own trees from seed. Not in the business to make money. Wants 10 acres of chestnuts.

Fruit and vegetable grower.

Nut grower and niche crop grower. 3/7

Has 500 trees. Has Asian pears. Has cattle, donkeys, sweetcorn and produce. Sells to a market. Five varieties of apples. Looking for nostalgic value.
Has 80 acres, some in prairie and some in black walnut/asparagus. Ornamental grasses. Elephant garlic. Has 12 chestnuts. Has knowledge of timber management and agroforestry.

Commercial fruit grower. 3/13

Grows peaches. Operates buying station for Hammons. Commercial producer. No doubt I can grow them, want to know about selling them.
Operated apple orchard for 30 years, now peaches. 2nd largest peach orchard in the state.
Orchards and cider mill. Sell peaches. Commercial. Seeking alternatives. Has agritourism business.

**Fig. 2: Focus Groups Question -
What Was the Most Valuable Information that Helped You/Your
Family Get Started?**

Mt. Vernon

Lived near a black walnut market. Attended Black Walnut Festival.

Grandfather started orchard based on market knowledge for strawberry crop.

Orchard was there when bought the property.

Had knowledge of agriculture through employment in conservation dept.
Learned through experience that niche products like gourds sell.

Learned from the Missouri Nut Growers Association and from NRCS.
Contacted extension agent.

Pleasant Hill

None was available.
1/13

There wasn't any. Couldn't find anything on black walnuts, not when I was planting.

Printed literature. 2/13

Start reading seed catalogs. Main source now has been the Internet.
I read "The Peach."

Associations, organizations. 3/13

Government forced me into it, due to erosion. Forester said I better plant trees.
Annual reports and information from NNGA.

Orchard was already there. 2/7

Think back to when your orchard was first started. What was the most valuable information that helped you or your family (first owner) get started?

Get involved in association (MNGA) where you can hear both sides, good and bad. Attend yearly meetings.

Personal experience. 2/7

Personal experience. 3/13

The black walnut center from Purdue (employer).
Was already a nut grower.
Trial and error.

Knowledge from Associations. 2/7

Someone I knew. 3/13

Friend raised them, I was intrigued. The friend got info from a horticulturalist.
We planted apples because the neighbors had a lot of apples. A neighbor had apples and was more profitable than farming.
We talked to other growers.

Fig. 3: Focus Groups Question - What Are Some Lessons You Have Learned about Selling Apples/Peaches?

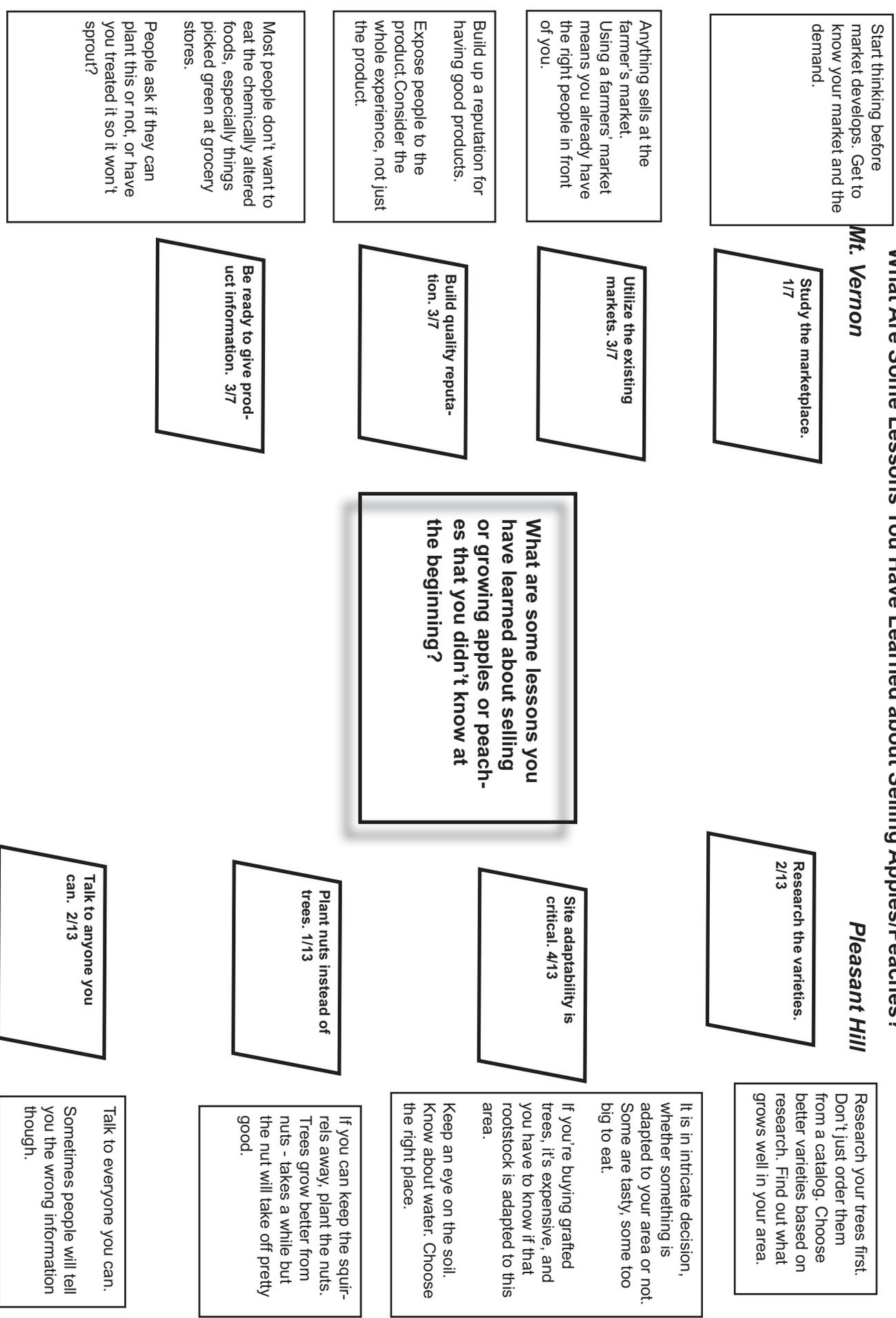


Fig. 4: Focus Groups Question - What Do You Think About Diversifying Your Production?

Mt. Vernon

I won't hire help.

Problem with diversification if you're a small operation. You have to diversify because you don't have enough of one thing. There's a limit to what I can produce and get rid of.

Once you expand beyond the hand-work limit, you have to consider the labor.

We are three days over what we can do in a day.

If we get people talking about chestnuts, give them information on them, then they'll want something if they think they are on the cutting edge and it's good for them.

The more different items you can grow, the better.

Cooperative is a good thing. Let's get growers together to use a mill and get things done.

Pleasant Hill

Consider labor limits/
resource availability.
4/7

Link with consumer
education. 2/7

Diversification is a
good thing. 1/7

Cooperatives are
good. 1/7

What do you think about
diversifying your production?

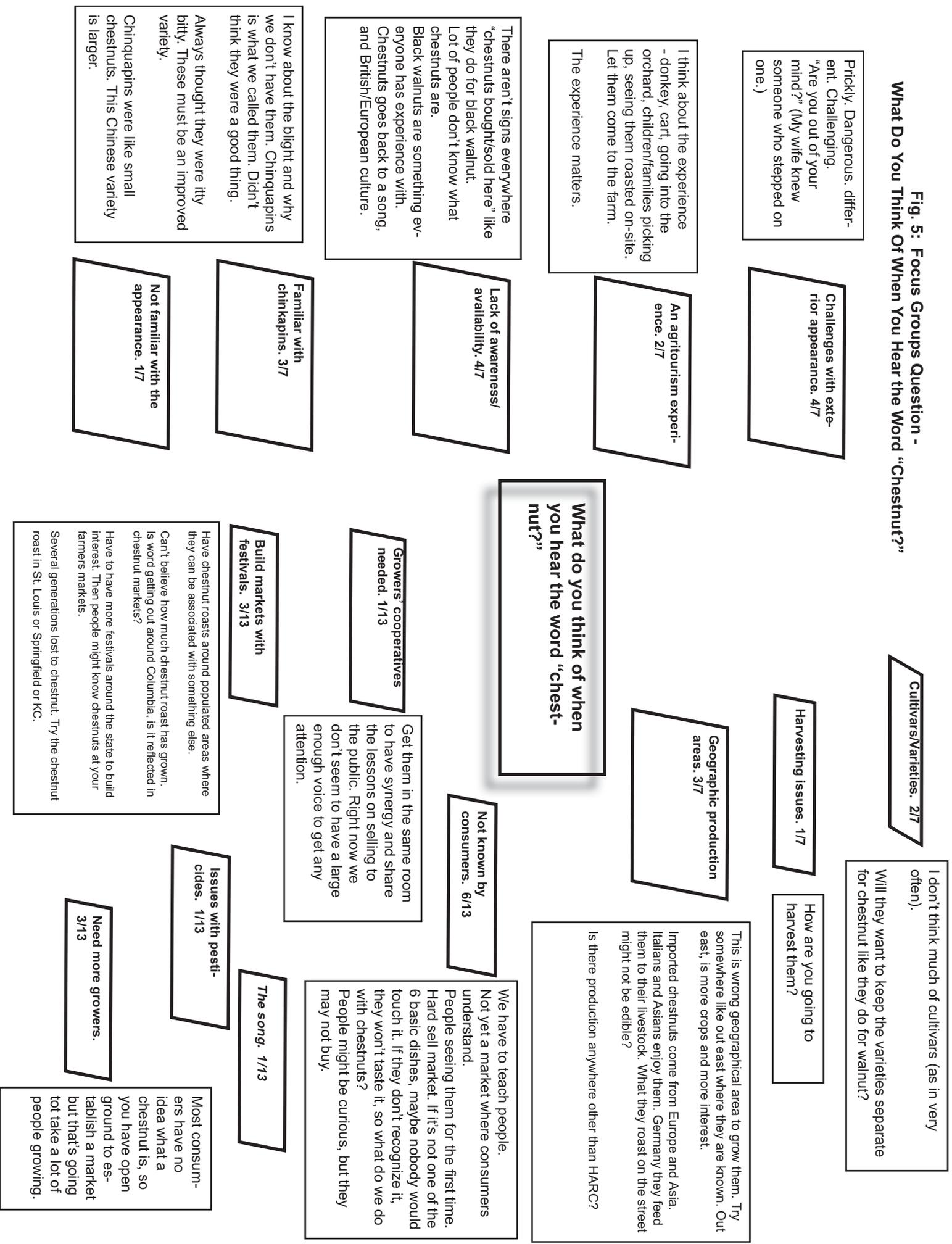
Diversification is a
good thing. 2/13

Consider labor limits.
1/13

Hand harvesting is too
difficult but with a modified
pecan harvester it'll
do the job.

It would be wise. Need to plant walnuts and some other variety - pecans or chestnuts.
If you were depending on walnuts for a living, you would have had a hard winter.
Plant grafted trees, and plant them in boxes or rows, not randomly.

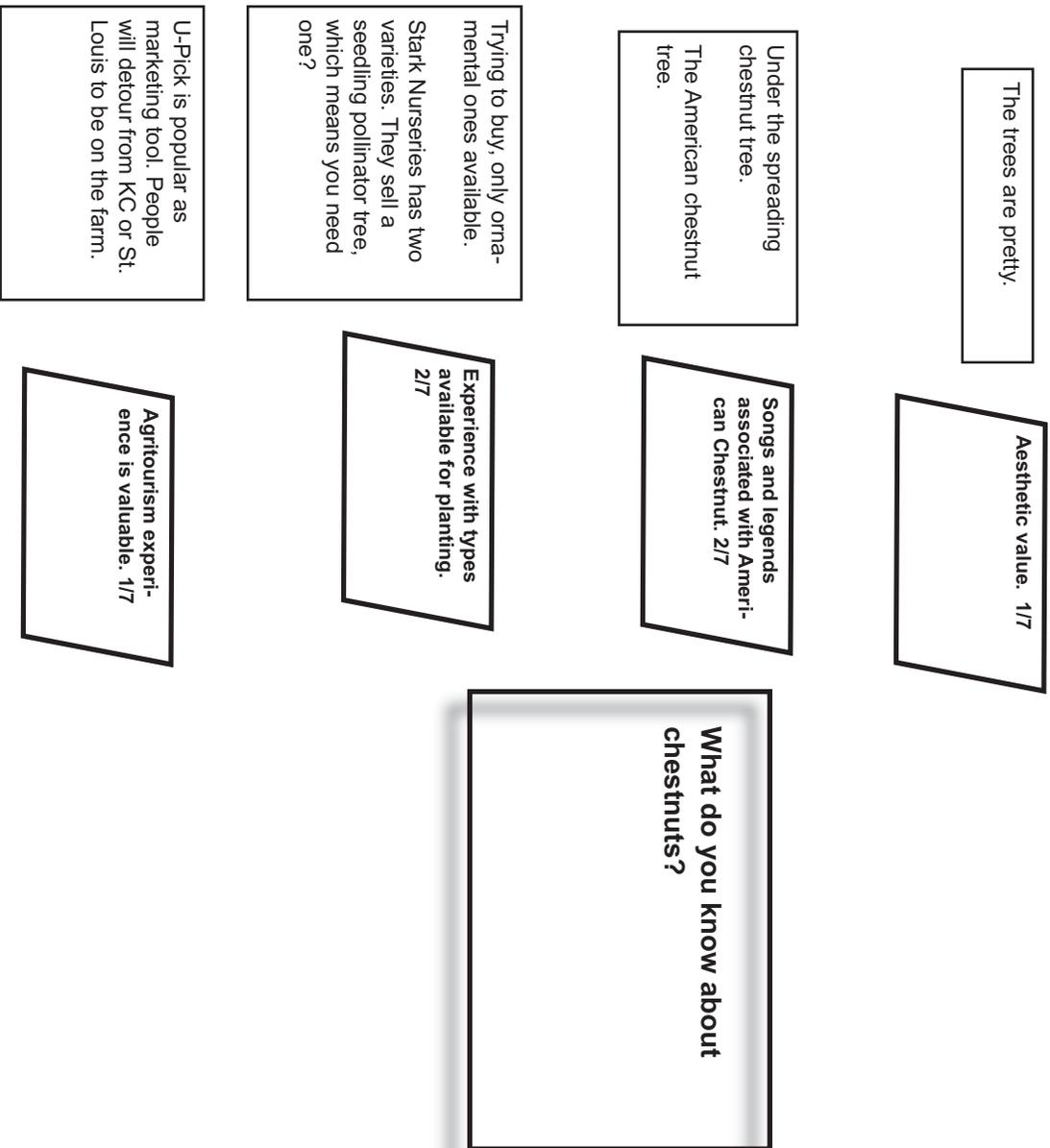
Fig. 5: Focus Groups Question - What Do You Think Of When You Hear the Word "Chestnut?"



**Fig. 6: Focus Groups Question -
What Do You Know about Chestnuts?**

Mt. Vernon

Pleasant Hill



**Fig. 7: Focus Groups Question -
Have You Considered Adding Chestnuts to Your Current Operation?**

Mt. Vernon

Pleasant Hill

Yes, since receiving the materials

We're thinking about pecans, but then I got stuff on chestnuts and thought, "we'll see."

Yes. 2/7

Have you ever considered adding chestnuts to your operation?

**Fig. 8: Focus Groups Question -
Do You Have Any Previous Knowledge About Chestnuts?**

Mt. Vernon

Pleasant Hill

I knew because of information picked up at associational meetings.

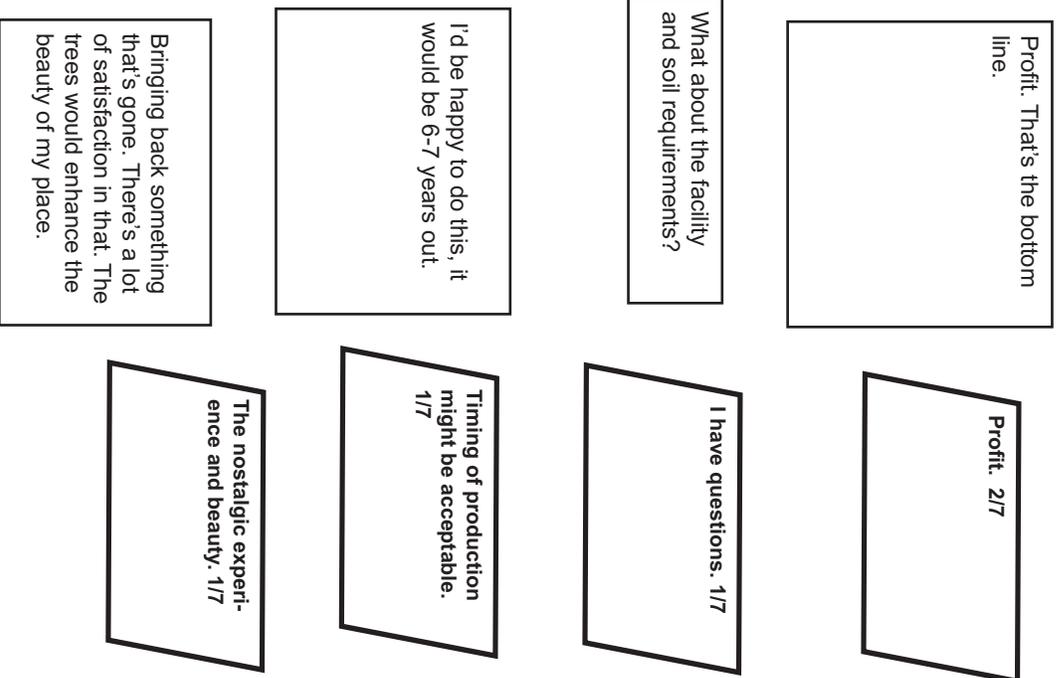
A family member saw them being roasted locally; tried to buy some to sell at a highway stand. There weren't enough. I have a few acres that would be perfect for this.

Yes. 2/7

Do you have any previous knowledge about chestnuts?

Fig. 9: Focus Groups Question - Benefits Perceived to Commercial Chestnut Production

Mt. Vernon



Pleasant Hill

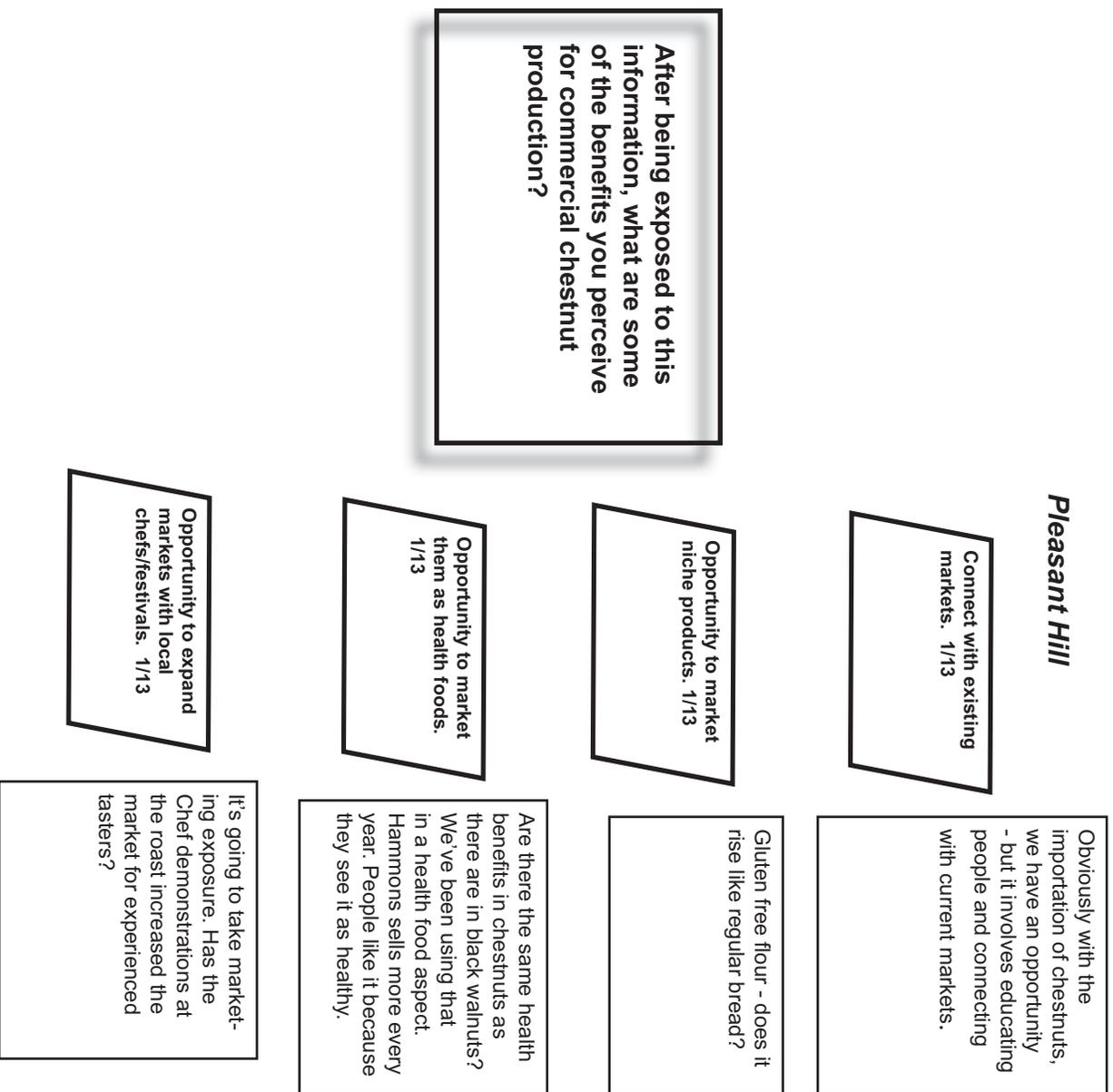


Fig. 10: Focus Groups Question - Willingness to Participate in a Regional Chestnut Festival

Mt. Vernon

Pleasant Hill

We can figure out the growing stuff, but you better cross the growers' groups and approach this as a mix, a growing challenge, to sell things to the public.

Yes. 2/13

We can incorporate chestnuts into existing farm festivals, like apple or walnut festivals.

Let's not put the chestnut festival with another town.

Southwest Center is a wonderful opportunity.

Tough to put in another fall festival. Best to use existing festival, like the black walnut festival.

Not allowed to sell things other than apple butter at the apple butter festival. Festivals can be political. Committee decides.

Neutral. 4/13

Yes, use chestnuts at existing festivals. 4/7

Are you open to a regional festival similar to the chestnut roast?

Has to be some support, some organization for Missouri-grown banners and labels.
 What is out of state market like? Can we connect with other states until a Missouri market develops?
 Is there a Missouri label or Missouri-grown label for chestnuts in Missouri? Go to the state fair, and it's all Mo-grown. Many people there have never tasted a pecan or walnut. They can't get enough. Are we marketing that way?

No. 1/13

See this as an education thing. Until we educate the consumer, we won't have a market.

Black walnuts too, same season. Is pecan later?

Also, paw paws. I would love to grow paw paws.

Let's consider other crops in addition to chestnuts at the same harvest season. 2/7

Concerns about quality/storage at retail level. 3/13

HyVee in Lees Summit has had chestnuts in the fridge for about \$3 a pound. Don't know where they came from. Europe?
 I see them in the produce area just laying out, not in very good shape.

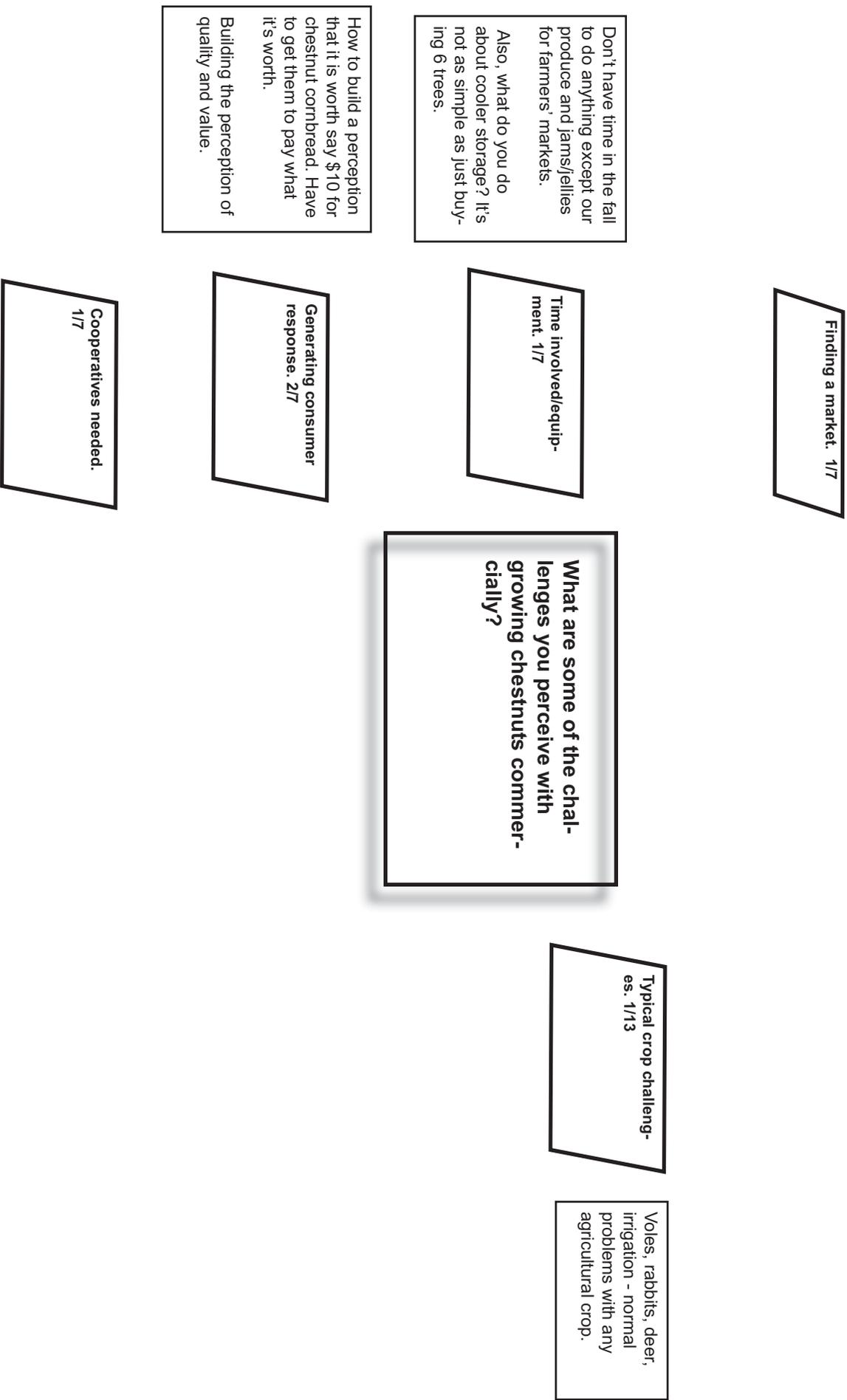
You can have the best product in the world, but if it's not cared for, it's not fit to eat.

Stores don't care. Don't take care at walmart. Fruit is on a hot rack. Needs to be chilled. Lost cause trying to educate stores about keeping fruit refrigerated.

Fig. 11: Focus Groups Question - Challenges to Growing Chestnuts Commercially

Mt. Vernon

Pleasant Hill



**Fig. 12: Focus Groups Question -
What Information Can We Provide to Help You Get Started?**

Mt. Vernon

Pleasant Hill

Who is going to buy? I need a market.

Market information.
1/7

What is the cost, how to get the price down for establishment?

How to reduce cost.
2/13

Do I still have to graft the seedlings?

Grafting information.
1/7

How to grow trees that big in one year (Forrest Keeling?)

Growing rate/schedule.
2/7

Do you plant in the fall?

If you were going to start growing chestnuts tomorrow, what information can we provide that would help you get started?

Best tasting chestnut.
1/13

Which one tastes best?

How important is irrigation? Soil type? Is irrigation essential? How do these trees do in China?

Irrigation and soil type information. 1/7

Which cultivars are suitable for different areas of Missouri?
Information about matching soil types with cultivars.
Rootstock availability - where to get trees and seed.

Cultivar/rootstock information. 4/13

Do you use Roundup or Sevin, what if you don't want pesticides?

Growing organically.
2/7

More information about weevils and growing organically.

Mt. Vernon

it's critical to look at the sites, if you're going to do this and do it right, the site has to be suitable.

I really like guides because I don't choose to be online by choice. Can refer back to the guides.

3, 2, 4, 1. Site visits, workshops/field days, association meetings, informative guides. 2/7

Growers guides first, but keep them periodically updated. I like materials so I can read about what I'm doing. Then follow up with workshops/field tours. Association meetings only if you're talking with people at a single site. Putting minds together.

2, 3, 1, 4. Workshops/field tours, site visits, informative guides, association meetings. 3/7

Chestnut newsletter might be good current information. I learn more from workshops and field tours to see what people have done right and wrong.

I want to go on a field tour to see how it's done. Growers guides are nice because can read when you have time. I hate going to a web site.

2, 4, 1, 3. Workshops/field tours, association meetings, site visits. 1/7

All the stuff coming from agroforestry is still in print, I like that. You can put your hands on it and absorb it. You can't put your hands on the Internet.

3, 2, 4, 1. Site visits, workshops/field tours, association meetings, informative guides. 1/7

Pleasant Hill

Fig. 13: Focus Groups Question - How would you like to receive information from us?

Informative guides, association meetings, workshops/field tours, then site visits. (1,4,2,3) 4/13

There's a lot of informative guides out there now. Cultiivar info, etc., is already listed. Actually informative guides is a mute point. Guides should be available everywhere at all events. Informative guides should be available everywhere - any workshop, site visit or association meeting you ought to be able to get a guide.

Workshops/field tours, site visits, then association meetings. (2, 3, 4) 2/13

Visiting other growers is the best way to learn anything, if there are any sites to visit, right now, seems like it's just HARC.

I'm not interested in association meetings.

There's so much informative guide stuff available to us, I don't think I'm looking for any more guides or printed information, other than what has been presented to us.

How would you like to receive information from us about growing or marketing chestnuts? 1= Informative guides, 2= workshops/field tours, 3=site visits, 4=association meetings.

Fig. 14: Focus Groups Question - Advice to Us

This is the first of our chestnut growers' discussions. We're planning to hold several more over the coming weeks. What advice do you have for us?

- Have signs (better direction to the door to enter)
 - "It was great, because, the information I've seen so far ... I've read it all, so any additional info is nice and nice to know you guys are supporting and helping and looking further into this."
 - "Pushing your chestnut roast is the quickest way to get the info out to everybody, let them taste them to see what they like, then they'll be interested in buying."
 - have chestnut roast "babies." Organize four festivals in October around the state, concentrate on other growers.
 - If it's in October, have four of them – Col, KC, SL < Springfield, would be the way to jumpstart this thing. You have to get to the consumers. Maybe in 5 years, there'll be something produced. If we all start planting now, by the time they get to production, people have had enough information that they will be ready to buy."
 - We have to fight a mindset that if it's local grown it can't possibly be as good as what comes in from Calif., Europe or somewhere else."
 - If we have homegrown peaches or sweet corn, that's what sells, the fact that it is local.
 - But look at wines, they have had a hard start, but they've gotten better.
 - Still, locally grown is our selling point for fresh fruits and vegetables.
 - Chestnuts aren't known though. Tomatoes are known.
 - Probably 5000 people come to the tomato festival in KC.
- The challenge, even with tomato, you still bring in different varieties and different options and at the same time they're doing tomatoes, they have jams and jellies and fall activities. You need to be part of puzzle. You all realize that you're not just doing chestnuts in Columbia. You have elk, wineries, you're selling fall which chestnuts are apart of. The issue is that is has to be part of a bigger draw.
 - Santa Catala Gon celebration draws 250K in 3 day weekend. If there was a consortium of people with products who could cooperate together on a booth or double booth that might do for a chestnut roast, initially.
 - It's probably the biggest thing in the KC area. It's in Independence, Labor Day weekend.
 - Or, the Missouri State Fair.
 - With all due respect, the state fair doesn't drive local market. A lot of those people have no connection to central Mo and then they go home. What you want to do is have a festival where people can come back the next weekend and the next and there's chestnuts. It's a one time event. I won't drive back to Sedalia to buy chestnuts. I would think you want chestnuts in areas where you can develop the market. The fair is not a market driven opportunity.
 - Teach them about chestnuts then make them available where they live.

**Fig. 15: Focus Group Question -
Interest in Participating in Additional Focus Groups**

Mt. Vernon

Pleasant Hill

Try to get more growers together. I hate meetings, but I like getting together with other growers for field tours. There has to be a happy medium, a time for all of us to communicate.

Yes - 2/7

Would you be interested in participating in more in depth or hands on focus groups addressing challenges/opportunities in the future?

Would you have us back??

Neutral - 1/7

Fig. 16: Qualitative Responses from Literature Survey, Grower's Guide

Leave in all the orchard planning info.

Not much to change. I like the event calendar. I will probably add my own notes as I learn things.

Would not change orchard planning information. 2/9

The guide is put together well. I would not change anything.

It seems to cover the basics.

I like the comprehensive overview of the varied topics in chestnut production.

Would leave it as-is. 3/9

More information about tree varieties/sources

Grafted trees are recommended but said to be "difficult to obtain". That suggests you need scion wood of recommended cultivars, but I found no information about how to get scion wood.
More information about frost tolerance and burr problems in relation to variety selection
Maybe a little more detail on growing from seed. The steps/processes to create a quality seedling tree and more detail on grafting of chestnuts.

What things would you not change about the grower's guide?

More information about cost of establishment.

P.3. Maybe a relatively current price list say the year before. I know it would help people, you know, prospective growers figure out their start up cost: grafted as to opposed to seedlings.
Maybe a realistic cost breakdown on fencing, irrigation & establishment of different signs of orchard

What things would you change about the growers' guide?

Associational information.

It might be in the guide and I just missed it, but how about something concerning the MO Nut Growers Association?

Technical growers' information.

A lot of information is provided on hedgerow style cultivation, but it is said to be "unproven in Missouri". That leaves a new grower wondering whether or not it's what he should try.

Figure 3. I have a little trouble figuring out the orientation of the modern tree shape (current in Japan today). What is its orientation to the row or the sun.

P.7, Fertilization. Maybe some brand names. I have found out that being a hobbyist small amount of N can be difficult to get by itself. Buying Fruit & Nut tree fertilizer is not cheap.

Fig. 17: Qualitative Responses from Literature Survey, Marketing Analysis

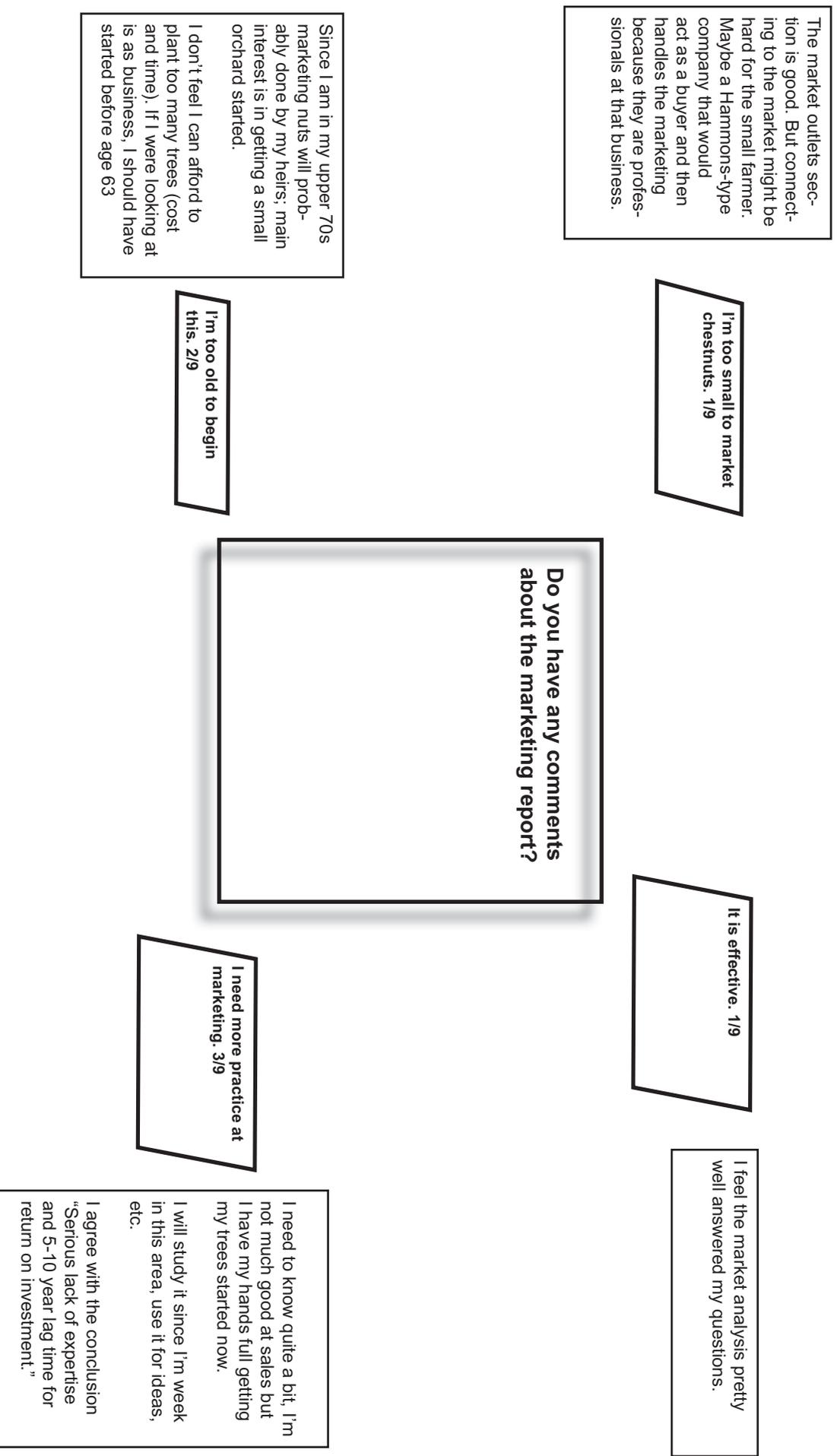
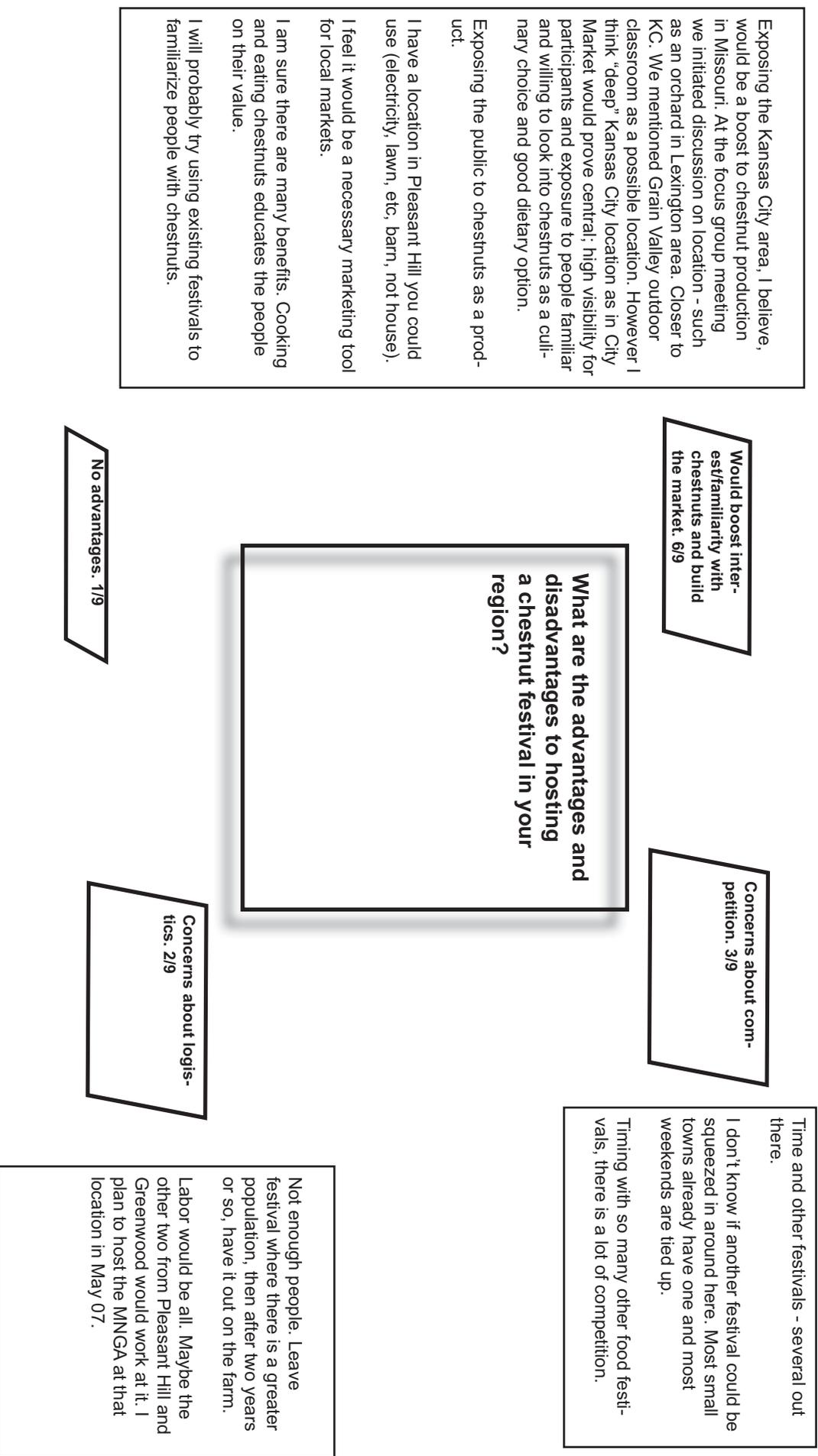
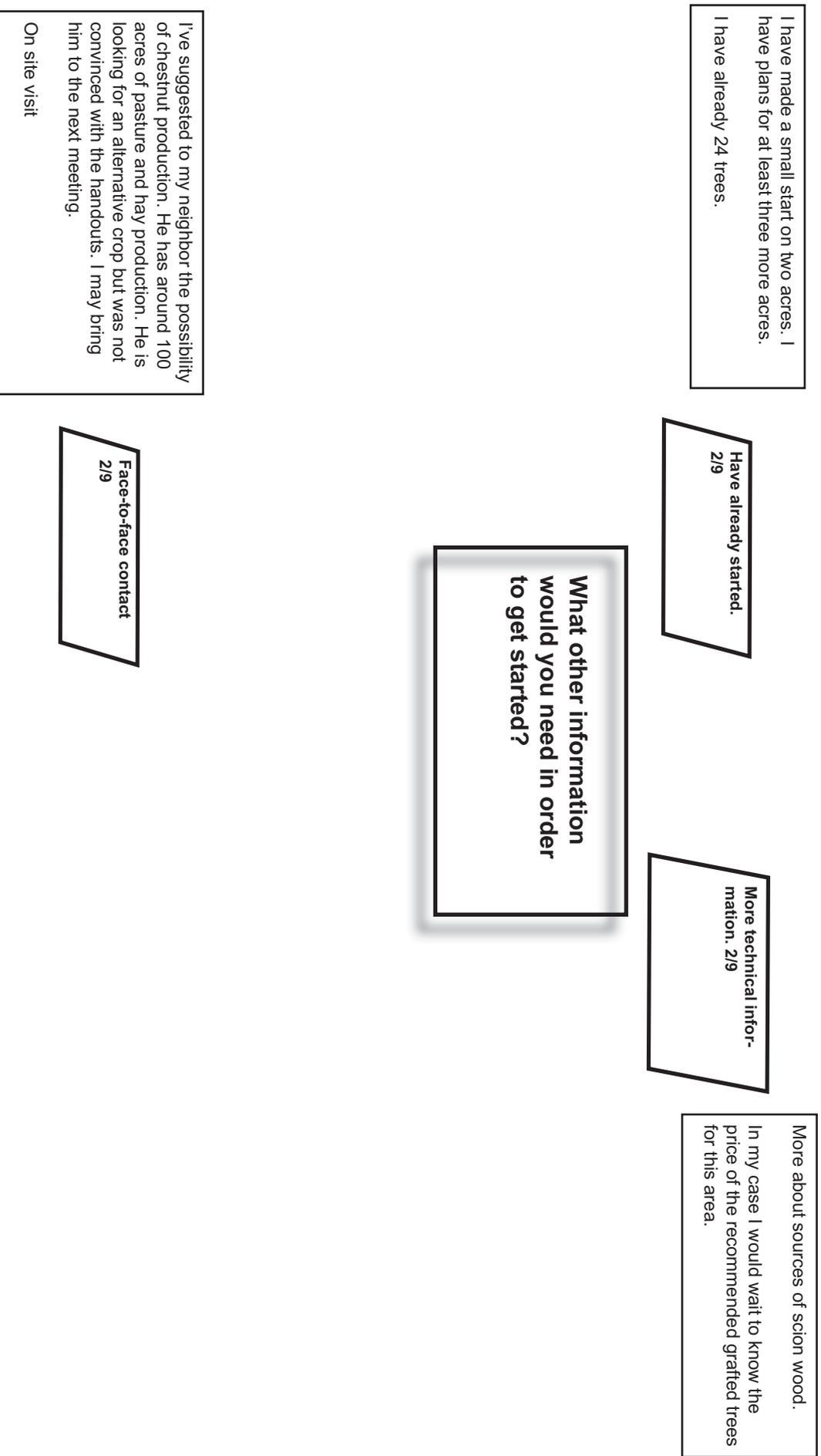


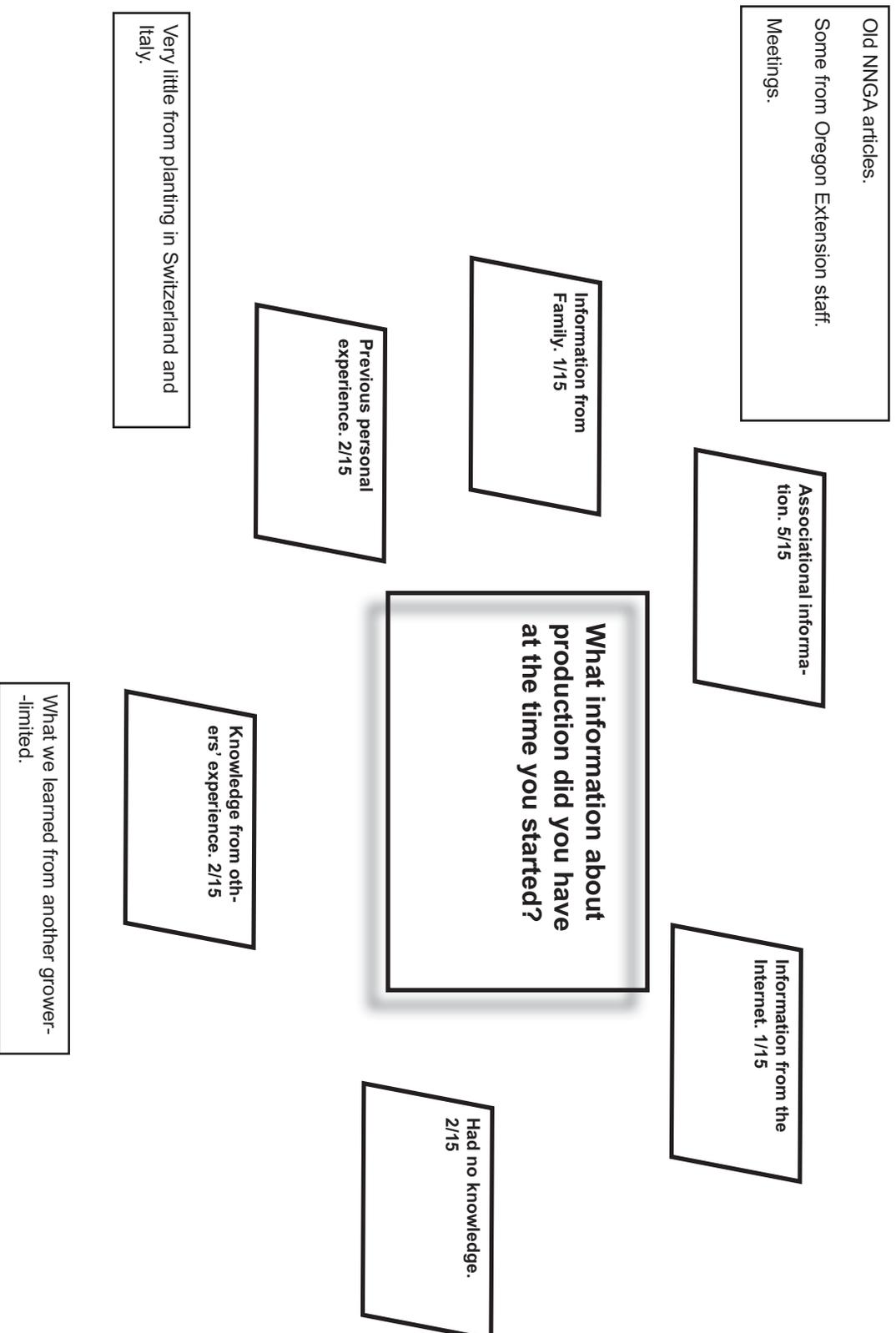
Fig. 18: Qualitative Responses from Literature Survey - Interest in Regional Chestnut Festival



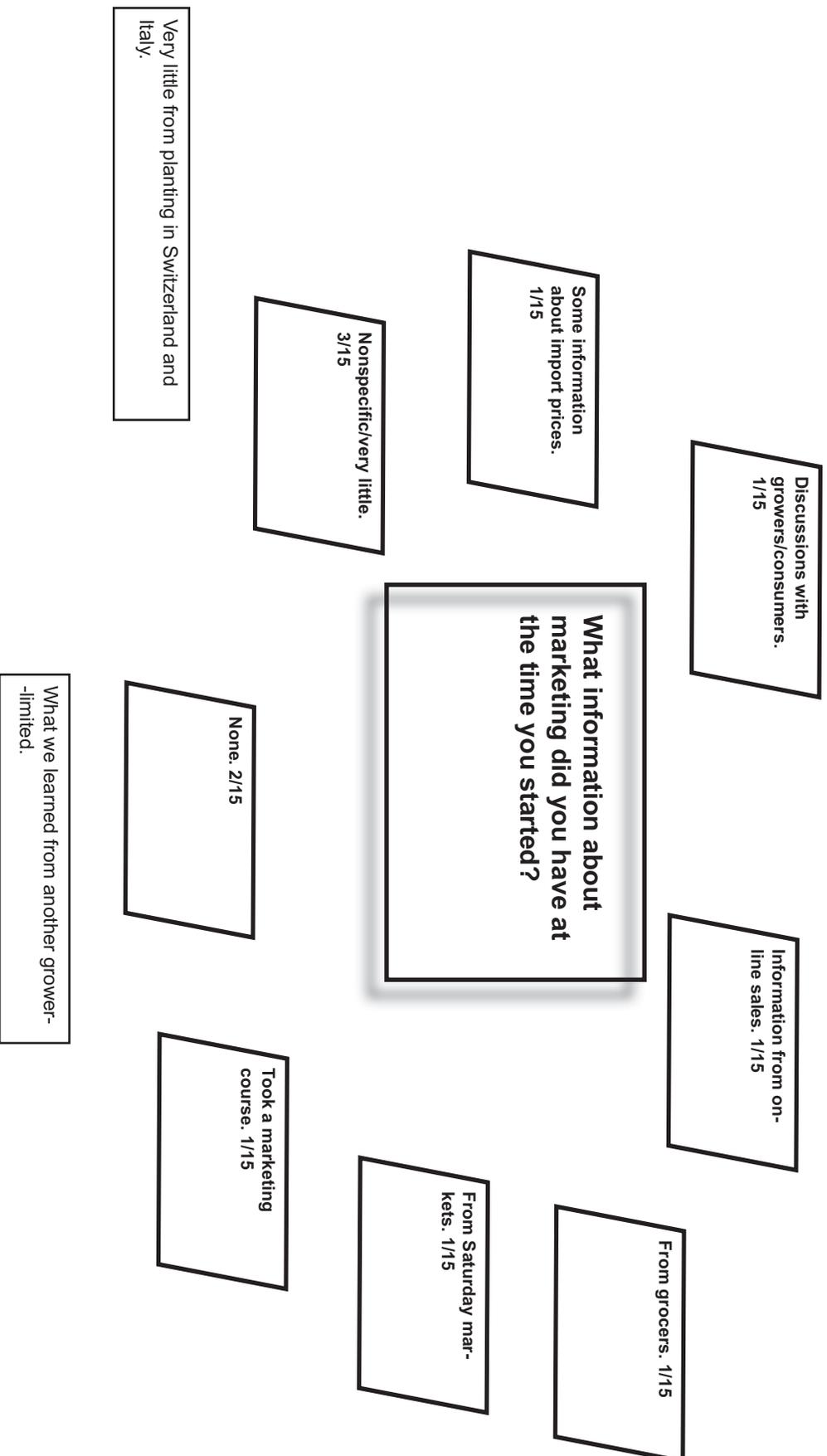
**Fig. 19: Qualitative Responses from Literature Survey -
Information Needed to Start Establishing Chestnuts**



**Fig. 20: Existing Growers Survey -
Production Information Used at Orchard Establishment**



**Fig. 21: Existing Growers Survey -
Marketing Information Used at Orchard Establishment**



**Fig. 22: Existing Growers Survey -
Sources for Marketing Information**

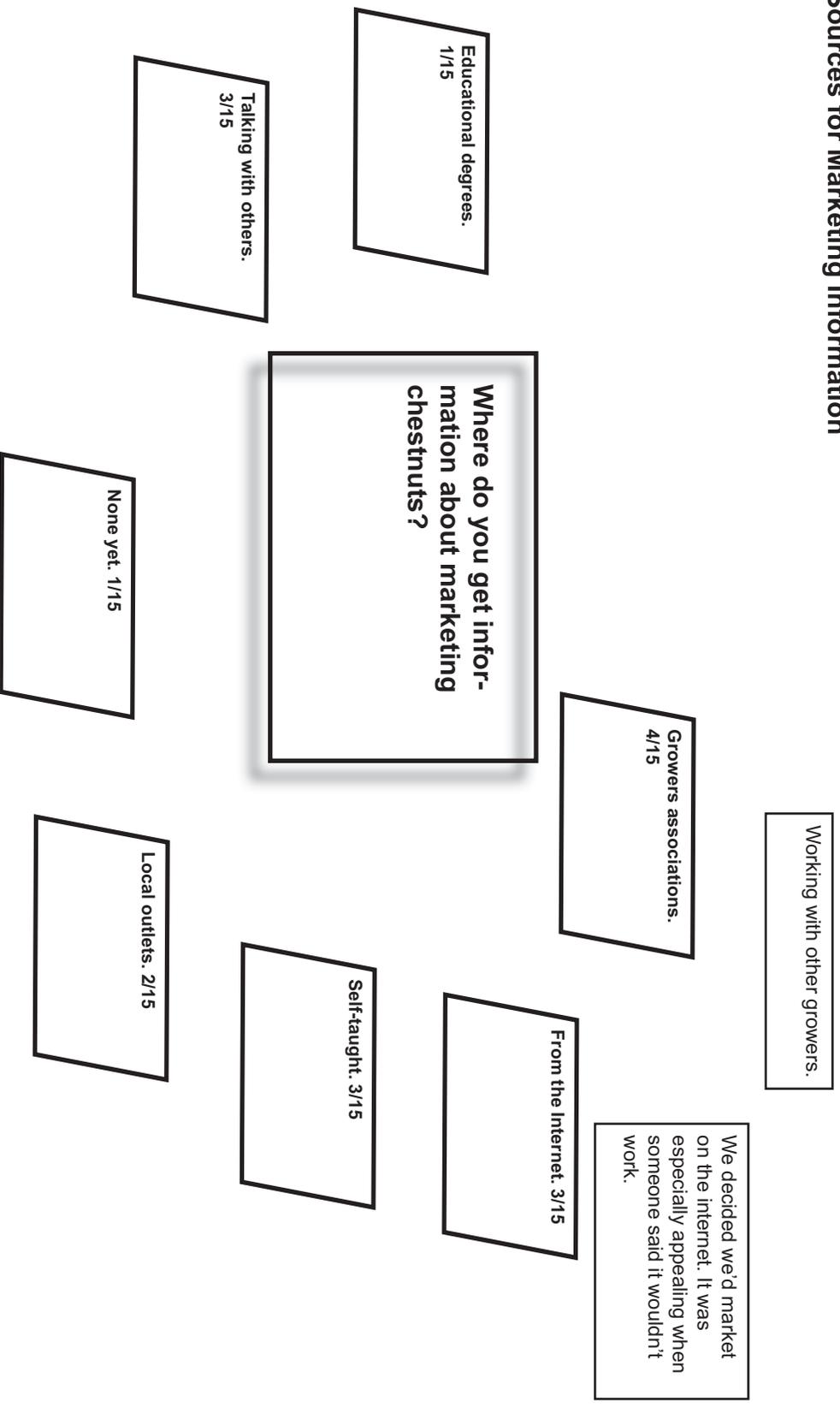


Fig. 23: Existing Growers Survey - Challenges to Planting/Managing

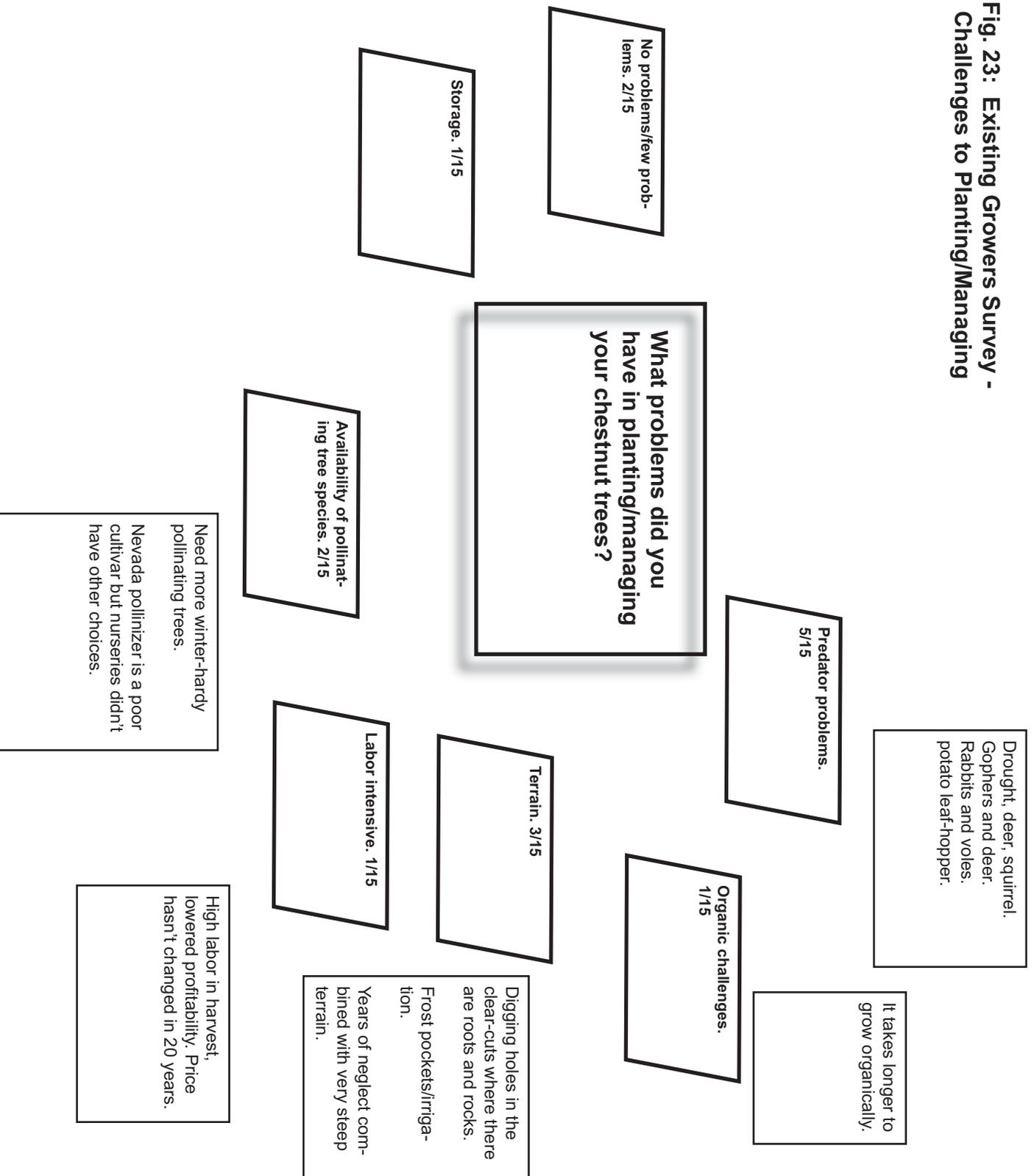


Fig. 24: Existing Growers Survey - Challenges to Marketing the Crop

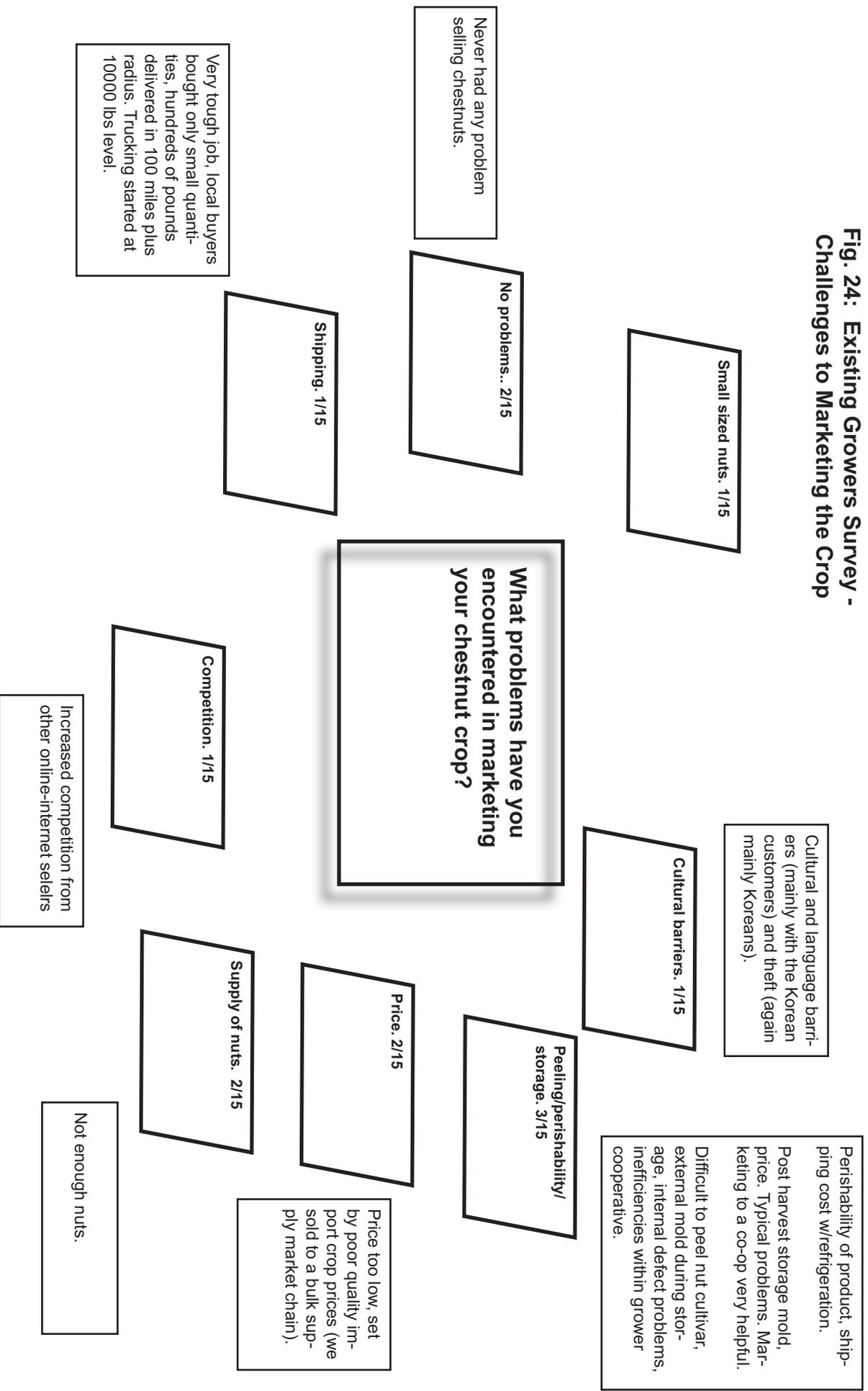
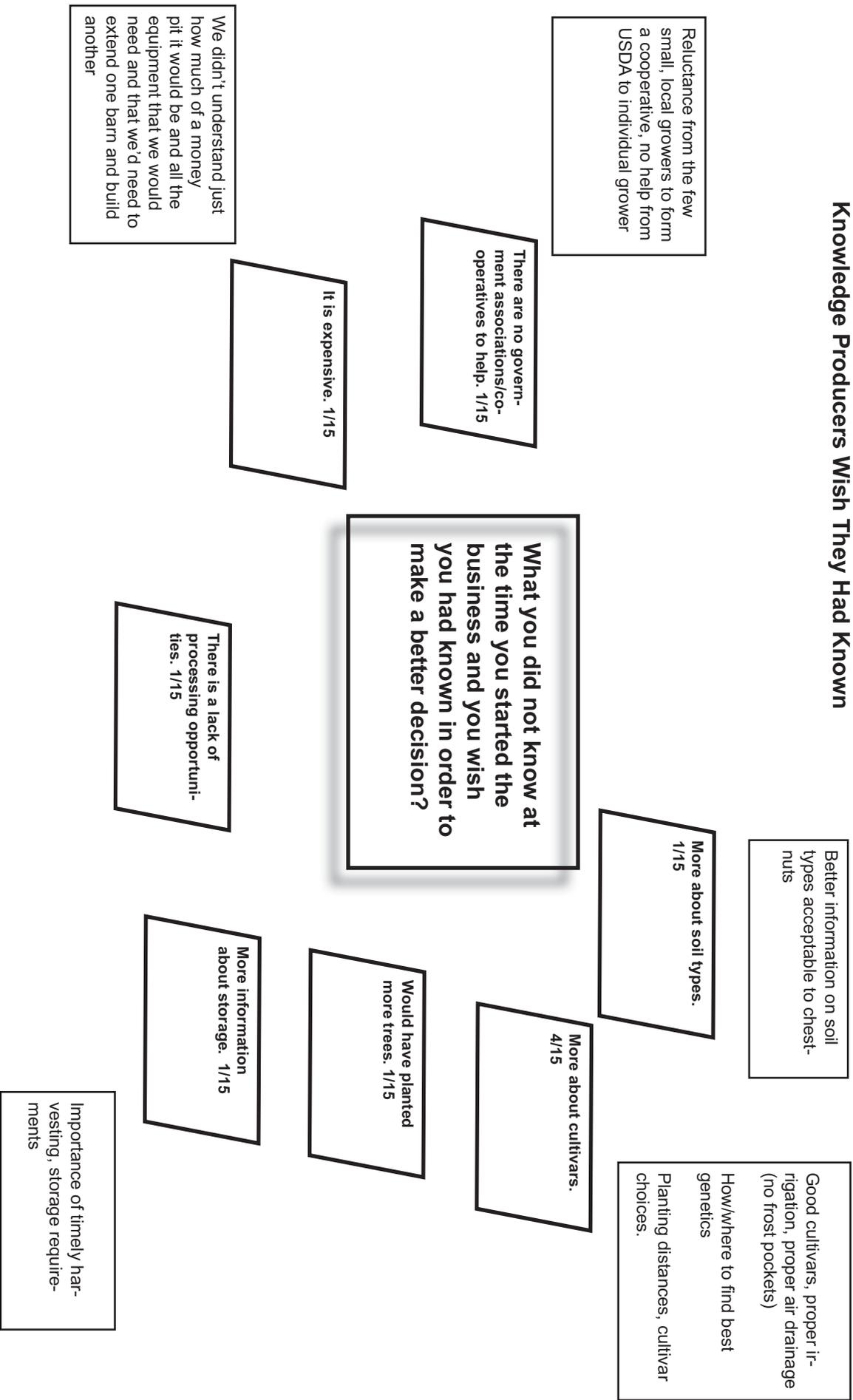


Fig. 25: Existing Growers Survey - Knowledge Producers Wish They Had Known



Appendix C:

**Fig. 26: Focus Group questions and answers.
Fig. 27: Information sources used by existing producers.**

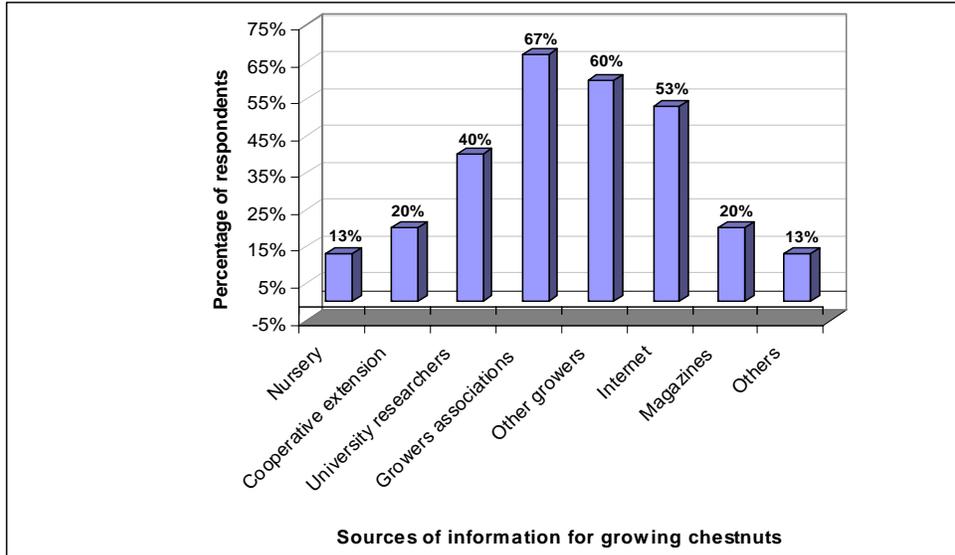
Fig. 26 – Responses to Focus Groups Questions			
Question 2: What was the most valuable information that helped you or your family get started?			
Mt. Vernon	# of responses	% of participants	
Knowledge from associations/organizations	2/7	29%	
Personal experience.	2/7	29%	
Orchard was already there.	2/7	29%	
Market knowledge.	2/7	29%	
Pleasant Hill	# of responses	% of participants	
Knowledge from associations/organizations	3/13	23%	
Someone I knew.	3/13	23%	
Personal experience.	3/13	23%	
Printed literature.	2/13	15%	
None was available.	1/13	8%	
School or workshop.	1/13	8%	
Question 3: What are some lessons you have learned about selling or growing apples or peaches (or nuts) that you didn't know at the beginning?			
Mt. Vernon	# of responses	% of participants	
Utilize existing markets.	3/7	43%	
Build quality reputation.	3/7	43%	
Study the marketplace.	1/7	15%	
Pleasant Hill	# of responses	% of participants	
Site adaptability is critical.	4/13	31%	
Research the varieties.	2/13	15%	
Plant nuts instead of trees.	1/13	8%	
Question 4: What do you think about diversifying your production?			
Mt. Vernon	# of responses	% of participants	
Consider labor limits/resource availability.	4/7	57%	
Link with consumer education.	2/7	29%	
Diversification is a good thing.	1/7	14%	
Do it on a cooperative basis.	1/7	14%	
Pleasant Hill	# of respondents	% of participants	
Diversification is a good thing.	2/13	15%	
Consider labor limits.	1/13	8%	

Question 5: What do you think of when you hear the word “chestnut”?			
Mt. Vernon	# of responses	% of participants	
Challenges with exterior appearance.	4/7	57%	
Lack of awareness/availability.	4/7	57%	
Familiar with chinkapins.	3/7	43%	
An agritourism experience.	2/7	29%	
Not familiar with the appearance.	1/7	14%	
Pleasant Hill	# of responses	% of participants	
Not known by consumers.	6/13	46%	
Need more growers.	3/13	23%	
Build markets with festivals.	3/13	23%	
Issues with pesticides.	1/13	8%	
The song.	1/13	8%	
Growers’ cooperatives are needed.	1/13	8%	
Question 6: What do you know about chestnuts?			
Mt. Vernon	# of responses	% of participants	
Songs and legends.	2/7	29%	
Experience with types available for planting.	2/7	29%	
Agritourism experience is valuable.	1/7	14%	
Aesthetic value of the trees.	1/7	14%	
Question 7: Have you ever considered adding chestnuts to your current operation?			
Mt. Vernon	# of responses	% of participants	
Yes, since receiving the materials	2/7	29%	
Question 8: Do you have any previous knowledge about chestnuts?			
Mt. Vernon	# of responses	% of participants	
Yes, from associational meetings or people I know.	2/7	29%	
Question 9: After being exposed to this information, what are some of the benefits you perceive for commercial chestnut production?			
Mt. Vernon	# of responses	% of participants	
Profit.	2/7	29%	
Timing of production might be acceptable to me.	1/7	14%	
Nostalgic experience and beauty.	1/7	14%	
Can’t say right now, I have questions.	1/7	14%	

Pleasant Hill	# of responses	% of participants	
Can connect with existing markets.	1/13	8%	
Can market niche products.	1/13	8%	
Can market as health foods.	1/13	8%	
Can expand markets with local chefs and festivals.	1/13	8%	
Question 10: Are you open to a regional festival similar to the Missouri Chestnut Roast?			
Mt. Vernon	# of responses	% of participants	
Yes, but use existing festivals.	4/7	57%	
Let's consider other crops in addition to chestnuts.	2/7	29%	
Pleasant Hill			
Pleasant Hill	# of responses	% of participants	
Neutral.	4/13	31%	
No, have to educate consumers first.	1/13	31%	
I have concerns about quality/storage at retail level.	3/13	23%	
Yes, I am interested, but want your assistance.	2/13	15%	
Question 11: What are some of the challenges you perceive with growing chestnuts commercially?			
Mt. Vernon	# of responses	% of participants	
Generating consumer response.	2/7	29%	
Time involved/equipment.	1/7	14%	
Cooperatives are needed.	1/7	14%	
Finding a market.	1/7	14%	
Pleasant Hill			
Pleasant Hill	# of responses	% of participants	
Voies, rabbits, deer, irrigation – typical problems with any crop.	1/13 (group agreed unanimously)	8%	
Question 12: If you were going to start growing chestnuts tomorrow, what information can we provide to help you get started?			
Mt. Vernon	# of responses	% of participants	
Growing rates/schedule.	2/7	29%	
Growing organically.	2/7	29%	
Market information.	1/7	14%	
Grafting information.	1/7	14%	
Irrigation and soil type.	1/7	14%	
Pleasant Hill			
Pleasant Hill	# of responses	% of participants	
Cultivar/rootstock information.	1/13	31%	
How to reduce cost.	1/13	15%	
Best tasting chestnuts.	1/13	8%	

Question 13: How would you like to receive information from us about growing or marketing chestnuts? (most common response listed below)			
Mt. Vernon	# of responses	% of participants	
Workshops or field tours first. Association meetings are ranked second.	4/7	57%	
Pleasant Hill	# of responses	% of participants	
Informative guides first, then association meetings ranked second.	6/13	46%	
Question 14: This is the first of our chestnut growers' discussions. What advice do you have for us?			
Comments:			
<ul style="list-style-type: none"> • Have signs (better direction to the door to enter) • It was great, because, the information I've seen so far ... I've read it all, so any additional info is nice and nice to know you guys are supporting and helping and looking further into this. • Pushing your chestnut roast is the quickest way to get the info out to everybody, let them taste them to see what they like, then they'll be interested in buying. • We have to fight a mindset that if it's local grown it can't possibly be as good as what comes in from Calif., Europe or somewhere else. • If we have homegrown peaches or sweet corn, that's what sells, the fact that it is local. • Look at wines, they have had a hard start, but they've gotten better. • Chestnuts aren't known though. Tomatoes are known. • Probably 5000 people come to the tomato festival in KC. • The challenge, even with tomato, you still bring in different varieties and different options and at the same time they're doing tomatoes, they have jams and jellies and fall activities. You need to be part of puzzle. You all realize that you're not just doing chestnuts in Columbia. You have elk, wineries, you're selling fall which chestnuts are apart of. The issue is that is has to be part of a bigger draw. • Santa Cala Gon celebration draws 250K in 3 day weekend. If there was a consortium of people with products who could cooperate together on a booth or double booth that might do for a chestnut roast, initially. • With all due respect, the state fair doesn't drive local market. A lot of those people have no connection to central Mo and then they go home. What you want to do is have a festival where people can come back the next weekend and the next and there's chestnuts. It's a one time event. I won't drive back to Sedalia to buy chestnuts. I would think you want chestnuts in areas where you can develop the market. The fair is not a market driven opportunity. • Teach them about chestnuts then make them available where they live. 			
Question 15: Would you be interested in participating in more in-depth or hands-on focus groups addressing challenges/opportunities in the future?			
Mt. Vernon	# of responses	% of participants	
Yes, get more growers together.	2/7	29%	
Would you have us back? (A neutral response.)	1/7	14%	

Fig. 27: Sources of information used by existing growers



**Appendix D:
The Instruments (IRB approved)**

- *Focus Groups Protocol (questions)*
- *Literature Survey for Focus Groups Participants*
 - *Survey for Existing Producers*

Focus group study for potential chestnut producers

Focus group protocol (questions)

Hosted by: University of Missouri Center for Agroforestry

Background

University of Missouri Center for Agroforestry (UMCA) has been working to establish a viable chestnut industry since 1996, focusing its efforts on three key areas: national market research, production techniques/orchard management and increasing consumer demand and awareness. The long term objective is to change the image of chestnuts from that of a holiday tradition to a healthy year round food. The outcome of this effort will be an active program that reaches out to potential producers and establishes a multi-million dollar chestnut industry within the state of Missouri and surrounding states.

Missouri soils and climate are excellent for production of the Chinese varieties of the chestnut, which can be planted in an orchard or alley cropping practice. In addition, research shows that productive apple and peach ground is also productive chestnut ground. Two areas, rich in apple/peach orchards (Lexington, MO and Springfield, MO) were selected due to current landowner and orchard-manager potential to understand the intricacies of orchard production, especially because fruit tree management is similar to chestnut orchard management. These groups of growers in the Lexington and Springfield areas are those most likely to be in a position to diversify farming into chestnuts in the near future. Members of the Missouri Nut Growers' Association were also invited, who live near these areas. Ultimately, the project would lead the Center to acquire an interested landowner base of potential chestnut growers to work with in coming years.

Goal: To find out state of orchard growers' knowledge and interest level toward growing chestnuts, and to determine what types of communication or strategies would be most effective toward encouraging implementation of chestnut orchards.

Description of the participants: Active apple/peach growers in the Lexington and Springfield Missouri areas.

Informed consent: A consent form will be mailed with the invitation letter to potential participants. The consent form will be mailed to us signed, before the focus group or brought by participants signed in the day the focus group will be held.

Recruitment of participants:

A first letter will be sent to potential participants only to inform them about the study and mail them information about chestnuts. Three weeks prior to focus group an official invitation letter, a background survey and a consent form will be sent to the same potential participants. We'll follow up the invitation letter with a phone call, approximately 5 days later. A reminder postcard will be sent to agreeing participants, one week prior to event. We'll send email or phone call 2 days prior to event as last-minute reminder.

Description of the focus group: The participants and the facilitator will sit around a table for discussion. The moderator will begin the meeting by introducing the Center for

Agroforestry, explain the importance of chestnuts to the Center's research and the excellent potential of chestnuts in Missouri. The focus group will continue with questions based on the discussion guide. The focus group meeting will last between 90 and 120 minutes. It will be tape-recorded. At the end of the discussion, participants will receive a package with chestnut literature and a short evaluation survey to be mailed back completed after the review of the literature.

Scheduling the focus group: The focus groups will be held in early January of 2007, at a community center or public meeting place.

Focus group discussion guide: The following questions will provide the framework for the focus group discussion. While questions that are not listed here may be asked in order to follow up on participant responses, the focus group discussion will center on these main questions.

Opening questions (10 minutes)

- State your name, city of your apple or peach operation, do you grow anything else besides peaches and apples, what do you like to do most besides growing peaches (apples)?

Introductory questions (20 minutes)

- Think back to when your orchard was first started. What was the most valuable information that helped you or your family (first owner) get started?
- What are some lessons you have learned about growing apples or peaches that you didn't know at the beginning?
- What are some lessons you have learned about selling or marketing these crops that you didn't know at the beginning?
- What do you think about diversifying your production (growing other types of orchard trees)?

Transition questions (10 minutes)

- What do you think of when you hear the word "chestnut"?
- What do you know about chestnuts?
- Have you ever considered adding chestnut orchards to your current operation?

At this time, we will provide you some information about growing, marketing and promoting chestnuts. (15 minutes)

- *Short presentation of the growing guide (the key points)*
- *An "FAQ" sheet on chestnuts*
- *Short presentation of findings of the marketing research*
- *Short presentation of the Chestnut Roast Festival (short video clip)*

We will hand out more information about all of these at the end of the session. You can take them home for review. Enclosed you'll find a short questionnaire. Please return it to

us in the enclosed envelope. We would like to know your opinion after you will carefully examine the materials.

Key questions (40 minutes)

- After being exposed to this information, what are some of the benefits you anticipate with commercial chestnut production?
- What are some of the challenges you perceive with growing chestnuts commercially?
- What are some of the advantages you perceive on selling chestnuts?
- What are some of the challenges you perceive on selling chestnuts?
- If you were going to begin growing chestnuts tomorrow, what information can we provide that would help you get started?
- Based on what you've learned so far, suppose that you were trying to encourage a friend who is also growing apples or peaches to start planting chestnuts. What would you say?
- How would you like to receive this information (one on one, through informative guides, hands-on growers' workshops, field days) Please rank your choices in order of preference.

Final question (5-10 minutes)

- This is the first of our chestnut growers' discussions. We're planning to hold several more over the coming weeks. What advice do you have for us?
- Would you be interested in participating in an additional focus group for growers who are seriously considering planting chestnuts? This would be a more in-depth discussion of how we can meet your needs.

Note: Follow-up questions will be asked, when appropriate, to gather further information.

Debriefing

I would like to thank you for your participation. I also want to restate that what you have shared with me is confidential. No part of our discussion that includes names or other identifying information will be used in any reports, displays, or other publicly accessible media coming from this research. Finally, I want to provide you with a chance to ask any questions that you might have about this research. Do you have any questions for me?

Focus group study for potential chestnut producers

Chestnut literature survey

Thank you for participating in our focus group. The information you provided is very valuable to us. We hope that we caught your interest in finding more about chestnut cultivation and marketing. Enclosed you will find some materials for you to review. Please read them and answer the following questions:

Questions about the guide “**Growing Chinese chestnuts in Missouri**”

Please evaluate the following statements regarding the guide “Growing Chinese chestnuts in Missouri”:

	Strongly agree	Agree	Neither	Disagree	Strongly disagree
The guide is useful	<input type="checkbox"/>				
The guide is well written	<input type="checkbox"/>				
The guide is easy to understand	<input type="checkbox"/>				
The guide is comprehensive	<input type="checkbox"/>				
The guide has good content	<input type="checkbox"/>				
The guide is practical	<input type="checkbox"/>				
The guide is a good resource	<input type="checkbox"/>				

What things would you not change about the grower’s guide?	
What things would you change about the grower’s guide?	
What else should be included in the guide?	
Do you feel encouraged to plant chestnuts after reading this guide?	<input type="checkbox"/> yes <input type="checkbox"/> no
Would you recommend the guide to other growers?	<input type="checkbox"/> yes <input type="checkbox"/> no

Questions about the marketing research report “**Chestnut market analysis**”:

Does the information presented in the marketing report affect your interest level in growing Chinese chestnuts?	<input type="checkbox"/> yes <input type="checkbox"/> no
What else would you like to know about marketing chestnuts?	
Do you feel encouraged to plant chestnuts after reading this market report?	<input type="checkbox"/> yes <input type="checkbox"/> no
Do you have any other comments about the marketing report?	

Questions about the **Missouri Chestnut Roast festival video**

Does this video affect your interest level in growing Chinese chestnuts?	<input type="checkbox"/> yes <input type="checkbox"/> no
Would you consider possible the organization of a chestnut festival in your area?	<input type="checkbox"/> yes <input type="checkbox"/> no
What would be the benefits toward hosting a Chestnut festival in your region?	
What would be the disadvantages to a chestnut festival in your region?	

In conclusion,

Would you start planting chestnuts?	
<input type="checkbox"/> yes for hobby	<input type="checkbox"/> yes, commercially <input type="checkbox"/> no
What other information do you need in order to get started?	
Would you agree to participate in a follow up focus group for growers seriously interested in planting chestnuts?	<input type="checkbox"/> yes <input type="checkbox"/> no

Questions about the guide “Why Chestnuts?” Nutritional Guide

Please evaluate the following statements regarding the guide “Why Chestnuts?”:

	Strongly agree	Agree	Neither	Disagree	Strongly disagree
The guide is useful	<input type="checkbox"/>				
The guide is well written	<input type="checkbox"/>				
The guide is easy to understand	<input type="checkbox"/>				
The guide is comprehensive	<input type="checkbox"/>				
The guide has good content	<input type="checkbox"/>				
The guide is practical	<input type="checkbox"/>				
The guide is a good resource	<input type="checkbox"/>				

What things would you not change about the nutrition guide?	
What things would you change about the nutrition guide?	
What else should be included in the guide?	
Do you believe customers would be encouraged to try chestnuts after reading this guide?	<input type="checkbox"/> yes <input type="checkbox"/> no
Would you recommend this guide to customers, if you were selling chestnuts at your orchard?	<input type="checkbox"/> yes <input type="checkbox"/> no

Focus group study for potential chestnut producers
Existing growers interview

Company:..... **Contact:** **Phone:**.....

1. General questions about the existing chestnut operation

1.1. What kinds of chestnuts do you grow?

- Seedling From which cultivars?
- Cultivar(s)

1.2. In which activities are you involved? (Check all that apply)

- Sell chestnut seeds
- Produce and sell seedlings
- Produce and sell grafted cultivars
- Sell fresh chestnuts
- Sell gift packs
- Distributor for other growers
- Produce and sell value added products:
 - Frozen chestnuts
 - Dried chestnuts
 - Cooked chestnuts, vacuum packed
 - Chestnut soup mix
 - Chestnut jam, jellies, preserves
 - Chestnut honey
 - Chestnut puree (paste)
 - Chestnut flour
 - Other
- Sell chestnut related products (roaster, knife, mug, cap)
.....
- Other

1.3. Is farming for you a:

- Full time occupation Part time occupation Hobby

1.4. What percentage of your time do chestnuts represent from your farming business?

- Less than 25%
- 25-50 %
- 50- 75 %
- 75 – 100%
- 100%

1.5. How large is your chestnut production operation?

How many acres?

How many trees/acre

Age(s) of trees

1.6. What is your approximate annual gross sales figure from chestnuts?

- Less than \$5,000
- \$5,000 - \$25,000
- \$25,000 - \$50,000
- \$50,000 - \$100,000
- \$100,000 - \$500,000
- \$500,000 - \$1 mill.
- \$1 mill. - \$5 mill.
- More than \$5 mill.

1.7. What percentage does this represent from your total gross annual sales? %

1.8. Is your production:

- Conventional Pesticide free Certified organic

2. Questions related with the beginning of the chestnut operation

2.1. When was your chestnut orchard established?

.....

2.2. How long have **you** had the orchard?

.....

2.3. How did you obtain the capital to plant chestnut trees?

- Self financed
- Bank loans
- Partners
- Incentive programs

Which incentive program(s)?

2.4. What information did you have at that time (when you first started)?

About production

.....

.....

About marketing

.....

.....

2.5. Where do you get your information about growing chestnuts?

- Nursery
- Cooperative Extension
- University Researchers
- Growers association
- Other growers
- Internet
- Magazine
- Other

2.6. Where do you get your information about marketing chestnuts?

.....

.....

2.7. What were your reasons for planting the chestnut trees?

.....
.....
.....

2.8. How have your goals regarding the chestnut trees you planted changed over time?

.....
.....

2.9. Are you interested in planting more chestnut trees?

- Yes
- No

2.10. What problems did you have in planting/managing your chestnut trees?

.....
.....
.....

2.11. What problems have you encountered in marketing your chestnut crop?

.....
.....
.....

2.12. What you did not know at the time you started the business and you wish you had known in order to make a better decision?

.....
.....
.....

2.13. Would you start again?

- Yes
- No

Why yes? Why no?

.....
.....

2.14. What advice would you give to a friend who is just starting to plant chestnut trees?

.....
.....
.....