

Track Five

Alternative Enterprises

The Small Farms Industry Clusters (SFIC) Project

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Researchers, development professionals and policy makers increasingly recognize that industry clusters are critical to regional development and competitiveness. However, cluster research to date has not focused on agricultural producers. This project: examines the potential of, and variations in, economic clusters of small- and medium-scale farms for achieving agricultural economic development and environmental management objectives; identifies the unique characteristics of clusters that may support long-term farm viability and the sustainability of surrounding rural communities; and engages farmers and development professionals as integral partners in the research/outreach process.

Clusters are concentrations of firms or businesses that:

- are located in relatively close proximity to each other,
- compete with each other in similar markets,
- cooperate with one another to enhance both technical skills and market access,

- support, through social networks, growth and development of individual businesses,
- share common inputs such as labor with specific skills,
- recruit support industries based upon the concentration of firms in an area,
- benefit mutually from new knowledge generation that is location specific, and
- work together to respond to new market needs or societal demands, such as environmental management.

These latter features set clusters apart from traditional associations of firms or farms, such as cooperatives. As an analytical framework, clusters provide an ideal integrated and comprehensive tool for assessing the interplay among economic, social, environmental and biological factors related to small farms and rural economic development. We examine and compare clusters formed around:

1. traditional commodities (dairy, wines, mushrooms);

2. agricultural practices or philosophies (organic vs. non-organic production); and
3. social or ethnic networks (Portuguese, Hispanic, female and disadvantaged farmers).

Clusters may form spontaneously in a region based on natural resource endowments and other unique circumstances or historical accidents (e.g., Finger Lakes wineries, mushrooms near Philadelphia). Or, they may be created as a result of local community and business action. At the same time, without on-going routine analysis, monitoring and nurturing, clusters may cease to exist altogether, or they may relocate to other areas as relative competitive advantages change. For example, the sugar beet industry that was started over 150 years ago by Mormon settlers recently withdrew completely from Utah to consolidate in Idaho (*Salt Lake Tribune*, August 20, 2004). The closing of a major Kraft™ cheddar cheese manufacturing plant in Canton, NY is another example. Thus, a region that currently enjoys clustering benefits has no assurance that they will last forever. A critical challenge for all U.S. regions is to determine their competitive advantage in the global economy. Industry clusters can be a key vehicle for describing, understanding and enhancing sources of regional competitiveness.

An essential idea behind clusters is that it matters not so much what the firms of a region produce, but *how* they do so. In clusters, firms *compete cooperatively* and they *cooperate competitively* with one another. This unique circumstance assumes organization and communication patterns among cluster members that have the potential to influence firms' competitiveness, management techniques, environmental impacts, social support, and community relations. However, these benefits extend beyond the individual producer to the cluster as a whole, creating an environment in which

collective learning and sharing of resources is fundamental to the business philosophy.

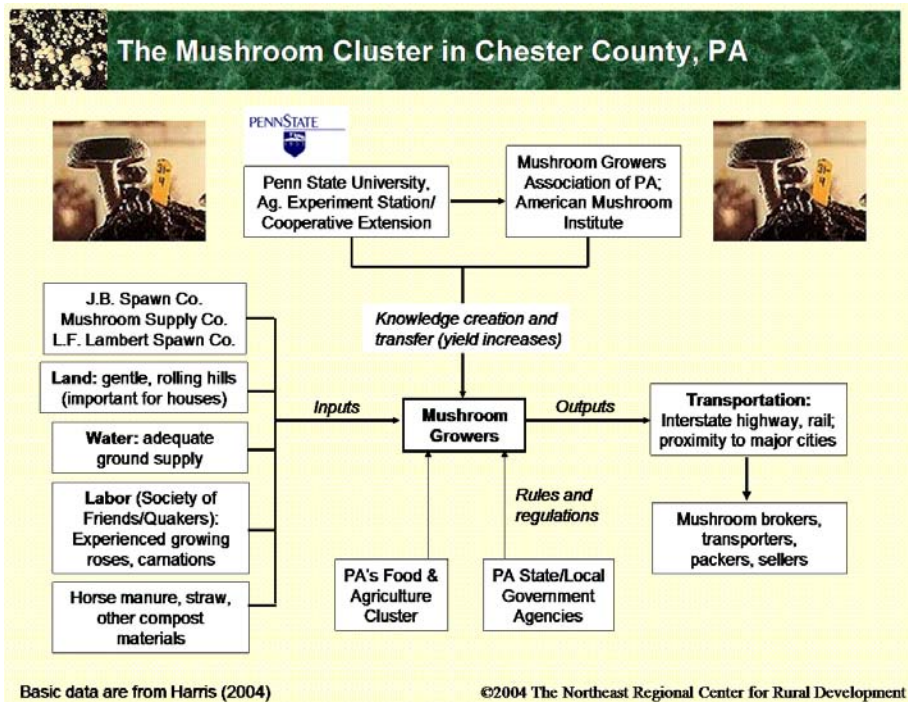
Clusters have the potential to enhance biological and environmental management practices on small farms. In Ontario, Canada, for example, several farmer organizations joined together to create their own environmental farm planning tools rather than be faced with federal environmental regulations. This voluntary self-assessment, called the Ontario Environmental Farm Plan, allows farmers to assess their own practices, and the plans are then evaluated by peer farmers. By taking this approach, the community of farmers felt that they could more clearly demonstrate their commitment to environmental stewardship without the need for additional regulation. The process also created a means for sharing innovation and fostering rich discussions on how to best blend agricultural and natural resource management goals. Clusters potentially foster this same type of rich exchange and innovation around natural resource management. In the U.S., in contrast, the USDA's NRCS has had primary responsibility for farm bill cost-share and implementation programs to remediate negative environmental impacts in agriculture. While some of these programs have been voluntary, and others mandatory, none encourages groups of farmers to join together in responding to the programs.

Clusters may also provide the cultural and social backdrop needed to encourage or pressure farmers to act to protect the environment or their products. As an example, an immigrant farmer was discovered using stream water to wash vegetables to be sold in a major metropolitan market. While this practice was acceptable in the farmer's home country, it is not acceptable in the U.S., or permissible under FDA regulations. Sensitivity to these types of cultural norms is essential to develop educational materials and interventions appropriate for

the newly emerging important groups of immigrant farmers. Clusters may help to develop the skills of new farmers at a faster pace than if they worked in isolation. This sentiment is supported by research in the adoption and diffusion of agricultural technologies, which stresses that trusted individuals, who are similar to each other, are likely to have greater effect on the absorption and integration of information and adoption of practices. This trust is most often built through interaction within local networks.

By understanding the social and cultural networks that exist within clusters, we are able to better understand how biological and natural resource information is

interpreted and applied on these small farms. Organic farmers are very willing and able to describe how their practices protect environmental resources. This is tied to their philosophical orientation and is essential to the process of certification. Conventional farmers do not have the regulations related to certification to “force” the environmental discussion. Yet certain clusters of conventional growers focus very closely on environmental issues, especially as they affect farm profitability. By understanding how the cluster supports environmental information flows and exchanges, we can design specific interventions to improve farm stewardship.



A chart describing the mushroom industry cluster is included here for illustrative purposes; we are developing similar diagrams for the agricultural clusters selected for in-depth study. Cluster analysis focuses explicitly on the horizontal and vertical (marketing channels) integration of food system

participants. Thus, the framework directly incorporates processing and marketing channels. In addition, cluster analysis focuses on all of the legal and institutional forces that impact the cluster and its profitability as well as sustainability. Linkages to other relevant clusters are also considered explicitly.

In a flat world, the need to help regions identify and pursue strategic branding activities has never been greater. Clusters are ideal for accomplishing this. In this context, Rosenfeld argues that we have gone through three watershed periods in the last 50 years:

1960s and 1970s: Making things cheaper

mass production (Taylorism)
division of labor, advantage based on cost

1980s and 1990s: Making things better

quality and speed key,
automation
TQM, JIT, flexible specialization

2000s: Making better things
aesthetics, authenticity
design, innovation, uniqueness

In conclusion, we argue that clusters are critical for helping producers "make better things," thereby distinguishing themselves in a flat world in which the production of basic, undifferentiated commodities will increasingly move to the lowest-cost production sites. Important examples of existing regional brand identities include Iowa 80 Beef, the Finger Lakes Winery Alliance, Vermont artisan cheese makers and the Tuscarora organic growers, and Mumm Napa valley. In this new economic environment, rewards will be greatest for those who are able to provide their customers with sophisticated and lasting experiences, as opposed to mere commodities. Additional information about this project will be posted over time at the following web-site:

<http://www.cas.nercrd.psu.edu/>

Big Ideas for Small Farm Profitability; Strategies for Increasing Small Farm Profitability

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To succeed on a small farm, you can't be afraid to think big. Success requires ideas, innovation, imagination and inspiration. It also takes information: How to identify potential niche markets. Where the customers are. How to try produce into products that people want to buy. Where the risks are – and how to avoid them.

The North Central Initiative for Small Farm Profitability is a four-state, multi-institutional, farm-to-fork effort designed to improve the profitability and competitiveness of small and mid-size farms in the Midwest.

The initiative brings together a unique and powerful blend of producers, food and social scientists, marketers, extension educators, economists, and others who are attempting to identify, adapt and apply practical, science-based, market-driven strategies that work.

This presentation discusses the marketing information that can help small farms turn bright ideas into bottom line results.

Background

The North Central Initiative for Small Farm Profitability was funded by a grant from the U.S. Department of Agriculture CSREES and is a program of the University of Nebraska-Lincoln Institute of Agriculture and Natural Resources/Cooperative Extension Services. The partners in the project included:

- Iowa State University,
- University of Missouri,
- University of Wisconsin,

- Center for Rural Affairs,
- Practical Farmers of Iowa,
- Michael Fields Ag Institute.

The grant's main components consisted of applied research, case studies, producer clusters, and dissemination and education. All of the outcome reports (case studies, research projects, etc.) are available on the following two web sites: Food Marketing and Processing (FoodMap) (www.foodmap.unl.edu) and Missouri Alternatives Center (MAC) (<http://agebb.missouri.edu/mac/>).

FoodMap is a clearinghouse of research reports, case studies, and other industry specific articles and links relating to value-added market opportunities for farmers and ranchers in the Midwest. MAC contains a list of links of Extension Guidesheets from some of the top university research centers in the world. On these links you will be able to find information on a large variety of specialty value-added products from Asparagus to Watermelons, and Aquaculture to Worms!

Project Results

Big corporations pay big bucks for market research. At the North Central Initiative for Small Farm Profitability, you can access science-based, market-driven research at no charge.

Want to know what the market potential is for Midwest specialty cheese? The Initiative has the data. Want to learn about high-end exclusive market for chestnuts? The initiative can tell you all about it. How about niche markets for beef and pork products? All the know-how

is available, absolutely free, in the case studies and research compiled by the Initiative.

There are over 20 applied research projects on everything from niche marketing to production research that have been provided by the initiative to help identify alternative products and the best way to deliver these products to consumers. Initial research is focusing on pastured poultry, specialty cheeses, specialty barley, grass-fed beef and dairy, and raising hogs in hoop houses. All of the research projects can be found on www.foodmap.unl.edu.

The specialty cheese report quantified the market demand for specialty cheese. The report discusses real-world examples of successful on-farm specialty cheese operations as well as cost estimates for very small to medium sized specialty cheese plants.

The consumer research project consisted of a telephone survey of over 2000 households in the 4 state areas which asked consumers questions about interest in locally grown foods. It examined purchasing behaviors and attitudes and confirmed consumer's interest in locally grown foods. The report discusses some of the perceived obstacles in purchasing local foods and shows producers areas of interest to use when determining their target market for their products.

Key and unique to the North Central Initiative for Small Farm Profitability are farmer clusters working with researchers to put science-based, market-driven results into action in the four-state region. The clusters provide practicality and relevance to the initiative's objective of increasing farm profitability.

The clusters are made up of farmers and ranchers in Iowa, Missouri, Nebraska and Wisconsin who have an idea or product, or who are already working on an idea or product, for increasing small farm profitability. The clusters vary widely in the products being produced, location, size

and market maturity. Local resource providers supported the clusters, and it is hoped cluster members will help apply knowledge learned from this initiative into their local communities.

Some of the examples of cluster projects are:

- Chestnut Research Project. This project provided marketing and processing research on a unique agricultural product. The chestnut cluster credits the research in identifying a whole new market for value-added chestnut products.
- Planning Guide for Prospective Winery. The project surveyed wineries, and wine retailers. Secondary information was collected to look at wine consumption and trends, production and processing issues, capital cost opportunities for tourism and included case studies of successful wineries as well as best practices.
- Meat Goat Markets. A report on marketing meat goats was conducted to determine where markets exist for fresh goat meat. It also looked at competition, how fresh goat meat is purchased, and competitive analysis of the fresh goat meat market.

Another area of the initiative was the case studies. Forty case studies were completed on a variety of value-added products. Seven case study categories focus on strategies that have potential to improve the efficiency, profitability, and competitiveness of small and mid-size farms. The case studies are designed to discuss key factors in the success of the strategy. The cases address and draw lessons from both success and failures of the strategy, and can be used to identify best practices. The case studies draw on data as well as on subjective matter. This is a great compilation of case studies that can be used by individuals interested in exploring new value-added activities for their farm or ranch. Many different types of value-added businesses are included.

The resources available from the North Central Initiative for Small Farm Profitability can help in identifying the most fertile areas in which to plant new ideas. Whether it is a niche market for your product, an innovative value-added approach, or teaming with a group of

producers to serve a specialty industry, the one-of-a-kind information from the North Central Initiative can help you assess opportunity, determine risk and develop a plan for success.

Contributions and Challenges of Collaborative Community Supported Agriculture: Lessons from Iowa

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Introduction

This panel presentation brings together a group of Community Supported Agriculture (CSA) producers, members, organizers, activists, advocates, and researchers to discuss the unique contributions and challenges of collaborative CSA (cCSA) in Iowa. The topic is timely and important as farm jobs in the Midwest are diminishing, rural populations shrinking, and communities declining as agriculture is restructured and becomes increasingly consolidated. In response to these changes, alternative food institutions (AFIs) have emerged, one of which is CSA. CSA was adopted as part of growing interest to relocalize agriculture to reconnect consumers with producers, the land, and their communities. Since its inception, CSA has been noted for helping create rural economic opportunities, conserving the environment, and reshaping community relationships. Yet there are many different kinds of CSA arrangements and therefore different anticipated impacts. A review of national CSA directories shows that most for-profit CSAs are owned and operated by a single proprietor or farm family, while very few are comprised of a well-defined coalition of small-scale, collaborating farmers. Multi-producer ventures purportedly enable producers (some of whom may be young or new—or

at least new to local organic food production) to share risk, share information, and share markets. How do these more formally organized multi-producer associations function? What unique contributions do they have to offer rural development and what challenges do they face? We sought to answer these questions by conducting a study of collaborative CSA in Iowa.

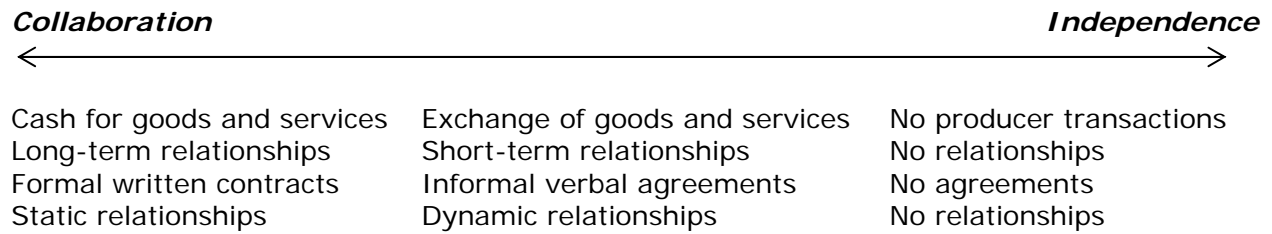
In 2005, the North Central Regional Center for Rural Development received a grant from the Leopold Center for Sustainable agriculture to conduct research of cCSA in Iowa. Specifically for this one-year project, we are studying the role for-profit, multi-producer CSA plays in incubating small rural businesses as well as defining other contributions cCSA makes to AFI. We are also identifying the characteristics of cCSA models that appeal to members. We are collecting this information through a combination of interviews and self-administered surveys of cCSA producers and members.

For the purpose of this study, we defined collaborative CSA as CSA in which multiple producers collaborate to provide food or fiber products to members of a CSA *for which no single producer (or family) has sole responsibility*. At the same time, we acknowledge the varying degrees to which

collaboration takes place in all types of CSAs; even owners of single proprietor owned CSAs (or sCSAs) engage in collaborative relationships with other producers through formal agreements such as contracts or informal means such as a phone call or handshake. With this in mind, we are therefore suggesting that a

continuum of cooperation exists among small-scale CSA producers, ranging from more formalized, long-term relationships to complete independence and self-containment. Somewhere in between are varying degrees of informal, short-term, dynamic collaborations (see Figure 1).

Figure 1. CSA Producer Collaboration Continuum.

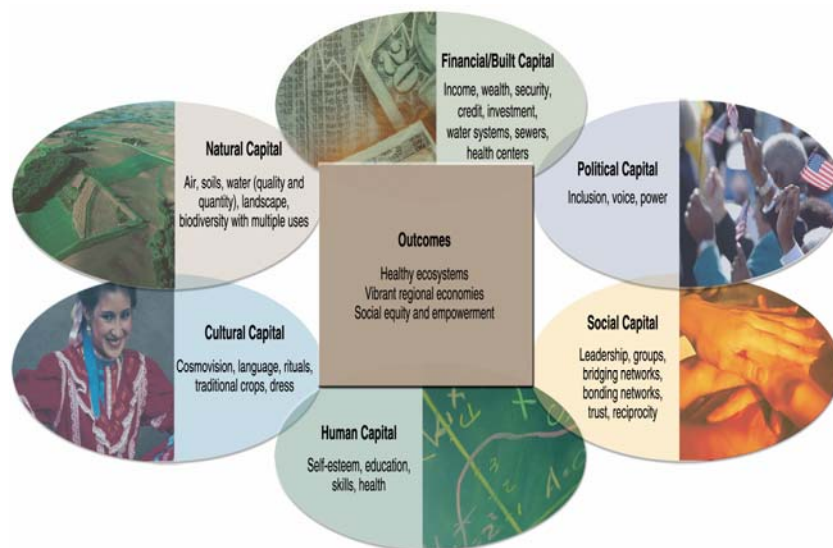


We identified four formal collaborative CSAs in Iowa. One chose not to participate in this study. Three are participating but only one has completed its participation so far. Results in this summary are therefore derived from only one collaborative CSA in Iowa. For updates, visit us on the web at <http://www.ag.iastate.edu/centers/rdev/projects/csa/index.html>.

Research Framework

Flora, Flora, and Fey (2004) have presented the Community Capitals Framework (Figure 2) as a model to evaluate community development efforts. This framework was developed to help communities track investments and outcomes related to development efforts, including the establishment and maintenance of small, for-profit enterprises such as CSA.

Figure 2. Community Capitals Framework as an Evaluation Tool for Community Development.



This framework is useful for measuring a variety of community benefits that can result from community and economic development efforts. Instead of focusing exclusively on economic factors, the model takes into account a wide variety of investments and impacts, including those that affect the natural environment, social ties, human resources, the economy, local culture, and politics. We are using this framework to assess the impact participation in collaborative CSA has had on both producers and members as they relate to the creation of multiple types of community capitals.

Member Survey Methodology: For Flat Hills CSA (a pseudonym), we mailed surveys (via snail mail and e-mail for a double mailing) to all current members, as well as former members in the past five years. We received 141 usable surveys, for a response rate of 57 percent. Not quite half (44%) were current members while a little more than half (56%) were former members. Fifteen percent of the member respondents indicated they either currently were or had been members of a single proprietor CSA.

Producer Survey Methodology: We used the same methods to contact both current and former producers who participated in Flat Hills CSA, although the time frame included the entire life of the CSA rather than the past five years. We received 20 usable surveys for a response rate of 80 percent. Sixty percent of producer respondents were current producers whereas 40% were former producers.

Results

Member Profile: Four in five respondents are female (corresponding to 9 in 10 households that logged at least one contact as female with the cCSA coordinator). Average age is 45 years. About one in ten live on an acreage—a term associated with living in the countryside with the remainder living in town. The average length of residence is 14 years. One in four respondents are

new to the area, having lived there for five years or less; one in four are long-time residents, having lived in the area for more than 20 years. Two in five have at least one child living in the household. Half of cCSA households reported an annual income last year of \$70,000 or more.

Seven percent earned less than \$20,000.

Producer Profile: Almost half (47%) of responding producers are female, which corresponds to our sample population of the producers. The average age is 43; the youngest is 27 and the oldest 70. One in three farmers is 35 years old or younger. With one exception, the rest are 43-55 years old. We can therefore characterize this group as young and middle-aged producers. In addition, one in four producers are “new,” having been involved in production for five years or less. One in four have been producing for 6-10 years, and almost one in three have been involved in production for 20 years or more. One in three producers have lived in the area for five years or less. The majority (58%) of producers do not have children living in their household.

Income and marketing: Every producer respondent indicated that CSA is not their only market. Over half (53%) sell at farmers markets; 42% sell to institutional buyers such as restaurants; and 16% sell at local food coops. Over half (56%) sell their products through other means such as mail order, custom orders, at grocery stores, and farm stands. Despite taking a diversified approach to marketing local products, 61% of producers said that 25% or less of their family’s needs are met by their overall food and fiber product income. Only one producer reported that all of the household needs were met by his/her overall food or fiber product income. Moreover, 76% of producer respondents reported that participation in cCSA provides them with 10% or less of household income. These are sobering statistics, strongly suggesting that

producer participation in local food systems is not financially viable. It is therefore not surprising that 61% of producers work off the farm and 73% for whom it is applicable report their spouse or partner works off the farm.

Motivation for participation: Why then do producers choose to participate in local food systems? The reasons are not

financial. We asked producers the extent to which they agree that participation in cCSA helped them gain benefits according to a list of 52 questions. We ran rudimentary preliminary statistics to summarize the benefits they experience. Below are the results organized by type of community capital along with summary results from similar questions we posed to members.

Table 1. Producer and member benefits from participating in collaborative CSA.

Benefits derived from participation in collaborative CSA (1=strongly agree, 5=strongly disagree)	Producer rank	Producer mean (n=20)	cCSA member rank	cCSA member mean (n=141)
Natural capital	1	2.30	1	1.92
Social capital	2	2.48	5	2.32
Cultural capital	3	2.52	2	2.20
Human capital	4	2.53	3	2.21
Political capital	5	2.79	6	2.42
Financial capital	6	3.02	4	2.30

In summary, all groups rank natural capital benefits highest while political capital ranks low. Not surprisingly, producers rank financial benefits last in contrast to members who rank it somewhere in the middle. However, social benefits are enjoyed more by producers than members.

CSA as a business incubator: Some researchers have suggested farmers markets serve as a business incubator to stimulate the growth and development of small, farm-based businesses. Our research sought to discover whether the same held true for CSA. We found that 35% of current and former producers of Flat Hills CSA reported participation in CSA helped them start or continue new or different farm-related enterprises. These enterprises include four CSAs, a direct market horticultural farm business, a venture that cultivates specialty crops for farmers markets and retail sale, and expansion of a laying flock to supply local

restaurants. In addition to the growth of new local foods-based business, three in four producers also credited CSA for providing them with invaluable business knowledge and support that helped them continue participating in local food systems. This included encouragement to enter into and grow for the local food market; greater understanding of local food consumer preference; the need for consumer education, trust, and cooperation; the provision of a stable income while honing producers' marketing skills; a sense of empowerment to influence local food markets; comprehension of the time demands marketing requires; risk sharing; focus on growing less labor intensive crops that have the greatest returns; gaining exposure in other local food markets; and knowledge to help weigh the costs and benefits of operating CSA. (One in five producers reported they currently own CSA.)

CSA as a career incubator: In addition to serving as a business incubator, CSA is training producers that prepare them for careers outside of CSA. Nearly two in five producers (37%) report they have been employed in an agriculturally related position paid by an off-farm source since participating in CSA. These seven producers have filled positions mostly in the non-profit sector, but also the public and private sectors (e.g., co-owner of a sustainable foods marketing/distribution company, college garden manager, and food systems program specialist assisting

farmers and companies identify viable products and address production and marketing issues). Of these seven producers, five (71%) credit collaborative CSA for 1) helping them serve in these positions by providing opportunities to network that led to employment; 2) giving them an opportunity to share experiences with and gain support from other producers; 3) increasing their knowledge of growing food; 4) increasing their understanding of direct marketing strategies; and 5) helping them understand producer group dynamics.

Assessment of the Current Meat Goat Industry in the United States

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Introduction

Goats are the most popular animals in the world, and goat meat and milk are the most consumed of all animal products. Goats are popular with small holders because of their efficient conversion of feed into edible and high quality meat, milk and hide. Goats are also used as holistic tools for land vegetation management and fire fuel load control. With proper grazing management, goats can eliminate noxious weeds, restore native grasses and prevent fires through fuel load reduction.

The purpose of this paper is to assess the current meat goat industry in the United States and to determine its future outlook. The data presented in this paper is drawn from three government sources—the 2000 population Census, the USDA’s 2002 Census of Agriculture and the USDA National Agricultural Statistics Service. In the U.S., meat goat production has been gaining popularity in recent years particularly because of a growing population of ethnic and faith-based groups who consume goat meat. The national estimates, based on import data only, indicate that the U.S. is more than

500,000 head deficient in meeting current demands for goat meat.

Ethnic populations and faith-based consumers have increased in the U.S. during the last decade, and this change may provide a great opportunity for meat goat production. A small herd of meat goats can be produced on 10 to 15 acres of pastureland and can fit into a majority of U.S. farmsteads and enhance small farm diversity and profitability. Goat meat is also lean and healthier than other meats and can play a major role in the diet of health-conscious people.

Assessing the Current Meat Goat Industry in the United States

Goat Farms in the U.S.

According to the USDA Census (2002), the number of goat farms increased more than 19% with > 12% increase in the goat population from 1997-2002; however, the number of farms selling goats increased by over 45%, and goat sales were up by more than 55% (Table 1). More than 76% of the U.S. goat population is meat goats with milk and fiber goats claiming only 11.5% each (Table 2).

Table 1. Changes in all goat farms from 1997 to 2002 in the U.S.

	1997	2002
Number of farms	76,543	91,462
Number of goats	2,251,613	2,530,466
Number of farms selling goats	29,937	43,495
Number of goats sold	843,773	1,314,310

Table 2. Goat industry profile in the U.S.

	Number	%
All goats	2,530,466	100
Meat goats	1,938,924	76.6
Milk goats	290,789	11.5
Fiber goats	300,756	11.9

The number of meat goat farms increased by 18% with over a 57% increase in the number of meat goats (Table 3). The number of farms selling meat goats increased by 48% with over 108% increase in meat goats sold from 1997-2002. Although there was a drastic reduction in Angora goat numbers (530,000) and sales, the increase in total goat population

(over 250,000) in the U.S. can be attributed partially to a small increase in the numbers of dairy goats (over 100,000), and a major increase in the number of meat goats (over 700,000). The 71% increase in the number of dairy goats sold may have also contributed to the rise in the meat goat market.

Table 3. Changes in meat goat farms from 1997 to 2002 in the U.S.

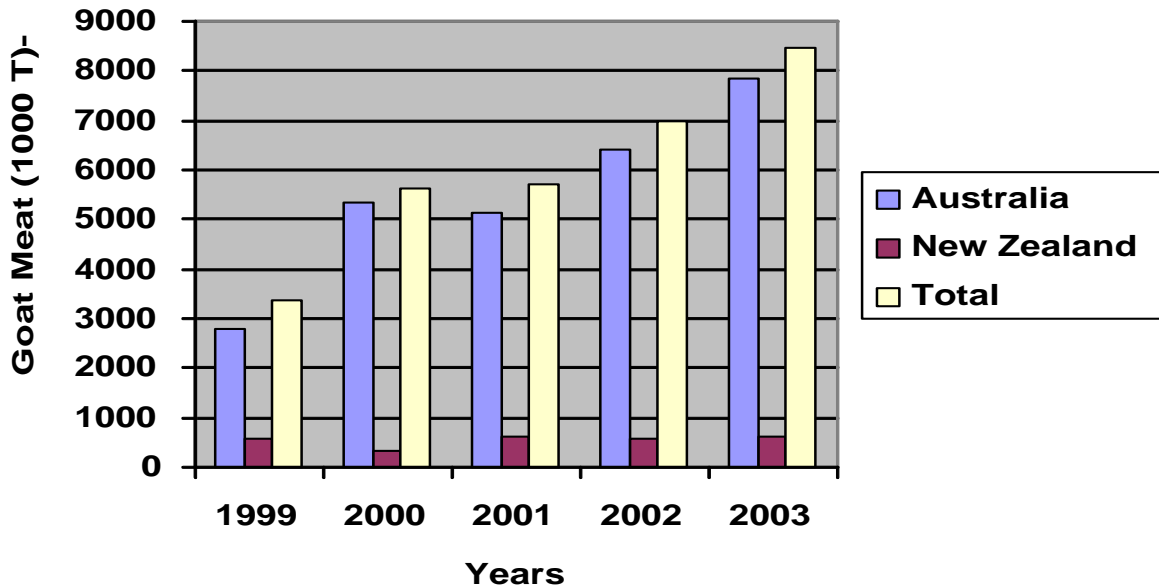
	1997	2002
Number of farms	63,422	74,980
Number of goats	1,231,762	1,938,924
Number of farms selling goats	24,539	36,403
Number of goats sold	532,792	1,109,619

Imports and Exports of Goat Meat

The United States was a net exporter of goat meat up until 1990. Exports ceased due to increased domestic demand after 1994. This shift is another indication of increased interest in goat meat consumption nationally. In 2003, the U.S. imported more than 18 million tons (8.46 MT) of goat meat. With an average carcass weight of 35 to 40 lbs., the estimated 500,000 goat carcasses were

imported--goat import was up 151% from 3.36 MT in 1999 (Figures 1). The only exporters of goat meat to the U.S. are Australia and New Zealand with 92.5 % of shipments coming from Australia. As indicated by the figure, there is a sharp increase in goat meat imports especially from 2002 to 2003. This trend will most probably continue unless there is an increase in domestic production.

Figure 1. Changes in goat meat imported from Australia and New Zealand (1999 to 2003)

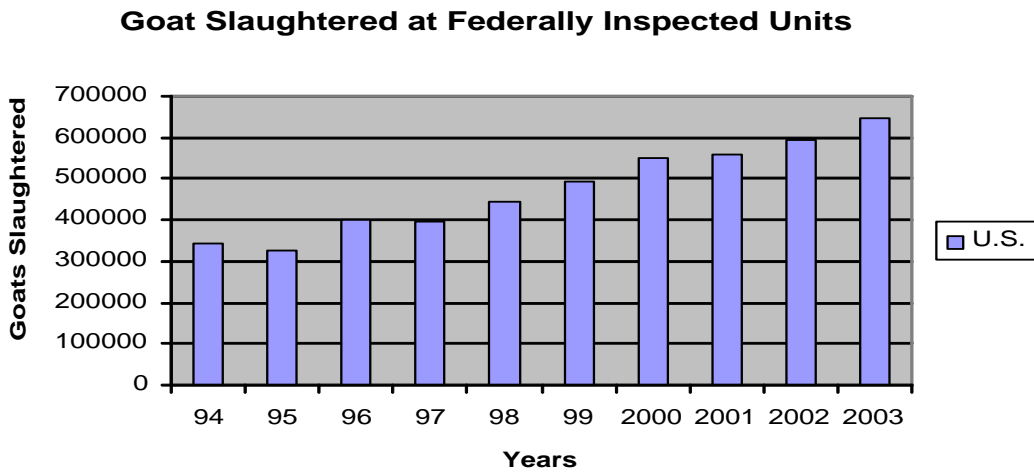


Goats Slaughtered in USDA-inspected Plants in the U.S.

The number of all goats slaughtered at USDA federally-inspected plants in 2003 has increased 45.1% from 1998 (Figure 2). Meat goat numbers have shown a solid increase since 1998, and they likely will continue to increase due to trends in

population growth that promote meat goat production. It must also be noted that the meat goat industry in general—is in its infancy; therefore, many on-farm slaughters are not reported.

Figure 2. Goats slaughtered in USDA-inspected plants in the U.S.



Factors That May Have Affected Goat Meat Consumption

U.S. Population Changes

The major contributing factor for the rise in interest in meat goat production in the U.S. is the shift in demographics. According to the 2000 Census, the foreign-born population in the U.S. is up 57% since 1990, from 19.8 million to 31.1 million and continues to increase on an upward trend that started in 1970. As of

2000, 51.7 % of the foreign-born population was from Latin America and 26.4 % from Asia. It is projected that the U.S. Hispanic population is rising at a rapid rate and will reach over 100 million or 25% of the population in the year 2050 (Table 4). This group of immigrants has a strong preference for goat meat and will add to the opportunity for this sector of agriculture to grow.

Table 4. Projections of total U.S. population changes and changes by ethnic groups from 2000 to 2050

	2000	%	2005	%	2050	%
Total	281,421,906		295,507,000		419,854,000	
Asian	10,242,998	3.6	12,419,000	4.2	33,430,000	7.9
Black	34,658,190	12.3	38,056,000	12.9	61,361,000	14.6
Hispanic	35,305,818	12.5	41,801,000	14.1	102,560,000	24.4

Changes in Ethnic and Faith-Based Populations in the U.S. Having Preference for Goat Meat

Although ethnicity and faith tradition undoubtedly overlap, as of 2000 over a million Buddhists and a million Muslims, over 10 million Asians and over 35 million Hispanics are reported as residing in the U.S. (U.S. Census 2000). Again, this

increase from 1990 to 2000 creates an opportunity for U.S. agriculture to produce new products to serve the food preferences of this ever-increasing population (Table 5).

Table 5. Percent changes in selected U.S. ethnic and faith-based population from 1990 to 2000

	1990	2000	% change
Buddhists	401,000	1,082,000	170
Muslims	527,000	1,104,000	109
Asians	6,908,638	10,242,998	48
Hispanics	22,354,000	35,305,000	58

Estimating Demand for Goat Meat in the U.S.

The largest group of ethnic consumers of goat meat is the Hispanics with an increase of 57.9% in population from 1990 to 2000. Muslims, Asians and Africans also consume considerable amounts of goat meat. Goat consumption is steady except for special holidays when goat meat consumption increases 3- to 4-fold. There are increases in demand for goat meat for Easter, the 4th of July and certain Muslim holidays such as Aideh Ghorban or Aideh Fatre. Among Chinese, goat meat consumption is usually higher in colder months, between October and February. Understanding these ethnic traditions and matching the demand with production require marketing education and techniques. Also, the special handling and harvesting procedures may differ according to different religions and traditions and can contribute to the value of the goat meat. Halal harvesting procedures for Muslims and Kosher techniques for Jews may add value to goat meat.

Estimating Populations Having Preference for Goat Meat

An attempt will be made to estimate demand for goat meat based on Hispanic, Asian, foreign-born African and Caribbean populations in the United States. Based on the U.S. Census (2000), there are about 10.2 million Asians, about 35.3 million Hispanics and four million Caribbean and African-born populations in the U.S. Among an estimated seven million illegal immigrants (Census 2000), over 50% are Mexicans and other Latin

Americans that consume goat meat. In total, there are almost 53 million people that have preference for goat meat in the U.S. (Table 6). There maybe others, but due to lack of availability and marketing channels for goat meat, they can't be included.

Estimating Goat Meat Consumption

The average number of persons living in a U.S. household is 2.59 (Census 2000). For the ethnic populations under consideration, a slightly higher number of 3 persons per household is used. Assuming conservatively that only 10% of these ethnic households consume goat meat and without considerations for other part of the U.S. population, a total of 1.76 million households may consume goat meat. According to the Agriculture Fact Book (2001-2002), Americans consumed on average annually 195 pounds of red meat and poultry per capita in the year 2000. If every ethnic household (three persons) consumes only 72 pounds of goat meat annually, including holidays, there will be a projected demand for 117.6 million pounds of goat meat. Assuming a 40-pound carcass weight per goat, the total number of goats needed to be slaughtered is 3.18 million per year (Table 6). This is a modest estimate of the numbers of meat goats needed. A little over 1.1 million meat goats were sold in the U.S. in 2002 and 1.15 million reported goats were consumed in 2003 (Domestic slaughter + imports). It should be noted that the demand for slaughtered meat goats is more than 160% of meat goat inventory in the U.S.

Table 6. Estimated demand for goats and goat meat in the U.S.

Total Population (Asian, Hispanics and others)	53 million
Total number of households	17.6 million
Households that consume goat meat	1.76 million
Annual household consumption (lbs.)	72
Total goat meat consumed (lbs./yr.)	127.2 million
Average goat carcass weight (lbs.)	40
Total goats in demand for slaughter	3.18 million
Meat goats sold	1.1 million
Meat goats consumed	1.15 million
Meat Goat Inventory in the U.S.	1.9 million

Other Conditions Favorable to Increasing Goat Production

Women as Principal Farm Operators

The number of women principal farm operators in the U.S. reached 13% in 2002. A goat is a smaller animal and very popular with women producers.

Increasing numbers of women farm operators may promote and encourage meat goat production. Proper knowledge in goat husbandry, budgeting and marketing techniques will insure a profitable agribusiness for them.

Health Consciousness and Goat Meat Quality

Americans are conscious about what they eat, now more than ever. Poultry consumption has increased from under 35 lbs. per capita in 1980 to more than 65 to 70 lbs. per capita. Three major factors have contributed to this increase: poultry is a healthier product being leaner than beef and pork; it is low cost, and it is available. In comparison to poultry and other meats, goat meat is leaner with less fat waste, and it is high in iron and low in cholesterol. Research has indicated that goat meat has a balanced proportion of saturated:unsaturated fatty acids (Banskalieva et al., 2000), and it is a rich source of conjugated linoleic acid (anti-carcinogenic and only found in ruminants) (Chin et al., 1992). However, goat meat is more expensive than poultry, beef, lamb and pork at this time and it is not

readily available. The high price of goat meat along with the lack of availability prohibits its consumption.

Challenges Encountered

Major challenges associated with increased goat meat production are: Consumer education; producer education; organized markets and marketing channels. Consumer education could include: The dietary advantages of goat meat; why people of all the old cultures (Chinese, Mayan, African, Middle Eastern, and Greek) eat this meat; and widespread distribution of recipes for different goat meat preparations. Producers should be educated on the best management techniques to raise goats for meat. Using some superior breeds with fast growth rates, especially those from South Africa, have revolutionized meat goat production.

However, the most important factor in the growth of any industry is marketing. Keeping in touch with state agricultural and farmer organizations in developing new markets is important. Producers can benefit from *federally*-inspected slaughterhouses that can process goats as well as enable interstate sales. With goat meat prices high, direct marketing may be desirable, either on-farm or using the Internet. Considerations should be given to proper harvesting and handling techniques of goat meat for Jewish (Kosher) and Muslim (Halal) clientele.

Value can be added in terms of desired products such as specialty sausages and other ready-to-eat meat products that can enhance marketing and profit margins. At the retail level, a recent survey conducted in the Southeast by Tuskegee and other university researchers concluded that retailers carrying goat meat confirm that purchasers of goat meat are indeed the ethnic groups cited in this paper, and they should be provided the cuts and type of processing desired (which were ribs for steaks and barbecue and ground goat meat) (personal communication).

Conclusion

There is an increased interest in goat meat consumption in the U.S. Goats slaughtered in USDA-inspected plants as well as goat meat imported from Australia and New Zealand have sharply increased since 1999. The U.S. has changed from a net exporter to a net importer during the last decade. Increases in ethnic populations in the U.S., especially Hispanics, Asians and Muslims, have contributed to this development. Also, goat meat is a healthy meat and fits the designer diets of health-conscious Americans. Goat production is a great

opportunity for small farm producers to target these markets and diversify their farm products. There is a great opportunity for value-added products. However, consumer as well as producer education is needed and a marketing structure must be strengthened.

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Development of a Task Force to Provide Education and Leadership to an Emerging Meat Goat Industry

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Background

Interest in meat goats has grown rapidly over the past 10 years. Goat is the most frequently consumed meat in the world. In the United States, meat goat production is increasing because of goats' economic value as efficient converters of low-quality forages into quality meat, milk, and hide products for many specialty markets. Preference for goats is growing in populations of health conscious, ethnic, and faith based consumers. National estimates indicate current demand for meat goats is nearly 500,000 head deficient. Goats are growing in popularity as a youth project, and many are raising meat goats for breeding or show. These interests are leading to viable commercial value-added enterprises. Where resources are limited, meat goats may be an enterprise that a small farmer can raise efficiently, profitably, and become self-sufficient.

Engaging Resources

While meat goat production has been increasing, this enterprise did not have supporting infrastructure relative to a commodity based organization, university sponsored education and research, or well known marketing channels. To address these needs, a task force has been formed and directed by personnel of The Ohio State University Extension and consists of producers, multi-disciplinary OSU faculty, ethnic and faith based community leaders, other state universities and colleges, Allied Industry, and other interested persons. The mission of the *Ohio Meat Goat Industry Task Force* is to enhance the

production and marketing of meat goats through education and practical experience.

The objectives of the *Ohio Meat Goat Industry Task Force* are:

- Identify and access emerging ethnic markets having a preference for goat meat in their diet.
- Develop producer networks, alliances and/or cooperatives to meet the demands of emerging markets.
- Provide leadership for education and research.

Extension members of the task force have been instrumental in developing educational materials and events. County agents published the *Ohio Meat Goat Production and Budgeting Fact Sheet*, which has been adopted by over 400 producers, as a guide for establishing this value added enterprise. Agents have designed and conducted regional workshops, seminars, and on-farm tours to transfer knowledge to over 800 participants. Extension personnel led producers on a study tour of eastern Pennsylvania and New York State markets. Several task force members have participated in a collaborative multi-state initiative for marketing and production of meat goats. The need for current information prompted the development of the *Buckeye Meat Goat Newsletter* that is received by 500 producers. A website is being developed to enhance the exchange of production and marketing information to allow greater

access to emerging ethnic populations having a preference for goat meat.
<http://south.osu.edu/cle/>

Building Leadership Capacity

Leadership development has been a primary objective of the Ohio Meat Goat Task Force. Producer members have been instrumental in the formation of the *Buckeye Meat Goat Association*. This group has developed by-laws and articles of incorporation for the purpose of promoting and marketing commercial meat goat producers in Ohio. Three producer-driven marketing networks have been established. Task force members are assisting in developing leadership among emerging ethnic and faith-based consumers so they can establish the infrastructure and marketing of fresh chevron. Producers have enhanced the effectiveness of their efforts by partnering with agencies such as the Ohio Cooperative Development Center, Ohio Tobacco Foundation, Heifer International, Somalia and East African Organization, Jewish Family Services and Institute for Social And Economic Development.

This task force is taking a unique approach to building infrastructure of the meat goat industry by utilizing a social approach to market development within emerging ethnic and faith based consumers. This foundation infrastructure will create value-added opportunities for refugees in our urban centers and small farms in Ohio. Additionally, economic development in the creation of agricultural jobs will do much for community development in the rural/urban interface.

Developing an Industry

The task force has successfully pursued and received \$63,000 in Research and Extension grants. This funding is being used to conduct on going feasibility studies of ethnic markets, Ohio's processing infrastructure, and development of farmer/consumer cooperatives. A statewide survey revealed a ten-fold increase in the adoption of meat goats as a value added income generating enterprise and provided baseline data on production demographics and marketing strategies. On-farm meat goat research encompasses determining benchmark economic data, breed comparisons, and forage utilization. Research and data analysis is accomplished through partnerships with multiple colleges and universities.

Progress continues in the ability to market a fresh and safe product directly to emerging ethnic and faith based consumer populations to capture the most value. Behavioral changes include an increase in farmers producing for emerging markets, an increase in communication abilities between producers and markets, and coordination for consumers, retailers, and producers through functional marketing partnerships that fit the social and ecological paradigm.

There is a real opportunity for farmers to network through co-ops or other ventures to build the meat goat industry. As with any commodity, capturing niche markets can add value. Producers on the *Ohio Meat Goat Task Force* can serve as examples for other developing enterprises. As the saying goes "If you build it; they will come." Meat goats just may be a "Field of Dreams" for animal agriculture.

Diversified Species Grazing for Brush and Pasture Management

An Peischel

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A synergistic process in motion. Change is stressful and a challenge to your "comfort zone". Accepting that there is something new to learn and interpret can make one uncomfortable but get ready - practice using tools to apply new knowledge and involve support from individuals already doing similar endeavors. The integration of knowledge from separate disciplines (ecology, plant physiology, hydrology, climatology, forestry, soils, economics, animal science, sociology and wildlife) equals the Ecosystem and all factors affect the vegetation distribution making up the various plant communities. But ENERGY (ENERGY FLOW), in pastoral agriculture is universal and can be used, stored, concentrated, or spread with the primary source being the sun.

To obtain efficiency of the natural energy flow - CONTROL - to use energy effectively. Control the time of grazing, the area to be grazed, the specie of livestock grazing, the season of grazing, and the plant specie to be grazed. Understand the basic forces acting on an agricultural enterprise so that small amounts of energy input act as an amplification factor thereby increasing the amount of sunlight harvested and marketed.

The biotic component is that of living organisms, plants and animals. The herbivore, through browsing and grazing affects frequency of plants grazed, the degree of vegetation removal, the plant type grazed, different types of livestock grazing and the quality of vegetation grazed. Other factors include pollination and seed scattering by animals. Decomposition takes place

through other organisms which consume dead material and render it useful.

The abiotic component (non-living environment and exchange materials) affects vegetative distribution. These factors include the topography, altitude, exposure/insolation, precipitation, evaporation/evapotranspiration and soil. The water cycle is driven by energy from the sun and its distribution affects vegetation more than any other single environmental factor. There is a continuum between the soil, plants and the atmosphere.

Plant growth requirements are sunlight and the ability of the soil to provide moisture, support, protection and nutrients. Vegetation that develops in an area is determined by soil characteristics such as texture, depth, slope, organic matter, pH and chemical composition. These soil characteristics are determined by soil formation affected by climate, vegetation, parent material, topography, time, and soil organisms.

There are many environmental factors that affect vegetation distribution in relation to the management of lands. To be considered are topography, slope, precipitation, wind erosion and soil mineral content. Many important decisions are influenced by the plant community and the factors that influence those communities.

Soil fertility can be enhanced by grazing management as it increases the amount of organic matter in the soil. If a specific nutrient is lacking, it can be fed to the animals as a mineral supplement and they can deposit it for you. Soil nutrients get

into the soil from the weathering of parent material, cropping practices, rain, dust, wind and are recycled by plant roots in the subsoil. Livestock deposit mineral supplements in manure as they eat about 50 pounds of mineral per year with 90% passing through as dung and urine. Livestock redistribute nutrients in a grazing system, therefore use good rotation management.

Manure is great stuff and interesting. Cattle dung (the average cow defecates 53#/da grazing) consists of 29% potassium and 47% nitrogen, with urine (the average cow urinates 23#/day grazing) consisting of 70% potassium and 52% nitrogen. If grazing sheep, dung consists of 83% calcium, 15% potassium and 38% nitrogen with urine adding 16% calcium, 84% potassium and 61% nitrogen. If you have soils with too much calcium, graze hogs as they excrete zero calcium in urine or need higher levels of calcium to change pH, graze horses with 44% excretion of calcium in the urine. The dung, besides being greatly appreciated by dung beetles, helps increase the physical characteristics of the soil (aggregation, friability, tilth, increases water infiltration and retention and decreases root-knot nematodes and other plant root pests). Healthy pastures, healthy soil microorganisms - high quality vegetation.

The quantity and quality of vegetation produced in a given time is dependent upon the amount of sun energy a plant can capture and convert to tissue. Plants need a leaf area to photosynthesize but a canopy cover of more than 30% can decrease vegetation production. As plants are grazed, recovery time is dependent upon soil fertility, season of year, soil moisture content, temperature, degree of defoliation, time of removal, animal species grazing and residual dry matter.

Residual dry matter is the forage dry matter remaining after a pasture has been grazed. Different plant species vary in recovery time and climate effects recovery time. The correct amount of residual is

needed for rapid regrowth yielding higher quality forage so that livestock per acre can be increased as well as animal performance. There is a point of no return, approximately 2000 pounds of residual dry matter per acre. High residual may also slow recovery rate as sunlight is hard to capture, old leaves are less efficient producers than new leaves, the ratio of non-photosynthetic material to green material and the leaf:stem ratio is stressed. In lightly grazed paddocks with a high residual dry matter, a decreased rate of net photosynthesis available for new growth and the old leaves shade the new ones decreasing production. Leaf Area Index (LAI) is a valuable tool for assessing plant health.

The most important concept to remember - BIODIVERSITY must be maintained. Brush, range and pasture management is based on the physiology of the plant and the ability of man to make social, environmental and economically sound decisions.

The livestock used in a grazing regime must be under control - where they need to be, how long they are to be there and the number of animals that need to be there. One does not want to overgraze the plant and deplete root reserves nor overrest the plants and decrease biodiversity. In grazing management, use of animal behavior and herd effect allows concentrated animal energy input into a small area for a short period of time. Animals of the same physiological condition need to be foraged as a mob and the quality of feed on offer needs to satisfy their physiological requirements. Social dominance, herd leadership, flight distance and species dominance need to be considered in mixed species grazing as does sex of livestock, age and breed dominance.

Herding a mixed mob of livestock and keeping them from being strung out takes patience and planning. Horses walk 5mph, cows 3mph, sheep stroll, goats are getting into trouble - then depending upon breed of livestock, the British breeds do not like

to walk as far as the Continental breeds. And in the middle of the mob are the livestock guardian dogs - Great Pyrenean guards reacting differently than Anatolian. The next factor inflicting itself is the breed of stock dog and the ability of the stockman to utilize that dog(s) ability.

Foraging of a mixed mob is complex. The different species graze at different times during a 24 hour period, each specie selects different plants and plant parts as do the age groups within that specie, they require different amounts of water (size of watering trough), and each specie has a unique mineral requirement.

Diet Preference Differences

% of diet

Plant	Horse	Cattle	Sheep	Goat
Grass	90	70	60	20
Weeds	4	20	30	20
Browse	6	10	10	60

Genetic heritability of foraging is important in browse, range, and pasture operations. The Brahma does well on low quality feed and traveling to water whereas the Holstein needs high quality forage and approximately 30 gallons of water per day. Know the economical production traits of each species and its ability to adapt to environmental stress; the goal is to improve herd performance.

An important concept is the animal unit (AU). Know the number of animal units a specific area can accommodate, estimate the amount of forage available by type and allot different species accordingly.

Basic routine herd health management practices need to be kept updated. The manager needs to be very conscious of individuals when grazing mixed species. Fencing. The greatest is portable, solar powered electric fencing. Creativity in fencing allows: 1) maximum utilization of forage, allowing plants to rest before re-

grazing; 2) allocation of forage based upon quality or physical condition of the livestock; 3) ability to manage plant species and 4) maintain a healthy environment for diversity of vegetation and livestock – a symbiotic relationship.

As a grazier progresses through management and budgeting of forage and livestock, the unit must be treated as a "whole". All of the pieces need to be considered together - nothing stands nor functions alone - it is one continuous cycle of life.

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A Place at the Table: Explorations in Heritage Harvest Areas Development

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Overview

Great Lakes wild rice, Cape Cod cranberry bogs, Indian River fruit district, wild blueberry barrens of Downeast Maine, the Concord Grape Belt on the coast of eastern Lake Erie...these are but a few place-based heritage agricultural regions of the United States. The rich histories, cultures, and traditions surrounding these places hold untapped potential for heritage tourism, as well as other community and economic development activities. Place-based community development is emerging as a new way to thwart globalization and industrialization by building on the unique characteristics and opportunities of a community. While they are generally overlooked by all but food historians, folklorists, and gastronomes, food and agriculture together constitute the ultimate expression of place...for it is in the combination of local landscape and human labor that distinct foods and cuisine are created, reflecting the cultural uniqueness of a place. This view forms the basis of the traditional French concept of "guit de terroir" (a taste of place).



In this era of unprecedented globalization, however, producers of these uniquely American agricultural products are struggling to find ways to adjust, evolve, and become sustainable. But this is difficult to achieve in the current, culturally toxic economic environment of least-cost labor, consolidation and international competition. Traditional commodities have gone through a rash of bad news in recent years: cranberry gluts are forcing industry restructuring; accusations of price fixing and water pollution in the wild blueberry barrens of Maine have tainted the reputation of that industry; and poor weather and low prices are hurting the family-run vineyards in the Lake Erie Concord Grape Belt and their allied processing and marketing businesses. Meanwhile the dissolution of the Washington Apple Federal Market Order, along with cheap apple imports from China, have put enormous pressure on North America's fresh market apple industry in Washington's Yakima Valley. Industrial restructuring, including grower and processor consolidation, seems almost inevitable. However, an alternative path to the future of these traditional commodities may be to capture and market their rich regional heritage as well as the enormous contributions they make to American foodways and working agricultural landscapes. National, state and local "heritage areas" already exist, building educational tourism around sites of significant events and developments in American history, such as wars, industries, canals, women's rights, slavery, and the like.

We believe it is possible for traditional American commodity regions like the Lake Erie Concord Grape Belt to capture and make use of their heritage in much the same way. Yet to be determined is whether these regions have enough “heritage muscle” to draw tourists and consumer interest that will translate into new sources of income and sustainability. This is one among numerous questions being addressed in our research on the potential of “agricultural heritage areas” (AHAs). The first of its kind may be the Lake Erie Concord Grape Belt AHA (where we have been conducting exploratory work).

The Lake Erie Concord Grape Belt Heritage Area

The “Concord Grape Belt” is the largest viticultural area in North America outside of California, encompassing a 30,000-acre swath of grapes that runs the length of eastern Lake Erie. The Concord Grape Belt crosses the border of New York state and Pennsylvania and includes approximately 1,000 vineyards. It is where Dr. Thomas B. Welch expanded the production of America’s first commercial fruit beverage, and continues to be the headquarters for numerous grape processors.

However, today the heart of the Grape Belt is also found in the New York State county whose population is shrinking the fastest — Chautauqua County.

Furthermore, the region took a big hit when Welch’s moved its headquarters to Concord, Mass., in 2001, and with it dozens of high-paying management and administrative jobs. Despite these challenges, numerous organizations and agencies came together in 2003 with assistance from Cornell’s Community, Food, and Agriculture Program in the Department of Development Sociology to explore how the Concord Grape Belt’s rich agricultural heritage could be the basis for sustainable development. Led by dozens of grape processors, cooperatives, organizations and agencies (including the Lake Erie Regional Grape Program, and

Cornell Cooperative Extension of Chautauqua County), the Lake Erie Concord Grape Belt Heritage Association formed in 2004 and has 130 members (most of whom are grape farmers). Local funding sources have been tapped along with funds from the state’s Coastal Resources Program and legislative member items. Projects underway include an interpretive automobile trail with information kiosks that covers 90 miles of the Grape Belt, a Concord Grape Heritage Discovery Center, a “Culinary Bounty” program to promote local grape cuisine, and an effort to build a state-of-the-art grape research facility. A study of the economic impact of the grape and wineries industry is also underway, and a special label certifying the origin of Grape Belt products may be licensed in the future. Such labels and related product information may educate consumers about unique regional agricultural products and tap their interest in wholesome products which contribute not only to improved health but also to American cultural identity.

Capturing the region’s untapped heritage marketing potential may help this beleaguered industry and shed light on ways other struggling regional commodities such as cranberries and wild blueberries can stay competitive and sustainable.

It is in the combination of local landscape and human labor that distinct foods and cuisine are created, reflecting the cultural uniqueness of a place

Presentation Key Points

- **Why “Placelessness?” – Private Policy**
 - Mobility and lack of rootedness.
 - Value of individual desire over community welfare.
 - Private space valued over public space.
- **Why “Placelessness?” – Public Policy**
 - Belief that unfettered market will solve problems.
 - Lack of intergovernmental cooperation and agency turfism.
 - Lack of long-term regional planning.
 - Lack of resources.
- **Key Concepts and Principles**
 - Belief that unfettered market will solve problems
 - Earth systems
 - Terroir (France)
 - Topophilia
 - Smart growth and “place-based development”
 - Goldschmidt Hypothesis
- **Concord Grape Belt Heritage Association, Inc.**
 - Heritage Committee
 - Museum Committee
 - Tourism/Promotion Committee
- Culinary Bounty Committee
- Inter-industry Committee
- **Potential Benefits of Agricultural Heritage Area**
 - Preservation grants
 - Vineyard preservation
 - Greater local appreciation
 - Industry unity
 - Tourism development
- **Concord Grape Belt Heritage Association, Inc.**
 - Photo collections
 - “Foxfire”-style interviews
 - Farm implement collections
 - Juicerries (like wineries)
 - Wineries
 - Diversification opportunities
 - Grape-related recreation and entertainment
 - Concord Grape cuisine
 - Buy-local campaign
 - Co-packing
 - Shared-use kitchens
 - Institutional purchasing
 - Certified heritage products
- **Interpretive Trail**
 - Roadside info kiosks
 - Maps
 - Brochures
 - Signage
 - Trails
 - Tours of vineyards and processing plants
 - Pull-over vistas

REDTT Project Overview

Dora Dominguez and Deb Franzoy

Rural Economic Development through Tourism Las Cruces, New Mexico

- ~ Education
- ~ Communication
- ~ Collaboration

REDTT is an economic development project, designed to boost tourism development in rural New Mexico. Administered through New Mexico State University's Cooperative Extension Service.

REDTT's service area includes 17 counties, which encompasses a total of 47 villages, towns and cities, 10 Native American pueblos and two Native American Tribes.

Education

- Annual Rural Tourism Conference
- Training Workshops
 - Hospitality and Customer Service
 - E-Commerce
 - Volunteer Management

- Tourism Project Development
- Events and Festivals
- FAM Tours
- County Tourism Councils

Annual Rural Tourism Conference
The 2005 Annual Conference, hosted in Deming, New Mexico. The event entitled, "*Making Tracks Along the Border*," attracted more than 180 tourism professionals and volunteers from throughout New Mexico.

- Networking opportunities with other tourism people
- FAM Tours of area attractions
- Workshops on tourism issues
- Banquet and awards dinner
- Keynote speakers on current tourism issues

Communication

- Media Coverage
 - Web site - www.redtt.org
 - News Releases
 - Trails & Treasures Magazine
 - Writer Familiarization Tours
 - Event Calendars

Collaboration

- Partners
 - County Tourism Councils Project
 - Cost Share Requirements
 - New Mexico State University's Cooperative Extension Service (NMSU CES)
 - New Mexico Tourism Department (NMTD)
 - Bureau of Land Management (BLM)
 - Tourism Association of New Mexico (TANM)

Why We Promote Tourism as Economic Development

In the United States, the tourism industry is a half-trillion dollars-a-year industry and is the nation's second largest employer with over 15.5 million people

In the thirteen years since its inception, the REDTT project has increased the number of New Mexico counties it serves from its three original partner counties to currently serving 17 counties.

This year, REDTT awarded \$51,000 to support tourism projects in all 17 New Mexico counties.

Since the project began in 1992, REDTT has awarded \$375,274 in grant funds to its member counties. REDTT continues its mission to provide technical assistance through a team approach to rural tourism professionals and volunteers.

Agtourism or Agritourism
Historical and Cultural Tourism

Project Goal: To educate, train, spread information and assist in tourism development of New Mexico's rural communities.

"Travel and tourism makes it possible for Americans to get outdoors and learn about wildlife and conservation," U.S. Secretary of the Interior Gale Norton told the media, "and the economic benefits are a tremendous boom to local communities."

Working Trees for Livestock: Silvopasture: Agroforestry Systems that Combine Timber and Livestock Production

Richard Straight

USDA National Agroforestry Center
Lincoln, Nebraska

Agroforestry is a land management system that incorporates trees and shrubs into farm and grazing lands. This combination of crops or forage with taller trees is done in such a way as to take advantage of the biological interactions to create economic benefits for the land owner and environmental benefits for society. These agroforestry trees have a job to do, they are *Working Trees for Agriculture*.

One of the five agroforestry systems used in the United States is called silvopasture. Silvopasture systems incorporate timber production and livestock grazing on the same piece of land and have the potential to provide an alternative approach to sawtimber production of loblolly, longleaf, and slash pines. These systems are inherently environment friendly and forest industry would benefit from the increased production of high-quality sawlogs.

For many decades in the Southeast, the tendency had been to plant and grow southern pines in "fully stocked" plantations. This production method has worked in large part because there has been a strong domestic market for pulpwood which allowed pine plantations to be thinned and creating profit for the landowner. Thinning kept the stands growing vigorously, improved their resistance to pine beetle attacks, and reduced the hazard of wildfires. At the end of the rotation a final harvest of quality sawlogs was produced.

In recent years the pulpwood market in the southeastern United States has weakened. This is attributable to a supply shift that has made it more cost effective

for forest industry to procure pulpwood offshore, especially from South America. Consequently, forest plantation owners are finding it difficult to generate a profit or even pay for the cost of a mid-rotation thinning. This is creating a backlog of unmanaged pine plantations with stagnate growth, a high risk for wildfire and insect damage, and low potential to eventually produce quality sawtimber.

Silvopasture systems are an alternative pine plantation approach for providing a long-term supply of sawtimber with fewer mid-rotation plantation thinning operations. In past decades the plantation owner's income was supplemented through these mid-rotation thinnings. In a silvopasture system the plantation owner's income is increased through annual forage or grazing income. The establishment of profitable forage under the pine tree canopy is possible because there are many fewer trees planted in a silvopasture plantation, as few as 150 trees per acre, rather than the more typical 600-900 trees per acre. Fewer trees means more light reaches the grass and legumes on the ground.

This dual-product land management system can increase on-farm income by as much as 70% over a forage only or timber only management system. This is possible because of the interactions between the trees and forage, the more complete utilization of sun light and soil nutrients, and more intensive management by the producer. An effective silvopasture system includes a well-managed rotational grazing system and regular pruning of the trees to create high value timber.



Silvopasture trials and demonstrations have been explored in the southeast for more than 20 years. Although there has been only a minimal investment in research, these demonstrations still illustrate the potential of silvopasture systems for pine sawlog production. It also has many additional benefits such as providing habitat for quail and wild turkey, being less susceptible to southern pine beetle attack, providing ready access for pine straw raking, and reducing the risk of

wildfires. It is also possible to thin an existing pine stand to allow sufficient light to reach the understory so that a forage system can be established and managed.

Silvopasture systems and the necessary management components such as fencing, livestock water systems, tree planting, and forage improvement are eligible practices within the Environmental Quality Incentives Program (EQIP). Silvopasture could also qualify under southern pine beetle and wildfire prevention programs.

"In the 80's, I found myself with high-priced real estate. I had to find a way to create some cash flow on my ranch. The answer was grazing cattle under planted pines--in fancier terms, silvopasture. Everybody said raising cattle and pines together wouldn't work because the cattle would destroy the trees, but I've been able to double the return from my land with this combination." George Owens, Chipley, FL

Forest Certification for Landowners

Alyx Perry

Wildlaw Southern Forests Network
Asheville, North Carolina

Harry Groot

Next Generation Woods, Inc.
Hiwasee, Virginia

Kathryn Fernholz

Dovetail Partners
White Bear Lake, Minnesota

Forest certification is a system for evaluating and recognizing well-managed forests and the products harvested from them. Forest management and forest certification offer several potential opportunities and benefits for landowners, including improved forest health, better wildlife habitat, and marketing niches.

Forest certification started in the early 1990's as a market incentive and mechanism to differentiate responsibly managed forest products. Today, about 6% of the world's forests are certified using a variety of different certification systems. In the United States, there are three major approaches to providing certification for family forests. The three primary certification systems for landowners are the American Tree Farm System (ATFS), Forest Stewardship Council (FSC), and master logger programs.

The American Tree Farm System (ATFS) was first established in 1941 and revised its certification program and auditing standards in 2002. The ATFS offers group certification to allow landowners to pool resources and have their lands certified under a single, shared certificate. There are eight (8) ATFS group certificates in the United States with a total of almost 3 million acres certified. More information

about the ATFS certification program is available at: www.treefarmssystem.org.

The Forest Stewardship Council (FSC) was started in 1993 and has established regional standards for certification assessments in the United States. The FSC also offers group certification for landowners. There are about 40 FSC group certificates in the United States. More information about FSC is available at; www.fscus.org.

Master Logger Certification programs differ from the previous two programs in that Master Logger Certification certifies the operator not the forestland. The Professional Logging Contractors of Maine started Master Logger Certification in 2000. Several other states, including Wisconsin, Michigan, Minnesota, and Vermont have also initiated logger certification programs. More information on the Maine program is available at: www.masterloggercertification.com.

Forest certification is a relatively new tool for evaluating forest management and recognizing products from well-managed forests in the marketplace. Landowners interested in learning more about the opportunities offered by forest certification and responsible forest management can contact the individual certification programs to learn more.

Specialty Niche Crop Profiles

Richard Molinar
UC Cooperative Extension
Fresno, California

\$ 200,000 from half an acre??

\$ 100,000 from 2 acres??

Are these kinds of returns (gross) possible? The answer is yes-no-maybe. It depends on which way the wind is blowing. Your abilities as a farmer, pest control advisor, fertilizer expert, irrigation specialist, soil scientist, and marketer all play a key role.

The farmer proclaiming \$200,000 income sold baby lettuces in fancy salad mixes to fancy restaurants in the San Francisco Bay area and East Coast. Growing the plants is fairly easy [comparatively speaking] but it is growing the right crop, at the right time, and marketing it aggressively that determines whether a large, small (or no) profit is made.

Generally speaking, "Niche" crops have a greater potential for making higher returns per acre than the mainstream vegetables. Niche and specialty crop can be used interchangeably. It is something that not too many others grow.

At the same time the specialty crops are more labor intensive and have higher costs of production. All successful enterprises are predicated on three very important points: 1/ **researching** the production of the crop; 2/ **researching** the market potential and places; 3/ **diversification** and not putting all your eggs in one basket.

Niche marketing means doing something no one else is doing. It involves growing unusual specialty vegetable or 'oddballs'.

Where to Market:

There are many marketing options and oftentimes a farmer is selling at three or more places on the list below. Some of the markets on the list are easier to get into, and others more difficult, as indicated in the "difficulty" rating (Table 1)

Several general principles apply to Niche Specialty crops

- if everyone is growing it, it is no longer a specialty Niche crop
- any Niche crops eventually become mainstream (baby lettuce, eggplant)

EXAMPLES OF SPECIALTY 'NICHE' CROPS

They are usually oddballs, odd shapes, odd sizes, different colors, grown out of season,, organic, foreign (ethnic) miniature, heirlooms, medicinal, gourmet, value-added (dried, frozen, pickled, pre-cut, chocolate covered, candied).

I will be referring to the *Federal Market News Reports* (www.arms.usda.gov/marketnews.htm) and the cost and return studies from the UC Davis campus (www.agecon.ucdavis.edu).

		Difficulty getting into	Potential for returns
1	Roadside stands	☹	☺☺
2	Pick-your-own	☹☹	☺☺
3	Processor contracts	☹☹☹	☺
4	Terminal wholesale markets	☹☹	☺
5	Local vegetable packing houses	☹☹☹	☺
6	Specialty wholesale houses	☹☹☹☹	☺☺ to ☹☹☹☹
7	Specialty retail stores	☹☹ to ☹☹☹☹☹	☺☺ to ☹☹☹
8	Certified farmers markets	☹☹ to ☹☹☹☹☹	☺ to ☹☹☹☹☹
9	Flea markets / swap meets	☹	☺☺
10	Restaurants	☹☹☹☹☹	☺☺☺ to ☹☹☹☹
11	CSAs (commun. supp. ag.)	☹☹	☺☺
12	Internet	☹	☺ to ?
13	Cooperatives	n/a	☺☺
14	Agri-tourism	☹ to ☹☹☹	☺☺
15	Institutional (school lunch, etc.)	☹☹☹☹☹	☺☺ to ☹☹☹☹

Table 1: Difficulty Rating

JUJUBE or Chinese Date: *Zizyphus jujube Lam.* The plant belongs to the Buckthorn family and is believed to have originated in China. The trees are long-lived and extremely hardy. No diseases or insects have been a problem in California. The main varieties are the Li, Lang, and Sherwood and are generally spaced 15' by 15' (194 trees per acre). Cost to purchase trees is around \$18.00.

A Typical yield per tree is 60 lbs. of marketable fruit and prices paid to the farmer start out at \$1.25 and drop to 60cents later in the seasons (\$ 7,000 to 14, 500 gross income to the farmer). Uses include: fresh, dried (date), candied, substitute for dates/raisins, smoked, pies, turkey stuffing, medicinal tea, bread, pickled.

60 lbs. x 194 trees x 75¢ per pound = \$8,730

ASIAN CUCURBITS - bittermelon, sinqua, moqua, luffa, snake gourd, opo:

Sinqua (Luffa): *Luffa acutangula*, is a member of the cucurbit family. Plantings are usually trellised and started from

transplants early in the spring. 8-10" fruits can be harvested fresh and used much like zucchini squash, with a typical yield being 1,000 30-lb. cartons per acre. Most of the costs are in the trellising and harvesting as seen in Table 2.

UC COOPERATIVE EXTENSION, SAN JOAQUIN VALLEY, 2005

2005	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
TOTAL CULTURAL COSTS	211	1,044	1,706	76	145	83	90	105	83	791	11	11	4,355
Harvest													
Hand Pick						927	1,862	1,862	1,862	927			7,440
Haul						55	110	110	110	55			439
TOTAL HARVEST COSTS	0	0	0	0	0	981	1,972	1,972	1,972	981	0	0	7,879
interest on operating capital @ 7.65%	1	8	19	19	20	27	40	53	67	-11	0	0	243
TOTAL OPERATING COSTS / ACRE	212	1,052	1,725	95	165	1,091	2,102	2,130	2,122	1,761	11	11	12,478
TOTAL CASH OVERHEAD COSTS	20	2	45	2	2	2	2	2	2	2	1	301	381
TOTAL CASH COSTS / ACRE	232	1,054	1,770	97	167	1,093	2,104	2,132	2,123	1,763	12	312	12,860

Table 2: Cost per Acre to Produce Bittermelon

The wholesale price in Los Angeles paid to farmers July and August 2005 averaged \$15-18.00 per 30-lb. carton as seen in Table 3, the net returns per acre will vary according to the yield and price received.

Mature fruits can also be harvested for the 'luffa sponge' sold in stores for kitchen cleaning and for skin care. One acre will yield about 20,000 sponges if left on the plant until fall. Prices on the internet for an 8-10" sponge is \$10.00.
\$200,000 per acre!!

PRICE \$/box	YIELD (30 lb boxes / acre)						
	400	600	800	1,000	1,200	1,400	1,600
6.00	-5,856	-6,285	-6,713	-7,136	-7,562	-7,985	-8,407
9.00	-4,656	-4,485	-4,313	-4,136	-3,962	-3,785	-3,607
12.00	-3,456	-2,685	-1,913	-1,136	-362	415	1,193
15.00	-2,256	-885	487	1,864	3,238	4,615	5,993
18.00	-1,056	915	2,887	4,864	6,838	8,815	10,793
21.00	144	2,715	5,287	7,864	10,438	13,015	15,593
24.00	1,344	4,515	7,687	10,864	14,038	17,215	20,393

Table 3: Net Returns per Acre above Total Costs - Cucurbit

DAIKON. *Raphanus sativus* is a brother to the common radish. Roots are much larger than the radish and tend to have a milder taste. Daikon can be planted and harvested almost year-round, however the best quality comes from the fall-spring harvests. Several pests that attack Daikon include aphids (which spread a plant virus) and wireworms which cause cosmetic damage on the roots. Total

growing costs are about \$3,00per acre, 75% of which are harvest costs.

From table 4 we can see that a profit can be made when prices are over \$6.00 per 40-lb. carton and yields exceed 450 boxes per acre. The L.A. wholesale prices paid at the terminal market March through July were around \$9-12.

UC COOPERATIVE EXTENSION

PRICE \$/box	YIELD (40 lb boxes / acre)						
	450	500	550	600	650	700	750
4.00	-588	-549	-518	-473	-433	-395	-357
6.00	312	451	582	727	867	1,005	1,143
8.00	1,212	1,451	1,682	1,927	2,167	2,405	2,643
10.00	2,112	2,451	2,782	3,127	3,467	3,805	4,143
12.00	3,012	3,451	3,882	4,327	4,767	5,205	5,643
14.00	3,912	4,451	4,982	5,527	6,067	6,605	7,143
16.00	4,812	5,451	6,082	6,727	7,367	8,005	8,643
18.00	5,712	6,451	7,182	7,927	8,667	9,405	10,143
20.00	6,612	7,451	8,282	9,127	9,967	10,805	11,643

Table 4: Net Returns per Acre above Total Costs—Daikon

LEMONGRASS. *Cymbopogon citrates* is propagated vegetatively from crown divisions. It is used extensively in Asian stir-fried dishes, as a hot-cold tea, flavorings in baked goods, and a fragrance in perfumes, cosmetics, and soaps. It can be grown as an annual or a short-lived perennial but requires at least 8 months from planting to harvest. The only minor pest observed in California has been a fungal rust on the leaves. An average to good yield is 1,400 boxes per acre (40-

lb). Total cost per acre (including harvest) is about \$9,000 per acre.

Almost ½ of the total cost is for the tedious hand harvesting, and the other part of the total cost is for the installation of the plastic tunnels to protect the plants from freezing weather in the winter. To make a profit the farmer needs at least \$8.00 per box and a yield of 1,000 boxes per acre.

PRICE \$/box	YIELD (40 lb boxes / acre)						
	1,010	1,110	1,210	1,310	1,410	1,510	1,610
6.00	-4,015	-3,909	-3,801	-3,695	-3,588	-3,480	-3,373
7.00	-1,995	-1,689	-1,381	-1,075	-768	-460	-153
8.00	25	531	1,039	1,545	2,052	2,560	3,067
9.00	2,045	2,751	3,459	4,165	4,872	5,580	6,287
10.00	4,065	4,971	5,879	6,785	7,692	8,600	9,507
11.00	6,085	7,191	8,299	9,405	10,512	11,620	12,727
12.00	8,105	9,411	10,719	12,025	13,332	14,640	15,947

Table 5: Net Returns per Acre above Total Costs— Lemongrass

SPECIALTY EGGPLANTS. Many different types exist here including Japanese, Thai, Filipino, Chinese, and Hmong etc. Most have a sweeter, more intense flavor than the traditional American round eggplant. Chinese eggplants are usually transplanted in April when the weather and soil temperatures have warmed up. Pest problems include verticillium wilt,

flea beetles, aphids, spider mites, various caterpillars, and Lygus bugs (which cause flower drop). The crop is harvested for four months starting in July, with most growers averaging 2,000 30-lb. cartons per acre. The break even point is about \$7.00 per box and 1,800 boxes per acre. Care should be taken not to bruise the delicate skins of the fruit.

PRICE \$/box	YIELD (30 lb boxes / acre)						
	1,500	1,700	1,900	2,100	2,300	2,500	2,700
6.00	-2,009	-1,606	-1,201	-796	-393	12	417
7.00	-509	94	699	1,304	1,907	2,512	3,117
8.00	991	1,794	2,599	3,404	4,207	5,012	5,817
9.00	2,491	3,494	4,499	5,504	6,507	7,512	8,517
10.00	3,991	5,194	6,399	7,604	8,807	10,012	11,217
11.00	5,491	6,894	8,299	9,704	11,107	12,512	13,917
12.00	6,991	8,594	10,199	11,804	13,407	15,012	16,617

Table 6: Net Returns per Acre above Total Costs— Eggplants

BLUEBERRIES are a mainstream crop in Michigan, Washington, Oregon, but in the California Central Valley they are still a Niche crop. They start producing in a market window before the other states start coming into production. Taste is evaluated closely as well as yield.

The start-up costs for the first two years to establish a planting are around \$16,000, but depending on the variety, yields may be in the 20,000 lb. range per acre. As seen in the net returns' table 7, at \$1.11 per pound a farmer would need a minimum of 17,600 pounds to make a profit, and even less in succeeding years.

Six years (and continuing) of testing has resulted in varieties that are adapted to the climate in the Central Valley and determining the production techniques for the region (soil acidification etc). Over 40 varieties are currently under evaluation from a number of nurseries.

2003 Blueberry Taste Tests
Sharpblue
Bluecrisp
Jewel
Magnolia

NET RETURNS PER ACRE ABOVE TOTAL COSTS OF PRODUCTION							
Price \$/lb	Yield (lb/acre)						
	13,200	15,400	17,600	19,800	22,000	24,200	26,400
0.86	(4,058)	(3,863)	(3,667)	(3,471)	(3,276)	(3,080)	(2,884)
0.98	(2,474)	(2,015)	(1,555)	(1,095)	(636)	(176)	284
1.11	(758)	(13)	733	1,479	2,224	2,970	3,716
1.23	826	1,835	2,845	3,855	4,864	5,874	6,884
1.35	2,410	3,683	4,957	6,231	7,504	8,778	10,052
1.48	4,126	5,685	7,245	8,805	10,364	11,924	13,484
1.60	5,710	7,533	9,357	11,181	13,004	14,828	16,652

Note: Numbers in parenthesis mean a net loss for the given price and yield combination.

Table 7: Net Returns - Blueberries

Blackberry and Raspberry Production Opportunities for the Southeastern United States

Gina E. Fernandez and James R. Ballington

North Carolina State University

Raleigh North Carolina

Status of Crop in the United States

Large-scale commercial bramble (blackberry and raspberry) production in the U.S. is located almost exclusively along the Pacific Coast. In a recent Census of Agriculture, California, Oregon, and Washington reported 76 percent of harvested U.S. raspberry acreage. Most acreage in Washington is destined for processing and the California industry aims towards the fresh market. However, off-season imports from other countries are increasing, enabling consumers to get fresh brambles nearly year round.

Bramble production is limited in the southeastern United States (SEUS), but interest in these high-income specialty crops is growing, as more and more consumers demand a local supply of these fresh fruits. Blackberries are no longer considered a local crop of limited appeal outside of the South. Consumers are demanding and grocery stores are paying and getting high prices for fresh berries. Brambles offer growers an excellent potential for profit, having both high value and great market potential. Net income can exceed \$3,800 per acre from established blackberry plantings which can last up to ten years. Adoption of these high-value crops may help the survival of small acreage and family farms as production of traditional crops (e.g. tobacco) becomes untenable.

Prospects and Opportunities for the Southeastern United States

Blackberries are being sold in North Carolina markets as "gourmet berries" for \$3 or more per 1/2 pint. In the SEUS, blackberries have been traditionally sold at pick-your-own farms or at roadside stands. A few of the larger growers sell their fruit to chain stores in the region

(e.g. Harris Teeter, Food Lion, Whole Foods). Test marketing of blackberries, by the NCSU/NCDA & CS Specialty Crops Program indicated that a market exists at grocery chains, gourmet restaurants and farmers markets. For example, Wellspring grocery (Whole Foods Chain) sold blackberries from this NCSU/NCDA SCP marketing project at the Raleigh store for \$3.99 to \$4.99/quart, and they stated in their produce survey "sales were great". In addition to the above outlets, berries can be sold to processors, for jams, jellies, wine and other value added products.

Worldwide blackberry production is expanding with shipping to major markets, and the season-long availability has greatly increased the sale and awareness of this crop. The SEUS produces blackberries at a time when domestic supplies are low, and prices generally remain high throughout the production season. New varieties that produce fruits their first year offer the potential to produce fruits during periods of time beyond our typical May-July peak.

New raspberry cultivars from the Maryland and New York breeding programs do well in high elevation regions of the SEUS and there is a good chance for the release of heat tolerant raspberries for piedmont areas in the next decade. Off-season production of raspberries and blackberries using new primocane fruiting varieties, tunnels, greenhouses or other forms of protected culture could extend the production season nearly year round. The SEUS could be a major supplier to that worldwide market if production practices, post-harvest handling techniques and marketing strategies are developed and deployed.

Growing Blueberries for Local Markets

Bill Cline

North Carolina State University
Castle Hayne, North Carolina

Overview

Blueberries are native North American plants of the genus *Vaccinium*. Those adapted to commercial production include the highbush blueberry (*V. corymbosum*) native to the northeastern states; rabbiteye blueberry (*V. ashei*) native to the southeastern US; and lowbush blueberry (*V. angustifolium*, *V. myrtilloides*) in the managed wild stands of Maine and eastern Canada. Also, recent hybrids between domesticated and wild species have resulted in "southern highbush" cultivars uniquely adapted to warmer climates. Commercial production is mostly site-limited to well drained, acid soils with an organic matter content above 2%. However, blueberries can be grown almost anywhere if the right cultivars and proper soil modifications are used. Limiting factors include pH, organic matter content, water availability, plant chill requirement and cold hardiness.

Interest in blueberries has increased dramatically in the last 5 years due to exciting new information about the health benefits of blueberry consumption. Blueberries produce high-value fruit in a relatively small space, and are thus well suited for small, locally marketed or pick-your-own plantings. In areas isolated from commercial fields, blueberries are also a good candidate for organic production. This presentation covers the basics of small-scale blueberry production and marketing. The text below is adapted from *Blueberries for local sales and small pick-your-own operators*, and it is available on-line at:
<http://www.ces.ncsu.edu/depts/hort/hil/hil-202.html>

Pre-plant considerations

Soil pH - Blueberries require a lower pH than other small fruit crops. To reduce pH, apply wettable sulfur (90% S) if pH is above 5.3 for rabbiteye blueberries or 5.0 for highbush blueberries. Use 1.0 pound (2.5 cups) per 100 square feet on sandy soils to lower pH by 1 unit (for instance, from 6.0 to 5.0). Apply 2.0 pounds per 100 square feet for the same amount of pH lowering on heavier soils containing silt, clay or more than 2% organic matter. Try to achieve a pH of around 4.8; too much reduction can be detrimental to bush growth. Apply sulfur at least 3-4 months before planting, and take another soil test before planting. If pH is still above the acceptable range, additional sulfur can be applied.

Organic Additions - If the soil contains less than 2% organic matter, the incorporation of peat moss or well-decayed pine sawdust or bark will improve plant survival and growth. Establish the rows on ridges to provide the required drainage. Apply 4 to 6 inches of the organic material over the row in a band 24 inches wide and incorporate thoroughly using a roto-tiller to a depth of 6 to 8 inches. Preparing the beds in the fall will allow planting earlier in the season (late Feb. to late March depending on the location). If the organic material is incorporated in the fall, any sulfur required to lower the pH can be added at the same time. Avoid opening a furrow, adding the organic material and planting directly in the pure organic material. Water and nutrient management is likely to be difficult in the pure organic material and plants are more likely to become weak and die. Organic material such as pine bark, wood chips, sawdust or pine straw can be used in a deep (3 to 4 inch) mulch layer on the surface after

planting. This surface mulch results in more uniform soil moisture, reduces soil temperature and generally promotes better bush growth and survival. Pine bark, chips or sawdust have a pH of 3.5 to 4.5 and are more desirable than the same mulches from hardwood with an associated pH above 5.0. However, hardwood mulches on the surface have been satisfactory. Avoid sticky hardwood sawdust that will seal the bed and prevent water infiltration.

Drainage - Provisions for drainage must precede planting. Soil maps or observing the soil profile may be helpful in predicting internal drainage. However, digging a dry well is the most effective way to assess internal soil drainage. Dig a hole(s) 6 to 8 inches deep and observe water level following heavy rains. Water should not remain in the hole for more than 24 hours, otherwise select another site or plant on ridges high enough for the water level to reach 6 to 8 inches deep within 24 hrs.

Irrigation - In most seasons and on most soils, irrigation is absolutely essential the year of planting. A system using micro-sprinklers is recommended and is more efficient than point-source drippers. Even 2 drippers per plant often do not wet enough of the soil surface. At least 50% of the area under the drip line should be wetted. The irrigation must be designed for the higher output of microsprinklers (about 10 gal per hr) compared with 1 or 2 gal per hr for drippers. Align the micro-sprinklers to avoid saturated soil around the crown of the bushes. The use of automatic timers on drip or microsprinkler irrigation systems can result in shallow root systems and root rotting if systems apply water daily. Apply irrigation no more than once every two days to reduce the chances of root rot infection. If the grower has no choice but to establish the planting on a site prone to problems with frost during the early spring (during bloom) then overhead sprinkler irrigation should be installed to provide frost protection and supplemental moisture.

Cultivar selection - Cultivars (cultivated varieties) recommended in one state or region may be totally inappropriate for another area. In North Carolina, for instance, both highbush and rabbiteye cultivars can be grown in the Coastal Plain and Piedmont. However, only highbush will consistently survive and produce fruit following the minimum winter temperatures below 10° F that regularly occur in the Mountains. The rabbiteye species is more drought and heat resistant and will tolerate a wider range of soil types than highbush; for these reasons, rabbiteye cultivars are easier to establish and grow successfully in the Piedmont and on the drier soils of the Coastal Plain. More recently a group of cultivars referred to as southern highbush have been released. These cultivars are intermediate between highbush and rabbiteye in soil and climate adaptation. Some specialized southern highbush cultivars require very little winter chilling and can be grown as far south as subtropical Florida.

Pollination - In order to form a berry, each blueberry flower must be visited by a pollinating insect. Commercial growers in NC use honeybees for pollination (1 hive/acre). Most small plantings are adequately pollinated by wild insects even without the use of managed honeybee hives. Blueberries are not fully self-fertile, so growers are advised to plant more than one cultivar to encourage cross-pollination and improve fruit set and sizing.

Sources of Plants - Blueberries are propagated vegetatively through the use of cuttings. Both hardwood (winter) and softwood (summer) cuttings can be rooted under mist without the use of rooting hormones. While this can be accomplished by the backyard hobbyist or by a local nursery, the best sources of uniform plants for establishing a new planting are nurseries that specialize in blueberry propagation. Some commercial sources will sell single plants, while others require minimum orders of 50 to 100 plants

Planting

Nursery plants that are 2- or 3-years old and 12-36 inches tall will transplant well. The roots must be kept moist at all times between digging and replanting. Plant bare-rooted bushes in late winter (Feb-Mar) as soon as the soil can be worked; fall (Nov-Dec) planting has also been successful on sandy soil in the southeastern NC Coastal Plain with bare-root plants, and in other areas with potted plants. Highbush cultivars are spaced 4-5 ft in the row and 8-10 ft between rows; rabbiteye cultivars need 5-6 ft spacing in the row and 10-12 ft between rows. If organic mulch will be applied on the surface, plant to the same depth as the plants were growing in the nursery. Without mulch, plant 1-2 inches deeper to allow for soil settling. Firm the soil around the plant with your feet and water thoroughly. Prune approximately 2/3 of the top growth on bare-root plants and 1/2 on potted plants, leaving only 1-3 of the most vigorous upright shoots. Remove any remaining flower buds (plump, rounded buds) on newly planted bushes.

Fertilization

Use caution -- blueberries are easily damaged by excess fertilizer. Apply the recommended amount and allow 4 inches of rain or an equivalent amount of irrigation between applications. In the first year, do not fertilize immediately after planting, but wait until the first leaves have reached full size, then apply 1 tbs. of a special azalea fertilizer, 12-12-12 or 10-10-10 within a circle 1 ft from the plants. Repeat applications at approximately 6 week intervals depending upon rainfall or irrigation, until mid-August (in coastal NC). In the second year, double the first year's rates, but increase the circle around plants to 1 1/2 ft. Make the first application when new growth begins in spring. On bearing plants, wait until growth begins in the spring, then apply 1 cup of complete fertilizer such as 10-10-10 within a circle 3 ft from the plant. If more vigorous growth is desired, side-dress with 1/4 cup of ammonium nitrate at 6 week intervals. For mature

bushes, 6-12 inches of new growth is adequate -- additional growth must be pruned away. This may result in a loss in production, but it is necessary to keep the plants from becoming excessively large. Determine side-dressing requirement based on the amount of shoot growth and bush color. If the soil pH is slightly high in an established planting based on a soil test, then side-dress with ammonium sulfate rather than ammonium nitrate. If the pH is 0.5 units or more above the acceptable range, apply wettable sulfur in a narrow band under the drip line of the bush at the rate of 0.1 pound per bush to lower pH 1 unit.

Pest Control

Weeds -- If mulch is applied following planting and replaced at the rate of 1 inch per year, few weed problems should develop. Hand pull or hoe the occasional weed growth. If row middles are in sod, mow often to reduce invasion by runner grasses and to avoid production of weed seeds that could blow into the mulched area. If the bushes are not mulched, avoid deep cultivation since blueberry roots are very near the surface. Hoe no more than about 1 inch deep. In addition, hoe often (once every 2 weeks) when weeds are germinating, to reduce competition and to avoid development of large, mature weeds. Pre- and post-emergent chemical herbicides are registered for controlling weeds in blueberry plantings.

Insects -- Insect pests encountered in small, isolated blueberry plantings are usually generalists that feed on a wide range of plant hosts. In North Carolina, Japanese beetles, cranberry fruitworm, cherry fruitworm and plum cutworm commonly occur on blueberry. Less common in NC is the blueberry maggotfly. The prevalence and importance of insect pests varies by location, and control relies on proper identification of the pest.

Diseases -- Growers who start with disease-free plants and grow them in a location isolated from other blueberries can avoid many diseases. Plant-borne viruses and host-specific fungal pathogens

like mummy berry can be avoided in this manner. As blueberry bushes mature and age, pruning can be used to remove dead or infected twigs and stems that harbor fungal blight pathogens. Fruit rots can be greatly reduced by timely and complete harvest, followed by post-harvest cooling of harvested fruit. Fungicide sprays can often be omitted entirely.

Bird Protection - Birds love to harvest blueberries. They can consume the complete crop from a small planting. One inch by one inch mesh bird netting draped over the bushes or supported on a framework is the only practical control.

Pruning

Highbush - If the plants are cut back severely as recommended following planting, little pruning will be required the second year except removing all flower buds and any weak, damaged or diseased growth. Use a similar pruning strategy the third year with the exception that several flower buds can be left on vigorous shoots. In the fourth year, the bush should be 4-5 ft tall and capable of handling a crop, but carefully thin flower buds to prevent over-fruiting and severe permanent bending of young canes under the fruit weight. When bushes are mature, remove old canes that are weak, diseased or damaged; cut back tall, vigorous shoots to force branching at a lower level and to control bush height; and thin fruiting shoots to reduce the number of flower buds by about 50%. Prune during the dormant season; late winter is most desirable.

Rabbiteye - During the first 3 years, pruning is very similar to highbush; however, excessively tall and limber shoots will need cutting back to stimulate branching and strengthen the shoot. With mature bushes that are excessively vigorous in spite of low rates of fertilization, cutting back the excessively vigorous shoots in late July will help control bush height and increase yield. Winter pruning of mature bushes is also similar to the recommendation for highbush, except detailed thinning of

fruiting shoots on each cane is less critical, and more suckers (shoots developing a distance from the crown) will require removal.

Harvest

With good care, mature highbush and rabbiteye plants should produce more than 10 lbs each year. Rabbiteye cultivars can on occasion produce up to 25 lbs per plant. Highbush blueberries will be of best quality when picked every 5-7 days depending upon temperature. Rabbiteye flavor improves if berries are picked less often; about every 10 days allows for maximum flavor with few soft overripe fruit. At each harvest, every effort should be made to pick all ripe fruit. Picking containers should be no larger than one-gallon buckets to avoid overfilling and crushing of berries in the bottom of the bucket. Avoid harvesting or handling fruit that is wet with rain or dew, as this will significantly increase decay. Once harvested, "ready-picked" fruit for immediate sale should be placed out of the sun and kept cool and dry. Forced-air cooling in a low humidity environment such as an air conditioned building can significantly improve the shelf life of harvested fruit. Further extension of shelf life requires refrigeration.

Potential for Organic Production

Blueberries can often be grown successfully without insecticides and fungicides outside of the commercial production areas of southeastern North Carolina. Japanese beetles can occasionally cause damage to the fruit during ripening, but the foliage is quite resistant. Susceptible plants such as roses or grapes will usually be defoliated before injury is seen on blueberries. The low rates of fertilizer required make organic sources a viable alternative. Horse manure has proven to be a suitable source of nitrogen and rock phosphate provides adequate phosphorous. Weeds can be controlled with shallow cultivation or more desirably with mulch.

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Southern Region Small Fruit Consortium --
www.smallfruits.org

Northwest Center For Small Fruits
Research – www.nwsmallfruits.org

NCSU Horticulture Information Leaflets --
<http://www.ces.ncsu.edu/depts/hort/hil/>

201 Suggestions for Establishing a Blueberry Planting in Western North Carolina
201-B Principles of Pruning the Highbush Blueberry
201-E Blueberry Freeze Damage and Protection Measures
202 Blueberry Production For Local Sales And Small Pick-Your-Own Operators
8207 Growing Blueberries for the Home Garden

Information Resources for Alternative Enterprises

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Florida has perhaps the most diverse agriculture and natural resources in the country representing nearly \$70 billion in output impacts in the state. Over 30,000 farms exist in Florida with small farms accounting for over 90% of all farms in the sunshine State. Small farmers own and manage the majority of non-urban, privately owned land in the state. Due to the vast diversity of climate, soils, water resources, coastal areas, and natural resources; small farmers in Florida have a very wide range of alternative enterprises available to them. Providing educational information on these enterprises to small farmers is quite challenging to the Florida Cooperative Extension system.

Educational needs of small farmers in Florida were identified as one of the statewide priority thrusts for Extension programs. As a result, the Small Farms/Alternative Enterprises focus area was created under the Extension Statewide Program Goal #1, "To Enhance and Maintain Agricultural and Food Systems".

Long range planning input from counties throughout Florida identified the need for new small farm educational programs to be developed. Input provided by small farmers and allied organizations and groups in 2000 identified critical issues facing Florida's small farmers. The issues included:

- Access to profitable markets.
- Entrepreneurial and business skills development.
- Networking with other small farmers.
- Readily accessible technical information on small farms and alternative crops and enterprises.
- Access to labor.
- Improving consumer relations and perceptions of farming.
- Concerns related to urban

development, loss of farmland, and reduced opportunities for farmers.

Educational information specific to the small farm audience needed to be developed to make efficient transfer of knowledge at the county extension program level. In the past, the information that would be useful to small farmers was difficult to find and was not well organized. County extension agents needed information they could easily access and efficiently use to teach small farm clientele. Florida has perhaps the most diverse agriculture and natural resources in the country representing nearly \$70 billion in output impacts in the state. Over 30,000 farms exist in Florida with small farms accounting for over 90% of all farms in the sunshine State. Small farmers own and manage the majority of non-urban, privately owned land in the state. Due to the vast diversity of climate, soils, water resources, coastal areas, and natural resources; small farmers in Florida have a very wide range of alternative enterprises available to them. Providing educational information on these enterprises to small farmers is quite challenging to the Florida Cooperative Extension system. Educational needs of small farmers in Florida were identified as one of the statewide priority thrusts for Extension programs. As a result, the Small Farms/Alternative Enterprises focus area was created under the Extension Statewide Program Goal #1, "To Enhance and Maintain Agricultural and Food Systems".

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- Access to labor.
- Improving consumer relations and perceptions of farming.

Providing this information to small farmers would increase profitability and improve their quality of life by making informed decisions. Developing information in an organized and easily accessible format would improve the quality and efficiency of extension agent program delivery. The development of a small farm website was planned to become the primary educational program deliverable. This deliverable would serve the identified needs by the clientele of Florida.

The Florida Small Farms/Alternative Enterprises Focus Team identified the primary topic areas needed to begin building the new website in 2004. Key individuals were recruited to help build the information for the key topic areas. These teams of individuals included University of Florida and Florida A&M University county and state faculty and staff, growers, and allied industry stakeholders. The key topic areas include:

- Small Farm Development
- Agronomics

- Agritourism
- Aquaculture
- Cut Flowers & Cut Foliage
- Forages
- Forestry
- Fruits & Nuts
- Greenhouse/Hydroponic Crops
- Herbs
- Livestock
- Organic Enterprises
- Ornamental Crops
- Value-Added Opportunities
- Vegetables
- Wildflowers
- Wildlife & Hunting

Other Miscellaneous Enterprises

The newly developed Florida Small Farms website, <http://smallfarms.ifas.ufl.edu>, was officially opened on the web in March 2005. During the first month, over 33,000 hits were received on the site, increasing to over 54,000 hits in April 2005. Feedback from county extension agents and farmers throughout the state verifies that the site is very useful and a very efficient way for farmers to access information on alternative enterprises.

Future program efforts from the Florida Small Farms/Alternative Enterprises team include the initiation of several regionalized small farms conferences in 2006, strengthening and updating the website, identifying and developing key publications needed by small farmers, and improving small farm demonstration sites across the state.

Niche Market Opportunities: a Consumer-driven Approach

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Introduction

U.S. food and fiber industry is driven by consumers' tastes and preferences. A more diverse U.S. population has over the years influenced the way food is produced and distributed. Most notable changes include consumers' health conscientiousness, lifestyle, and consumers' purchasing power. Most recently, a more diverse U.S. population spurred by emerging races and ethnic groups has revolutionized the way food will be produced and marketed in the U.S.

The goal of this paper is to discuss niche market opportunities in the Baltimore-Washington, DC area in the light of recent food and demographic trends. More specifically, the objectives of this paper are to: (1) discuss U.S. demographic

trends in support of ethnic food industry; (2) discuss ethnic food trends in the U.S., (3) research strategies for developing specialty and ethnic vegetable markets; (4) document ethnic and specialty vegetables' production windows in the Baltimore-Washington, DC area; and (5) explore possibility for extending ethnic vegetables' growing season.

U.S. Demographic Trends

As indicated in Table 1, the overall U.S. population has become diversified in the last decade. Since 1990, Native Americans have more than doubled (110% increase), followed by a considerable increase in other ethnic groups, namely Asians (64%), Hispanics (58%), and African Americans (22%).

Table1. U.S. Population by Race and Hispanic Origin (1990 and 2000)

	1990	2000	Population Growth
African American	29,968,060	36,419,434	21.5%
Asian	7,273,662	11,898,828	63.6%
Caucasian	199,686,070	216,930,975	8.6%
Native American	1,959,234	4,119,301	110.3%
Native Hawaiian ¹	-	874,414	-
Other Race	9,804,847	18,521,486	88.9%
Hispanic/Latino	22,354,059	35,305,818	57.9%
Total Population ²	248,709,873	281,421,906	13.2%

¹Native Hawaiian and Other Pacific Islander

²Total population includes Hispanic/Latino even though listed separately in the table.

Source: Census of Population and Housing, <http://www.census.gov/population> and <http://factfinder.census.gov>

Similarly, the diversity of the U.S. population is also observed within regions (Table 2). For instance, in the Baltimore-Washington, DC area (District of Columbia, Maryland and Virginia), Native American population has increased in the last 10 years in both Virginia and the District of Columbia by 246 and 220 percent respectively, followed by Hispanics in Virginia (106%) and Maryland (82%);

and Asians in Virginia (92%), District of Columbia (61%) and Maryland (51%). African Americans and Caucasians have increased but at a slower rate than that of other ethnic groups. Population projections predict a higher growth among Hispanics (5%) in the next 20 years (2000-2020).

Table2. District of Columbia, Maryland and Virginia Population Growth (1990-2000)

	Percentage Change		
	District of Columbia	Maryland	Virginia
Total Population	-5.7	10.8	14.4
African American	-12.3	24.2	23.9
Asian	60.7	51.0	91.5
Caucasian	2.6	-0.1	9.2
Native Hawaiian	--	--	--
Other Race	91.9	--	226.4
Hispanic/Latino	37.6	82.2	105.6

U.S. Ethnic Food Trends

It is estimated that U.S. ethnic food markets account for \$75 billion in annual sales (Miller, 2005). According to Kohls and Uh (2002), consumers' taste and preferences shape the nation's food and fiber system. Food consumption patterns are influenced by physiological needs, social conditions, and economic factors.

The determinants of demand such as income, and populations have influenced the U.S. ethnic food industry. In fact, culturally-based food habits are one of the last traditions people change when they move to a new country. Given the ever growing U.S. ethnic diversity and opportunity offered by untapped ethnic produce markets, excellent opportunities exist for U.S. consumers, food retailers, and farmers (Tubene, 2001).

Ethnic populations not only introduce new foods and food consumption patterns in the U.S., but also create new market opportunities for traditional foods. In some cases, they have also fostered new forms of food retailing, such as the *bodegas* (small neighborhood food stores) in large

cities (Kohls and Uhl, 2002).

According to Bellenger and Blaylock (2002), three demographic trends that will shape the future U.S. food markets include more mature consumers, more diversity, and more people to feed. A more diverse population implies a shift in food preferences as well as a notable expansion of the U.S. food repertoire. In order to benefit from this diversity, U.S. food suppliers must be aware and knowledgeable of the differing preferences of population subgroups and able to creatively tap into U.S. consumers' taste and preferences. Ethnic and specialty vegetables consistently respond to this challenge.

Developing Ethnic Produce Markets

The nature of agriculture significantly influences the organization and complexity of the food marketing system. Mostly, fewer, larger, and more specialized farms are producing the nation's food supply. The key farm product and output characteristics that influence the food marketing process are bulkiness, perishability, quality differences, output

variations, and the geographic specialization of individual commodities. The farm marketing problem has several dimensions, including the difficulty of adjusting farm output to rapidly changing market needs, the price-taking status of farmers, the farm cost-price squeeze, the imbalance of bargaining power between farmers and marketing firms, and declining pricing efficiency in agricultural markets (Kohls and Uh, 2002).

Nevertheless, ethnic vegetable producers most likely utilize direct marketing outlets such as farmers markets, pick-your-own (PYO), farm and roadside markets, community supported agriculture (CSA), mail order, and Internet marketing. They are not actually subject to the constraints of traditional agricultural market outlets since they operate in a monopolistic competition model rather than in a perfectly competitive market experienced by the traditional U.S. vegetable producers. Ethnic and specialty vegetable brand name is sufficient enough to differentiate itself from the mainstream agriculture commanding therefore, a premium price of a high-value niche product.

How farmers secure their own market outlets depend on the knowledge of the ethnic communities and the proximity of these markets. Farmers who are familiar with ethnic communities find it easy to penetrate such markets by building personal relationships with store and restaurant managers. This becomes efficient when farmers are located near these markets. Rural and remote communities may not enjoy such privileges if located away from metropolitan cities.

In the Baltimore-Washington, DC area, farmers have already identified their own niche markets, which work well for them. Given the shortage of ethnic produce in the region, available produce are immediately sold through these established market outlets. These niche market outlets are mostly Pick Your Own, farmers markets and international food

stores. In the Baltimore-Washington, DC area, farmers rarely sell their produce to wholesalers due to a high demand of ethnic produce escaping therefore, the imbalance of bargaining power between farmers and marketing firms.

Ethnic Vegetable Production Windows

Ethnic and specialty vegetables are usually stranger to temperate weather. Their natural habitat is tropical climate where the weather is hot and humid. Although perennial in their natural environment, ethnic vegetables cannot resist cold weather making it difficult to be grown throughout the year in the Baltimore-Washington, DC area.

In Maryland and Virginia, ethnic and specialty crops have adapted well to the spring and summer weather offering a production window of about 4 months ranging from May to September. Most seeding takes place in the greenhouse in February while transplantation occurs in May. Harvest occurs from early July to late September (Myers et al., 2004).

Extending Growing Season

Ethnic vegetables are grown in tropical climate where most crops are perennial. In Maryland, the growing season is short ranging from spring to fall (April to September). Ethnic vegetable production season can be extended beyond the natural growing season using high tunnel technology. More specifically, perennial vegetables such as edible hibiscus, and hot peppers can be grown for a longer time period (May-December) whereas annual vegetables such as amaranth, basil, and cilantro can be produced several times throughout the year extending therefore the production window from 4 to 7 months offering therefore, the potential to double farmers' income.

Conclusion

The ethnic foods industry accounts for \$75 billion in annual sales in the U.S. Ethnic and specialty vegetables have become a significant alternative agriculture in the U.S. On one hand, U.S. future

demographics predict a more diverse U.S. population. On the other hand, research indicates a promising future (of ethnic and specialty vegetables) for both consumers and food retailers. Being aware of the short production window for ethnic vegetables in the Baltimore-Washington, DC area, a growing season can be extended using a high tunnel technology.

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Innovative Production: Taking the First Step: Farm and Ranch Alternative and Agritourism Resource Guide

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The agricultural and rural landscape is rapidly changing. Land is being converted to housing and other permanent uses at an alarming rate. One result of this transformation is the loss of prime farmland near all of the major cities and many rural towns. Some sectors of agriculture are moving into what some people call an industrialization stage, or the very large and concentrated production of food and fiber.

Some farmers don't want to expand their operations, but few small farms can yield traditional farm products and compete successfully in this marketplace. Some agricultural sectors, for example tobacco, are in transition to new food and fiber production enterprises or to agritourism alternatives that will help them maintain or increase their farm income, sustain their lifestyle, and conserve their natural resources.

This transition into alternative enterprises and agritourism is happening at an opportune time. Urban and rural consumers alike are lining up, in several areas of the country, for food, fiber, and fun from the local farmer or rancher.

Market research and experience show that: Consumers today are looking for local, fresh, organically or naturally grown products and are, in most cases, willing to pay extra for them. More and more, consumers want to know who produced their food and how it is produced. Thus, they support local farmers and the conservation of natural resources. Children and adults are looking for the opportunity to engage in interactive

educational and outdoor activities. Tourists and farm customers are interested in farm culture and heritage so they can better understand agriculture. This opens the door for farmers and ranchers to provide an agricultural experience. The public is looking for interactive experiences close to home that will help them get back to their roots.

Rural America and the farm or ranch heritage and culture can help meet these needs. The National Survey on Recreation and the Environment estimated that 63 million Americans visited farms annually during the 2000–03 survey-periods. This indicates that alternative enterprises and agritourism would be a viable partner in most rural community economic development programs.

What is remarkable about these alternative enterprises—be they production of traditional or unique crops or livestock, direct marketing of traditional farm products, marketing value-added products, or providing recreational, entertainment, or educational facilities—is that they all have a common theme: farmers and ranchers are using their natural resources to keep their families on the farm and their farms in the family.

Using the Resource Guide

This guide is designed to help technical staff and rural leaders assist farmers and ranchers in taking the first step in identifying alternative enterprises and agritourism opportunities. It is difficult for a farm family to initiate this first step alone. Changing to a new enterprise involves different production techniques,

processing methods, and marketing activities. The entrepreneur must also identify and establish relationships with new networks and organizations that can help support the transformation to new enterprises.

This guide is developed and organized to help farmers and ranchers through the assessment of their natural, family, and community resources. It is designed to provide a basic understanding of how the interaction of soil, water, animals, plants, air, and human resources, and the conservation of them, provide opportunities for the development of alternative enterprises and agritourism.

This guide will help the landowner to inventory and understand the farm or ranch resources, think openly, think creatively, think of the unusual, but most importantly, think outside the box as they explore options for alternative enterprises and agritourism.

Basic questions asked throughout this guide are:

What can be done differently to sustain the resources and the family?

What new enterprises might fit with existing farm and ranch enterprises?

Do markets exist for the products that can be grown or produced, the services that could be provided, or the kinds of recreational or educational activities that can take place on a farm or ranch?

What federal, state, and local grant, loan, or conservation programs can be used to help develop these enterprises?

Are private funds available?

In addition to the First Step Resource Guide a CD-ROM of many resources related to small farms, alternative agriculture, business planning, agritourism and funding resources is also available. These materials were first made available to technical assistance organizations and agencies in February 2004. Within six months the 5,000 copies of the First Step publication were distributed to NRCS, Cooperative Extension and small farm offices and organizations. Demand has far exceeded supply. In November 2005 the First Step reprint will be available for distribution from the Southern Maryland Resource Conservation and Development office. The CD-ROM is currently being updated with anticipated release date of January 2006.

Funding for the reprint of the publication and CD-ROM has been provided through the following agencies and organizations: Southern Maryland Resource Conservation & Development Council; USDA Natural Resources Conservation Service; USDA Cooperative State Research Education and Extension Service; The Western Center for Risk Management Education; Southern Region Risk Management Education Center; The Northeast Center for Risk Management Education; North Central Risk Management Education Center; USDA Farm Services Agency

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Helping Small-scale and Part-time Farmers Evaluate Alternatives; the Agricultural Alternatives Project at Penn State

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To meet the educational needs of small-scale and part-time farmers, Penn State's College of Agricultural Sciences, with support from the USDA-Cooperative State Research, Education, and Extension Service, the USDA-Risk Management Agency, and the Pennsylvania Department of Agriculture, has developed a set of 58 publications called "Agricultural Alternatives". Most of the publications introduce various alternative enterprises, while others discuss important farm management and marketing topics. The enterprise publications help producers evaluate alternatives by providing unbiased information on marketing, production requirements, cost of production, and resource needs. Each four to eight page publication also has a list of references, trade and marketing association information, and mailing and web site addresses where more information can be obtained.

Over the past three years the project has issued several new and revised "Agricultural Alternatives" publications. They include farm risk management publications entitled *Starting or Diversifying an Agricultural Business*, *Developing a Business Plan*, *Agricultural Business Insurance*, *Cooperatives*, and *Financing Small and Part-time Farms*. New and revised enterprise publications include *Organic Vegetable Production*, *Boarding Horses*, *Introduction to Aquaculture*, *Apple Production*, *Peach Production*, *Partridge Production*, *Pheasant Production*, *Small-flock Turkey Production*, *Red Raspberry Production*, *Red Deer*, and *Watermelon Production*. Some "Agricultural Alternatives" publications

now being developed or revised include enterprise leaflets on garlic, wine grapes, cantaloupe, rabbits, earthworms, elk, dairy goats, specialized lamb, feeder lamb, spring and fall lamb, accelerated lamb, and business management leaflets on enterprise budgeting, agritainment, and roadside marketing.

Over the years the project has also developed enterprise leaflets on accelerated lambing, asparagus, beef backgrounding, beef cattle feeding, beef cow-calf, beekeeping, bell peppers, bison, bobwhite quail, broccoli, cantaloupes, cucumbers, dairy beef, dairy goats, dairy heifers, earthworms, eggs, elk, emus, fallow deer, feeder lambs, highbush blueberries, holiday lambs, meat goats, milking sheep, onions, ostriches, partridges, pheasants, potatoes, pumpkins, rabbits, red deer, rheas, snap beans, spring lambs, strawberries, sweet corn, swine, tomatoes, and veal. There are also publications available on enterprise budgeting, fruit and vegetable marketing, drip irrigation for vegetable production, and irrigation for fruit and vegetable production. Individual "Agricultural Alternatives" publications can be downloaded in Adobe Acrobat (pdf) format on-line at <http://agalternatives.aers.psu.edu>.

The Agricultural Alternatives Project is managed by Lynn F. Kime (extension associate in Agricultural Economics) and coordinated by Jayson K. Harper (professor of agricultural economics). If you have any questions about the Agricultural Alternatives Project, Lynn can be reached via e-mail at lfk4@psu.edu or telephone at (717) 334-6271, ext. 313