A PRACTICAL GUIDE TO COMMUNITY SUPPORTED AGRICULTURE ON RESERVATIONS

A Practical Guide for Cooperative Success

TOOLBOX SERIES

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About the publishers

The Native American People Cooperative (NAPC), an off-shoot of the Spirit Lake Community Development Corporation, provides technical assistance to develop Native American agricultural producers on the Spirit Lake Reservation. NAPC's governing board is 100 percent minority, consisting of three enrolled members of the Spirit Lake Tribe, North Dakota; one enrolled member of the Turtle Mountain Band of Chippewa, North Dakota; and one enrolled member of Cheyenne River Tribe, South Dakota. The current board members are Jerry Cavanaugh, Theresa Allery, Michael Baer, Curtis Walking Eagle and James Garrett.

NAPC has been integral to developing the concept of community supported agriculture on the Spirit Lake Reservation.

Northcountry Cooperative Foundation (NCF) is the non-profit, educational affiliate of Northcountry Cooperative Development Fund (NCDF). NCDF was founded in 1978 by a group of natural food cooperatives whose members wanted to invest their capital in business activities that supported their values. What began as a simple tool for self-preservation—a handful of co-ops lending money to each other because no one else would—soon grew into one of the first community-development loan funds in the country and a model for community-based capital control.

Since its founding, NCDF has expanded its market beyond natural food to include other cooperative sectors. NCDF has made millions of dollars in capital available to a range of small consumer, worker, housing and producer cooperatives and their members, playing an instrumental role in the success of these enterprises. From its beginning, serving a locally-based collaboration of small natural food cooperatives, NCDF has grown into a regional network of more than 100 community-based, democratically-owned and governed enterprises.

NCF, the non-profit arm of NCDF, was formed to more effectively carry out and expand the educational and technical assistance activities with which NCDF has long been involved.

About the printer

Arrow Graphics is an on-campus printing and publishing shop at United Tribes Technical College (UTTC), Bismarck, N.D. The college, which serves to provide an outstanding education to the Native American people of this region and around the country, is operated by five North Dakota tribes: Three Affiliated Tribes of Fort Berthold, the Spirit Lake Tribe, the Sisseton-Wahpeton Sioux Tribe, the Standing Rock Sioux Tribe, and the Turtle Mountain Band of Chippewa.

For almost 40 years, UTTC has served more than 10,000 American Indian students from more than 75 federally-recognized Indian tribes across the nation. In addition to American Indians, the college welcomes and serves students of all backgrounds.

UTTC, a regionally accredited institution, is the first tribal college in the nation authorized to offer full online degree program. The college is considered a 1994 Tribal Land Grant Institution.

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INTRODUCTION

Purpose of this guide

In the United States, the average morsel of food travels nearly 1,500 miles before reaching our plate. This entails an enormous consumption of fossil fuels and investment in the maintenance of highways. In addition, the corporate structure of food production and distribution receives enormous subsidies—all of which represent hidden costs to the produce consumer. Direct marketing through community supported agriculture (CSA) can bypass these issues by keeping food production and consumption local, and ensuring the grower is paid market rates for food produced.

Community supported agriculture can provide fresh, local produce to those who previously lacked access. As a small farming operation, a CSA can also provide food security to communities that are nutritionally lacking or unstable. Capital is retained within the community instead of being exported to cities and corporations in unknown parts of the world.

More generally, the community supported agriculture movement encourages connection between farmers, community and land in ways large industrial farming techniques cannot support. Communities value the relationship with the farmer and the land that participation in a CSA provides, while farmers are rescued from the isolation of farming. CSAs can also act as educational tools, where farmers teach their communities about the land, what it takes to produce vegetables from week to week and nutritious recipes for the produce they deliver.

This publication will help the Spirit Lake Tribe—and other tribal nations—decide whether and how to implement community supported agriculture on reservations.

CSA BASICS

WHAT IS COMMUNITY SUPPORTED AGRICULTURE?

Community supported agriculture (CSA) is small-scale farming created to reconnect the farmer to the consumer and the consumer to the land. A group of shareholders (or subscribers, as they are often called) promises to financially support a farm in the form of an annual membership fee in return for a weekly box of fresh produce, eggs, meat or even flowers. Because the grower receives cash from community members at the front end of the operation, he or she is able to avoid the anxiety of debt financing (applying for a spring operating loan and farming in the hopes of being able to pay it back at season's end).

Subscribers receive an average of 10 pounds of produce per week. This is usually an assortment of items influenced by customer preference and viability—tomatoes, squash, onions, blue potatoes, kale, lettuce mixes, eggs, peppers, carrots, beets and much more. In a successful CSA operation, members receive a constantly shifting array of produce throughout the growing season.

Investment in local agriculture

Some have cited community supported agriculture as the "spiritual ownership" of a farm by a community. In community supported agriculture, growers and their supporters share the risks and rewards of farming. If the land has a good harvest, shareholders receive a box of bounty every week with a variety of fresh vegetables, dairy or meat. If the land has problems, such as drought, pestilence or flooding, the grower and the community both bear the burden of the loss.

Types of CSAs

Seventy-five percent of all CSA projects are subscription-driven. This means the farmer organizes and manages the CSA, and volunteer farmwork is not required of share subscribers. An alternative to the subscription-driven CSA is the consumer-driven CSA. In this model, a core group of shareholders organizes and manages subscribers and hires a farmer to produce for them. About 15 percent of CSA projects are consumer-driven. The remaining 10 percent are owned and operated by non-profit groups.

CSA projects vary widely in size and scope.

The 20-acre Silver Creek Farm in Hiram, Ohio—Ohio's oldest CSA project—provides greens, squash, eggs, tomatoes, berries, potatoes and more to 100 CSA shareholders. In Newark, N.Y., the Peacework Organic Farms serves more than 280 families in the area, growing 70 varieties of crops on 18 acres. The Calypso Farm and Ecology Center in the severe climate of Ester, Alaska, farms just 2.5 terraced acres and provided organic vegetables, herbs and flowers to 45 shareholders by its third season (the Alaskan season lasts just 16 to 20 weeks).

Some CSA operations supplement the delivery of produce with fresh eggs or meat, while some rely mainly on roots and vegetables. Other CSAs supplement their marketing by attending local farmers markets. Every CSA operation is quite different, and should be tailored to individual farms, the climate, the land and the community to which they connect.

CSA history

The CSA movement can be traced back to Kobe, Japan, where, in 1965, a group of women approached farmers to sell fresh milk to them directly. Called *teikei*, which literally means (in reference to CSA) "food with the farmer's face on it," the system has since grown to more than 600 producer-consumer groups that provide food to more than 11 million people.

The concept of *teikei* and the CSA spread to Europe and then to the United States in 1984 by Switzerland's Jan VanderTuin. By 1986, two CSA projects had been formed—Robyn Van En's Indian Line Farm in Massachusetts and the Temple/Wilton Community Farm in New Hampshire. According to the LocalHarvest database (www.localharvest.org/CSA), 1,080 CSA farms have since been developed in North America. The two farms located in North Dakota are the Ruso Ranch near Ruso and the Schill Family Farm near Hannah. In addition, four Minnesota CSA farms have drop-off points in North Dakota. There are 60 CSA listings in Minnesota.

SPIRIT LAKE RESERVATION

AGRICULTURAL HISTORY

The Treaty of 1867 established the Spirit Lake Reservation (formerly the Devils Lake Sioux Reservation) in northeastern North Dakota. It was comprised mainly of Sisseton and Wahpeton Sioux but included the Cuthead bands of the Yanktonai and some Santee Sioux. (Garcia) Most were primarily hunters and gatherers, following the buffalo, but had engaged in trade with the agricultural tribes of the Dakotas, including the Mandan, Hidatsa and Arikara tribes along the Missouri River.

'Great destitution'

Until 1870 there was no Indian agent appointed at Spirit Lake due to the lack of an appropriation of funds to the reservation. During the winter of 1867, reports of "great destitution" among the Native Americans gathered there resulted in humanitarian aid arranged by the Sisseton reservation agent Benjamin Thompson. Rations were delivered to the Spirit Lake Reservation during the mid-winter to see them through to spring. The following spring the commandant at Fort Totten provided some seed corn but too late for the crop to ripen before frost. (Meyer)

In 1869, Dr. Jared W. Daniels, the agent for the Sissetons and Wahpetons, was charged with looking after the Spirit Lake Reservation. The 1869 numbers were estimated at just more than 400, including 90 men. Daniels had 50 acres of land broken for the next planting season but recognized that few wanted to cultivate the soil in what they viewed as "white man's fashion." Little Fish, the acting head chief of the Sissetons on the Spirit Lake Reservation, complained that all his people had received from the 1869 appropriation was a cup of corn, some seed potatoes and one envelope of carrot, beet, turnip and rutabaga seed per family. Again, the seed had arrived too late in the season to mature and his people faced starvation that winter and were dependent upon aid from the military. (Meyer)

Early the next spring, William H. Forbes, was appointed agent to the Spirit Lake Reservation. He arrived to find that more than 20 adults had died that winter. There was no wild game to be hunted. Forbes immediately ordered rations of flour, pork and seed potatoes. (Meyer)

Forbes encountered great reluctance when he tried to encourage farming and gardening. These men, great buffalo hunters, considered gardening women's work. They also lacked any farming experience. So Forbes brought in additional help—James McLaughlin, who was married to a woman of Sioux descent (from whom he had learned a basic understanding of the Dakota language), and George W. Faribault, a farmer. Faribault began teaching the tribesmen how to farm during the summer of 1871. They produced 1,500 bushels of corn, 500 bushels of potatoes, and 1,000 bushels of turnips, according to the agent's official report. In addition, they had put up 200 tons of hay and cut 10,000 fence rails. Faribault also brought in eight work oxen and a number of beef cattle. The seed wheat he ordered arrived too late for planting and grasshoppers destroyed any small grains that had been planted that year. Despite all of the progress, government rations continued to provide the bulk of the food needs of the reservation. (Meyer)

The Native Americans had first settled on the reservation in encampments but after a few years began to scatter over the reservation on individual farms, encouraged by their agent. Some of the Natives objected to having to work for the annuities they were entitled to due to the forced taking of their lands. Forbes remarked that it was hard to teach the Indians to farm, "especially as he views his teachers as belonging to the race that brought him to this

necessity of manual labor for support." (Meyer)

In 1877 McLaughlin, believing diversified agriculture held the key to self-support, distributed 50 cows, 14 calves, 2 bulls and 187 pigs. The Natives grew a northern variety of "Ree" corn, which had been cultivated by the Mandan, Hidatsa and Arikara tribes along the Missouri. The experiments with cattle and pigs resulted in little success. (Meyer)

Wheat introduced

In 1878, McLaughlin encouraged the Natives to plant wheat, the principle crop of the white-owned farms that surrounded them. The Natives produced 500 bushels of wheat, 1,000 bushels of corn and potatoes, 500,000 bushels of turnips and 1,500 bushels of oats. In 1879 McLaughlin promised that anyone who raised more than one acre of wheat was eligible to have it cut by a threshing machine that was purchased that year. The acreage of farmland on the reservation expanded from 75 acres in 1879 to more than 1,000 acres by 1883. (Meyer)

In 1881 John W. Cramsie took over the agent position from McLaughlin, who was transferred to the Standing Rock Sioux Reservation. Under Cramsie's direction, the acreage devoted to wheat increased every year and the reservation acquired more farm machinery and horses to replace oxen. A grain mill was established. In 1883 the annuities from the taking of their lands were discontinued under the provisions of a 1872 treaty. In 1884 the rations were discontinued for all but the aged and infirm. Beginning in 1886, drought and grasshopper plagues took a destructive toll, resulting in years when the crops were nearly a total failure. In 1895, Cramsie reported the Natives had "failed in agriculture for the last number of years."

Having approached self-sufficiency by the early 1880s, the Spirit Lake Reservation now found itself again dependent upon government intervention. By 1895 the death toll from "want and destitution" was 70. That year Congress doubled the customary $6,000 appropriation and appropriated $10,000 each year for the next four years. (Meyer)

Breaking of the land

In 1887 the passage of the Dawes Act led to the surveying of land on the Spirit Lake Reservation and its division into allotments for individual Native American families. Men received 160 acres, women 80 acres, and each child 40 acres. Any "surplus" land not needed for allotments was sold. The Spirit Lake Reservation sold "surplus" lands amounting to 100,000 acres from 1904 through 1907. The proceeds were distributed on a per capita basis in annual payments lasting through 1914.

By breaking up the land into family allotments, the communal lifestyle of the Natives' culture was broken. In 1906 the Burke Act took the land of "competent" Natives out of "trust status," subjected it to taxation and allowed for its sale. With the lack of access to credit, crop failures and lack of markets, Native lands were inevitably sold. This left the Natives in a poorer position than ever and even more dependent on the government, which was less willing to help. The sales of Native lands continued through the 1920s until the passage of the Indian Reorganization Act in 1934. (Meyer)

By 1929, only 26 Natives were actively engaged in farming of the Spirit Lake Reservation. Drought, lack of capital and the relative security of leasing lands versus farming those acres all contributed to the failure of Native agriculture. For most, farming had been reduced to a subsistence garden and a few chickens at best. The reservation held fall fairs displaying their best corn and other traditional garden crops. However, this belied the chronic poverty and resulting illnesses that were prevalent. Nearly two-thirds of the allotted land had been sold and the two-thirds of what remained in the trust was idle and tied up due to a land ownership structure that resulted in scattered multiple heirs. When members of the Spirit Lake Reservation voted on the acceptance of the Indian Reorganization Act in November 1934, they rejected it. (Meyer)

In 1938 Superintendent Gray sought to gain sufficient representation to elect a business council to direct a subsistence homestead project. All but two of the officers serving on that council were over the age of 60 and the business council had limited success. In 1953 a report prepared for Congress recommended many reservations for immediate termination. At the Spirit Lake Reservation, the extreme poverty precluded consideration of termination. Relocation and commodity programs in the 1960s precipitated a rapid decline in gardening on the reservation. With the industrialization of agriculture, small-scale commercial farming operations and subsistence agriculture were considered impractical. (Meyer)

Tribal farm established

In 1977 the Spirit Lake Tribal Council established a tribal farm on land purchased from a private landowner. The farm raised durum wheat, sunflowers, corn, soybeans, alfalfa and potatoes on 1,600 acres of land under center pivot irrigation and another 5,900 acres of dryland. (Greene) The farm hired three successive farm managers and was discontinued in the mid-1980s due to management difficulties. Of the 7,500 acres that once comprised the tribal farm, 2,000 acres are still farmed by a farmer who is a tribal member. The remainder is rented by non-members. (Moxness)

Rebirth in ag and gardening

Spirit Lake Tribe is experiencing a rebirth in agriculture and gardening through the efforts of the Cankdeska Cikana Community College. A 1994 land grant institution, Cankdeska Cikana (or Little Hoop), is working to complete an expansion of its facilities with a new building to house the agricultural science programs.

Cankdeska Cikana seeks to provide increased opportunities for students through agricultural classes offered and hands-on student experiences. The facility will include lecture and laboratory classrooms and a farm machinery building.

The college recently built a new greenhouse and the students provided bedding plants to community members during the 2007 growing season. This project will provide students the opportunity to pursue agricultural careers, increasing the tribe's ability to utilize its land base for agricultural production. In addition, students will provide leadership and outreach to the community by providing resources and technical assistance in home gardening skills. (Garrett)

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CSA DEVELOPMENT

FINDING SUBSCRIBERS FOR YOUR CSA PROJECT

Despite whatever our first instincts may be, randomly distributed flyers and brochures may not be the best way to find people who might be interested in subscribing to a weekly share in a CSA project. Marketing community supported agriculture shares can be a grassroots effort for growers. Many CSA projects gain new members simply by word of mouth. Following are some suggestions for recruiting new CSA members:

- Call other CSA farms and ask them about their marketing programs. Many farmers are glad to help a fellow farmer.
- Talk to everyone you know about the CSA farm, products and benefits. If they aren't interested in a share themselves, encourage them to talk to their neighbors and friends.
- Approach groups that might take an active interest in CSA farming. These include community groups, religious organizations, schools or political groups.
- Talk to people at your workplace.
- Call your local radio station or local/regional newspaper and ask if they'd like to interview the growers and/or other subscribers to the CSA program.
- Make copies of news stories and post them—along with brochures—in places such as clinics, community centers or health food stores.
- Make sure you have a designated person to answer the phone when people call with questions or to sign up.
- Even when you think you have enough subscribers, continue to build a waiting list of people who would like to participate.

Not only will you need to recruit new members, but you'll need to find ways to keep members coming back once you've got them. Much of this will depend on a good practice of farming and distribution, and listening to your share subscribers when they voice needs and concerns.

GETTING ORGANIZED

If there is a common understanding about starting a CSA, it is this: "There is no one formula." Each CSA will have its own personality, goals, skills and resources and should be set up accordingly. However, there are some general considerations that should be considered when starting a CSA. They include the following:

General tips

- Form a core group. When starting a CSA, you will need a committed core group of people to help with organization work and help with the decision-making process. Remember, people support what they help create.
- Build a database of names and contact information.
- Develop a vision statement that is supported by specific goals, a timeline and a budget. The plan can change but it helps to have a clear goal and a roadmap to get there.
- Develop a business plan. Ultimately, the CSA concept is still a business and must be based on practical business practices. Many farmers lack these skills but other members of the core group may be able to provide assistance.
- Establish a land base through a long-term lease or permanent land trust. This will allow for long-term investment in the land improvements and the sustainability of the resources. This will foster the connection to the land CSA members seek.
- Develop plans for the staffing structure. Determine who will perform administrative and

outreach functions and what jobs will require employees or volunteers, compensation and benefits and clearly defined work responsibilities.

- Develop the production and harvesting schedule and the delivery method with the input of the core group and potential CSA members.
- Draft an annual budget that includes all the costs of planting, cultivating, harvesting and delivering produce, including administrative and outreach costs.
- Establish the cost per share.
- Prepare a one-page flyer outlining mutual responsibilities of farmer(s) and shareholders.
- Communicate often with and obtain feedback from shareholders. This is a crucial matter. CSA projects that fail to understand their shareholders needs (both met and unmet) and their experiences (positive and negative) are bound to fail.
- Embrace change as inevitable and a part of the growth process. You cannot grow without change. (Groh & McFadden 1997)

CSA PRODUCTION MANAGEMENT

SUCCESS FACTORS

Key production success factors for a CSA market garden operation include the following:

- Proper site selection.
- Good seed bed preparation.
- Appropriate timing for plantings to:
  1. Optimize weed control.
  2. Avoid adverse weather, such as frost or extreme heat for heat sensitive crops.
  3. Stagger the harvest to ensure season-long production.
- Adequate labor for effective weed and insect control, harvesting, packing and delivery.
- Meticulous record keeping of seeding rates and timing, weed/disease/pest control, days to harvest, pounds of production per plant or row foot, pounds of usable/unusable produce, shortfall or excess, etc.

AVAILABILITY AND SUITABILITY OF SITE

In late 2007, land was available for lease at the Spirit Lake Reservation through Tribal Realty at $32 per tillable acre under a three-year lease agreement. Land can also be leased on a yearly basis. There is some idle land available that may shorten the time needed to certify the land as organic, if no chemicals have been applied for at least three years. There is no tribal land that is coming out of the Conservation Reserve Program (CRP) on the Spirit Lake Reservation for transition into organic production systems until at least 2012. Pasture land is also available for lease at $5 to $10 per acre.

There may be small parcels of pasture land suitable for creation of one- to five-acre plots. This would also shorten the time necessary for organic certification, if no chemicals have been applied to this land. Access to water for irrigation is desirable. An established CSA can provide approximately 25 to 30 shares per acre. The data indicates that a CSA of 100 shareholders provides the farm with a reasonable income.

Ideal garden site

Although the ideal CSA garden site is not always available, there are certain things to look for. Prioritize the desired qualities and compromise to identify the most suitable site. The ideal CSA garden site will feature the following:

- Receives full sun all day.
- Has deep, well-drained topsoil.
- Is protected from strong winds.
- Is free of rocks and perennial weeds.
- Is located in close proximity to the farmyard.
- Provides access to irrigation water.
- Provides an adequate land base for proper crop rotations.

GOING ORGANIC

Most CSAs avoid the use of synthetic fertilizers and pesticides and choose consumer-friendly management options. One of those options is certified organic production. The United States Department of Agriculture (USDA) National Organic Standards Board defined "organic" as follows:

> *"Organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil*

biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony." (Gold 2007)

"Certified organic" is a term used for products grown, processed and handled under a strict set of certification standards verified by a third-party inspector.

Regulatory requirements of organic production

The Organic Foods Production Act established a small-farmer exemption from certification and submission of organic plans for producers who sell no more than $5,000 worth of organic products annually and claim their product to be produced organically.

Once a producer exceeds the $5,000 threshold, to claim organic status they must submit an application for organic certification through a certification agency accredited by USDA's National Organic Program. It is important to communicate with your customers to explore the desirability of obtaining certified organic status. If your customers are comfortable with their knowledge of your production practices, it may not be necessary to certify those practices through a third-party certification agency. However, other potential shareholders may value the certification. It is important to know your customers and to understand what is important to them.

As stated above, if the land has been managed under an input intensive system, including the use of pesticides and commercial fertilizers, the transition period would be three years of organic management practices before the crop is eligible to be certified. If the land has a documented history of the absence of chemical or fertilizer applications, such as CRP managed through a clipping strategy or idle lands not managed through chemical weed control, the transition time may be significantly reduced.

There are five certification agencies registered with the North Dakota Department of Agriculture to provide certification services in the state. These agencies are:

1. The Organic Crop Improvement Association headquartered in Lincoln, Neb., with two chapters located in North Dakota.
2. International Certification Services based in Medina, N.D.
3. Stellar Certification Services based in Junction City, Ore.
4. Global Organic Alliance based in Bellefontaine, Ohio.
5. Quality Assurance International (QAI) based in San Diego, Calif.

Another option is to certify under the National Organic Program (NOP), utilizing one of the NOP accredited agencies listed above. *(See the Resources section for contact information.)*

Organic certification

The two most commonly utilized organic certification agencies serving North Dakota organic farmers are the Organic Crop Improvement Association and International Certification Services. The following chart shows the varying costs:

Certification Agencies	Membership Fee	Certification Fee	Inspection Fee	Year 1 Total	Following Years	Certification Details
Organic Crop Improvement Association (OCIA)	NA	$65	$175	**$240**	**$400**	Provides for first-year conversion discount. Products can be sold as organic in year two if signed documentation is provided that no pesticides or chemical fertilizers have been applied to the land for three years prior to the conversion year.
International Certification Services/Farm Verified Organic (ICS/FVO)	$200	$375	$125	**$700**	**$500**	Products can be sold as organic in year two if signed documentation is provided that no pesticides or chemical fertilizers have been applied to the land for three years prior to the conversion year.
National Organic Program (NOP)	$140	$175	$225	**$540**	**$400**	The NOP allows for organic sales during the conversion year if signed documentation is provided that no pesticides or chemical fertilizers have been applied to the land for three years prior to the conversion year.

GETTING STARTED

Managing a diversified vegetable operation requires significant skills. If consumers are going to be willing to take the risk of partnering with you, they will want to know you have the expertise to be reasonably assured their share will yield a bountiful basket of food during the season. Most CSA operations raise between 30 and 40 different crops of vegetables, herbs and fruit. Many CSAs offer other options such as eggs, meat, milk, flowers and even baked goods. Some offer winter shares of root crops or frozen produce.

If you have only nominal farming experience, you will want to consider gaining skills and knowledge about the crops you intend to raise by experimenting and selling your production at farmers markets. Not only will you gain production experience, but farmers markets provide a good way to develop relationships with potential CSA members in your area.

Another option is apprenticing on an established CSA or market garden. You will not only gain production experience, but will experience all aspects of production, harvesting, packing, storing, delivery and market relations.

Most established CSA producers advise starting with a small number of shareholders (six to eighteen) to gain experience on a smaller scale and grow as your skills and experience increase. Experienced growers recommend the early establishment of good irrigation system and a greenhouse. Establishing an advisory committee or core group of four to five shareholders who are committed to providing input can help you develop a production plan that fits your farm and their needs as well. This core group can be called upon for help in times of heavy workload or can help provide outreach to other members while you are busy in the field. Establishing a mentoring relationship with an experienced CSA grower in your region is highly advisable. Nothing substitutes for experience. If you don't have the experience, seek out the advice of someone who does.

Developing a production plan

Planning is crucial to ensure that the farm produces an uninterrupted season's worth of produce. Most CSAs strive to provide eight to 10 items each week weighing between 16 and 20 pounds of produce in a share box (full share), depending on the time of the season and the items provided. Early season production of greens tends to weigh less than late season root crops, for instance, so the weight will vary. The key is to provide what a family of four can

reasonably be expected to consume in one week. A season usually runs about 16 to 22 weeks.

CSA farmers need to determine how much and what to include in a share. A common complaint from CSA shareholders is that of being overwhelmed by the amount of produce and feelings of guilt if they cannot use it all. Members want to receive a fair amount of food in exchange for the price of their membership; however, there is such a thing as too much produce. Communicating with the members and getting their feedback about desirable quantities is crucial. It is also important to communicate to shareholders that while their preferences are important some preferences simply cannot be accommodated due to labor issues, pests or the need for specialized equipment.

As a CSA producer, you should weigh how to keep your customers reasonably happy while maintaining a reasonable work load, given the availability of labor. This ability to communicate what is working or not working greatly impacts shareholder satisfaction with their membership and the retention of your shareholders from year to year.

Cooperating with other farmers

Many CSAs offer distribution of a limited range of products from other local farms that they do not produce themselves. This provides added convenience for their members and supports other neighboring farms. Examples are eggs, honey, apples or maple syrup.

As a CSA producer, you should weigh how to keep your customers reasonably happy while maintaining a reasonable work load, given the availability of labor. This ability to communicate what is working or not working greatly impacts shareholder satisfaction with their membership and the retention of your shareholders from year to year.

Site preparation

Preparation tillage of your garden plot should be handled with care. Do not bring equipment onto your site that is used for tillage of other garden sites in the area. Doing so may result in the spread of soil-born diseases to your new garden site. This could include septoria, a fungal disease that attacks tomatoes. Purchasing and cleaning equipment that can then be dedicated to your farm can serve to mitigate those risks. Insects are vectors for crop disease and can still transport diseases, but starting with clean ground and maintaining it through every precaution possible will help insure a great start.

RISK FACTORS AND MANAGEMENT STRATEGIES

Disease, weed and insect control—along with effective fertility management—are essential to ensuring high quality and high yields.

Fertility management

Soil fertility is managed through the application of compost, incorporation of green manure crops and cover cropping.

As part of their fertility management plan and as an added service to members, many CSAs encourage their shareholders to return food scraps and yard waste back to the farm for composting. This composted organic matter can then be returned to the gardens as part of the fertility management of the operation. In addition, some CSAs encourage leaf collection in the fall to be used as mulch between rows as a method of weed control and moisture retention.

The benefits of organic mulches include:

- Improved soil structure.
- Increased infiltration.
- Nourishment of the soil microbes.
- Weed suppression.

- Moderate soil temperatures.
- Supplied nutrients.
- Erosion control. (Gruver 2004)

Be careful to specify to your members that non-organic compost or mulch (such as grass clippings from a chemically fertilized or weeded lawn) is forbidden under certified organic production systems. It is also important to be sure that any manure sources are well composted to ensure that any weed seeds and potential diseases are killed in the heating process. (Brummond 1996)

Soil testing is suggested to determine what nutrients are at low levels and may need to be added. Remember that too much nitrogen can harm certain plants. It is important to know what the nitrogen levels in your soil are before making any additional applications. (Brummond 1996) Overly rich soils can also induce disease problems. *(See the Disease Management section.)*

Weed management

Weed management is extremely important and requires extra time and attention the first few years. Eradication of perennial weeds such as Canada thistle should be managed before putting the land into production. One season of unchecked spreading through underground rhizomes will ensure a perennial headache. There is no substitute for vigilance. The problem can quickly explode and become completely unmanageable within a few growing seasons.

Annual weeds, such as pigweed and pigeon grass, can easily be kept in check. The key is to manage these weeds shortly after germination. Small weeds are a small problem; the bigger the weed, the bigger the problem. Rainfall will usually bring a new flush of weeds. Vigilance at the beginning of the season pays big dividends as weeding becomes easier throughout the season. If your labor supply allows, strive to never let a weed go to seed in your garden. Mulching and cover crops are two strategies that can help reduce your weeding time. Weeds that germinate late in the season are not as crucial because your plants are well established and can out-compete the weeds. Most late-germinating weeds will not go to seed but they need to be monitored.

Pest management

Building healthy, organic soil, utilizing natural composting methods, mulching and top-dressing your soil with compost or natural fertilizer is the best way to develop strong, vigorous plants. Insects attack unhealthy, weak plants first. CSA farms utilize crop rotations to break up insect and disease cycles. You can minimize insect habitat by clearing the garden and surrounding area of debris and weeds, which are breeding places for insects.

The next line of defense is hand removal of any pests you see when working the garden. This means you must observe and know which insects are beneficial, which are pests and which are real threats to your production. If you've been working in an infested area, clean your tools before moving on to other garden areas. This will reduce the speed of invading insects.

A central premise of organic agriculture is cooperating with nature in establishing an ecological balance between beneficial insects and insect pests. You can attract beneficial insects to your garden, which will then prey on harmful insects or their larvae. Beneficial insects can also be purchased and released directly into your garden to aid in their establishment. *(The Resources section lists sources of beneficial insects.)*

Problems of dispersal and the timing of releases to coincide with the susceptible stage or stages of specific pests can reduce the effectiveness of releasing natural enemies. Alternatives such as bacteria and various row covers are easier to use and more dependable than natural enemies. Providing favorable habits to encourage naturally occurring beneficial insects and mites may be more effective than purchasing and releasing predators and parasitoids. If

you want to experiment with beneficial insects, general predators such as green lacewings *(Chrysoperla carnea)* and spined soldier bugs *(Podisus maculiventris)* are probably the best choices. Lady beetles and praying mantis are less effective.

You can intersperse flowering plants designed to attract and harbor beneficial insects throughout your garden. Flowers will attract not only beneficial insects but pollinators, greatly benefiting the garden's productivity. Seeds for flowers that attract the beneficial insects listed below can be purchased from most organic seed catalog companies. *(The Resources section also provides a partial listing of some of the organic seed catalogs and online organic seed companies.)*

Insect species that are helpful in addressing specific pest problems include the following:

- *Parasitic wasps:* Leaf-eating caterpillars are the prey of these tiny beneficial insects. You can attract them to your garden by planting members of the Umbelliferae family including parsley, celery, carrots, caraway and Queen Anne's lace and allowing them to flower. The flower is what serves to attract these beneficial insects.
- *Hover-flies:* Hover-flies are voracious consumers of aphids, and the larva of hover-flies eat aphids and other insect pests. Like Lacewings, they are attracted to flowers, such as yarrow, goldenrod, black-eyed Susans and asters.
- *Lacewings:* Lacewings actively consume aphids. Their larvae eat aphids and other insect pests. They are attracted to composite flowers, such as asters, yarrow, black-eyed Susans and goldenrod, particularly in the daisy and sunflower families.
- *Ladybugs:* Ladybugs prey on aphids, mites and whiteflies. They are attracted to the flowers of yarrow, tansy and members of the daisy family.
- *Nematodes:* Nemotodes are effective against cutworms, a common pest that cuts off sprouts right below the surface of the ground. Nematodes also prey on different species of beetles and on the larvae of the root weevil. Nematodes do not affect humans and pets and can be ordered through garden supply catalogs. They arrive as eggs contained in a small sponge numbering around a million eggs per sponge. The eggs are mixed with water and applied directly to the soil for hatching where they are needed.
- *Botanical insecticides:* If a serious infestation of any pest occurs, organic insecticides are the control method of last resort. *Always* remember—you are *required* to check with your certifying agency to make sure a product is OMRI (Organic Materials Review Institute) approved, is acceptable under certification standards and that the formulation of the brand you intend to use does not include any prohibited substances.

Botanical insecticides are made from plants that have demonstrated pesticide-like qualities. These materials, while safer than chemical pest controls, are strong in their own right and should be used with caution. Examples include rotenone, pyrethrin and sabadilla (always check with your organic certifier for approved products). These products can upset the ecological balance and may cause secondary pest outbreaks as a result. For severe outbreaks and during transition to organic production methods, they may be warranted. However, precautions must be taken, such as the use of a respirator, protective clothing and close adherence to the label instructions. *(See the Appendices for a list of botanical insecticides and their target pests.)*

Other strategies

Other, non-traditional, methods have proven successful in fighting flying and crawling garden pests. They include the following:

- *Diatomaceous earth* is microscopically ground, fossilized shells of water organisms called diatoms with very fine, sharp edges. It is used as a barrier to crawling insects, such as slugs, root maggots and cutworms.
- *Bacillus Thuringiensis (Bt)* is a pest control mainstay for organic growers. This bacteria is effective against most species of leaf-feeding butterfly and moth larvae. The Bt spores are

naturally encapsulated, which allows the toxins to be released into the gut of consuming organism with an alkaline pH, such as that of the targeted Lepidoptera larvae.

- *Yellow flypaper* is quite effective against aphids and whiteflies. You can use any board or heavy paper, painted yellow and coated with a sticky substance such as tanglefoot. The drawback of this strategy is that you will also trap beneficial insects.
- *Pheremones* are biological mating scents that attract insects to a trap coated with a sticky substance. These traps are effective but it is important to recognize that it the pheremones that are "attracting" the insects. Therefore, position these traps at the outer boundaries of your garden so you do not attract outside pests into your garden.
- *Floating row covers* are made of a lightweight translucent material, which is draped over the garden rows. The cover allows sunlight and water to go through but keeps insects and birds out. It is made to resist tearing and can be reused for a few years before it starts to breakdown. It is great for protecting seedling as the material is so light the growing plants simply push it up as they grow. Floating row covers are especially useful for plants that are susceptible to attack by flying insects such as flea beetles and cabbage moths. The material comes in rolls and can be cut to the length of your rows. The edges of the row cover need to be anchored well with rocks, boards or mulch so the wind cannot lift it.
- *Cloche* is similar to the floating row cover but can be opened for watering or harvesting. It is much like a miniature greenhouse. Although the cloche presents an opportunity for pests to find the plants, it helps seedlings and young plants get well established. This results in stronger, healthier plants that are better able to withstand insect and disease pressures.

(The Resources section provides a partial listing of some of the organic supply catalogs and online companies.)

Some common pests and organic control methods are as follows:

- *Aphids:* These pests can be biologically controlled through high populations of lacewings and ladybugs. Surrounding the production area with wildflowers and buckwheat will help to maintain a healthy population of these predatory insects.
- *Flea beetles:* Flea beetles are one of the most difficult pests to control. Choosing early maturing varieties lessens the plants exposure to these pests. Transplants that have been properly hardened off are targeted less than emerging seedlings.
- *Cucumber beetles:* These pests can over-winter in the soil during a mild winter and are carried in on southerly winds. Therefore, it is helpful to rotate the cucurbit patch so that when the beetles emerge in the spring, they will be unable to find their food source as easily. Physical barriers, such as trees, buildings or other fields and crops are helpful in making it more difficult for them to find their food source. At best, these strategies will gain you a few extra days of growth before an infestation. These extra days can be crucial to establishing the plants beyond the vulnerable two-leaf stage.
- *Colorado potato beetles:* Watch for and destroy any breeding adults; when seen, begin sweeping the potato patch for sightings of their orange eggs on the underside of the leaves. They can be easily destroyed at this stage. Once the eggs hatch, hand sweeping the larvae into a pan or bucket provides quick and effective control for smaller potato patches.
- *Cabbage worms:* Hand picking is one option for cabbage worms. Organic pesticide options include the use of rotenone. *(See the Appendices.)*
- *Slugs, root maggots and cutworms:* Diatomaceous earth is quite effect against these soft bodied pests. *(See Other Strategies.)*

Companion planting

You can also use companion planting to repel unwanted pests. Sage repels cabbage moths and black flea beetles. Chives repel aphids to a certain extent. Marigolds are known to repel a variety of insects. These strategies are not likely to be effective against heavy infestations, however. (Zitter 2007)

A word of caution: Be careful about attracting unwanted pests. Dill attracts the tomato hornworm, so plant it as far away from the tomato patch as possible. (Brummond 1996)

Botanical and biological nematicides

Botanical and biological nematicides are products designed to protect plants from pathogenic nematodes in the soil. Their use can also negatively affect beneficial nematodes in your soil biology and must be used with care.

(Organic nematicide options are listed in the Appendices and should be used only as a last resort.)

Disease management

As mentioned above, rotations are indispensable in breaking up disease cycles. Other strategies include the following:

- Spacing vegetables further apart to encourage air flow.
- Position rows in line with prevailing winds to increase air flow down the row.
- Do not walk through or harvest in the garden when plants are wet.
- Destroy and remove any diseased or dying plants immediately, including roots.
- Do not allow any volunteer plants or weeds to become established. (Zitter 2007)
- Avoid overhead watering. Drip irrigation keeps foliage dry and prevents splashing of soil borne diseases onto foliage. (Brummond 1996)
- Avoid bringing in equipment used for tillage of other garden sites in the area to avoid the introduction of any soil-born diseases (cultivators, garden tillers, hoes, etc.).
- Provide adequate nutrients and soil moisture to allow plants to grow continuously, avoiding stress periods that present opportunities for disease development.
- Be careful not to provide over-rich soils which encourage rank plant growth and bacterial infections.
- In greenhouse and high-tunnel production areas, high relative humidity is particularly favorable for disease development.
- Choose a production site with adequate drainage; wet soils promote the development of foliar and soil-born diseases.
- Source disease-free seed and transplants from reputable companies. Transplants can carry bacterial, fungal and viral pathogens. (Zitter 2007)

Natural fungicides and disease control

Beneficial microbes protect plants from soil-borne pathogens by supplementing the biological life in the soil. If a serious infestation of any pest occurs, organic botanical fungicides are the control method of last resort. As with botanical insecticides, *always* remember—you are *required* to check with your certifying agency to make sure a product is OMRI approved, is acceptable under their certification standards, and the formulation of the brand you intend to use does not include any prohibited substances.

Botanical fungicides, like botanical insecticides, are made from plants that have demonstrated pesticide-like qualities. These materials, while safer than chemical pest controls, are very strong in their own right and should be used with caution. These products can also upset the ecological balance. For severe outbreaks and during transition to organic production methods, they may be warranted. However, precautions must be taken, such as the use of a respirator, protective clothing and close adherence to the label instructions.

(Organic fungicides options are listed in the Appendices and should be used only as a last resort.)

CROP, VARIETY AND SEED SELECTION

Weather and climate are risk factors that can be mitigated somewhat by making sure the varieties selected are suited to your particular growing conditions and weather patterns. Checking with extension specialists, master gardeners and other market gardeners in your region for recommended varieties will provide a suitable list from which to make your selections. Early maturing cultivars provide for less growing time and a reduction in disease and pest exposure. (Brummond 1996)

Growing a variety of crops helps to offset the production risks. With a diversity of crops, a total crop failure is less likely. In addition, as mentioned previously, rotating this diversity of crops helps to break up disease and pest cycles. Some successful rotations used by organic growers include the following:

- Potatoes following sweet corn.
- Sweet corn following the cabbage family (including broccoli, cauliflower, brussel sprouts, turnips, radishes and kohlrabi).
- Peas following tomatoes.
- Tomatoes after beans.
- Root crops after cucurbits (including squash, melons, pumpkins, cucumbers and gourds).
- Potatoes before other root crops (like carrots and beets). (Brummond 1996)

Another strategy organic producers use is companion planting. Some plants just do better when planted next to others. They include:

- Beans and potatoes
- Peas and carrots
- Peas and turnips
- Cabbage and beets
- Kohlrabi and beets
- Spinach and cauliflower
- Spinach and eggplant
- Corn and cucumbers
- Corn and beans (Zitter 2007)

Established growers recommend planting extra, especially of more sensitive crops, to allow for poor weather or pest problems. If there is a bumper crop, the excess can be offered to members as an added benefit or it can sold at farmers markets, supermarkets or restaurants.

Purchasing seed

Organic production requires, at minimum, the use of seed that is free of chemical treatments. For certified organic production the seed must also be certified organic, if available. If the seed is unavailable as certified organic or as untreated, it is necessary to contact your certifier before making any purchase. You will need to verify your research on availability and gain the approval of your certifier to purchase non-organic seed.

IRRIGATION

Many CSA producers stress the importance of irrigation capacity. Watering capabilities will provide a buffer against possible drought conditions. Check with your Natural Resource Conservation Service office for soil maps with which to identify the soil types in your growing area and their suitability to irrigation. Also make sure to check on any state regulations or requirements for irrigation permits.

MAINTAINING QUALITY

Handling and storage

Handling risks are mitigated by ensuring all crops are properly harvested, packaged, stored and shipped. Improper handling, such as failure to properly cool and refrigerate produce, will reduce shelf life, as well as the amount of marketable product. *(For more information see the ATTRA publication, "Postharvest Handling for Fruits and Vegetables" in the Resources section.)*

Other strategies

The use of high tunnels, which provide a sheltering canopy much like a greenhouse with open ends, can also help in the production of crops sensitive to adverse weather conditions, such as extreme heat and high winds. *(See the Resources section to find more information on high-tunnel production.)*

FARM MANAGEMENT

Record keeping

Growing a diversity of crops and varieties from late May through October demands planning and attention to detail. CSA farmers rely on experience and detailed records to help them with decisions, such as how much and when to plant given the production and demand of each particular crop. Meticulous record keeping of seeding rates and timing, weed/disease/pest control, weather conditions, water usage for irrigation, days to harvest, pounds of production per plant or row foot, pounds of usable/unusable produce, amount of shortfalls or excesses, can provide invaluable information from year to year.

One record keeping resource is a CSA Planning Guide developed for North Carolina production. It is an Excel spreadsheet that can be modified for CSA vegetable production in North Dakota with the help of North Dakota State University horticultural and extension specialists. *(See the listing for the CSA Planning Spreadsheets 1 and 2, Department of Soil Science at North Carolina State University under Online Resources in the Resources section of this manual.)*

This information can help farmers plan how many shares they can supply, what the share amounts for each crop should be, when to set out their transplants, etc. These production records, coupled with surveys of their shareholders, provide farmers with needed input to make appropriate adjustments from year to year.

Labor needs

CSA farms are continually planting and harvesting throughout the growing season. Most of the labor on CSA farms is provided by the farmers and their families. Many CSA farms rely on some volunteer hours. Many offer reduced share fees to members who volunteer to work on the farm or help with deliveries or member recruitment. However, this usually constitutes less than 10 to 20 percent of the workload. Many farms hire seasonal workers. Others take on interns, providing them with a stipend, room and board. Farms with 80 to 100 members may have as many as three part-time or full-time workers or interns. As with all employer-employee relationships, communication and training is extremely important.

Some CSAs develop value-added enterprises to provide year-round employment to valued

employees and avoid having to reinvest in training new team members every year. This helps to avoid costly mistakes due to inexperienced labor while contributing to the development of sustainable jobs within rural communities.

Harvesting, washing, cooling and packing shareholder boxes for late afternoon and evening delivery is a demanding task and can constitute as much as a third of the labor requirements of the CSA. Delivery days mark a peak labor demand for CSAs. Many CSA operations split their delivery schedules, often geographically by delivery site, to disperse this work over a couple of days or more each week, depending on the number of shareholders and boxes to be packed.

Equipment needs

Equipment needs for a five-acre CSA operation—with price estimates for new and used equipment—include the following:

Equipment	New	Used
Tillage		
Medium Tractor	$40,000	$10,000
Medium Cultivator (assuming used)	750	750
Small Tractor	15,000	10,000
Small Cultivator	1,000	250
Small Disc	600	250
Rototiller	500	250
Compost Spreader	5,000	3,000
Planting		
Vacuum (1 row)	4,000	3,000
Transplanter	2,000	1,250
Hand Field Seeder	100	50
Other Equipment		
Wash Equipment	4,000	3,000
Bins/Trays/Boxes	750	750
Dollies and Carts	250	200
Canopies	600	600
Tables, Display, Scale	800	600
Misc. Tools & Equipment	5,000	2,500
Irrigation	4,500	4,500
Cooler	10,000	10,000
Total	**94,850**	**50,950**

Note: Much of the equipment can be prioritized for purchase as needed as the CSA operation grows.

PROJECTED BUDGET & WHOLESALE MARKETING STRATEGY

This scenario represents a mixed market approach of selling 75 percent of the farm's production as shares rather than retailing the produce itself. As a member, consumers receive a box of fresh produce every week for approximately 16 to 20 weeks. A share is sold for $450 to $675 for a family of four. This operation will sell all of its first year's production at wholesale or at farmers markets to gain experience and begin developing a list of prospective CSA shareholders.

The second of year production will include an expansion of the wholesale enterprise to include salad greens in addition to its first 20 CSA shareholders at $450 per share. The CSA shares will gradually increase to 100 at $575 per share in year six when the wholesale markets will be discontinued. (Data indicates that farms providing a full-time income grow high-quality produce for at least 80 to 100 shares.)

The 25 percent to be sold to wholesale markets will be grown on a separate 1.25 acres to maintain what belongs to CSA members and what is destined for wholesale markets. Wholesale prices are based on seasonal figures as established by the New Farm's "*Organic Price Index*" using the Chicago markets reporting figures.

The CSA production is projected on the basis of a 3.5-acre mixed vegetable operation, increasing to the full five acres in year six, when the wholesale enterprise will be dropped.

The vegetable mix will increase considerably over the first three years to include the following crops:

arugula	basil	broccoli	beets	cabbage
carrots	chard	tomatoes	cabbage	cilantro
cucumbers	green beans	garlic	hot peppers	bell peppers
kale	kohlrabi	leeks	lettuce	melons
onions	popcorn	potatoes	pumpkins	radishes
scallions	shallots	spinach	sweet corn	sugar snap peas
watermelon	winter squash	zucchini		

Production Revenue						
Wholesale	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Acreage*	1.25	1.25	1.25	1.25	1.25	0
Carrots	$1,688	$1,688	$1,688	$1,688	$1,688	$0
Tomatoes	2,674	2,674	2,674	2,674	2,674	0
Salad Greens		4,500	5,400	6,000	6,000	0
Broccoli	2,700	3,240	3,600	3,600	3,600	0
Total Sales	$7,062	$12,102	$13,362	$13,962	$13,962	$0
CSA Model	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Acreage	0	1	2	3	3.75	5
Cost Per Share		$450	$475	$500	$550	$575
Memberships		20	40	60	80	100
Total Shares Sold	$0	$9,000	$19,000	$30,000	$44,000	$57,500
Total Income	$7,062	$7,062	$32,362	$43,962	$57,962	$57,500
Projected Expenses & Net Profit						
Direct Expenses	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Hired Labor	$0	$3,000	$6,000	$8,000	$9,500	$10,000
Seeds	150	220	330	420	525	525
Cover Crop Seed	500	500	500	500	500	500
Compost	450	450	450	450	450	450
Pesticides-Pyrethrin	35	56	72	96	120	120
Fuel & Oil	150	150	150	150	150	150
Bags-Boxes	60	100	150	200	250	250
Truck Fuel & Oil	500	800	1,200	1,600	2,000	2,000
Advertising	0	300	450	600	750	750
Repairs & Maintenance	400	620	918	1,224	1,530	1,530
Irrigation	625	1000	1,500	2,000	2,500	2,500
Certification	540	400	400	400	400	400
Total Direct Expenses	3410	7,596	12,120	15,640	18,675	19,175
Sales Less Direct Exp.	$3,652	$13,506	$20,242	$28,322	$39,287	$38,325
Indirect Expense						
Equipment Depreciation	$6,369	$6,369	$6,369	$6,369	$6,369	$6,369
Liability Insurance	200	300	400	500	500	500
Taxable Income	-2,918	6,837	13,473	21,453	32,418	31,456
Taxes	0	0	2,021	3,218	4,863	4,718
Net Profit	**($2,918)**	**$6,837**	**$11,452**	**$18,235**	**$27,555**	**$26,738**

* Projections are based on a representative mix of vegetables requiring differing levels of labor and inputs.

Assumptions

It is assumed that there will be at least three drop-off points totaling eight hours of delivery time per week for 20 weeks. Wholesale outlets will require eight hours per week for order confirmation and delivery. These budgets include fixed or indirect costs of depreciation, general liability insurance with a rider to cover off-farm sales for the wholesale portion of the business, and taxes. Taxes were assumed to be at 15 percent.

CSA PROFILES

LAKES & VALLEY CSA/ MIDHEAVEN FARMS

Anne and Dewane Morgan
11059 County 14
Park Rapids, MN 56470
www.lakesandvalleycsa.com
218-732-4866 (Secret Garden) and 218-732-1093 (home)

Lakes & Valley CSA serves customers between Fargo, N.D., and Park Rapids, Minn. Anne and Dewane Morgan utilize biodynamic farming practices to raise vegetables, raspberries, honey and beef for more than 100 shareholders.

2007 CSA details:

Season:	June through October
Type:	single farm
Since:	2001
# of shares:	57
Full share:	$675
Work requirement?	No

When Anne and Dewane Morgan moved to Park Rapids from Salt Lake City in 1972, neither of them had any farming background. Therefore, they "had no preconceived notions about what farming should be."

They bought their first 160 acres on a contract for deed for $14,500 in 1972, paying a five percent commission to the realtor. They planted a big garden to feed themselves and eventually added a U-pick raspberry enterprise. They bought a bred Jersey cow that delivered twins and learned to milk by hand. Anne Morgan waitressed and drove a school bus to supplement the farm's income.

In those first years, U-pick customers would ask, "Can I buy tomatoes? Can I buy cucumbers?" So Anne started selling some vegetables. In 1992, she adopted a small, local CSA whose shares were set at $250 each. Anne quickly learned that she and Dewane needed to raise the price. "We couldn't do that….that was too low! My kids needed shoes," she says. When share members protested a price increase, Anne abandoned the project.

The Lakes & Valley CSA was organized by five families interested in biodynamic agriculture and the CSA model. The group's goal was to begin with one farm, and incorporate additional farms and gardens as the CSA's shareholders and demand grew. Anne had never wanted to drive long distances to sell at farmers markets, but she agreed to become the CSA's head gardener, and Dewane incorporated the CSA into the Midheaven Farms farm organism. With more than 30 years of experience in biodynamic farming, vegetable production and U-pick raspberries, the Morgans were prepared to take on a CSA operation.

Their farm, located eight miles southwest of Park Rapids, has sandy, rocky forest soils, and is best-suited to specialty crop production. Their production system demonstrates a practical, holistic approach to agriculture that works in harmony with ecological landscape of the region, an alternative to the trend of specialization and monoculture found on modern agribusiness farms. The Morgans believe that no piece of ground should ever be exploited.

"Forestry, cattle, field crops and fruits and vegetables all have their place, creating a total

farm organism on Midheaven Farm," says Dewane. "My purpose is to grow life-giving food for people and animals by creating a living soil." The Morgans build humus at a rate of 2 inches per year.

Midheaven Farms is comprised of 460 acres, 200 of which is wooded, with the remainder in pastures and rotational cropland. The pastures produce warm season grasses along with a variety of native forbs. Hay, oats and corn crops are grown as feed for 60 head of beef cattle. Each spring Dewane makes compost, which he spreads in the fall. Steers, processed for direct sale to local consumers, are butchered in late November through February. Beef quarters are cut and wrapped to order. Midheaven charges $2 a pound for hanging weight, plus processing costs. On average, a beef quarter costs $375 and yields 110 pounds of lean meat.

By 2006, a Lakes & Valley CSA share sold for $650. In 2007, the price was raised to $675. The increase provided a modest pay raise to the two hired gardeners and covered ever-increasing fuel costs. Due to drought and lack of a deep well watering system in their second garden, the number of shares was reduced from 83 in 2006 to 57 in 2007.

The Morgans' primary irrigation system consists of a 6-inch well with three commercial "Rain Bird" sprinklers that are capable of putting 4 inches of water per 12-hour day on any part of their 5-acre garden. This helps to ensure that extended periods of drought do not cut into the harvest.

Once a week from mid-June through mid-October, shareholders receive a box that contains an array of just-picked, biodynamically-grown vegetables and herbs. Anne starts plants such as tomatoes, peppers and watermelon in her basement and moves them to a small hoop-house. Raspberry season provides a weekly basket of berries for shareholders. Farm-raised eggs are included every other week. Honey from the CSA bee hives is distributed equally among the members. In 2007, each member also received a jar of homemade sauerkraut.

In addition to their weekly box of produce, shareholders receive a popular e-mail newsletter providing garden reports, recipes that suggest uses for the produce in the up-coming week's box, tips on unusual varieties, and anecdotes about life at Midheaven Farms. The newsletter provides shareholders with an intimate view of the garden all summer long. Anne says that people appreciate the connection with the land and the grower.

There is no work requirement but members are encouraged to come and help with the harvest at least once each season to gain a deeper understanding of the CSA process.

Shareholder boxes are currently delivered to pick-up sites in Park Rapids, Detroit Lakes and Fargo on Mondays, Tuesdays and Thursdays respectively. Shareholders come to these sites, pick up their box and bring back the last week's box and egg cartons for refilling. Lakes & Valley CSA provides 16 weeks of delivery. Any surplus of produce is also distributed to the members at no additional charge. Members are also welcome to come to the farm to harvest what cannot be picked in time for each delivery.

Shareholders eat with the seasons. Lakes & Valley CSA's harvest schedule provides the following scheduled appearances in the shareholders' boxes:

Mid-June to Mid-July	Mid-July to September	September to November
Leaf & head lettuces	Leaf lettuce	Spinach
Baby greens (mesclun)	Salad greens	Brussel sprouts
Spinach	Radishes	Carrots
Mizuna	Summer leaks	Hot and sweet peppers
Bunching onions	Baby carrots	Radishes
Broccoli	Summer squash	Zucchini
Arugula	Zucchini	Basil
Snow peas	Bush	Heirloom tomatoes
Japanese spinach	Broccoli	Broccoli
Sorrel greens	Beets	Watermelon
Pac choi	Cabbage	Cabbage
Chinese cabbage	Yellow sweet corn	Bicolor sweet corn
Cilantro	Oriental cucumbers	Swiss chard, kale
Sugar snap peas	White cherry tomatoes	Turnips and greens
Shell peas	Sweet Spanish onions	Cantaloupe
Cutting celery	Turnips and greens	Parsnips
Radicchio	Sweet bell peppers	Storage onions
Kohlrabi	Swiss chard, kale	Pumpkins
	Cauliflower	Eggplant
	Basil	

2007 CSA budget

Because they strive for "community supported agriculture" (and not farmer supported community), the Morgans share the cost of producing produce with their members. Their CSA budget for 2007 was as follows:

Income:
$675 X 55 shares = $37,125
Expenses:

$ 15,000	1 full-time gardener April 1 to Nov. 10
3,000	2 part-time helpers
1,400	Gas for deliveries to Park Rapids, Detroit Lakes and Fargo
480	Electricity
1,100	Seeds
730	Planting supplies: perlite, fence posts, gypsum
350	Waxed veggie boxes (3 per share), poly produce bags
400	Replacement bees, supplies, jars
1,300	Garden trucks insurance, license, maintenance
1,300	Real estate taxes
1,800	Liability and other insurances
1,500	Diesel, tractor and tillage equipment expenses
35	Land Stewardship Project dues/donation
10,000	Salary for Anne Morgan
$37,095	TOTAL

According to Anne, they use "no slave labor; there is no exploitation of interns." She has found the best workers are local people who go home at night. She also believes it is important to balance share yield with the amount of labor you want to hire.

Although there is some turnover in CSA members, about 75 percent return each year. They have a waiting list of people hoping to be able to purchase a share. Anne says there is no "typical" CSA member at Lakes & Valley CSA. They come from all walks of life and include the following:

- Cancer survivors
- Professional couples
- Single mothers
- A local hospital (considering 10 shares for 2008)

People find the CSA through word of mouth, her Web site and the Local Harvest Web site.

Anne says many people feel "called" to farm, but it is easy to be a "romantic." Farming can be "an expensive hobby" and is much harder work than the un-initiated tend to expect. She says you don't need fancy equipment to start a CSA; she and her crew still use wheel hoes as their primary cultivation tool.

Anne offers four starting suggestions for would-be-CSA gardeners:

1. Talk to your neighbors. Learn what works for them while keeping an open mind. Then adapt what they teach you to your own principles.
2. Be practical. Don't let the "patient (plant) die by not giving it any medicine." Use healing applications of chemical fertilizers if they will help bring biological life back to stressed soils.
3. Don't quit your day job until you become established. (Anne operates a dried soup and herb kitchen (The Secret Garden) and still drives school bus.)
4. Do not go into debt more than 30 to 40 percent of your net worth. (Anne and Dewane won't go more than 30 percent.) Do without rather than jeopardize ownership of your land.

Anne recommends that producers don't try to do both farmers markets and a CSA. First, it is human nature for a grower to offer his or her best product at farmers markets, which can be unfair to CSA customers. Second, it can create an incentive to exploit the earth. "Avoid planting a little closer, etc., to increase yield. You will pay for it in the end," she warns.

Anne has found it difficult to service restaurants because their menus do not usually accommodate seasonal produce; the ones she's tried to work with want the exact same produce week after week. She says she doesn't want to serve the "off the truck" kind of people.

The Park Rapids hospital's interest in buying 10 shares during the 2008 growing season gives Anne hope for the future. The hospital prepares 95 meals per day and has approached the cook about using local and sustainable foods.

"Food that's prepared with love and delivered with love is more nourishing," says Anne. She equates her produce to "eating sunlight transformed into food."

NORTHERN LIGHTS FARM

Paul Conklin
2048 Agate Lane N.W.
Solway, MN 56678
www.paulbunyan.net/users/martonk
218-467-3584

Northern Lights Farm is a diversified, organic farm selling vegetables, eggs, chickens, grass-fed Highland beef, honey and bee pollen through community supported agriculture (CSA) subscriptions.

2007 CSA details:

Season:	June through October
Type:	single farm
Since:	2003
# of shares:	10
Full share:	$425/year
1/2 share:	$250/year
Work requirement?	No

Paul Conklin purchased his farm in the fall of 2000. It consists of a 160 acres, of which he estimates three or four are garden.

A geography professor at Bemidji State University, Conklin holds a degree in forestry and environmental science from Duke University, Durham, N.C. His parents were college professors at Hanover College in Indiana.

"Somewhere along the line, I got it in my head that I would like to farm and checked out Rudolph Stiener's book '*On Agriculture*,'" Conklin says.

Thanks to the former owner of the farm who left three head of Highland cattle behind, Conklin has built up a herd of 20 animals. He said he was fortunate in that the first seven calves on his farm were heifers. This grass-fed and antibiotic free beef is sold through a food co-op in Bemidji.

Most CSA folks, Conklin says, start with farmers markets first. They also find good mentors, as Conklin did by connecting with Anne and Dewane Morgan. The Morgans own and operate Lakes & Valley CSA/Midheaven Farms near Park Rapids, Minn. "Because I had no farm background, this mentoring was critical," he says.

Conklin started small in 2003 raising vegetables for seven shareholders. He says it was a good learning year but not a money-making one. The next year he went to 20 shareholders, working in partnership with his neighbor. When his partner quit in 2006, Conklin cut back to 10 customers. In 2007, Conklin had 16 half-share customers and four full-share customers. A subscription gets you 16 weekly deliveries of the freshest vegetables possible, grown without synthetic pesticides or fertilizers.

Northern Lights offers a full share with enough produce for a family of four for $425. A free produce cookbook offers helpful recipes for utilizing this bounty. A half share—with about half as much produce—is $250. Conklin also donates part of a share to the Red Lake homeless shelter. He contacts his shareholders in mid-winter and before May 15 they pay in full.

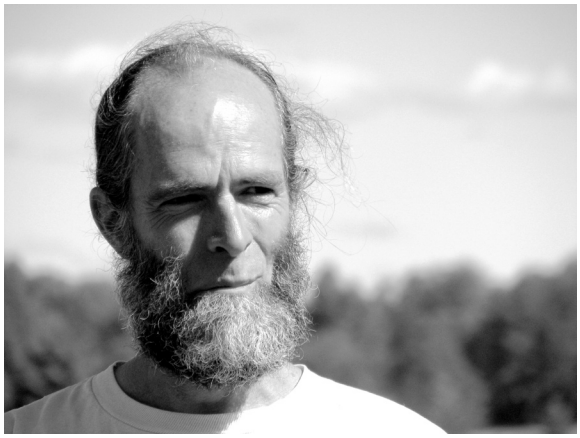
The bulk of Conklin's shareholders live in Bemidji. Customers range from an 80-year-old

retired couple, to a young family with children, to a middle-aged professional couple. The latter might be more of an "average customer."

"The best customer has a spirit of adventure," Conklin says. "They open up the cooler and say, 'Wow, we don't know what that is, but we'll cook it up and taste it!'"

Conklin used to serve six customers in Hackensack, a community about 60 miles away. The distance, however, was too great to make it worth the investment. There is unmet demand and Conklin says he can serve at least 15 more shareholders with his current infrastructure.

"One of my customers is so good with work-of-mouth advertising that I should give her share for free!" he says.



Conklin also offers eggs for $2 per dozen from his flock of free range hens. He takes orders for broiler chickens raised on pasture in chicken tractors (moveable pens designed to keep the chickens safe from predators while they range). All of the pastured poultry are fed only organic grains to supplement their foraging diet.

Conklin keeps honey bees for effective pollination of his garden crops. Northern Lights customers also have access to bee pollen at $10 per pound and honey at $4 per pound, $7 for 2 pounds, or $10 for 3 pounds.

In February Conklin starts plants by bay windows in his home and later moves them to a small greenhouse attached to the house. He says he needs to invest in a good greenhouse. A high-tunnel greenhouse may work and would be portable, making it useful for providing shelter in the garden during the growing season.

The house well also serves the garden. The soil on the farm is a loamy sand. Despite its poor water-holding capacity and susceptibility to drought, given the choice between clay and sand, Conklin says he'll take the sand. He top dresses the soil with compost from the cattle in the fall to build the organic matter and fertility of the soil. The well would not be of sufficient capacity to keep up with drought if the water were applied through overhead sprinklers. Drip irrigation has been installed in the rows.

Conklin has a John Deere 2630 tractor for discing, chisel plowing and hay work. Other equipment includes a tiller and a six-row seeder for beets and lettuce.

A waist-high fence surrounding the garden seems to be sufficient to keep out the deer. There are significant woods bordering the east perimeter of his acreage and he reports there is also a population of bears.

Conklin's labor force consists of him and his 12-year-old daughter, Hannah. Hannah likes to help with weighing the vegetables on the scales and packing them in the coolers. Conklin's son, 5, helps most by staying out of the way, he says.

According to Conklin, members do not have much interest in helping to tend to the garden. He's disappointed that more customers haven't come out to see the CSA. He's scheduled farm visits but only a few shareholders have come. Conklin can only remember one shareholder tending to the garden and that was when Conklin and his family went on vacation during the Fourth of July.

Near the garden gate is an old bathtub, which is used both for washing and cooling vegetables. The produce is then dried on screens set up near the tub.

The deliveries start the last week of June and go through about the end of October. Conklin says he would like to start his delivery season earlier and end in September with a large delivery of root crops. Instead of delivery boxes, Northern Lights Farm's customers provide

their own coolers. Early crops consist of peas, radishes and lettuce. "By no means are the first deliveries a full cooler, but shortly we are pushing things down to get the lids to shut, so they are stuffed full," Conklin says.

This CSA business is based on a trusting relationship with customers. Conklin uses no pesticides or chemical fertilizers, which is important to his customers. A CSA operation is exempt from USDA organic certification requirements until gross sales are more than $5,000. When sales exceed this threshold, to use the term "organic" you must obtain organic certification.

"A part of a CSA is to make it exciting for people to open their boxes and go, 'Ooooh!'" Conklin says. "You need something fun to throw in…sometimes I make pickles or bake bread to fill during thin weeks." And, he adds, some CSAs offer fruit shares when the vegetable season is over.

According to Conklin, his customers really want fresh vegetables, but they're busy people. "What they really like is, the food arrives at their doorstep and they don't have to do anything about it."

Although Conklin is still claiming a loss on his taxes, he says he's enjoying raising and selling vegetables through the CSA model. "I'm still in it for a few years before it gets to be all work and no fun," he says with a smile.

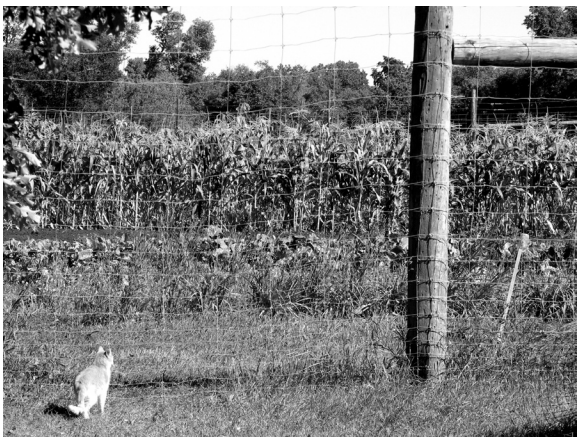
RED GOOSE GARDENS

Thor Selland
1008 County Highway 3
P.O. Box 157
Shelly, MN 56581
redgoosegardens@yahoo.com
218-886-6281

Red Goose Gardens sells a wide variety of vegetables that meet or exceed organic standards through community supported agriculture (CSA) subscriptions.

2007 CSA details:

Season:	June through October
Type:	single farm
Since:	2006
# of shares:	90
Full share:	$480/year
1/2 share:	$280/year
Work requirement?	No



Thor Selland's 40 or so acres near Shelly, Minn., are surrounded on the south, west and north by the meandering Red River. The house and an adjoining sleeping room are on stilts and covered with tin siding inside and out. The sleeping room serves as a bunkhouse for the summer employee.

Selland and his help, however, don't spend much time in the house and bunkhouse due to this CSA's rapid growth from 27 to 90 CSA shareholders. Selland attributes most of this growth from word of mouth and knowing a chef in Fargo, N.D. The restaurant in Fargo had a mailing list that he was able to access. He also has a Web site and produces a newsletter.

Selland also attributes the rapid increase in shareholders from those who didn't need or want as much produce as a full share provided. These shareholders include the elderly and couples with no children. For these customers, Selland offered half shares, which was a big hit. Of his 90 orders in 2007, 20 were for full shares and the rest were for half shares.

For full shares, he says, people fill out a preference sheet in the spring of what they want. They can suggest different crops they'd like to see.

Selland grew up in Oklahoma, but spent childhood summers with his grandmother in Fargo. Then, in 1970, his parents purchased the current home and land near Shelly. According to Selland, he became aware of environmental issues and natural resources in high school and then learned about CSAs while at the University of Minnesota.

In 2003 he did an apprenticeship with Lakes & Valley CSA near Park Rapids, Minn. Then, in 2004-05, he began growing items for just farmers markets and restaurants. His restaurant sales included the Hotel Donaldson in Fargo, N.D. "The demand was there," he says. Selland

also marketed to catering businesses and natural food stores. He sent out flyers and put flyers in all kinds of locations around Fargo and Grand Forks.

According to Selland, the CSA concept started in Japan. "It takes the hassle out of marketing because you're doing the marketing in the off season," he says.

Selland asks people to pay half in March, April or May so he can get cash in advance to buy his supplies and products. Then, in Mid-July, customers need to pay the other half.

Location to market is an important factor in a successful CSA, says Selland, who lives between two large metropolitan areas—Grand Forks and Fargo. This, he adds, is a big plus. He says he'd like to add about 15 to 20 more members in Grand Forks.

Although not many have come to view the CSA, Selland welcomes and encourages this. "I want people to come out," he says. He also encourages members to volunteer to help out at the CSA. And, for this, he is considering a discount (possibly 20 percent) as an option for those who help once a week for 12 weeks.

Selland also does a weekly newsletter to "give the consumers a taste of the farm experience."

For his deliveries, Selland uses waxed boxes that are overflowing with at least 15 different items. He delivers these boxes every Tuesday to three drop-off sites in the Fargo/Moorhead area for his CSA members. He also delivers directly to the Green Market grocery store and several restaurants he has retained as clients. To accomplish this, Selland starts sorting produce and packaging the boxes by 10 a.m. on Tuesdays.

To keep the produce as fresh as possible, he picks the produce no earlier than Sundays or Mondays—or even Tuesday morning if possible. A fabric-covered work area near the home is used to wash, weigh and pack the vegetables for distribution.

A typical full-share box of produce from the Red Goose includes the following:

- 2 leeks
- 6 beets
- Cabbage
- Cauliflower
- 1 lb. broccoli
- 1 lb. beans
- 1 lb. squash
- 1 ½ lb. cucumbers
- Eggplants
- 1 lb. carrots
- Bunch of scallions
- 1 melon
- 2 bell peppers
- 2 or 4 jalapeño peppers
- 1 hot pepper
- 4 ½ to 5 lbs. tomatoes
- Herbs
- Small red potatoes

Tips Selland offers beginning CSA producers is to charge enough for your produce. He says he didn't charge enough for half-shares in 2007 and also failed to raise prices enough after his first year. He recommends using a budget/pricing spreadsheet that the University of Missouri offers to determine a fair cost for shares.

Another major issue is labor, according to Selland. He only hired one person to work for him during the 2007 produce season, which left them both overworked. "I'm shooting to have two people working for me next summer," he says. "Right now (2007) I have one and she was great, but I could have used another."

Selland, who says he will budget for higher labor costs in 2008, says finding high school or college-age workers can be a challenge. One of the problems in getting students for the labor is the CSA season starts earlier and ends later than their schedules. He currently hires students under an internship program, which he's had success at.

"Internships work," he says. "There is a persistent crop of young people looking to do something like this."

VALUE-ADDED PROCESSING AND ROLE OF COMMUNITY KITCHENS

Value-added processing is a way to add value to a raw product. It is also a strategy for extending the shelf-life of that product. Examples include salsa, pesto, jellies and jams, syrup, pickles, pickled beets, applesauce, cider, hard cider and wine. Many people are willing to pay more for these unique, locally produced, organic and sustainable products. Value-added processing can help North Dakota farmers tap into and meet these consumer interests.

There are federal and state regulations that prohibit commercial food processing in home kitchens. These regulations require small processors to purchase equipment and have their facilities inspected and licensed to meet health codes. This can be an expensive proposition.

In response, many communities have developed shared community kitchens as a type of business incubator to pool resource and provide the expertise to successfully develop value-added, farm-based food businesses. These facilities are inspected and licensed by the North Dakota Department of Health and can be found in community centers, churches, clubs, schools and universities.

The fully licensed and certified kitchens are available for rent to vendors at farmers markets, catering businesses, specialty or gourmet food processors and groups that seek to process foods together or hold classes on processing foods. Food processing clients are charged only for the time they use the facility. In addition, those new to the food processing business can benefit from the food processing, marketing and business knowledge of others utilizing the kitchen.

The community kitchen provides start-up businesses the opportunity to explore food production without having to invest in buying their own equipment or constructing their own facility. This greatly increases the ability of new businesses to enter the marketplace by reducing start-up costs and increasing the likelihood of success due to lower overhead costs.

According to the Wisconsin Kitchen Incubator Network, kitchen incubators usually offer technical assistance in food production as well as general business management skills, networking opportunities among entrepreneurs, and the opportunity to form shared services cooperatives for marketing, distribution and supply purchasing. (Bau and Lawless 2001)

Community kitchens provide a positive impact on the local economy. Wisconsin's Center for Integrated Agriculture Systems (CIAS) researcher Kaelyn Stiles says, "Community kitchens have been built to boost local job creation, diversify the local economy, and transfer ideas and technology from universities or companies." (CIAS 2001)

Elements of success

CIAS researchers have found that successful community kitchens must have clear goals and philosophical, economic and social objectives. They must have committed leadership and a plan for the long-term profitability of the kitchen to sustain the facility. The kitchen can be organized under a variety of structures including non-profit organizations, for-profit companies, universities or state governments. They can also be organized for various purposes.

In Wisconsin, the Kewaunee County Agricultural Tourism Association is working on developing their community kitchen to actively promote local agriculture and to serve the needs of small, local farms.

It is important to be clear about the vision and the goals of the enterprise. This will enable the project to communicate this vision to potential clients and community leaders. "The kitchen project must generate enough support and energy in the community for it to survive past its original organizers," says CIAS Associate Director Steve Stevenson. (CIAS 2001)

Structuring for financial sustainability

Before investing in a community kitchen, it is important to conduct a feasibility study that includes research on potential sites or existing facilities and whether there are sufficient potential clients who are interested in such a facility. The study should also explore the potential for financial self-sufficiency through rental income, the potential for housing an established retail client, the structure of rental rates, and whether the facility will need sources of outside funding. The potential and viability of establishing the kitchen as a non-profit organization, a for-profit enterprise, or a university-based entity should be explored.

The CIAS study shows that nationally, universities and state governments support some of the most successful community kitchens. Not only do these facilities provide for basic community kitchen functions, they can also offer additional management, production, marketing and regulatory assistance. Access to public funding streams and resources provide significant advantages and increased success levels. There is also the potential to tap into additional government programs, such as state or federal welfare-to-work programs. (CIAS 2001) The potential for tribal colleges, such as Cankdeska Cikana (Little Hoop) Community College, to enter into this role should be a central focus of a feasibility study.

Accurately identifying the need for a community kitchen before it is built will contribute to its success. Committed management of the kitchen—coupled with technical and marketing assistance—will provide the best possible success rate for community kitchen clients. (Bau and Lawless 2001)

Key factors for success

There are several key factors that will mean the difference between success or failure in starting a community kitchen. Those that will contribute to community kitchen success include the following:

- Identify goals and needs for the community kitchen at an early stage. Offer the right equipment for the set of clients identified.
- Organize a group of committed leaders who will rally support for the kitchen.
- Market the kitchen to a variety of clients.
- Set rental rates close to market rates at the beginning of operation, rather than starting lower and then raising them. The latter strategy can prove devastating for the clients.
- Involve local, state and federal regulatory agencies in planning the facility, and identify start-up and long-term sources of financial support.
- Provide technical and marketing assistance in addition to kitchen facilities. Incubators with successful clients also tend to be successful.
- Plan for adequate storage, both dry and refrigerator/freezer.
- Manage conflicts between clients over time, cleanliness or products.
- Try to find a stable funding source to subsidize the operation or lease the facilities or operate as debt free as possible.
- Consider using existing community facilities such as churches or community buildings and tap into technical resources for marketing, labeling and insurance.
- Kitchen staff (and outside specialists) can support prospective processors, but they certainly cannot be the driving force behind their clients' product development efforts. (CIAS 2001)
- A community kitchen project may need a single, dedicated "project champion." (Bau and Lawless 2001)
- Management-by-committee is not efficient or effective. The project champion cannot come from outside of the community. (Bau and Lawless 2001)

APPENDICES

RESOURCES

Certification Agencies
(Registered with the North Dakota Department of Agriculture to do business in the state.)

- Organic Crop Improvement Association (OCIA)

    - ND OCIA Chapter 1
      Darlene Philbrick
      4124 15th St. N.W.
      Garrison, ND 58540
      701-337-5771
      E-mail: ociaofind1@restel.net
      www.ocia.org

    - ND OCIA Chapter 2
      Twyla Stroh
      4277 39th Ave. S.E.
      Tappen, ND 58487
      701-327-4229
      E-mail: dtstroh@bektel.com
      www.ocia.org

- International Certification Services
  301 Fifth Ave. S.E.
  Medina, ND 58467
  701-486-3578
  E-mail: info@ics-intl.com
  www.ics-intl.com

- Stellar Certification Services
  25844 Butler Road
  Junction City, OR 97448
  541-998-5691
  E-mail: jfullmer@peak.org

- Global Organic Alliance
  P.O. Box 530
  3185 Township Road 179
  Bellefontaine, OH 43311
  937-593-1232
  E-mail: kananen@logan.net
  goa-online.org

- Quality Assurance International (QAI)
  9191 Towne Centre Drive, Suite 510
  San Diego, CA 92122
  858 792-3531

E-mail: qai@qai-inc.com
www.qai-inc.com

- New Farm's Guide to U.S. Organic Certifiers
  www.newfarm.org/ocdbt

RECOMMENDED BOOKS

The four books listed below are all highly recommended resources by those who have used them. Your scale of production will determine which one will be most useful to you.

1. *"How to Grow More Vegetables"* by John Jeavons *(ISBN 1580082335)* details bio-intensive gardening techniques that can provide more food than you ever thought possible on less land than you can imagine. The system emphasizes the use of hand tools, raised bed production, intensive spacing, companion planting and organic fertility management. The planning charts are aimed at helping families provide for their own food needs, but can be adapted for use by market gardeners as well.

2. *"The New Organic Grower"* by Eliot Coleman's *(ISBN 093003175X)* is written for market gardeners with about five acres of land in vegetable crop production. Coleman discusses in plain terms the easiest and best methods of raising successful organic crops, the most efficient machinery for the dollar (and which contraptions are a complete waste of money), and how to economize to ensure the farm's long-term stability. He guides the reader through all stages of raising crops: tillage, seeding, fertilizing, weeding and harvesting. And he includes the other aspects of running an agriculture business, such as marketing, management and hiring practices. A final section introduces the author's sub-specialty: winter gardening, the subject of his other popular book Four-Season Harvest.

3. *"Sustainable Vegetable Production from Start-up to Market"* by Dr. Vern Grubinger *(ISBN 093581745X)*, vegetable and berry specialist for University of Vermont (UVM) Extension and director of the UVM Center for Sustainable Agriculture. The book's intended audience is that of aspiring and beginning farmers. The book deals with all the parameters of moderate-scale vegetable production, using growing practices that minimize synthetic inputs and maximize conservation of resources. Topics include selecting a farm site, planning and record keeping, marketing options, and systems for starting, planting, protecting and harvesting crops. The book also profiles 19 market vegetable growers, taking a close look at individual crops and their cropping budgets.

4. *"The Organic Gardener's Handbook of Natural Insect and Disease Control: A Complete Problem-Solving Guide to Keeping Your Garden and Yard Healthy Without Chemicals"* by Barbara W. Ellis *(ISBN 0875967531)* This easy-to-use problem-solving encyclopedia covers more than 200 vegetables, fruits, herbs, flowers, trees and shrubs. The book contains complete directions on how, when and where to use preventive methods, insect traps and barriers, bio-controls, homemade remedies, botanical insecticides and more. Especially useful sections feature photos of garden insects and diseases.

High-tunnel production

We recommend several excellent publications on using high tunnels to grow your produce. They are as follows:

- *"Walking to Spring: Using High Tunnels to Grow Produce 52 Weeks a Year"* by Paul and Alison Wiediger. This book discusses site selection, construction, methods, marketing and

in-depth growing tips on each crop grown at Au Naturel Farm in Kentucky. It also includes planning, production and marketing charts and forms. (From Au Naturel Farm, 3298 Fairview Church Road, Smiths Grove, KY 42171. $15 plus $3.50 shipping/handling.)

- *"High Tunnel Production Manual"* by the Center for Plasticulture, by Bill Lamont and Mike Orzolek, Penn State. A resource for high tunnels generalized for any region. Many topics covered, including construction and maintenance; economics; tillage and irrigation considerations; transitioning to organic high-tunnel production; and cut flower and berry production. More than 150 pages, $26.50 payable to Penn State University. Mail payment to Dr. Bill Lamont, Department of Horticulture, 206 Tyson Building, Penn State University, University Park, PA 16802.

LITERATURE REVIEW

This literature review was compiled as a means for the farmers market community to gain a better sense of the CSA model. Other reservations, communities or organizations interested in developing best practices or who are in pursuit of grant funding are encouraged to use this body of literature. The articles were compiled through Internet resources, published works and other sources.

Publications

Food safety: *A Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables.*

Although there currently are no mandatory rules for Good Agricultural Practices (GAPs) for fruits and vegetables, in October 1998 the Environmental Protection Agency published *A Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables*. Even though these GAPs are optional, many growers are voluntarily incorporating the practices into their operations. In a number of states, Cooperative Extension Services have produced bulletins outlining safe growing and packing practices. Kansas State University's publication, *Food*A*Syst: A Food Safety Risk Management Guide for the Producer*, evaluates food safety risks involved in growing and processing foods (both meats and produce) to be directly marketed to the public. To download relevant chapters of this publication, go to: www.oznet.ksu.edu/library/fntr2/foodasyst/foodasys.pdf and click on linked contents for chapters. Chapter 3 deals with Growing Fruits, Vegetables and Produce.

Handling: *Postharvest Handling for Fruits and Vegetables Abstract*

Appropriate production practices, careful harvesting, and proper packaging, storage and transport all contribute to good produce quality. This publication covers postharvest practices suitable for small-scale operations, and points out the importance of production and harvesting techniques for improving quality and storability. Various methods for cooling fresh produce are discussed, and resources are listed for further information, equipment and supplies. http://attra.ncat.org/attra-pub/postharvest.html

CSA Planning Guide
Soil Science Department, North Carolina State University
www.soil.ncsu.edu/lockers/Gruver_J/CFSA2004/Copy%20of%20CSA%20planning%20tools/

Nutrient Management for Organic Farms
Soil Science Department, North Carolina State University
www.soil.ncsu.edu/lockers/Gruver_J/CFSA2004/

Interpreting Soil Test Results for Vegetable Crops
Soil Science Department, North Carolina State University

www.soil.ncsu.edu/lockers/Gruver_J/CFSA2004/

Continuous Harvest
Soil Science Department, North Carolina State University
www.soil.ncsu.edu/lockers/Gruver_J/CFSA2004/

Is Organic for You?
A publication of the Organic Trade Association
www.howtogoorganic.com/index.php?page=is-organic-for-you

Organic seed catalogs

Sow Organic Seed
888-709-7333 www.organicseed.com/

Abundant Life Seed Company
Protecting the genetic diversity of rare and endangered food crops since 1975. Our goal is to offer true-to-type open pollinated varieties grown using only certified organic or biodynamic farming methods.
541-767-9606 www.abundantlifeseeds.com/

Fedco Seeds
Offering a large selection of certified organic cultivars and regional heirloom varieties. Also, a source for cold-hardy selections especially adapted to our demanding Northeast climate. We are a cooperative, one of the few seed companies so organized in the United States. Because we do not have an individual owner or beneficiary, profit is not our primary goal.
207-873-7333 www.fedcoseeds.com

High Mowing Organic Seed
Through seed production, research, testing, cleaning, customer service, and customer care, it is our goal to offer the highest quality organic seeds.
802-472-6174 www.highmowingseeds.com/

Johnny's Selected Seeds
Offering a wide selection of certified organic seeds. (Check to make sure you are ordering out of their organic section.)
877-564-6697 www.johnnyseeds.com/catalog/search.aspx?organic=1

Harris Seeds
Since 1879, Harris Seeds has been providing professional growers the very best in vegetable seeds, flower seeds and supplies. (Check to make sure you are ordering out of their organic section.)
800-544-7983 http://growers.harrisseeds.com/about.asp

Main Street Garden Seeds and Supply
Offering a variety of certified organic vegetable and flower seed for farmers and home gardeners alike. All our organic garden seeds meet the highest quality standards.
866-229-3276 www.mainstreetseedandsupply.com

Seed Savers Exchange
A non-profit organization that saves and shares the heirloom seeds of our garden heritage,

forming a living legacy that can be passed down through generations.
563-382-5990 www.seedsavers.org

Seeds of Change

Offering more than 600 distinct varieties of 100 percent organically grown seeds for the home gardener and over 100 varieties in bulk quantities for the market grower. Conserving this invaluable genetic resource, while contributing to the knowledge of sustainable organic agriculture and gardening techniques, is central to the mission of Seeds of Change. By offering high value hybrids and open-pollinated (OP) varieties, we encourage all gardeners and farmers to join us in the important work of seed saving and genetic preservation.
888-762-7333 www.seedsofchange.com

Territorial Seed Company

Our purpose is to improve people's self-sufficiency and independence by enabling gardeners to produce an abundance of good tasting fresh-from-the-garden food 12 months a year.
800-626-0866 www.territorialseed.com

Tomato Fest

A celebration of heirloom tomato varieties from around the world, TomatoFest Farm specializes in growing and shipping the very best tasting heirloom tomatoes.
www.tomatofest.com/

Turtle Tree Seeds

Offering a full line of certified organic, biodynamic seeds.
888-516-7797 www.turtletreeseeds.com

Online resources

ATTRA—National Sustainable Agriculture Information Service

Your source for the latest in sustainable agriculture and organic farming news, publications, events and funding opportunities. When you contact ATTRA by telephone, one of their program specialists will take the call, talk to you about your farming operation, and discuss the kind of information you may need to address your problem or concern. If they have existing publications that cover what you're asking, they'll send those to you. Otherwise, your question will be assigned to one of their agriculture specialists, who will research the topic and prepare a report on it for you. If you're a first-time caller, you will also receive a copy of their publication. "Sustainable Agriculture: An Introduction" a brochure about ATTRA, a complete list of their publications, and a free two-year subscription to their newsletter, ATTRAnews. http://www.attra.org/

CSA Resources for Farmers—Selected books, reports, articles, periodicals and videos on the business of CSA farming. www.nal.usda.gov/afsic/pubs/csa/csafarmer.shtml

CSA Planning Spreadsheets 1 and 2—Department of Soil Science at North Carolina State University. www.soil.ncsu.edu/lockers/Gruver_J/CSAWinstonSalem/

Healthy Farmers, Healthy Profits Project is a team of researchers and outreach specialists who find and share work efficiency methods that improve health, safety and profits for nursery growers, dairy, fresh market vegetable and berry farmers. The project has been working with dairy farmers since 1994, vegetable farmers since 1996, berry farmers since 1999, and nursery growers since 2003. http://bse.wisc.edu/hfhp/backgroundpage.htm

High tunnel production

High Tunnels Using Low-Cost Technology to Increase Yields, Improve Quality and Extend the Season www.uvm.edu/sustainableagriculture/HighTunnels.pdf

Growing Growers Training Program was established to address this need for more farmers and for more effective farmers. As a collaboration between Kansas State Research and Extension, University of Missouri Research and Extension, the Kansas City Food Circle (a consumer organization), and the Kansas Rural Center, they set out the goal of providing educational opportunities to help new growers get started and established ones get better at what they do. www.growinggrowers.org

New Farm Forums are an online discussion forum to discuss topics with other organic growers and benefit from farmer-to-farmer know-how. www.newfarm.org/talk/index.shtml

General Topics Forum—an open forum for any farm-related subject
New Farmer Forum—share your challenges and insights getting started
Organic Certification Forum—critique or guide and get certification tips
Weeds Forum—Share Q&As on managing weeds in organic systems

Insect and disease management

Resource Guide for Organic Insect and Disease Management

This guide was developed to provide a useful and scientifically accurate reference for organic farmers and agricultural professionals searching for information on best practices, available materials and perhaps most importantly, the efficacy of materials that are permitted for use in organic systems. Many products available to organic farmers have not been tested extensively, and current research has not been summarized or made widely available to the general producer. A major objective of this guide has been to review recent literature for published trials on material efficacy in order to provide reliable information that can be used by farmers to effectively manage pests. Additionally, a goal was to identify what materials have shown promise but need more research.
www.nysaes.cornell.edu/pp/resourceguide/index.php

Greenhouse and high-tunnel suppliers

Agra Tech, Inc. (Pittsburg, CA)

Manufacturer of quality greenhouses, high tunnels, shade houses, and cold frames, and accessories as well as a distributor of the best available equipment for commercial horticultural and agricultural growers.
877-432-3336 www.agra-tech.com/

FarmTek (Dyersville, IA)

Tension fabric buildings, commercial greenhouses and accessories, irrigation supplies, agricultural products and more.
800-327-6835 www.farmtek.com

Haygrove (Elizabethtown, PA)

Design and manufacture of field scale tunnels and specialist horticultural machinery. Haygrove system has been proven to withstand weather conditions in the United States.

Specifically for the U.S. market, the specification of the Haygrove Tunnel has been modified. This has included stronger "windy end" kit designs, higher grades of steel together with steel bracing, steel top gantry systems and high tensile wire bracing systems.
www.haygrove.co.uk

Poly-Tex Inc. (Castlerock, MN)

Poly-Tex is one of the largest manufacturers of display benching and retail greenhouses with 22 years experience designing greenhouse and display systems.
800-852-3443 www.poly-tex.com

General suppliers

Fertile Garden Supply

Supplying organic landscape and garden products, such as beneficial insects, fertilizers, pest control, books, tools, and many other natural products.
800-373-3880 www.fertilegarden.com

Gardener's Supply Co.

Gardener's Supply was founded in 1983 and offers everything from seed-starting supplies and garden furniture to flower supports and garden carts. Gardener's Supply is proud to be employee-owned.
888-833-1412 www.gardeners.com

Gardens Alive!

A mail order company dedicated to biological control of garden pests.
513-354-1482 www.gardensalive.com

Harmony Farm Supply

Harmony Farm Supply was founded in 1980 as a supplier of organic fertilizers, ecological pest controls and IPM (Integrated Pest Management) monitoring tools. We added irrigation system components in 1982.
707-823-9125 www.harmonyfarm.com

Peaceful Valley Farm Supply

Organic gardening supplies and organic gardening information, with more than 4,500 products including organic fertilizer, organic seeds, heirloom seeds, natural lawn care products, compost, compost tea and composting supplies, natural pest control, garden tools and garden accessories.
888-784-1722 www.groworganic.com

Planet Natural

Providing quality home, lawn and garden products; offering everything from organic fertilizers, natural pest control, and composting bins to indoor garden supplies, grow lights and hydroponics.
800-289-6656 www.planetnatural.com

Worm's Way

Year-round gardening products including: organic fertilizers, pest control products, hydroponics systems, greenhouses, growing media, drip irrigation systems, environmental controls, pH and TDS testers/meters, supplemental metal halide (MH) or high-pressure sodium (HPS) lighting systems and ballasts, fluorescent lighting, carbon dioxide (CO_2) generators,

fans, filters and ventilation systems, and more.
800-274-9676 www.wormsway.com

Drip irrigation suppliers

Hummert International www.hummert.com
DripWorks www.dripworksusa.com
T-Systems Intl. www.t-tape.com
Zimmerman Irrigation Inc. www.trickl-eez.com
Spring Brook Irrigation www.springbrookirrigation.com
Netafim USA www.netafim-usa.com
The Drip Store www.dripirrigation.com
Ag Resource Detriot Lakes, MN 800-288-6650

Support organizations

Northern Plains Sustainable Agriculture Society is a non-profit membership organization, committed to the development of a more sustainable society through the promotion of ecologically sound, socially just, and economically viable food systems. By becoming a member of NPSAS, you will receive:

- The quarterly NPSAS newsletter, "The Germinator"
- The bi-monthly informational short-take, "The Sprout"
- All membership mailings
- Conference registration discounts
- Voting privileges

Basic membership in NPSAS is $40.
701-883-4304 www.npsas.org

North Dakota Farmers Market and Growers Association is a marketing organization that is geared to help you improve your marketing skills and to assist in supporting locally grown and processed North Dakota products. Its purpose is to:

- Build a farmers market program that connects producers and consumers.
- Develop marketing tools and strategies for producers and market managers to ensure long-term sustainability of rural North Dakota.
- Increase consumer and producer awareness on the benefits of fresh, locally grown products.

Membership is available to everyone who is engaged in the production, or promotion of direct marketing of freshly grown or processed North Dakota products. Direct member: persons engaged in the production and direct marketing of freshly grown or processed North Dakota products. Annual fee: $10. www.ndfarmersmarkets.com

Community kitchen resources

Appalachia Center for Economic Networks (ACEnet), Community Kitchens--Food Ventures Program www.acenetworks.org/foodventures/index.php?page=44

National Foodnet

National Foodnet is an electronic mailing list or listserv where more than 250 community-based organizations and food industry professionals share information and resources electronically. Past electronic conferences have focused on topics including kitchen incubators, marketing, and working with brokers, and feature key experts in the field. If you

work with (or are interested in working with) small food processing businesses, especially those in distressed communities, you are invited to join.
www.acenetworks.org/training/index.php?page=70

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BOTANICAL INSECTICIDES

Botanical insecticides are made from plants that have demonstrated pesticide-like qualities and should be used with caution and as a last resort. Precautions must be taken, such as the use of a respirator, protective clothing and close adherence to the label instructions.

Rotenone is produced from the tropical Derris plant family and has been found to be effective against many hard-to-kill insects including the cucumber beetles, squash bug, spittlebugs, fruit worms, thrips, leafhoppers, flea beetles, Japanese beetles and more. It is an insect stomach poison and does not affect most beneficials. It is highly irritating to humans, requiring the use of respirators and protective clothing. It is to be used as a last resort.

Pyrethrin, a broad-spectrum, insecticide made from the crushed dried flowers of Chrysanthemum cinerarifolium, kills insects on contact. It is used against aphids, ants, army worms, beetles, fleas, flies, leafhoppers, mosquitoes, thrips, whiteflies and more. It does have some ill effects on beneficials and should, therefore, only be used when necessary. However, it is reportedly one of the safest botanicals available. Caution: Some pyrethrin formulas contain piperonyl butoxide (PBO), which is not allowed for use in certified organic production.

As with all purchased inputs, *always* check with your organic certifier for approved products.

BOTANICAL AND BIOLOGICAL NEMATICIDES

These products are designed to protect plants from pathogenic nematodes in the soil. Their use can also negatively affect beneficial nematodes in your soil biology and must be used with

care.

Neem extracts, a botanical insecticide, is taken from the seed of the tropical neem tree. The active ingredient is Azadirachtin, which repels insects, prevents their molting process and suppresses their feeding activities. It does not harm plants, birds, earthworms or humans. It has been utilized for centuries to deal with aphids, thrips, weevils, hornworms, gypsy moths, webworms, leafminers and more. Neem has been shown to also be harmful to beneficial organisms and must be used sparingly and only as a last resort. Neem oil can be used as a broad spectrum insecticide, fungicide and miticide.

Oil products can be used during the growing season to effectively smother pests such as mites and aphids.

As with all purchased inputs, *always* check with your organic certifier for approved products.

BOTANICAL FUNGICIDES

Botanical fungicides, like botanical insecticides, are made from plants that have demonstrated pesticide-like qualities and should be used with caution and as a last resort. Precautions must be taken, such as the use of a respirator, protective clothing and close adherence to the label instructions. Examples include *Serenade*® and *Sonata*®.

Neem oil and other botanical oils can be used where low levels of disease pressure exist and as a preventative to further spreading of the disease. It can be used to control diseases such as powdery mildew, anthracnose, botrytis, rust, leaf spot and blight.

As with all purchased inputs, *always* check with your organic certifier for approved products.

MINERAL FUNGICIDES

Copper fungicides are broad-spectrum fungicides and are considered the strongest control available. An example is Champion WP® (check with your organic certifier for approved products). Copper is alkaline and has a tendency to accumulate in the soil. Therefore, it is important to minimize the use of copper fungicides.

Sulfur fungicides are broad-spectrum and may harm beneficial microbes as well, upsetting the ecological balance. These should be used as a last resort and labels must be followed closely. Always use a respirator and protective clothing. Sulfur is acidic, acts a soil nutrient, and can be assimilated by the plant. Examples include Safer®, Kumulus Df Sulfur, and BSP Lime Sulfur. Sulfur fungicide is an effective control against such fungal diseases as, powdery mildew, scab, blight and rust.

As with all purchased inputs, *always* check with your organic certifier for approved products.