

**Sustainable Agriculture Research and Education Program
Farmer/Grower Grant - Report Form**

1. Growing Salad Greens to Order 365 Days a Year with Minimal Heat in Zone 4 - FNE00-349

2. Objectives:

- a. Produce a year round income by growing salad greens for a quantity buyer using a combination of field and greenhouse plantings in a Zone 4 region.
- b. Grow fresh, affordable, nutrient dense, organic greens for the Association of Senior Citizens and distribute from a central point to their eight congregate feeding sites.
- c. Demonstrate to farmers ways to create market outlets beyond roadside stands, Farmers' Markets and restaurants.

1. Kirbside Gardens is a four year old market garden currently using five acres to raise organic produce that is sold at Farmers' Markets and at a roadside stand located on a lot adjacent to the cultivated acres. The five acres are owned outright. The farm operates from the ordering of plants and seeds in January through the close of the roadside stand on October 31. Tomatoes, beans, eggplant, peppers, squash, pumpkins, onions, salad greens and most of the vegetables usually seen at a Farmers' Market are raised with the exception of corn. Too many other local farmers raise corn for it to be profitable. The market season 2002 will be the first time Kirbside Gardens will offer their own strawberries, asparagus and rhubarb to customers.

The grant identified an additional fifty acres, with a mortgage, that could be added at a time that demand for produce required it. Due to an opportunity, that was not envisioned at the time the grant was written that fifty acres became the home of a flock of Finn-Dorset sheep last summer (2001). The 42 ewes and one ram are being used to produce lamb for the meat market.

4. Collaborators:

Franklin County Assoc. of Senior Citizens
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Produce buyer, distributor, menu planner
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Information disseminator, advisor

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5. For a number of reasons, the project was not completed. It was designed as a one-year pilot project that was extended to a second year in an attempt to complete it. In year one, the Project Leader's husband (expected to provide 125 hours of work/cultivation) underwent two major life-threatening surgeries. The stress of the surgeries sapped the energy, time, and finances of the Project Leader and her husband, leaving little time and fewer finances to devote to a grant project. Year Two, which offered an opportunity to get the project back on track, went astray when a short-term (supposed to be settled in 5 days) good deed turned into a one year and still unresolved nightmare. As a result, the garden area, where the lettuce was supposed to be planted, was turned into a temporary pasture for 21 sheep and their 28 lambs. However, temporary dragged on throughout the summer and fall because the sheep were involved in a criminal case (animal abuse) that seemed to come to an end with sentencing of the former owner last November. With an end in sight, fences were erected and the sheep moved off the garden to the fifty additional acres. But, by then it was five months too late to plant a winter crop.

In addition to the problems encountered by the Project Leader, the Association for Senior Citizens seemed to lose interest in the project after their dietitian left. The Director failed to respond to repeated phone attempts to set up a second planning meeting. The dietitian had not been able to attend the first one, although the Director did attend.

6. Although the project was not completed, parts of it were implemented and there were finding and accomplishments.

First, a Salad Mix Proposal was prepared and presented to the Director of the Association for Senior Citizens. It included a recommended base mix of lettuces designed for nutritive value and attractive appearance. It included two Romaines (red and green) that have a higher nutritive value than leaf lettuces. These were supplemented by leaf lettuces of red and green and a small amount of a crisp-like lettuce to add the crunch people, who are used to eating a crisp head lettuce, expect from their salads. Then the Association could select three or four additions out of six suggestions that would add color, nutritive value, and flavor. This was followed by eight alternates that allowed the Association to tailor the salad mix to the nutritive needs of senior citizens. The Salad Mix Proposal and the Nutritive Value Chart, based on Bowes and Church's Nutritive Value of Foods, is attached to this report. Since the lettuces and greens had to withstand summer sun and winter cold, the seeds selected for the summer mix were not necessarily the ones used for the winter mix.

A planting schedule was developed and implemented. The schedule called for 18 plantings throughout the year. Each planting was expected to yield three harvests. The location for each planting was included. Also developed were seed quantities to be ordered and planting layouts based on the projected 14 flats (288s) that would be seeded at each planting. Since the delivery part of the project was never implemented, it is not known if these quantities were sufficient. The schedule is attached to this report also. In

addition, a homemade, quantity dibble was constructed by the Project Leader's husband to simplify transplanting of the 288-size plug.

Part of the project focused on having the seniors, who were used to iceberg lettuce, accept a salad mix that did not have one bit of iceberg lettuce in it. A poster, sold by Gourmet & Mushroom Products (gourmet@gmushrooms.com) was located. This would introduce the seniors to the ingredients in the mix. A poster would have been placed in each of the Senior Centers for the seniors to look at, read, and become accustomed to as the mix was introduced into their meal plan. They agreed to a 20% educational discount for the project. At the initial meeting with the Association Director, she volunteered to purchase the posters. Money had been allocated in the grant for this so that would have relieved the project budget of this expense. A copy of the downloaded poster is included.

Also among the accomplishments of the project was the erection of a hoop house or high tunnel. In the grant, a wood frame using lumber owned by the Project Leader and her husband was to be used for the frame. After the grant was approved, Kirbsey Gardens had the opportunity to purchase a greenhouse frame that wasn't being used by its owner. The 16 x 48 foot frame was purchased for \$300 (compared to its \$1500 value). It was erected parallel to the existing greenhouse. Because of a delay in the delivery of the plastic and the ill health of the Project Leader's husband, the plastic did not make it onto the frame in the first year. Instead, the shade cloth from the heated greenhouse was placed on the frame and greens grown under it. Lambing season caused a delay in the plastic going on the frame in the spring of the second year. It finally went on the frame in the fall of 2001.

This resulted in the project's unexpected results. The shade cloth kept the greens cool enough in the summer so that four or five harvests were possible instead of the expected three. This would have economic implications for the project as well as saving labor in seeding and transplanting. The other unexpected result was that the shade cloth protected the greens from frosts. The greens were still growing, although not usable in salads because of toughness and bitterness, well into November. Typically the greens would have been severely hit by frost in early October. Since a part of the project involved extending the growing season in Zone 4, this unexpected result was a major accomplishment!

7. Site specific conditions: In the first year, rain delayed plantings resulting in a loss of transplants because they matured before they could be put in the ground. To avoid this in the future, 475 feet of drainage pipe was installed. The second year brought a drought and the purchase of 500 feet of soaker hose.
8. Economic findings: At the current cost of propane (\$1.99/gal. while fuel oil and kerosene are selling for about \$1.05 /gal.), the greens would probably not be affordable for the Association of Senior Citizens. Chateaugay is in an area of the North Country that is under consideration for a natural gas pipeline. This would be a more economical form of heating. A nearby farm family is growing greens in a greenhouse using fuel oil as the

source of heat. They are marketing the greens to restaurants that can afford to pay more for their greens than the Association of Senior Citizens can. It will be interesting to see the economics findings of their project.

9. New ideas to solve problems: The summer of 2001 was hot and dry, and, as a result, the greens bolted. The success of the shadecloth on the hoop house in 2000 was so encouraging, that when a third, smaller greenhouse frame became available in the summer of 2001, it was snapped up. It will be erected this spring (in place of the planned wood frame one) and a shade cloth will be purchased for it. The metal frame, although slightly bent by the weight of the accumulated snow and ice during the Ice Storm of 1998, is easily worth more than the \$125 estimated for the shade frame.
10. Continue to use practices: Since the lamb producing project has resulted from the offer to temporarily care for 20 abandoned sheep, it is not possible to carry out a labor-intensive salad mix business that would supply greens in the quantity that the Association for Senior Citizens needs. However, Kirbside Gardens is known for its flavorful salad mix in the summer. Several have asked about the availability of greens at other times of the year. Since the project still seems feasible, especially if a natural gas line is extended to Chateaugay, it could be possible on a smaller scale. Therefore, efforts will now focus on developing a year-round salad CSA.

The procedure used to clean the salad mix will also continue to be used. To facilitate the cleaning, three plastic laundry sinks were purchased when the local hardware store had a sale on them. The three are placed side by side, filled with water, and the salad greens are added to the first sink. They are gently agitated to wash off most of the dirt, then are scooped out and placed in the second sink. The procedure is repeated and the salad greens are placed in the third rinse. Then they are transferred to the commercial salad spinner. Even though the salad spinner holds five gallons, it ca not hold all the greens at one time. After being spun, the greens are placed in 20 gallon plastic tubs purchased specifically to mix large quantities of greens. This procedure saves time and labor compared to the use of one sink.

11. Outreach: None conducted since the project was not completed.

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Salad Mix Proposal

Base – variety of lettuces

Green Forest Romaine	Early, tall, good romaine flavor
Marvel of Four Seasons	Red tipped puckered butterhead, heirloom
Green Oakleaf	Tender, crisp leaf, light green oakleaf shaped leaf, heirloom
Outredgeous Romaine	Bright red color, green veins, ruffled edge, good flavor
Red Salad Bowl	Red oakleaf type, burgundy red, deeply lobed, leaves, non-bitter taste
Crispy Frills	Loosely packed fan-shaped green leaves that are heavily ruffled and frilled, crisp texture

Flavor, color additions - select 3 or 4

Frizz E Endive	White and green leaves, bitter taste, use sparingly
Arugula	Long, dark green, lobed leaves, nutty flavor
Cress	Broad green leaves that are ruffled and wrinkled, sharp peppery taste
Mustard	
Osaka Purple	Dark purple leaves with white veins, mild mustard taste
Red Giant	Large reddish purple-tinted leaves, mild mustard flavor
Mizuna	Pencil thin white stalks and deeply cut, green fringed leaves, mild mustard flavor

Alternates

Sorrel	8" tender leaves, adds lemony flavor
Spinach	Dark green, good source of Folicin, Vitamin A and Potassium
Swiss Chard	Adds color, Vitamin A and Potassium
Beet greens	Dark green color, Vitamin A, Potassium and some Calcium
Other leaf lettuces	Color and flavor
Butterhead lettuces	Adds flavor, color
Crispy lettuces	Adds crunch, color, some flavor
Kale	Adds flavor, color

Salad Green /Amount	A(Re)	C	B-2	B-6	FOL	Na	Ca	Mg	Zn	Mn
	A(IU)	B-1	NIA	B-12	PANT	K	P	Fe	Cu	REF
Arugula, raw ½ cup	24	2	.01	.01	10	3	16	5	.05	.032
	237	.00	0.0	.00	.04	37	5	.15	.008	811
Mixed leaf lettuce ½ cup	53	5	.02	.02	14	3	19	3	.08	.210
	532	.01	0.1	.00	.06	74?	7	.39	.012	811
Spinach, raw ½ cup	188	8	.05	.05	54	22	28	22	.15	.251
	1880	.02	0.2	.00	.02	156	14	.76	.036	811
Beet greens, boiled, ½ cup	367	18	.21	.10	10	.74	82	49	.36	.370
	3,672	.08	0.4	.00	.24	654	30	1.37	.181	811
Swiss Chard, boiled, ½ C	276	16	.08	.07	8	.58	51	76	.29	.294
	2,762	.03	0.3	.00	.14	483	29	1.99	.143	811
Radicchio, ½ cup	1	2	.01	.01	12	4	4	3	.12	.028
	5	.00	0.1	.00	.05	60	8	.11	.068	811
Corn Salad, raw, ½ cup	199	11	.02	.08	4	.1?	11	4	.17	.101
	1,986	.02	.01	.00	.01	129	15	.61	.038	811
Tat-soi	392	10	.07	.07	8	21	52	10	.11	.096
	3,920	.05	0.2	.00	.02	111	18	.87	.048	811
Mustard, raw, ½ cup	743	98	.07	.11	119	16	158	8	.13	.305
	7,425	.05	0.5	.00	.13	337	21	1.13	.056	811
Cress, raw ½ cup	233	17	.07	.06	20	4	2	.10	.06	.138
	2,325	.02	0.3	.00	.06	152	19	.33	.043	811
Endive, chopped, ½ C	51	2	.02	.01	36	6	13	4	.20	.105
	513	.02	0.1	.00	.23	79	7	.21	.025	811
Chicory greens, raw, ½ cup	360	22	.09	.09	99	41	90	27	.38	.386
	3,600	.05	0.5	.00	1.04	378	42	.81	.266	811
Turnip greens, raw, ½ C	213	17	.03	.07	54	11	53	9	.05	.130
	2,128	.02	0.2	.00	.11	83	12	.31	.098	811
Watercress, chopped, ½ C	80	7	.02	.02	2	7	20	4	.02	.041
	799	.02	0.0	.00	.05	56	10	.03	.013	811
N. Z. spinach, chopped, ½ C	123	8	.04	.09	4	36	16	11	.11	.179
	1,232	.01	0.1	.00	.09	36	8	.22	.026	811
Butterhead lettuce, 2 leaves	15	1	.01	.01	11	1	5	2	.03	.02
	146	.01	0.0	.00	.03	39	3	.04	.003	811
Romaine, ½ cup	73	7	.03	.01	38	2	10	2	.07	.178
	728	.03	0.1	.00	.05	81	13	.31	.010	811
Iceberg lettuce, 1 leaf	7	1	.01	.01	11	2	4	2	.04	.030
	66	.01	0.0	.00	.01	32	4	.10	.006	811

Planting	Date	1 st Harvest	2 nd Harvest	3 rd Harvest	Location
1	March 1	April 26	May 3	May 10	heated greenhouse
2	March 20	May 17	May 24	May 31	heated ghouse & tunnel
3	March 27 April 3 April 10	June 7	June 14	June 21	high tunnel
4	May 3	June 28	July 5	July 12	cold frame/outside
5	May 22	July 19	July 26	August 2	outside/shade shelter
6	June 4	August 9	August 16	August 23	outside shade shelter
7	July 3	August 30	September 6	September 13	shade shelter
8	July 24	September 20	September 27	October 4	outside/cold frame
9	August 14	October 11	October 18	October 25	outside/cold frame
10	September 4	November 1	November 8	November 15	tunnel
11	September 25	November 22	November 29	December 6	tunnel
12	October 2	December 13	December 20	December 27	tunnel
13	October 9	January 5	January 12	January 19	tunnel/greenhouse
14	October 16	January 26	February 2	February 9	tunnel/greenhouse
15	October 23	February 16	February 23	March 1	greenhouse
16	October 30 November 7	March 8	March 15	March 22	greenhouse
17	February 2	March 29	April 5	April 12	greenhouse
18	February 23	April 19	April 26	May 3	greenhouse