

Playing the Season at Mountain Dell Farm

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Mountain Dell Farm has been NOFA-NY certified organic since 1990. It is owned, operated and occupied by Mark Dunau, Lisa Wujnovich and our two children. We own fifty acres of land in Delaware County, seven of which are farmed. We are self-employed subsistence farmers; which means that all our wealth is in our land and cobbled home/barn, and all our income is derived from the vegetables we sell.

We sell vegetables from the first week in June through the Tuesday before Christmas. Our primary customers consist of upscale restaurants in Manhattan, which we deliver to once a week. We also deliver to health food stores and local restaurants.

The farm is at an elevation of 1,400 feet. All our cultivated land is on a gradual slope. The soil can be described as well drained clay and modestly rocky. 70% of the vegetables we sell are salad or cooking greens. These thrive in the cool climate with the use of wide floating row covers from mid-April through Thanksgiving.

Farming is gambling. Our most important piece of advice when it comes to farming doubts is that you've got to be in it to win it. What follows is a brief summary of how one farm family plays the season.

Layout of the Farm

Mountain Dell Farm is generally laid out in fields that are from 10 to 25 feet wide and are from 100 to 200 yards long. The preferred width is 25 feet. Every other field has a path for the tractor, to minimize compaction.

Greenhouses

The greenhouse that we open at the beginning of March looks like a Rube Goldberg cartoon. The only thing positive about it is that it works—though we would not recommend it as a long term solution.

The greenhouse is six feet wide, 12 feet long, eight feet high and is built into the eastern wall of the bottom of our barn. It has five bench type levels and holds about 120 flats. It is lit by the eastern exposure and about 40 four foot fluorescent fixtures using 80 regular fluorescent bulbs. It is vented by a small fan, and air is circulated inside with two small overhead fans. An electric heater easily regulates the temperature, so germination and growth is easy to control despite the weather. McEnroe potting soil is used. There has never been any disease and only one minor insect problem over the nine year use of this structure. The cost of electricity for this greenhouse in March, April and the beginning of May is about \$250.

In April, we open two greenhouses that receive southern exposures; these greenhouses are lean-to structures built against our barn, and are made of wood and plastic. One is heated with electricity (holding seventy flats), and the other is heated with an unvented propane heater (holding 110 flats). These greenhouses

are well ventilated, and have never had any disease or insect problem. Plants are hardened off on the northeast and eastern side of the barn. The greenhouses are closed by the middle of May, and all transplants are thereafter started on the eastern side of the barn.

Vegetables Grown As Transplants

- Lettuce—First seeded in flats March 8. New transplants started every three weeks until July 19, then planted under 3 layers of row cover for the long fall harvest. Last seeded July 26 for teenage lettuce or a warm fall. Transplanted out in the field beginning in mid-April with a handful of compost per transplant. Last planting around August 22. Row covers used to prevent frost damage.

- Raddichio—First seeded in flats March 8. New transplants started every three weeks until June 26, then planted under 3 layers of row cover for the long fall harvest. First planting in mid-April with a handful of compost per transplant, last planting in mid-August. Row covers used to prevent frost damage.

- Celeriac—Started in flats March 8. Transplanted to fields mid-May with a handful of compost per transplant. Area of transplanting first fertilized with Fertrell Gold SS (2-4-2).

- Fennel—First seeded in flats March 29. New transplants started every three weeks until the first week in June, when planted under 3 layers of row cover for the long fall harvest. First planted in fields the first week in May with a handful of compost. Last planting around the first week in July. Row covers used to prevent frost damage.

- Basil—Seeded in flats the end of March. Planted in the fields with a handful of compost the last week in May. Covered for entire season with a light floating row cover.

- Tomatoes—Seeded in flats first week in April. Planted in fields the last week in May with compost and bone meal. Covered with light row cover until flowers appear for fast and vigorous growth.

- Summer Squash—Seeded in flats May 5. Transplanted in fields the last week in May into trenches enriched with compost and bone meal, trenches seven feet apart. Covered with light row cover until flowers appear for fast and vigorous growth.

- Purple Kohlrabi—Seeded in flats mid-July. Planted in mid-August with a handful of compost. Covered with light row cover for vigorous growth and flea beetle and frost protection until harvest

- Chinese Cabbage—Seeded in flats in mid-July. Planted in mid-August with a handful of compost. Covered in light row cover for vigorous growth and flea beetle and frost protection until harvest.

Direct Seeded Vegetables

- Arugula, Broccoli Raab—Direct-seeded as soon as soil can be worked in mid-April. Planted weekly. Planted under 3 layers of row cover in mid-August for long fall harvest. Single planted August 22 for mild fall. Planted with light row cover. Row cover stays on through harvesting. Plants cultivated after two weeks, dusted then with 1% rotenone if necessary.

- Tatsoi, Red Mustard, Bok Choy, Kyona Mizuma, White Turnips—Direct-seeded as soon as soil can be worked in mid-

April. Planted every two weeks. Planted under 3 layers of row cover in mid-August for long fall harvest. Planted with light row cover. Row cover stays on through harvesting. Plants cultivated after two weeks, dusted then with 1% rotenone if necessary.

- Frissee—Direct-seeded as soon as soil can be worked in mid-April under light row cover in soil enriched with Fertrell Super-N (4-2-4). Row cover removed soon after seeds germinate. Replanted every three weeks until the end of July, when planted under 3 layers of row cover for long fall harvest.

- Dandelions—Direct-seeded as soon as soil can be worked in mid-April under light row cover in soil enriched with Fertrell Super-N (4-2-4). Row cover removed soon after seeds germinate. Replanted every three weeks until the end of July, when planted under 3 layers of row cover for long fall harvest.

- Annual Herbs—Direct-seed dill, cilantro, summer savory, first week in May under light row cover in soil enriched with Fertrell Super-N (4-2-4). Replanted every three weeks until last week in July, when double planted for long fall harvest.

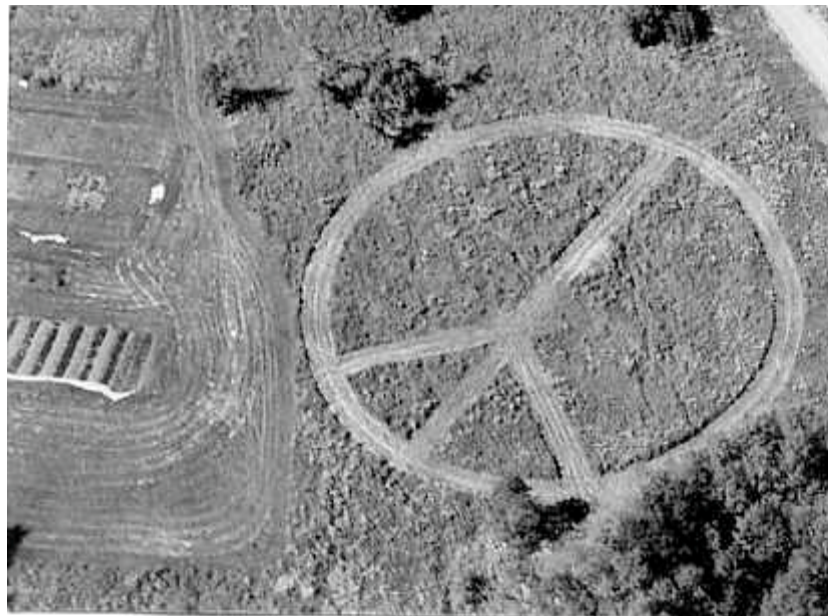
- Daikon— Direct-seeded last week in April under light row cover in soil fertilized with Fertrell Super N (4-2-4). Row covers removed after Daikons mature. Replanted first week in August for fall harvest. Row covers remain on through fall harvest.

- Beets—Direct-seeded first week in May and last week in June under light row cover in soil fertilized with Fertrell Super-N (4-2-4). Row cover removed soon after germination.

- Winter Squash—Direct-seeded last week in May in hills enriched with compost and bone meal. Rows eight feet apart for easy cultivation with six foot spring tooth harrow.

- Rutabagas—Direct-seeded under light row covers last week in June in soil fertilized with Fertrell Gold SS (2-4-2). Row covers removed soon after thinning.

- Radishes—Direct-seeded under light row covers last week in July in soil fertilized with Fertrell Gold SS (2-4-2). Row covers removed soon after thinning.



Tillage

Sod is killed by plowing, discing and dragging with a Belarus 250 tractor. Once a field has been opened up, it has never been replowed. In a normal year, fields are tilled with a 9 foot spring tooth harrow on a three point hitch mount, and a five foot wide rotoator. More than 80% of the tillage is done with the spring tooth harrow.

Including mowing, the tractor work on the farm is about 60 hours.

Cultivation

One person is able to cultivate most of the seven acres of fields with a wheel hoe, colinear hoe, and a scuffle hoe. The nine foot spring tooth harrow with a three point hitch mount is fabulous for killing weeds by dragging them to the surface and keeping an area weed free before planting.

Cover Crops

Squash and tomatoes are under sown with red clover. For areas not to be replanted, cover cropped with oats through August. In September, cover cropped with winter rye.

Harvest

Weekly harvests range from 500 to 1500 pounds. Almost all harvesting is done with a lettuce knife. We don't pick baby anything. The youngest produce we strike down is teenage lettuce and white turnips.

Produce is carried to the washroom (12' by 16') in large plastic tubs. Roots are washed in sinks with a nozzle sprayer from a hose, and greens are tumbled clean in an old photographic print rinser. Most vegetables are packed in double bagged grocery bags (1/6 sacks) and stored in 96 quart coolers for delivery the next day. Bags each hold 10 pounds of greens. Coolers hold about 30 pounds of greens. Every customer gets their own cooler or coolers depending on the size of the order. We charge by the pound for almost all items, not by the bunch or box.

We make 400 pounds of ice a week in two freezers at a cost of about \$40 a month. Ice is in the form of 14 pound frozen trays or two one gallon rectangular frozen water jugs.

What follows are the "greens" 2½ people harvest and pack on a good mid-November day.

- Salad Mix 36 lbs.
- Teenage Lettuce 25 lbs.
- Lettuce 135 lbs.
- Raddichio 76 lbs.
- Frissee 21 lbs.
- Arugula 72 lbs.
- Broccoli Raab 56 lbs.
- Tatsoi 61 lbs.
- Red Mustard 24 lbs.
- Bok Choy 31 lbs.
- Kyona Mizuma 18 lbs.
- Young Turnips 69 lbs.
- Chinese Cabbage 60 lbs.

Dandelions 49 lbs.
 Fennel 56 lbs.
 Summer Savory 3 lbs.
 Cilantro 1 lbs.

Storage

With the exception of winter squash, no vegetables are stored until the end of November, when there is fear of frost damage. Stored roots and greens are kept in a root cellar fashioned out of an insulated section of the barn.

Transport

Coolers are packed in a 1982 Suburban. Using the roof, the Suburban holds up to twenty-five 96 quart coolers. Capacity is about 1200 pounds, 800 pounds of which can be greens. There has never been a mechanical breakdown of this inexpensive, organized and cooled transport system.

Wide Floating Row Covers

Mountain Dell Farm is in business because of wide floating row covers. We use them for the following purposes:

1. Our direct seeding follows a weekly schedule for four months. To maintain that schedule we can't wait for rain. Consequently, we seed an area, cover it with a light row cover, and water it once. Germination follows because row covers maintain the moisture in the soil.

2. Arugula, Broccoli Raab, Red Mustard, Tatsoi, Kyona Mizuma, and white turnips love row covers. They grow about 50% faster under them with little flea beetle problems. Given a good watering when seeded, these brassica crops need no more water through harvest because the row cover maintains the moisture in the soil.

3. Row covers protect crops from frost damage. Double covered (two row covers) fields of the brassicas have no frost damage down to 18 degrees. Tatsoi, and arugula will take 14 degrees (sometimes colder). Many lettuces double covered will take 18 degrees without burning. Red salad bowl lettuce, raddichio, and frissee will take 14 degrees (often colder). Fennel will take 20 degrees.

4. Insect protection.

Row covers have two significant problems when you build a farm around them:

1. The grower does not actually see

what's happening unless he lifts the cover. Sometimes the apparently gorgeous crop is a field of weeds.

2. Some crops, particularly lettuce, rot under row covers. To use them effectively for cold nights with warm days, they must be pulled on and off. When dealing with acres of fields, the farmer may feel more like a chamber maid.

We use Agrobion 19 row covers. Zimmerman irrigation is the least expensive place to buy them in the Northeast (800-452-5699).

Irrigation

In a normal year, we use household water pressure from a shallow well to run one garden sprinkler at a time. Hundreds of feet of 5/8 inch garden hose takes us to almost anywhere in the fields. We are easily able to start all planting on schedule with this water supply. Because of row covers holding in water moisture, we have been able to maintain all our crops by moving a single sprinkler through the fields—we can cover about three acres in a week. We can pump 24 hours a day without worrying about running out of water (advantage of being at the bottom of a dell). This form of irrigation is drudgery, but requires little investment.

During a drought, or to save time, we pump water out of our spring-fed pond with a high pressure pump. The pump is attached directly to 5/8 inch garden hoses, and has no problem delivering good water pressure to the highest part of our farm, elevated about 70 feet over the pump and pond.

Fencing

We are in deer country. Our losses to these creatures, however, are less than a \$200 a year. We have around the perimeter of the farm a low impedance plastic wire fence with two strands powered by a Parmak Charger. Three feet behind that fence we have a single strand of low impedance wire. All crops that are highly loved by the deer (lettuce, raddichio, frissee...) have a plastic wire fence running around them that is powered by the exterior fence.. These interior fences go up in about twenty minutes with fiber glass poles and are the key to our fencing success. When feasting, the deer quickly run



into them and get 10,000 volts to the nose. We use plastic wire fence for the perimeter and interior because deer are virtually night blind to them. Mountain Dell Farm is a series of unpleasant encounters to deer and they usually move on. It's been six years since we lost more than a \$200 and shot an intruder.

Annual Fertilizer Inputs

1. 30 yards of locally produced compost
2. 2 tons of Fertrell Super N (4-2-4)
3. 1 ton Fertrell Gold SS (2-4-2)

Insect Pest Management

1. Wide floating row covers.
2. 1% rotenone dust to control flea beetles and cucumber beetles.

Mountain Dell Farm's Six Rules for Sustainable Agriculture

1. Don't drive the tractor onto wet fields.
2. Don't use synthetic pesticides, herbicides, or fertilizers.
3. Rotate the crops as much as possible.
4. Try to put into the soil what you take out.
5. With rare exceptions, take at least one day off a week.
6. Like the soil, rest in the winter.

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