

Strawberries and Plasticulture in Maine

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- 1- Raised beds were formed from non-fumigated soil (42-in. wide at the top with 4-½-in. height and a 1 ½-in. crown) for rows preferably oriented north and south. Two rows of drip tape (15 mil thick with 12-in. emitter spacing, 0.450 GPM / 100-ft.) were inserted 18-in. apart and 4-in. deep.
- 2- A modified plastic layer was used to apply 1 ¼ mil thick x 66-in. wide embossed black plastic mulch. A trial conducted in the summer of 2007 used a new bio-degradable film from Italy.
- 3- Before slitting the plastic, 2-bu. per acre of a dwarf perennial rye grass was broadcast and then tilled with a Troy Bilt rototiller to lightly bury the seed in the driving row. This grass reduces soil erosion on the edges of the plastic, provides living mulch, suppresses weeds, keeps the fruit clean, will not become muddy, and is comfortable for foot traffic.
- 4- A two-row punch wheel machine with centering guide wheels was used to make small dimples to locate plants. The rows were 24-in. apart with 9-in. or 13-in. spacing between plants.
- 5- Dormant bare root transplants (which had been in cold storage since the previous fall) were used. Hand planting is ideally started in the third week of June to establish three to four branch crowns before autumn dormancy.
- 6- Grass should be mowed weekly or as needed during the season with a hand mulching rotary mower. Long-handled lawn clipping shears can be used to trim grass next to the plastic. A 4-inch spray band, applied from a shielded back pack sprayer filled with Scythe herbicide, could also be used. Beneficial nematodes (Hb) are injected late-May and again late-August through drip lines to control root weevil larvae.
- 7- Runner removal was started in August after the first flush of runners appeared. Because this earlier planting time produces more runners, the cost of labor is greater. Long-handled lawn edging shears work fairly well for this operation. Dr. David Handley of the University of Maine Cooperative Extension is conducting on-farm and replicated experiments with growth regulators to reduce runner development. Three applications spaced 2 to 3 weeks apart appeared to reduce runners, but application amounts need to be determined for each variety.
- 8- By mid-November the plants are usually dormant and ready for 1.2-oz. floating row cover, secured with mesh rock bags spaced every 12 feet. Thirty five foot- wide row covers will cover five beds (six feet wide), i.e. 30 ft. blocks. Using row covers eliminates herbicide requirements (since no seeds are introduced to germinate in the spring), and no winter injury has occurred to date.
- 9- Snow melt occurs normally by mid-April in this area of Maine. After the threat of frost had passed, row covers were rolled up on large wooden spools, the type used for electrical cable. The spools were then wrapped with white static film for weather protection.

10- After the harvest season the plants were mowed with a modified rotary mower, taking care not to damage the crown by cutting one to two inches above the crown. Long-handled lawn edging shears were used to cut excess plant debris and any runners that may have formed during harvest season. The beds are then cleaned with a hydraulic broom by sweeping the debris to the wheel row. This plant debris is then mowed with a hand mulching mower while cutting the grass in the wheel tread. Three harvest seasons are achieved per planting using this procedure for renovating. For second and third year picking on renovated beds, the drip feeding rate must be increased to compensate for depleted fertilizers.

11- Day-Neutral Varieties

The better performing varieties of day-neutrals for this area of Maine are **Seascape** and **Albion** (later production), planted early May on non-fumigated raised beds. Plants are spaced 13-in. in rows which are 24-in. apart on 42-in. wide beds. Blossom trusses are removed prior to the end of June with runner removal required shortly thereafter. Dr. Handley is conducting on-farm and replicated experiments by dipping transplant roots with a growth regulator to reduce runner development. Rates for the growth regulator still need to be established; however, initial results are encouraging. AirJection® Irrigation (Mazzei) was used for each bed to improve soil aeration by entraining air into irrigation water through the drip lines. This device will inject about 11% air into the water to increase microbial activity and nutrient uptake. This system appears to show great promise and will be used again in 2008. Weekly applications of nutrients were done by foliar feeding or through the drip lines.

Harvest starts in early August and continues until a hard freeze occurs, usually late October in this area of Maine. For season extension, wire hoops are spaced at 5-ft. intervals for the length of the bed. 1.2-oz. floating row cover is pulled over the hoops on cold nights. When temperatures are forecast to be in the upper teens, two layers should be used.

Yield has been approximately one quart per plant, but with proper management one and a half quarts per plant should be attainable. Size and quality have been exceptional all season. As local consumer awareness of the availability of fresh local strawberries increases, the demand will increase.

Double cropping the planting can be achieved by one of two methods: 1) By holding over the previous year's planting until after the spring crop has been harvested. It can then be renovated and new blossoming will provide a late summer / fall crop. 2) By applying Roundup herbicide at the end of the first harvest season and replanting on existing raised beds the following spring, placing the new plants between where the former plants had been.

12- Marketing

Sixty percent of the strawberry crop is sold wholesale and retail and forty percent is pick-your-own (PYO). For several years we have seen a decline in PYO sales and an increase in pre-picked sales.