

**Our on farm trial to test a berry production system** Sare grant FNE05-553 David Marchant, River Berry Farm, 191 Goose Pond Rd., Fairfax, VT 05454, 802-849-6853, /fax 802-849-6853, email riverberryfarm@comcast.net

In 2005, 2006 and 2007 we tested the establishment of matted row strawberries in a killed rye cover, a winter killed sudex cover crop and in a biodegradable corn based mulch film.

We obtained a farmer SARE grant to test various ways to establish matted row strawberries as alternative to bare ground establishment. Our interest in determining a method was to continue with our PYO strawberry operation but to reduce weed control labor during the establishment year without using herbicides. We run a diversified wholesale vegetable operation along with a retail bedding plant operation and pick your own strawberry business. Because of our diverse operation, we find that the strawberries often get overlooked and result in a weedy planting that results in decreased production

The initial primary goals of the project were;

1. To determine if a killed rye cover crop or a winter killed sudex cover crop can provide adequate weed control for matted row strawberries in the establishment year.
2. To test a transplanting technique using an 8' long dibble welded to a wheel that is used on a water wheel transplanter.

### Project Activities

We established a winter rye cover crop and a sudex cover crop in late August of 2005. The sudex cover crop winterkilled, and the winter rye was allowed to grow to flowering at which point it was killed either rolling or flail mowing. After examining the cover crops in the spring of 2006 it was determined to abandon the sudex component of the experiment. The sudex had excellent establishment but it was obvious that after the winter the amount of biomass was inadequate to provide much weed control. This was determined with consultation with our collaborator John Hayden. Six days after rolling and mowing the bare root strawberries were planted into the killed cover crop. The flail mowing provided more thoroughly distributed mulch but there was some regrowth of the rye. The rolling method worked to kill the rye but weeds were able to come up between the bases of the stalks of the killed rye. Both methods gave enough weed control for the dormant strawberry plants to become established ( approx. five weeks). At this point the weeds were able to grow through the mulch and easily out compete the strawberry plants. With consultation with our collaborator, we decided to till in the experiment since it was obvious that the strawberries had no chance of establishing a matted row.

**Assessment** The results showed that the rye does not suppress weeds long enough for the establishment of matted row strawberries, and at the same time does not breakdown enough to allow for mechanical cultivation of established weeds. The planting of the strawberries through the mulch with the long-spike dibble proved somewhat successful. While the wheel penetrated well, the hole was a bit difficult to get a bare root plant into because of the narrowness of the hole. The method does work but could be improved.

with a broader spike. The results suggested that we would like to make a major shift with the experiment. We experimentally used biodegradable corn polymer plastic mulch made by BioTelo for use with winter squash, melons and onions. We are intrigued with using the BioTelo mulch and planting bare root crowns into the mulch in the spring. The material does breakdown at a rate that might allow for the rooting of runner plants produced from the established crowns.

3. Upon consultation with our SARE advisor, Dale Riggs, we redesigned the experiment to evaluate the use of biodegradable mulch films in establishing matted row strawberries. We tested the BioTelo mulch two different thicknesses (.5 and .6 mil) which are suppose to give 2 to 3 months, and 4 to 5 months of weed control respectively. We also evaluated planting density on the mulch film, degradation of the film during the picking year and tracked weed control labor input. Planting densities tested were single row on 4 ft. mulch with in row spacing of 12 and 18 in., and 2 rows on 4 ft. mulch with 12, 18 and 24 in. in row spacing.

**Assessment** Biodegradable mulch provided significant savings in labor in establishing matted row strawberries as compared to regular bare ground establishment. Labor was reduced by approximately 50%. The .5 mil provided adequate weed control as compared to the .6 mil, and decomposed at a rate that worked well with the timing of plant runnering. The most successful planting densities were 2 rows spaced at either 18 or 24 in.

**Summary** - Developing an on farm trial to test a production system was very helpful for our operation. Working with SARE enabled us to get consultation on experimental design and evaluation. The farmer. SARE grants were an excellent avenue to explore our ideas on establishing matted row strawberries.