New Weed Control Strategies for Establishment-Year Strawberries
Emily Hoover¹, Steve Poppe², Jill MacKenzie¹
¹Department of Horticultural Science, University of Minnesota
²West Central Research and Outreach Center, Morris, Minnesota

Commercial strawberry growers have limited weed control options during the establishment year. Diminishing availability and increasing costs of herbicides used for weed control in strawberries is causing growers to seek non-chemical alternatives. Two pre-emergent herbicides Naphropamide (Devrinol) and DCPA (Dacthal) are labeled for use, and neither of these provides more than six to eight weeks of control. It is recommended to delay application of Devrinol until desired number of daughter plants have become established. In an effort to develop other options for growers, we tested the effectiveness of needle-punched wool mat as a weed-suppressing mulch, and of canola (Brassica napus L.) as a germination-inhibiting cover crop/mulch.

Our research has shown very encouraging results from a combination of wool mulch within the row of newly planted strawberries, and Dwarf Essex canola planted between the rows, killed with glyphosate, and allowed to decompose on the soil surface as a germination-inhibiting mulch.

The wool mulch is about 3/8 of an inch thick, and 24 inches wide. After the strawberries are planted, the wool matting is unrolled over the row, and slits are cut to permit the plants to poke up through the wool. The mulch prevents all weeds except well-established thistles and quackgrass from emerging within the row. (These perennial weeds should not be present in establishment-year strawberry fields.) The mulch lasts through the establishment year and into the first bearing year, when there are more weed control options for growers.

Seeded at 18 pounds per acre (this is double the standard rate) just after the strawberries are planted, Dwarf Essex canola should be allowed to grow for about
four weeks, and then killed prior to flowering with glyphosate. Shield the strawberry plants from the spray. The dead canola plants release compounds called glucosinolates, which secretes from the dying tissues and inhibit weed seed germination. The dead canola should be allowed to stay on the soil surface. When incorporated into the soil, canola had no effects on weed control.

This system of wool mulch plus canola mulch provides season-long weed control. It reduced weed growth at least as effectively as hand weeding, and possibly better than standard herbicides. Very little hand weeding is necessary. Sometimes weeds will germinate and grow up through the same opening in the wool as a strawberry plant, but these few weeds are easily removed. The wool mulch requires an up-front investment of up to $2,000 per acre, but in one of our earlier experiments, yields were significantly improved over any other treatment, possibly due to the mulch’s modification of soil temperatures and moisture levels.

Another area of interest is to have the wool mulch made with locally available wool through a close manufacturer. As of this date 1000 pounds of local wool has been taken to Faribault Woolen Mill in Faribault, MN. It will be scoured at this location and then sent to Appleseed Woolen Corporation in Plymouth, Ohio for manufacture.

Faribault Woolen Mill is interested in working on this product. If it takes off, they would like to purchase a needle-punch machine to make it in MN. This would create a huge savings in shipping costs.

Perhaps the greatest advantage of this system is that it frees up labor for other tasks. Initial planting of strawberries and positioning of wool mulch over the row complicates spring planting. But labor is often in shortest supply on strawberry farms in June and early July, the very period during which it’s essential to keep the new planting weed-free, so this strategy, with its low labor requirements after planting, may fit well into Minnesota and other eastern strawberry production systems.