



2009-2010 Strawberry Plasticulture Winter Protection Study

Brad Bergefurd, Thom Harker, Wayne Lewis, Lynn Miller, Al Welch

OSU South Centers

1864 Shyville Road

Piketon, Ohio 45661

740-289-2071

<http://southcenters.osu.edu/hort>



Plasticulture strawberry production is becoming more popular for Ohio growers. One of the main advantages of the system is a potential earlier harvest providing a competitive edge in the marketplace relative to conventional matted row production systems. Other potential advantages include higher yield and reduced environmental impact from a simpler pest management system. Challenges include: lack of experience with the system among growers, Extension personnel and researchers; cost, and adaptability of suitable varieties to the climate.

This trial compared eight winter protection methods of single and double layers of row cover, with the second layer being applied later in the season.

METHODS:

Chandler strawberry tips were planted in 50-cell trays containing Metro Mix 360 soilless media and placed on weed mat under mini wobblers during the month of August. Tips were grown outside for four weeks under ambient conditions. Planting media was kept continually moist with a mist system to promote root development. The resulting plugs were transplanted to the field using a three-point hitch water wheel planter and watered in with Peters 20-20-20 starter fertilizer. Strawberry plants were planted in double rows with 12 inches between rows and plants on September 8, 2009. Field preparation included application of 60 units of nitrogen, phosphorus, and potassium pre-planting, plowing and disking. A raised planting bed was formed with a Redick Fumigation bed shaper. Chateau was applied and then covered with black plastic, and trickle irrigation was placed under the mulch. The first floating row cover treatment was put in place on October 13th. The second floating row cover treatment was applied on January 11th. The plant growth was monitored throughout the winter. To control weed growth, annual rye grass was seeded between the rows of plastic prior to planting of berries to the field. The rye grass was then killed off in the spring with an application of Poast EC at 2.5 pints/ac plus 2 pints of a crop oil concentrate. To control disease, a standard commercial fungicide program was followed. Calcium nitrate was then injected through the trickle tape in the spring as necessary and continued through harvest in an attempt to maintain optimum plant growth and berry production.

RESULTS:

With the wetter spring, fungicide applications were very important this year. Treatment 8, which was the heaviest of all the row cover treatments, had the most marketable pounds per acre at 23263 lbs/acre. Treatment 4 followed with 20892 lbs/acre. Treatment 4 also produced the largest average fruit weight at .66 ounces. Treatment 8 had the most marketable fruit per plant at 33 fruit. Treatments 6 and 7 both had 31 marketable fruit per plant.

Table 1: Floating row cover treatments.

Treatment Number	Row Cover Treatment
1	Control no row cover applied
2	.55 oz. applied October
3	.9 oz. applied October
4	1.25 oz. applied October
5	.55 oz. applied October + .55 oz. January
6	.9 oz. applied October + .55 oz. January
7	1.25 oz. applied October + .55 oz. January
8	1.25 oz. applied October + .9 oz. January

Table 2: Results for the 2009 Winter Protection Study.

Treatment	Pounds per Plant	Marketable Fruit per Plant	Pounds per Acre	Marketable Fruit per Acre	Average Fruit Weight (oz.)
8	1.33	33.83	23263	966786	.62
4	1.19	29.89	20892	846071	.66
3	1.13	30.40	19837	821786	.60
7	1.13	31.46	19751	8989929	.57
6	1.10	31.03	19299	863929	.57
2	1.01	27.28	17673	749286	.59
5	.99	28.87	17374	791071	.55
1	.92	23.18	16139	637500	.63
LSD	.31	6.88	5408	192536	None

The authors wish to thank the Ohio Vegetable and Small Fruit Research and Development Program and the Ohio Fruit Growers Society for providing funding.