

The Ohio State University

## South Centers

### PIKETON Location:

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## Winter Protection for Plasticulture Strawberry Production

### 2001-2002

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Plasticulture strawberry production is a relatively new innovation for Ohio growers. One of the main advantages of the system is a potential earlier harvest providing a competitive edge in the market place 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 four winter protection methods (straw, no cover control, and .9 and 1.5 oz floating row cover) at two locations in Southern Ohio. The Hillsboro location soil is a Haubstadt Silt loam, and the Piketon soil is an Omulga. Objectives were to increase our understanding of the plasticulture production system and compare specific protection methods.

### Methods

Chandler variety strawberry tips, obtained from where Strawberry Hill Inc., Bunn NC, were planted in 50 cell trays containing Metro Mix 360 soilless media and placed in the greenhouse at Southern States Community College on August 6<sup>th</sup>. Tips were grown for four weeks with an average day temperature of 75 degrees F and an average night temperature of 65 degrees F. 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 11, 2001 at the Hillsboro location and six days later at the Piketon Location. Field preparation included application of 100 units of nitrogen, phosphorus, and potassium pre-planting, plowing, disking and formation of a raised planting bed covered with black plastic that was formed with a Redick Fumigation bed shaper.

The floating row cover and the straw was put in place on December 19th and 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 pint of a crop oil concentrate.

To control disease, the following products were applied. Captan + sticker 4/26/02, Captan Quadris + sticker 5/10/02, Captan 5/19/02, Switch + Quadris tank mixed with Thiodan 5/31/02

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.

The harvest at Piketon began 5/13/02 until finished 6/10/02. The harvest at Hillsboro began 5/20/02 and finished 6/10/02

### Results

(Please note this Winter was unusually warm approximately 12 degrees F above average)

**Table 1.** Yields (4 replicates) from Piketon, Ohio

| <u>Treatment</u>  | <u>Average<br/>Fruit Size(oz)</u> | <u>Marketable<br/>lbs per plant</u> | <u>Marketable<br/>lbs per Acre</u> |
|-------------------|-----------------------------------|-------------------------------------|------------------------------------|
| .9 oz. Row Cover  | 0.65                              | 0.71                                | 12293                              |
| Control           | 0.61                              | 0.44                                | 7718                               |
| 1.5 oz. Row Cover | 0.67                              | 0.41                                | 7171                               |
| Straw             | 0.62                              | 0.37                                | 6568                               |
| <b>LSD</b>        | <b>0.06</b>                       | <b>0.12</b>                         | <b>2063</b>                        |

**Table 2.** Yields (4 replicates) from Piketon, Ohio

| <u>Treatment</u>  | <u>Average<br/>Fruit Size(oz)</u> | <u>Marketable<br/>lbs per plant</u> | <u>Marketable<br/>lbs per Acre</u> |
|-------------------|-----------------------------------|-------------------------------------|------------------------------------|
| Control           | 0.57                              | 0.24                                | 4194                               |
| 1.5 oz. Row Cover | 0.64                              | 0.20                                | 3500                               |
| Straw             | 0.51                              | 0.20                                | 3410                               |
| .9 oz. Row Cover  | 0.55                              | 0.18                                | 3175                               |
| LSD               | NSD                               | NSD                                 | NSD                                |

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