

CROP COVER AND GROUND MISTING UPDATE

by Tim Carpenter (President)

After three years of trials with crop covers over vertical towers we have determined that there is no doubt that the procedure and the product works, at least in Central Florida. Crop cover alone will not suffice when the temperatures drop below 26 degrees F on strawberries. In a recent test the rows covered avoided frost damage at below freezing temperatures without the addition of ground misting. However, as temperature dropped to 24°F some of the strawberries and flowers under crop cover froze when there was no water underneath and no icing over being used. Even at 24 degrees outside it was amazing at how well the tall towers did without misting but with medium weight crop covers. The rows covered with crop cover and floor misting with Maxijet orange nozzles maintained a temperature of 46°F-49°F with an outside temperature of 24°F. This test repeats the results obtained on January 23, 2003 when the temperature dropped to 17°F. The temperature under the fabric was 38°F-42°F during those 2 days.

This season more misting nozzles were added or increased to 5' centers maximum. All of the tomatoes survived the 24°F weather as they did in the winter of last season. Florida 91 and ISHA3057 tomatoes seemed to have faired extremely well under these conditions. On our strawberries that were covered and with ground misting no flowers or fruit were lost or damaged.

It is my firm belief that crop covers and ground misting work effectively on vertical towers down to 20°F with the correct amount of water and the right misters. The water temperature is obviously a factor in the final temperature obtained under the fabric. Turning on the water early is important and is must stay on until the outside temperature reaches 45 degrees. During a cold day the blankets can be left on since light and air penetrate the blankets. The covers also help bring up the root temperatures in windy conditions the fabric needs to be anchored down. (One of our growers in SC is leaving his crop cover on permanently and was still harvesting strawberries as of December 24th. More on this test later!).

The meager amount of water used for misting compared to icing over is worth consideration particularly for small farms and "U-Pick" operations. This procedure is only effective on vertical towers since many plants can be covered easily and a canopy can be used acting as a low tunnel but allowing light and air to penetrate the cover. This procedure may not be practical for normal field row crops but is certainly effective on vertical crops that are installed on ground cover fabric. The heat rise under the fabric is quite phenomenal with misters only every 5 feet and installed on a 1/2" poly pipe. The advantage of using crop covers with misting has been outlined in previous reports but the major advantage is that the plants, fruits and flowers do not ice over and the site can be entered more quickly for harvest. The crop cover is left on to warm up and dry the plants as well as heat up the root system.

The tests will continue throughout this season and procedures for installing, removing and storing the covers will be added to the final report. I will also outline the procedures for using crop covers and water to begin crops earlier in the spring and extend them later into the fall. I will also outline a procedure for automating the misting system when temperatures are expected to drop below 40 degrees. In the meantime cover when in doubt and mist when in doubt.