

Assessing the effect of heat on strawberry pests

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Propane gas-powered flameless heat has been shown to be effective at managing some diseases and pests in crops like grapes and tomatoes, and for weed control, but is it effective in strawberries? We evaluated insect and mite pests using Agrothermals' heat unit prototype developed specifically for strawberries. There was no difference in the average number of thrips or aphids with heat or without heat. However, there were more mobile two-spotted spider mites (TSSM) in the heat treatment but their egg numbers were greatly reduced. (Fig.1). Overall, more marketable fruit was collected from the rows not treated with the heat unit. The low canopy coupled with the deep furrows may make strawberries a poor candidate for the heat unit.



Fig.1. Agrothermal heat unit prototype

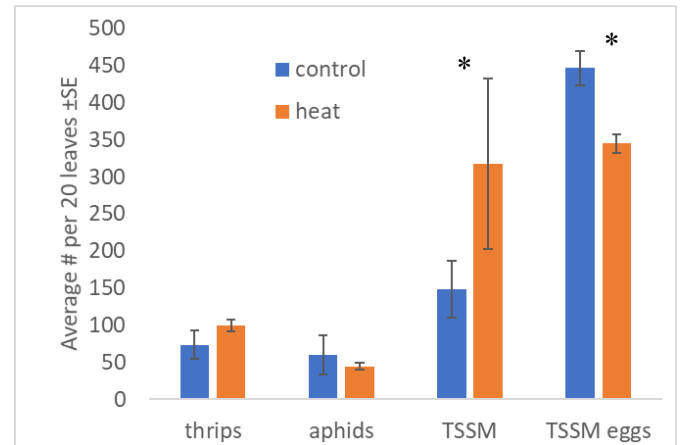


Fig. 2. Average number of insects and mites found per 20 leaves in with heat and without heat.

The heat coming out of the unit was set to 350°F initially but the unit had trouble with the depth of the furrows. The temp was raised in week 2 to its max temp of 400°F and the blowers were raised higher over the beds to traverse the furrows. The temperature hitting the plastic read an increase of 20 degrees higher than the ambient air temperature immediately after the unit passed over. The force of the hot wind blew the plants around and was able to hit the bottom leaves of the plants where the spider mites

were heaviest.

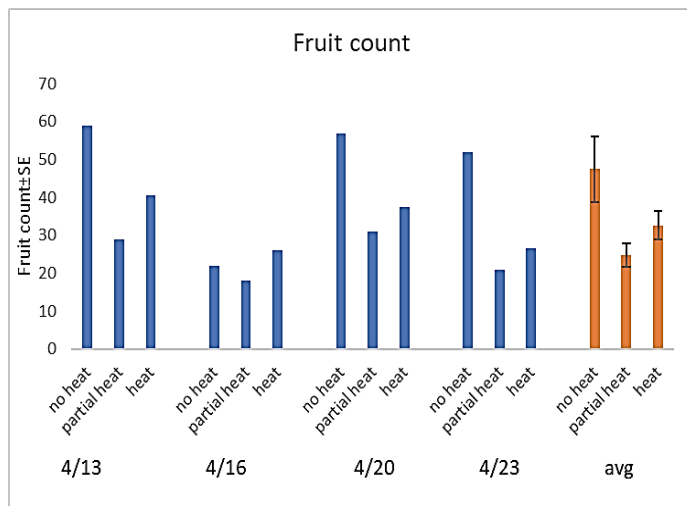


Fig. 3. Fruit collected per date per 130 ft of row.

We were able to test full heat as well as partial heat compared to no heat, and the fruit counts over the 10 days showed higher yield in the no heat treatment consistently. Therefore it would seem that Agrothermal heat unit is not a good fit for our strawberries in its current form.



Fig. 4. The unit had to stop in place to exit the furrow and this overheated the plants directly under the blower.

