

INTEGRATED PEST MANAGEMENT OF CUCUMBER BEETLES

Project Leader

Dennis Worwood, Utah State University Regional Horticulturist

Cooperators

Green River Melon Growers

Green River Soil Conservation District Board

Situation Statement

Green River, Utah is known for producing high-quality melons. Melon production is an important part of the local economy, which is based on agriculture and tourist. Through the years, melon growers have learned to cope with a variety of insects and diseases that affect their crop. In 2004, Cucumber Beetles emerged as a new and significant threat to melon production in Green River.

Striped Cucumber Beetles were first observed in April, 2004 in a greenhouse that produced melon transplants. By spring, 2005 beetles were seen in several melon fields in numbers that required growers to apply insecticides for beetle control. Although literature suggested that early-season control of beetles would prevent late-season infestations, several growers suffered significant damage to cantaloupe and watermelon fruits in August and September, 2005 due to feeding by beetle larvae and adults. The feeding damage was largely cosmetic, but was severe enough to make fruits unmarketable. In one field fully 80% of the cantaloupe fruits were scarred by larval feeding. The late-season beetle infestation was particularly devastating since growers incurred all of the production costs without being able to market a crop.

A review of literature on Cucumber Beetles suggests the following:

- For reasons that are not fully understood, beetle populations can fluctuate widely from year to year. Monitoring is needed to determine if control is warranted.
- Cucumber Beetles overwinter as adults in the soil and under litter, mostly in woodlands and fallow areas outside of cultivated fields. They become active in the spring when mean daily temperatures reach 65° F.
- Adult beetles are attracted to the color yellow, and can be caught on yellow sticky traps. Adding a wick soaked in Clove Oil makes traps more attractive to beetles.
- One study found that adult beetles were repelled by reflective silver mulch.
- Beetles are stimulated to feed by cucurbitacin, the “bitter” compound found in cucurbits. The Trece Company makes a cucurbitacin-based bait that is mixed with insecticide for beetle control.

- Beetles prefer some species and varieties of cucurbits over others. For example, Blue Hubbard Squash attracted many more beetles than other squash and cucumbers in one side-by-side comparison. This is because beetles release an “aggregation pheromone” that attracts other beetles to a preferred food. This preferential feeding habit makes it possible to use trap crops to monitor and/or control beetles.
- In one beetle monitoring study, beetle catches spiked on days that an adjacent alfalfa field was cut. This suggests that Cucumber Beetles may use other crops for food and/or shelter.
- Systemic insecticides are often applied in the spring to protect seedlings and transplants from foliage-feeding adults and root-feeding larvae. Control efforts later in the season are directed against adults.

Objective(s)

The first, and primary objective is to use sticky traps and field scouting to monitor two selected fields to determine when beetles are present and to get an estimate of beetle numbers. This information can be used to help growers decide if and when control is needed.

Monitoring would be done in fields that are planted to early melons. Traps would be checked every other day in from May 1 through June 15. Field scouting would be done twice a week after trapping indicates that adult beetles are present. If beetle numbers indicate that control is needed, growers can be notified by telephone and by posters placed at the Post Office (there is no home delivery of mail in Green River).

Traps would be checked once a week from June 15 through September 30. Growers would be notified when first (and subsequent) generation adults appear in traps.

Traps would be replaced as needed. Maximum and minimum temperature readings would be taken in a field that is being monitored so see if there is any correlation between temperature and beetle activity. Operations (such as cutting alfalfa) in adjacent fields would also be noted.

The second objective is to determine if trap crops or reflective mulch are viable alternatives to traditional control methods.

Reflective silver mulch would be applied to selected rows in one field where black plastic mulch is also being used. Once traps indicate that beetles are present, field scouting would determine if there is a difference in beetle numbers between the two mulch types. Fields would be scouted twice a week from May 1 through June 15, and once a week for the remainder of the season.

Blue Hubbard Squash or Zucchini Squash will be planted around the borders of one field. Field scouting would be used to determine if the trap crop attracts more

beetles than the melons. Scouting would be done twice a week from May 1 through June 15, and once a week for the remainder of the season.

A meeting will be held in late May or early June to teach field scouting techniques to all growers. Results of the trapping and monitoring studies will be presented to growers in a fall or winter meeting.

Funding Request

Funding is needed for trapping supplies, reflective mulch, travel and to hire a part-time worker in Green River to monitor traps and fields. A part-time worker is needed because Green River is 90 miles from the Extension Office.

Traps, mulch and related supplies:	\$600.00
Mileage*	\$490.00
Part-time worker to do monitoring	\$1700.00
Total Request	\$2790.00

*Emery County's travel budget allows Extension to make one trip to Green River each month. This mileage request would allow seven additional trips to Green River.

Dennis Worwood
Box 847
Castle Dale, UT 84513
435-381-2381
435-381-5183 fax
435-749-0518 cell
dennisw@ext.usu.edu