

**Section III**  
**Biological and Cultural Control**

**BIOLOGICAL CONTROL OF THE CEREAL LEAF BEETLE IN UTAH**

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In the heavily infested areas in the northern part of the state a parasite introduction program is being conducted to introduce egg and larval parasites into infested fields to eventual control the pest by natural means. This program is funded by USDA/APHIS. Some of the survey data from this program is included with the state wide county survey data since the observations techniques and data collecting are the same.

Survey work on the USDA/APHIS Cooperative Agricultural Pest Survey and CLB biological control projects began in May and increased drastically until the end of the month of May 1999. The early survey activities focused on the need to locate suitable fields for egg parasite introductions. Full activity throughout the months of June and July included the state-wide CLB survey, egg and larval parasite surveys and shipments of eggs and parasitized larval specimens to the Niles, Michigan laboratory.

Work and training emphasized locating fields infested with any life stage of CLB or its feeding damage and collecting eggs to be examined in the laboratory and sending these to the Niles, Michigan laboratory to detect parasites. Larvae that were collected were examined in our own laboratory to detect larval parasites and determine percentage of parasitism.

Planned release of only a few shipments of egg parasites of the cereal leaf beetle occurred because the laboratory in Niles was phasing out that part of the program. Nine shipments of the egg parasite were received during June so nine new release sites were started. A period of rain and wet weather seemed to reduce the egg and larval population build up in most fields where there was an early detection of abundant feeding of adult beetles and egg laying. This also prevented ideal conditions for the establishment of the released egg parasites.

Some of the first fields in Cache County were surveyed on April 29 and by May 12 an abundance

(50-60/sq. ft.) of cereal leaf beetle eggs were observed on young barley leaves. The following week was wet and stormy so that surveys in the same fields revealed a drastic reduction in eggs and just a few larvae. It is believed that eggs were washed off the leaves and as eggs hatched many of the larvae were washed from the leaves and died.

The survey for the presence of any life stage of CLBs, infested fields, determining population levels, damage and damage potential was completed in July for all counties of the state. Anytime CLB eggs were found in sufficient numbers to collect more than 15-20, a sample was collected and sent to the USDA laboratory in Niles, Michigan. The same criteria was true for collecting larvae that were later examined in our laboratory. No more than 1 hour was spent in any one field to locate or collect specimens. A total of 83 collections of eggs were taken, most were shipped to Niles, Michigan for incubation. The results produced no new specimens of the egg parasite *Anaphes*.

On June 14<sup>th</sup> 3 shipments of 1000 parasitized larvae each were sent to Boise and Twin Falls, Idaho for release into fields infested with CLB larvae. Examination of some sub-samples of these shipments indicated a parasitism rate of 80-90%. The next week of June there was a drastic decrease in CLB populations in the Cache County fields, probably from this high parasitism rate and pupation. These low population levels continued during July and August 1999 so redistribution of parasites could not be accomplished. It was planned to make additional shipments to Idaho, Montana, and Wyoming but we were unable to find good populations. Although parasitism rates remained high, populations were so low it was impossible to collect enough for a full shipment to any of these localities. Our Utah cooperators were very pleased with the low populations of larvae and apparent control of the pest. Finally new adults began to appear towards the end of the July and they got ready to go into hibernation. Most growers had already decided not to spray or were persuaded not to because of low population levels resulting in a considerable savings in pesticide costs to the growers.