

CEREAL LEAF BEETLE BIOLOGICAL CONTROL PROGRAM IN OREGON, 2005

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Introduction

Cereal leaf beetle, *Oulema melanopus* (CLB), was first identified in Michigan in 1962 as an introduced pest from Europe. It spread to many states east of the Mississippi River and by the early 1990's, the pest was found in four western states – Wyoming, Montana, Utah and Idaho. Oregon first found CLB in 1999 in Malheur Co. A statewide survey for CLB continued for a seventh year in 2005. CLB was not found in any new counties in 2005. CLB has been detected in 19 counties to date: Benton, Clackamas, Columbia, Lane, Linn, Marion, Multnomah, Polk, Tillamook, Washington, and Yamhill in western Oregon and Baker, Crook, Deschutes, Jefferson, Malheur, Umatilla, Union, and Wallowa in central and eastern Oregon.

Biological control has been effective in the eastern US where the invasive beetle first caused serious damage. The cooperative biological control program among ODA, USDA, and OSU for CLB in Oregon began immediately after its detection in 1999. The program now has six field insectaries, three for the egg parasitoid *Anaphes flavipes* in Washington and Union counties, and another three for the larval parasitoid, *Tetrastichus julis* in Benton, Jefferson, and Union counties (Figures 1 & 2).

Egg parasitoid – *Anaphes flavipes*

We worked for a fourth year in the insectary near Banks in Washington Co., which was started for rearing the CLB egg parasitoid, *Anaphes flavipes*. Recovery samples were taken in Banks to monitor the natural increase of the parasitoid. Parasitism rate peaked in late June to early July at about 30%, similar to the peak parasitism rate in 2004. An estimated 15,690 *A. flavipes* were released at the Scholls insectary, also in Washington Co., for the second year. Releases were made there so as not to interfere with recovery efforts at the Banks insectary. Overwintering recovery efforts in Scholls indicate that the parasitoid did not overwinter after the first year of releases. A new insectary was started in 2005 for *A. flavipes* at the OSU Agricultural Research Center in Union Co., only .25 mile from the already established *T. julis* insectary. An estimated 16,214 *A. flavipes* were released at this new insectary. This was the first release of the egg parasitoid in eastern Oregon.

Our source of *A. flavipes* was Colorado Dept. of Agriculture's Biocontrol Lab in Palisade, Colorado. As in previous years, most *A. flavipes* wasps received from the Palisade lab were released as parasitized CLB eggs on picked oat leaves and placed with a sponge inside small, modified paper milk cartons mounted on wooden stakes in the field. The rest were released as parasitized CLB eggs in small petri dishes inside the same carton and stake assembly.

Larval parasitoid – *Tetrastichus julis*

Three insectaries for the larval parasitoid, *T. julis*, were active in 2005. OSU's Hyslop Farm insectary in Benton Co. was the only one that received *T. julis* releases. The Madras insectary field in Jefferson Co. had CLB numbers too low to release *T. julis* in 2005. For a second year the Union insectary was

left alone for *T. julis* to increase naturally. Parasitism recovery rates were low in the Hyslop insectary field, but 2005 was the first overwintering recovery of *T. julis* in the Hyslop insectary after only one year of releases there.

We found widespread recovery of *T. julis* in 2005 with exceptionally high parasitism rates in some locations where it was previously released. The peak parasitism rates of *T. julis* found in each positive county were as follows: Baker (57%), Benton (1%), Linn (67%), Malheur (3%), Multnomah (100%), Union (91%), Washington (84%). *T. julis* was recovered in Linn Co. where it had never been released before. This suggests that it spread through part of western Oregon naturally. Numbers of *T. julis* remain low in Malheur Co.

Tetrastichus julis were released in four counties. The number of CLB larvae (and estimated number of *T. julis*) released in each county are: Benton, 2,987 (12,784); Linn, 850 (3,519); Malheur, 2,459 (3,566); Marion, 803 (3,291). Parasitized CLB larvae were acquired from Pennsylvania (20); Wyoming (1,012); Montana (2,459); and in Oregon, Multnomah Co. (20); Union Co. (3,058); and Washington Co. (530). The parasitism rates among CLB release material from all areas, ranged from 29% to 100%.

Although moderate CLB populations exist in the insectary fields, CLB adults and larvae were collected and redistributed to the insectary fields to augment the number of eggs and larvae for parasitizing. The numbers of CLB moved to each field in 2005 are as follows: Hyslop 8,800 (Benton Co.); Madras 9,700 (Jefferson Co.); Union 11,530 (Union Co.); Banks 8,600, Scholls 10,100 (Washington Co.). We also sent 20,220 adults to Colorado to support the egg parasitoid production there.

Pesticide use

Successful biological control is needed for a healthier farm and landscape environment. A pesticide warehouse survey by USDA in 2005 indicated that insecticide-treated acreage for CLB in Oregon had dramatically increased from none in 1999, to 1,390 acres in 2000, 12,217 acres in 2001, 26,703 acres in 2002, 38,309 acres in 2003, and 64,200 acres in 2004 but had gone down slightly in 2005 to 50,175 acres due to reduced grain acreage.

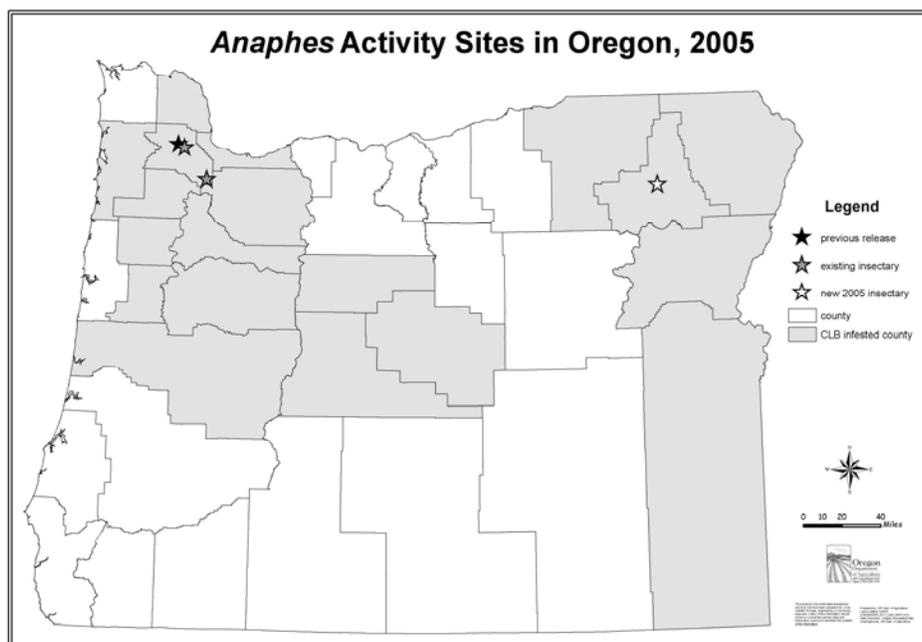


Figure 1

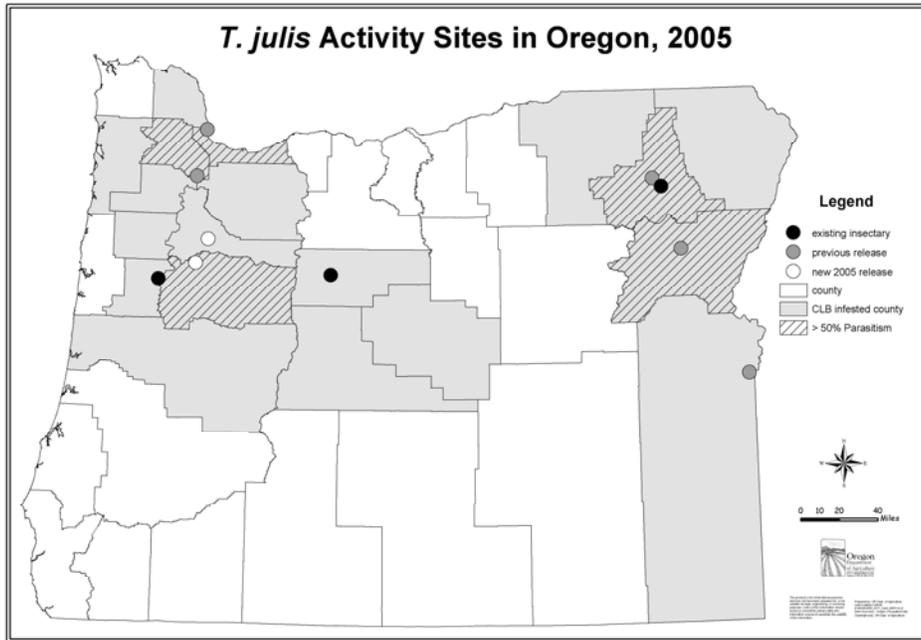


Figure 2