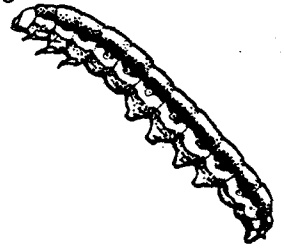


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CEW REPORT

Newsletter of the Corn Earworm Cooperative Pheromone Trapping Program
This project funded by the Oregon Processed Vegetable Commission

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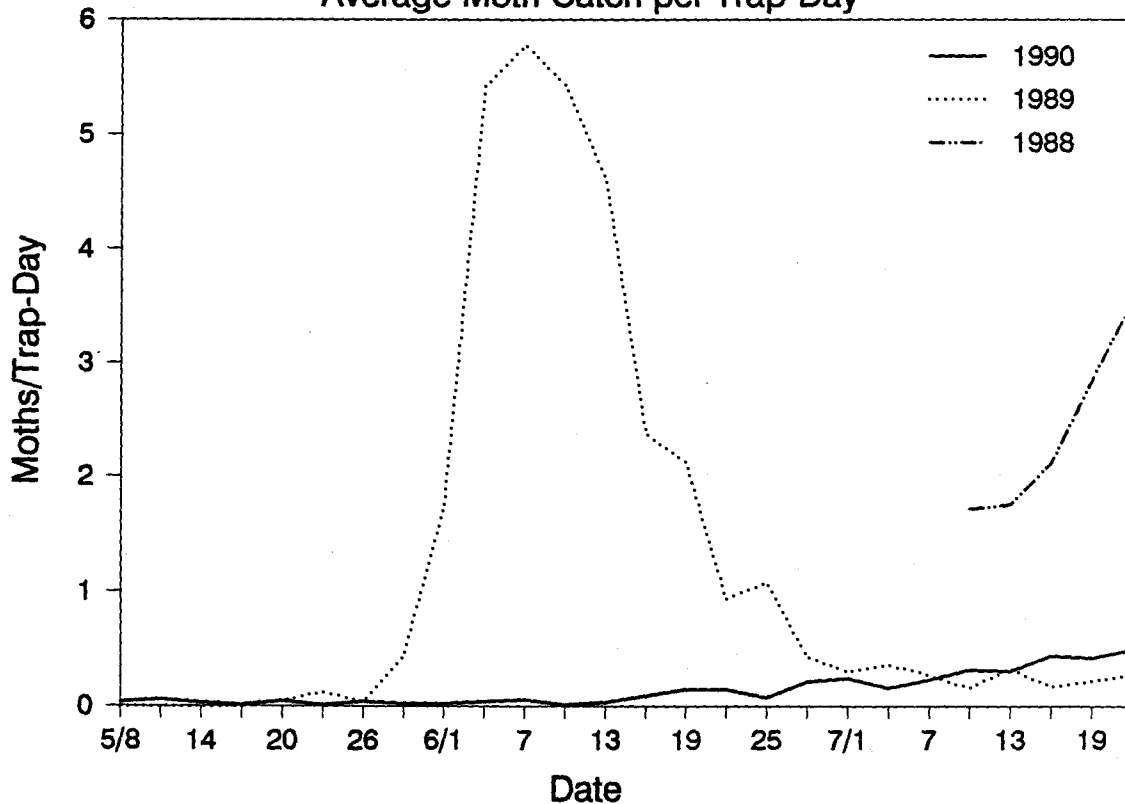
And So Begins Another Season...

Hello again! With four years of corn earworm pheromone trapping behind us we are well into yet one more season. To start the season off, I thought we would recap events from the last five years. It all began in 1985 when record earworm damage levels were observed in the Willamette Valley. In 1986 we began our trapping project.

Both 1986 and 1987 were spent testing various combinations of pheromone traps and lures. The net result of this research was to

show that Texas "Hartstack" pheromone traps and Scentry or Hercon lures were the most efficient traps and lures to use. Texas traps are the large metal, cone-shaped traps that we are currently using. In addition to trap/lure comparison studies, we examined trap placement to see if it affected trap catch. We were not able to conclusively show that placement of the trap on any particular side of the field resulted in higher catches, but we did show that traps should be placed directly in the field or in as close a proximity as possible.

Corn Earworm Pheromone Trap Average Moth Catch per Trap-Day



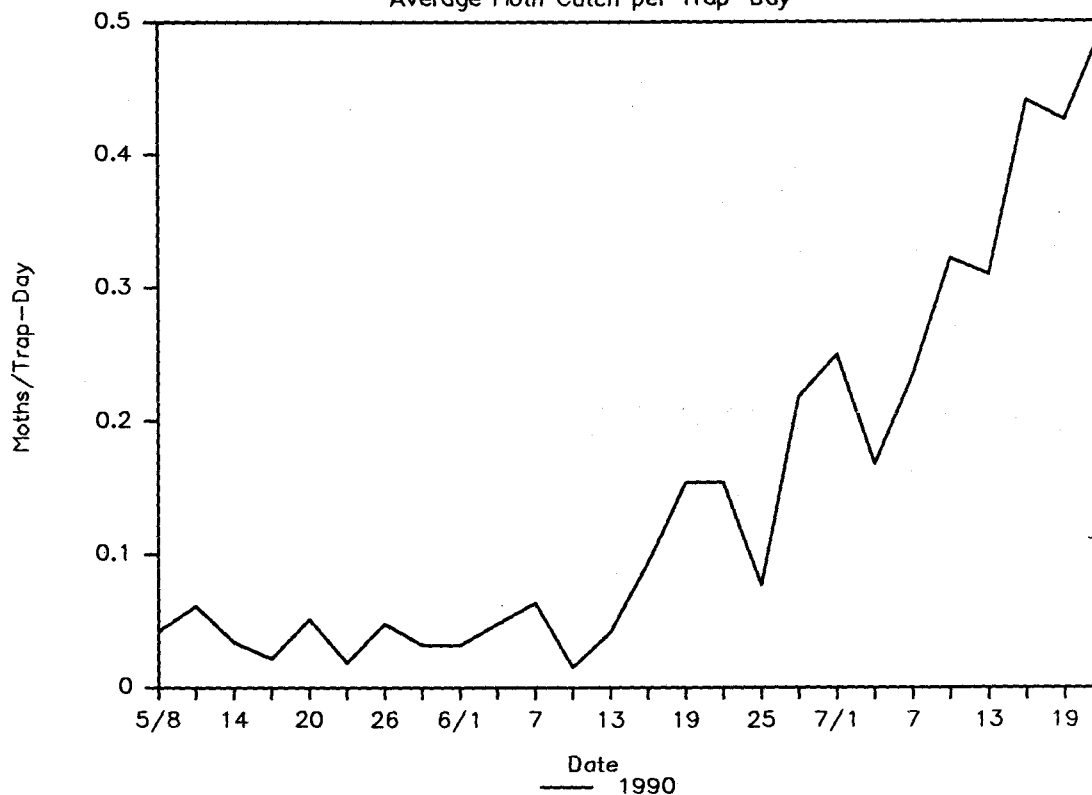
Attempts to relate pheromone trap catch by silking time to subsequent infestation levels were not entirely successful at that time because the Scentry *Heliothis* traps and Trece' lures we used were inefficient. Scentry traps are the white plastic cone shaped traps.

In 1988 we focused more of our efforts into finding a way to relate pheromone trap catch to subsequent percent infestations. We switched to Texas traps and Scentry lures in order to catch more moths. This time we found better correlations between trap catch from first tassel to 5% silk and infestation levels, if we also took the silking date into consideration. In 1989, we monitored fields once again with the Texas trap/Scentry lure combination and attempted to predict infestation levels based on our 1988 model. We found that we tended to over-predict damage levels. Incorporating 1989 data, the model predicts 75% of the variation in infestation levels observed.

By May of this year, we completed version 1.5 of CEWSIM, a computer program for IBM PC compatibles, which estimates the benefit-cost ratio of insecticide treatments. More on CEWSIM below. We are beginning another season in order to evaluate CEWSIM, which uses the new infestation prediction model. We also think that we can improve predictions if we look at factors outside the corn planting. It is reasonable to assume that a certain trap catch in an isolated corn planting would result in different damage levels from the same trap catch in a similar corn planting in a heavy corn growing region. Similarly, it might make a difference if all of those fields are downwind (and therefore within the pheromone plume), or if they are upwind. Therefore, this year we will be mapping the area around each planting and noting acreages, relative positions, and relative ages of corn plantings surrounding the trap.

Corn Earworm Pheromone Trap

Average Moth Catch per Trap-Day



1990 Willamette CEW Catches

So far 29 traps have been placed in the Willamette Valley. We are monitoring traps from Minto Island near Salem east to Stayton, and as far south as Junction City. Traps have been monitored once every three days since May 5. The first moth was captured on May 8, the first day we checked traps (this is 2 weeks earlier than last year's first catch). Despite this early catch, moth flights this year have generally been much lower than last year and only recently have reached comparable levels (see illustration). Note that last year's moth catch levels were considerably lower than 1988 levels. Last year we observed a rather dramatic flight peak during the second half of June; such a peak was never observed this year. Locations south of Corvallis so far have been catching more moths than those to the north, though traps at isolated locations to the north have also captured low numbers of moths consistently.

We also have increased the number of sites being monitored in the Columbia basin area. This year there are 13 sites being monitored, most of which are sweet corn for processing. Catch levels have been very high relative to Willamette Valley levels (as usual), but not as high as levels observed 2-3 years ago. We plan to incorporate results from the Columbia basin into CEWSIM at some time in the future.

CEWSIM 1.5 is Available

Version 1.5 of CEWSIM has been released, and is available from us free upon request. CEWSIM is a simulation model developed from our studies (supported by the Oregon Processed Vegetable Commission and the OSU Agricultural Experiment Station), and predicts damage levels and whether or not pesticide applications are economically warranted. All that is required to run the program is an estimate of the planting date, the cumulative moth catch from first tassel to first silk, and the estimated % effectiveness of any insecticides applied (other inputs may be left to the default values). Corn and earworm development, insecticide effects on earworms, and kernel damage are all simulated (in color) by the program. In the newest version, the confidence limits of the prediction are included to show the statistical precision of the model.

The new version also has an updated earworm development model which is more accurate than in version 1.0. We will be testing CEWSIM for every planting in which we have placed traps this year and will inform those growers of the predictions by the time that planting has reached 50% silk.

Anyone interested in obtaining a copy of version 1.5 of CEWSIM, contact Len Coop (503-737-2086) or Ray Drapek (503-737-3151). A manual is available with the program that fully describes its features, installation, and usage. Also, either of us would be happy to spend time showing you how it is best used.