

Biological Control of Alfalfa Weevil-1

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On May 16, 1995, assisted by ISU graduate student Kris Giles, we began a two-year project studying biological control of the alfalfa weevil. This is part of the PFI IPM project supported by the Leopold Center for Sustainable Agriculture. The spring of '95 was wet and cold up to mid-June. From then on our growing season was dryer than normal.

The field was almost a pure stand of alfalfa. We began by taking 100 sweeps through our hayfield with an insect net. Our plan was to take 40 weevil larvae from the net and rear them in 20 small vials filled with alfalfa leaves and topped with a cotton ball. We also took a 30-stem sample to check how close larva numbers were to the economic threshold. ISU Extension guidelines are to cut or spray when weevil larva numbers reach two per stem. We picked the 30 stems and shook them out into a white bucket to count them.

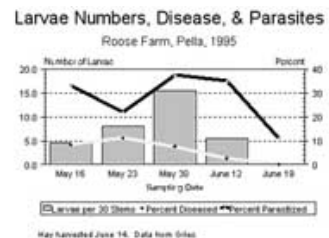
Kris' work has shown that a fungus can kill larvae in late May. Our plan was to wait until we had a large population of weevils and then harvest the hay. We left 12 feet standing along the perimeter of our fields, hoping this "reservoir" would concentrate the weevil populations and speed up fungus activity.

We

Figure 10. Alfalfa weevil larvae and thier pests on the Roose farm in 1995.
Bar -Larvae per 30 stems, dots-percent diseased, line-percent parasitized



Men at the Roose field day



sampled on May 16, 23 and 30, and June 12 (Figure 10). On June 14 we harvested, and we sampled the strip that was left on June 19. On June 16 we found six weevil larvae per 30 stems - much below the 2 larvae per stem threshold. Our rearing results showed that 40 percent of the weevils were expiring anyway. On May 30 the population climaxed at $\frac{1}{2}$ larva per stem. The following week we saw 75 percent of our captured larvae die. (Kris' numbers are somewhat lower. He was feeding greenhouse alfalfa.) We were not surprised when on June 12 the weevil larvae numbers had fallen back to six larvae per stem.

Because the wet spring had allowed the fungus to increase, our harvest procedure had little effect on the few remaining larvae. For the sake of the research, we hope 1996 presents us with a more typical weather pattern.

Toward July our weather did dry out, providing another pest, the potato leaf hopper, with a perfect environment to attack the post-harvest regrowth. Perhaps in the future biological control of this pest will also be possible.