

Augmentative Biological Control of Flies on Dairies Using Hymenopterous Parasites

Utah State University Extension Cache County Integrated Pest Management Mini Grant 2003 Results

1. Vacuum

1. Using the vacuum to suck off the flies proved effective in the cooler mornings, when the flies were nesting on the ceilings of the calf hutches and in the top corners. Using either the tube end for the corners or the flat extension for the ceiling, we sucked up quite a few flies. It took about 30-45 minutes to do 30 calf hutches. It would have been quicker if there were a better extension cord system.

2. When the summer came upon us, however, the mornings were too warm and the flies were very active at sunrise. It was difficult to suck any flies up at all. The exact degree at which this happens is unknown, but it never again got cool enough to have the vacuum be an effective method of fly reduction until early fall.

2. Fly Parasites

1. It was never the intention to absolutely control the flies this year with parasites alone. We decided to wait until June 15th to start, so we could see what the "normal" fly population was for this particular farm and after a year of parasite use, compare to the year before. We learned that starting as late as middle of June, the parasites had a difficult time to get on top of the fly population. We will start using the parasites at least six weeks earlier next year. That way we can keep up instead of catch up.

2. Using no other method of fly control and starting the parasites late, the flies had high populations on the dairy. Measuring with a sticky tape that we set up, the flies were filling up the tape very quickly and if we moved it once or three times per day, the tape was filled to capacity with about 80 flies per 6". Since this number was consistently the same at all sites, precise measuring was largely time consuming with no gain.

3. Since we were not using the vacuum, cooperating dairymen decided to substitute that control with sugar bait that was spread on the ground or on top of flat calf hutches. Even though it was not a part of the original experiment, dairymen felt it necessary to do something else. The bait seemed to go well with the parasites and by early fall, the farm seemed to have substantially less flies. During this early fall season, end of August and early September, it was a general consensus that flies are usually at their worst. The flies seemed to be much less than years past.

3. Control Groups

1. We tried to have 3 separate locations that were treated differently, but when our main

location was flooded it affected the fly population. Wet calf bedding caused an explosion of fly population and calves had to be moved and all pens needed to be completely cleaned. This resulted in a disproportionate number of calves at each location which affected the fly population. We learned that total calf numbers and the timing of when and how the stalls were cleaned affected the fly population. We found it difficult to monitor and control all the different conditions at each site. As such, our results are not defensible.

4. Summary

1. It was difficult to conduct a scientific experiment, when there are so many uncontrollable events and elements. There were also a couple parts of the experiment that were more difficult than we anticipated. We thought the system of counting flies on the sticky tape could be effective, but found that to really get an accurate number, we had to roll it more than 3 times a day, which is something we weren't prepared to do because of time and cost restraints. We also thought the vacuuming would be substantially easier as well. We did find that this is an effective method of control when the temperatures are cooler.

2. In general, we did learn about controlling flies without the use of chemical. First, we will begin using parasites earlier in the spring next year to keep ahead of fly populations. We have also learned that using a combination of different forms of control is key to IPM systems. The vacuum works well during cooler weather and the sugar bait helps to control adult fly infestations without impacting the parasites who are working on the fly pupae. We did fail in our efforts to get precise scientific numbers. We almost gave up when the calf pens became flooded during the summer, but are encouraged enough to continue to use the fly parasites, vacuum and possibly the sugar bait to control and monitor the fly populations next year. We know we may not be funded with a grant next year. We see a need to continue this effort regardless of the availability of funding.

3. No official field day was held because of the absence of measurable data. Informal training and observations took place as interested dairymen requested information on the status of the research.