APHID TRAPPING AND TRAP REPORTING - EASTERN OREGON

by
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In Malheur County, Oregon, a green peach aphid trapping program was instigated during the 1969 season. Since this time, aphid trapping programs have been conducted in 1970, 1971, and 1972. The program began in 1969 with ten traps and since that time has expanded to sixty-eight traps at thirty-four locations.

This afternoon, I would like to tell you a little about the operation of the 1972 program and how the potato grower in Malheur County is now using it to schedule their spray programs.

Trap locations are twenty miles north of Ontario, fifty-four miles west of Ontario, thirty-two miles south of Ontario and about 2 miles east of Ontario. All traps are in Malheur County, which is just west of the Snake River in Eastern Oregon. Malheur County is the Oregon portion of the Treasure Valley which begins in Boise, Idaho.

First a few comments about the trap itself. The trap is made from a 5 gallon can. The top one-fourth of the can is removed. To this is attached fins made out of sheet metal, they extend twelve inches above the trap. This is the basic construction of the traps.

The traps are painted a bright yellow color. This color attracts any aphids flying near the location of the trap. The traps are placed in an elevated position next to the field. They may be placed on top of a mound of soil from which all vegetation is removed or they may be placed on top of a lettuce crate if no suitable naturally elevated area is available.

After the traps are in place, they are filled 3/4 full with clean water. Approximately 2 1/2 gallons of water are needed to fill them this full. A pinch of copper sulfate is put in the water. This helps to retard the build-up of moss and algae in the water, making it easier to remove aphids from the water.

During the 1972 trapping season, two traps were placed at each location. The reason for utilizing two traps instead of one, was to possibly achieve a more accurate aphid reading in the area. The aphid reading for each location was thus an average of the two traps. The two traps were placed some 20-25 feet apart. It did prove more time consuming, but I feel a truer aphid reading for each location was obtained.

An important part of any insect survey program, like this, is servicing of the machinery. The 68 aphid traps were examined for aphids and cleaned twice a week. A summer assistant was hired to service the traps and to collect all the aphids trapped. Two days were required to check all the traps. Traps were serviced and checked on Thursdays and Fridays and then again on Mondays and Tuesdays. Wednesday mornings were devoted to examining and identifying the green peach aphids found. A small paint brush made out of camels hair was used to fish the aphids out of the water trap and to put them in a small glass vial. The glass vial or bottle had isopropyl alcohol in it which preserved the aphids until they were examined under a microscope.

After all the green peach aphids were identified for each location, an aphid trap report was compiled showing the numbers of peach aphids found at each of the two trap checking times.

In addition to checking the traps for aphids, all potato fields next to the traps were also examined for the presence of aphids. Twenty-five leaflets were randomly pulled and examined while walking in and out of a field, a distance of about 65-70 feet. A report was compiled for each of the 34 fields next to the traps showing the number of leaflets out of twenty-five checked that had green peach aphids on them.

On Wednesday afternoon of each week a green peach aphid trap report and evaluation was prepared and mailed to all Malheur County potato growers and to anyone else that requested it. In addition, field reports were compiled and mailed only to those growers whose fields were examined. I didn't mail these field readings to all the growers, because I felt they were of no benefit to them, and I was concerned that certain growers might look at these field reports and assume the aphid field counts in their fields were similar. This is not so. My work has shown that every field on every farm is different and should be examined separately.

Along with these aphid trap reports, I would compile an aphid trap report evaluation. Numbers mean nothing unless they are interpreted. They can be harmful instead of helpful to the grower. What is a critical level? This is always the question asked. With the aphid traps I am using, and with the aphid traps checked every 3-4 days, I consider a critical green peach aphid trap level to be 5. This is the level I use here in Malheur County and I derived this number myself from past experiences. This critical level needs to be adjusted for trap size variations and for trap checking interval variations. Also the trap must be strategically placed where it can attract flying aphids and the trap must at all times be a bright yellow color. The entire trap should be a bright yellow color.

A little discussion of this yellow color would be in order at this time. The first three trapping seasons the inside and fins were painted the bright yellow color. The outside of the trap pan was not painted yellow, because of the possible danger of the aphids alighting on the outside area, and sliding to the ground. After closely watching the traps that were painted a yellow color on all surfaces, this was not found to be so. Thus, the entire trap is now painted a yellow color.

For a commercial potato grower, I consider a critical field count to be five leaflets out of twenty-five checked with aphids on them. This would be 20% of the leaflets. Here again, this critical level may need to be adjusted, depending on where the leaflets are pulled in relation to position on the plant and to position of the plant in the field. The procedure I use is to walk some 65-70 feet from the edge of the field into the field pulling a determined number of leaflets on the lower part of the plants and returning back out of the field pulling the same number of leaflets.

I will not bore you with all the aphid trap counts made during any one time. I would like to say that one can set up specific areas which in most cases will vary in the numbers of aphids trapped at any one time. All these areas must be considered separately when making a statement about aphid numbers. In the 1972 trapping program there were some trap locations where no green peach aphids were trapped while in other areas the numbers of green peach aphids trapped was extremely high. Some areas did not have to spray at all to control the peach aphid, while some had to spray one time and some had to spray three and four times.

Green peach aphids vary from one season to the next, so it is hard to make any seasonal aphid predictions based on previous years information. I have been able to make early season predictions based on peach tree checks for overwintering eggs and early development of nymphs on the trees. If I find any numbers of eggs or nymphs, I recommend to the grower that they apply a systemic insecticide as Di-Syston at planting or soon after planting, to control that initial or early aphid movement from the peach trees. If I can not find any overwintering signs of green peach aphids, I recommend to the growers that they wait until the potatoes have emerged some 4-7 inches and then to sidedress their systemic. The thought here is that control will be obtained later in the season when aphids may be a problem.

It is hard to assign a dollar figure saved in any one season by basing aphid control sprays on the green peach aphid survey report. Dollars saved can be thought of in terms of sprays not made, because of no need for them and in terms of required sprays made with the maintenance of quality achieved. I might site one example. In one area, there was a potato grower who followed the trap reports very closely and then there was one who saw the reports, but followed his regular spray program. This later individual had his potatoes sprayed when no aphids were being trapped indicating no aphid movement into the area. The individual following the aphid trap reports did not

have his potatoes sprayed because the aphid report told him there was no need. As a result, this grower did not spray at all that season for aphid control netting him a savings on 100 acres of about $800.00. This money was expended by the other individual.

Since the beginning of this program in 1969 when ten traps were in operation, potato growers in Malheur County learned how to use the aphid survey reports to schedule their control sprays. In many cases, growers that have followed the program closely, have reduced their need for sprays considerably. In some seasons, some growers have not sprayed based on the trap reports. Aphid numbers vary considerably from one area to another with spray programs varying considerably as well. Potato growers in Malheur County have learned to spray for aphid control when only necessary.