



Source —

C. R. Ellis and S. M. Smith
Department of Environmental Biology
Ontario Agricultural College

AGDEX NO. 121
622

Date May 1982

Insects on Regrowth Alfalfa in Ontario

A two-year project has been completed on the importance of the many insects found on second and third crops of alfalfa. Ten fields were regularly sampled for insects, and dimethoate (Cygon), as recommended for alfalfa in OMAF Pub. 296, Field Crop Recommendations, was applied to half of each field at recommended rates when the regrowth was 10 cm high. Yield and protein analysis showed that control paid only when there were 1 to 2 potato leafhoppers per sweep with an insect net. When there were fewer, insecticides did not pay even though they also reduced the numbers of aphids, plant bugs, spittlebugs, grasshoppers, and other pests. Growers should be concerned about the potato leafhopper on regrowth alfalfa and, where it occurs, the alfalfa blotch leafminer. The other pests combined are usually well below damaging levels and should not be considered when making decisions to spray.

A survey was done of second and third crops of forage alfalfa during the second year of production. Ten fields were surveyed in the Woodstock,, Welland and Guelph areas in 1979 and 1980. Insects in areas sprayed with dimethoate and in check areas that were not sprayed were sampled at ten-day intervals by taking 500 sweeps with an insect net. Yield and protein content were determined at harvest.

Potato Leafhopper

Potato leafhoppers were found in all fields but the highest numbers were in the Welland area. The second cutting reduced the number of leafhoppers but did not prevent their buildup on the third harvest where the highest numbers occurred. During the particular two years of this study, the insecticide treatment paid on only one field which had the most leafhoppers (between 1 and 2 per sweep).

Potato leafhoppers do not overwinter in Canada but are carried into Ontario each year on winds. Their abundance varies from year to year. Some years they are more abundant and cause substantial losses in alfalfa yield and quality, particularly during dry seasons when plants are under stress.

The effect of potato leafhoppers on regrowth alfalfa was also studied in field cages at Guelph in 1980 and 1981. Cages were placed over the regrowth and were infested with various numbers of potato leafhoppers when the regrowth was 10 cm high. Losses in protein and increases in yellowing and stunting were directly proportional to the numbers of potato leafhoppers on the plants. Only one leafhopper per two plants was sufficient to cause noticeable symptoms of yellowing and stunting at harvest. Plant bugs and spittlebugs also caused yield reductions when caged on alfalfa but only at populations much higher than those seen anywhere in Ontario.

Other Species

Alfalfa Weevil - sometimes enough larvae survive first cutting to do some feeding on the regrowth. This occurred in two fields during the study, one in Guelph and one in Welland. Feeding was on the early regrowth and by harvest the plants had recovered. Although the stubble spray provided excellent control, there was no differences in yield or per cent protein between the area sprayed or not sprayed. Weevil larvae occur mainly on the first harvest and early cutting controls the pest. The only time problems have occurred in Ontario is when cutting has been delayed permitting many weevils to survive to the adult stage. When this happens and their movement out of fields is delayed by cool, wet weather, damage can occur from adults feeding in the crowns. This rarely occurs but when it does, use insecticide as outlined in Pub. 296, Field Crop Recommendations.

Alfalfa Blotch Leafminer - this insect was rare in southwestern Ontario during this study. This pest is now present, at least in small numbers, throughout most of Ontario but is more damaging in eastern Ontario. It has three generations a year, the first of which is generally controlled by the first harvest. Unfortunately, subsequent generations on the re-growths usually do not correspond to cutting dates. The pest is becoming more abundant in south-western Ontario and control may be needed. See OMAF Pub. 296, Field Crop Recommendations.

Other Insects - the numbers of tarnished plant bugs, meadow spittlebugs, pea aphids, alfalfa plant bugs and grasshoppers, even when combined, were not numerous enough in any fields to require control. Although they were always present on regrowth alfalfa, this survey showed that controls were not necessary and when insecticide was used it did not pay. Insecticides applied on the fields also killed parasites and predators and thus could cause problems by disrupting the parasites introduced for the biological control of the alfalfa weevil and alfalfa blotch leaf-miner.

Summary and Recommendations

Sprays on regrowth alfalfa only paid when there were more than one potato leafhopper per sweep. Although there are many other insects on regrowth alfalfa and some are plant feeders, these should not influence our decision of whether or not to spray. The recommendation for potato leafhopper is to watch for reports of severity of infestation and check fields frequently. Be suspicious of the first symptoms of yellowing. If an insect net is available, apply recommended controls when one or two leafhoppers are found per sweep. See OMAF factsheet, Potato Leafhoppers in Alfalfa, Agdex 121/622.