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EARLY SPRAYING ESSENTIAL FOR WEBWORM CONTROL

By J. A. BUTTON, B.Sc. (Agric.), Entomologist

Results of trials conducted during the last two seasons have emphasised the need for very early treatment of webworm infested crops. Where heavy infestations occur every effort should be made to apply treatments during the first fortnight after crop emergence.

DURING the last two seasons it is estimated that more than 250,000 acres of wheat were sprayed with D.D.T. for webworm control even though insect numbers were well below epidemic levels during this period. Recent evidence indicates that many outbreaks were sprayed too late to obtain worthwhile results. In the trials outlined below no benefit was obtained from treatments applied later than three weeks after crop emergence.

While these results have not yet been shown to have universal application, the findings are of sufficient practical importance to justify reporting at this stage.

1964 Wheat Trials—Brookton and Gingin

A patchily infested wheat crop was inspected about three weeks after emergence and two quarter-acre blocks were retained unsprayed for observation. The rest of the crop was sprayed with D.D.T. Buffer areas were sprayed around each block.

The first block was classified as moderately damaged and the second as severely damaged. Actively-feeding immature webworm larvae were uniformly distributed over both blocks.

The initial grub and plant counts were made on June 30 (three weeks after emergence) and sampling was repeated weekly for seven weeks.

The following observations were made:

- The number of larvae (averaging 1.5 per square foot on each block) did not change significantly during the first four weeks. Larvae continued to feed actively, and developed from about half grown to maturity during this time.
- There was no significant change in plant density during this period.
- Webworm numbers declined rapidly from the beginning of September, and by the end of the month no live larvae could be found on any plots.
GINGIN
Observations and counts were made on a lightly infested wheat crop at Gingin, from the third to the sixth week after emergence. Insect counts were lower than in the Brookton infestation.

A gradual decline in webworm numbers was recorded, but again plant counts remained constant and no additional crop damage was observed.

1965 Trials—Bakers Hill and Northam

BAKERS HILL

The 1964 observations were followed up with more detailed studies of crop response in 1965, and a detailed experiment was laid out at Bakers Hill.

Infestation levels were disappointing except in plots sown immediately after the initial working. In these plots, however, excessive weed growth tended to obscure the results. The only damage recorded from this trial occurred during the first ten days after crop emergence.

NORTHAM

The most significant results so far were obtained from a trial at Northam in 1965.

The crop concerned was a commercial planting on a clover/grass pasture. The pasture was disc ploughed on May 23 and scarified and harrowed on May 30. Seeding, with combine and light harrows, took place on June 10.

A small section of this crop was found to be heavily infested with webworm. The trial plots were pegged in this section on July 15, a little more than three weeks after crop emergence. The experimental block consisted of 18 plots each 400 sq. ft. in area in a randomised paired plot arrangement. Twelve small sub plots of 3 sq. ft. were pegged in each plot. One of each pair of plots was then sprayed by hand with D.D.T., at a rate of ½ lb. active ingredient per acre, care being taken to avoid drift.

The sub plots were sampled weekly for six weeks. Yields were measured on all plots at the end of the season.

The difference in yields between treated and untreated plots was not significant indicating that no further crop damage occurred after the start of the trial.

Although only a very rough estimate could be made of general yield depression, by sampling nearby unaffected areas, loss was estimated at about 30 per cent. for the experimental block, the damage obviously occurring during the first three weeks (and probably during the first fortnight) after emergence.

When the first counts were made there was no simple relationship between the insect numbers and crop damage, measured by plant density. Any early correlation was no doubt obscured by heavy larval mortality during the first fortnight of crop growth.

In Brief . . .

Most economic loss to cereal crops probably occurs during the first fortnight after emergence. This points to the need for early inspection and treatment (if necessary) of all crops in which infestations are likely to occur, that is, all cereal crops (other than oats) planted on grassed pastures.

If the initial working is thorough and clean the risk of infestation will be reduced by delayed planting. Where the delay is three weeks or more the chance of webworm damage is slight.

Crops planted on fallow or stubble are not usually attacked.

INSPECTING THE CROP

For routine inspection of a crop the paddock should be traversed on foot (preferably with a second traverse at right angles to the first) four or five days after seedling emergence. Special attention should be paid to areas known to have been heavily grassed, as these are likely to be the worst affected.

WARNING
Heavy moth flights and good early season conditions have made this season a dangerous one for webworm.

indicating that no further crop damage occurred after the start of the trial.
The inspection, to determine the incidence of webworm damage to plants involves—

- Assessing the number of severed blades lying on the surface.
- Investigating bare areas to determine whether these are caused by emergence failure, delayed emergence due to deep seeding, or shoot damage by webworm.

Because of the many variables involved, it is still not possible to give any simple formula upon which to base the decision to spray, but experience has shown that where damaged plants average one or more to the square foot, immediate treatment is usually warranted within the first two weeks after emergence of the crop.

Reference

Acknowledgment
The work described here is part of a general investigation of the webworm problem in W.A. financed by a grant from the Wheat Research Committee of W.A. This assistance is gratefully acknowledged.

Obituary

MR. R. HARLEY

The farming community of the South-West will mourn the passing of Mr. R. Harley who died suddenly at Margaret River on Saturday, April 30. Mr. Harley was District Veterinary Officer and Officer-in-Charge of the Department of Agriculture’s district office at Bunbury.

Mr. Harley was a member of the Royal College of Veterinary Surgeons who migrated to Australia from Scotland in the 1920’s.

He had served the State for many years.

He first joined the Department of Agriculture in 1928 as an assistant to Dr. H. W. Bennetts on the investigation of entero-toxaemia of sheep, which at that time was a serious and unsolved problem. In 1933 he resigned from the Department to establish a large animal practice at Bruce Rock, which was mainly concerned with the attendance and treatment of draught horses.

He rejoined the Department in 1937 and was stationed for two years in the Kimberleys, where he worked largely on bovine pleuro-pneumonia and cattle tick and buffalo fly infestations.

He was transferred to the South-West in 1939 where he served both at Margaret River and Manjimup and was appointed in 1945 to the position of District Veterinary Officer, Bunbury, which he occupied until the time of his death.

In 1949 Mr. Harley contracted brucellosis presumably through contact with diseased cattle. This infection proved chronic and incurable and it greatly restricted his field activities particularly in the later years. However, despite this disability he continued to provide a veterinary and advisory service and his sound knowledge and advice on animal health problems was greatly appreciated throughout his district.

He had been associated with the Department for 38 years and was due for retirement on September 1.
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