

Research Report

Sugarbeet Conference, Fort Collins, Colorado

February 5, 6, 1974

Prepared by C. C. Blickenstaff, January 11, 1974

- A. Location of Project: Western Region
Idaho-Montana-Utah Area
Entomology Research Laboratory
Twin Falls, Idaho
- B. Work Reporting Unit Title: Insect Pests of Sugar Crops; Great Basin
Sugarbeet Insects.
- C. Work Reporting Unit: No. 10900
- D. SMY's for Past Year at Location: 7/1/72 - 6/30/73, Vacant; 7/1/73 -
12/30/73, 0.6; ave. for calendar year
1973, 0.3.
- E. Name of Scientist in Project at Location: Carl C. Blickenstaff
- F. Mission of Research:
To increase sugarbeet production by improvement of methods of control
of sugarbeet insect pests.
- G. Objectives of Research:
To measure populations of the sugarbeet root maggot and determine their
effect on beet growth and yield for development of economic threshold
levels; to develop means of predicting economic threshold levels; to
measure populations of other insect pests and determine their economic
threshold levels; to develop techniques for laboratory rearing of the
sugarbeet root maggot; to test experimental insecticides in the
laboratory and field for efficacy against the sugarbeet root maggot
and other insect pests; and to test sugarbeet varieties for resistance
to sugarbeet root maggot.
- H. Research Accomplishments:
Emphasis the past few years has been on the sugarbeet root maggot with
less work being done on the sugarbeet leafhopper and the green peach
aphid. Sticky board traps were used successfully to determine time of
emergence and population levels of sugarbeet root maggot adults. Dark
colored stakes are more attractive than lighter colored ones. Black
poisoned stakes on a 50' x 50' grid killed many adults but did not
result in measurably fewer maggots in 1972, but did give some control
in 1971. The insecticides Temik (aldicarb), dyfonate, and Counter (AO92100)
applied as granular pre-emergence at 2 lb. AI/A gave about 92% control
of maggots in 1973. Two foliar spray applications of thimet spaced 2 weeks

apart during the flight period gave 80-93% control of maggots. Three years of preliminary testing of plant selections indicate that differences exist in attraction or resistance to the sugarbeet root maggot. For survey of the occurrence and abundance of the green peach aphid, yellow buckets containing water were found to be superior to sticky traps. In greenhouse tests with the sugarbeet leafhopper, Temik at 2 lb/A gave control for up to 9 weeks. Sugarbeet leafhoppers were found to be able to transmit curly top virus in as little as 4 minutes feeding time.

I. Impact of Research Accomplishments on Science and General Public:

The ability to effectively survey for root maggot adults using sticky traps is useful in detecting presence and spread, and timely information on abundance may be of value to growers in making decisions on the need for control. Insecticide testing has provided efficacy data for registration purposes and provided the sugarbeet industry and growers with useful information on relative efficiency of registered materials, and methods and timing of their application. Preliminary tests for plant resistance to root maggot indicate this to be a promising area for research. The local sugarbeet industry is using the yellow bucket trap for green peach aphid survey.

J. Obstacles to Achieving Objectives:

Although considerable progress has been made during the past 5 years, the number of personnel at this laboratory has steadily declined (3 retirements, 2 deaths, 1 resignation, and 1 termination). From 1969 to 1973, the approximate time available for research on sugarbeet insects declined from 1.4 to 0.3 SMY, and 2.4 to 1.4 for support staff. Much of the equipment is outdated and inadequate; the facility is old and inefficient.

K. Future Plans and Needs:

Studies will be conducted on most of the stated objectives, but will be restricted primarily to the sugarbeet root maggot. Research on other insect pests and the insect pest complex as a whole will be severely limited until the level of funding and personnel can be increased. To progress at a reasonable rate on all objectives, one additional research entomologist and one additional technician are needed.

A proposal has been made to move this activity into new quarters at the Snake River Conservation Research Center at Kimberly--about 5 miles east. This would require construction of an addition, containing offices and laboratories, to the existing facility. If this proposal is not approved and funded, considerable remodeling, repair, and modernization of the existing laboratory and greenhouse facilities at Twin Falls will be necessary.