BARLEY THRIPS SURVEY IN IDAHO, EASTERN OREGON AND WASHINGTON

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INTRODUCTION

The barley thrips (*Limothrips denticornis* Haliday) is a new pest in Idaho. In the U.S. it has been found to cause economic damage in barley but is found in winter grains and early spring grasses. Feeding damage causes symptoms that include a characteristic whitened or bleached appearance of the plants and misshapen or gooseneck shaped stems. Feeding by both adults and immature thrips is by rasping and sucking the juices from plant leaves and stems. This results in the loss of color and, as the damage progresses, the drying and death of the leaves, stems and grain head.

Adult barley thrips are dark brown to black in color and small, between 1.1 and 1.8 mm (0.04 to 0.07 in) long. It has a long, narrow body shape, usually appearing pointed at both ends. It is found from Canada to the central United States but is native to Europe, parts of Asia and Siberia. It was first found in the United States in 1923 and by the early 1950's had been observed in large numbers in North Dakota spring barley. In 1990 the first reports of barley thrips in Idaho barley were reported in the Tetonia area. In the Fall of 1991 more information was requested of the University of Idaho Extension Service by eastern Idaho barley growers concerning the biology and damage potential of barley thrips. A sampling program funded by the Idaho Barley Commission was begun in eastern Idaho in 1992 to help determine the following: 1. Adult overwintering sites. 2. Time of adult female migration into the barley crop and early season damage assessment. 3. Test North Dakota treatment thresholds under Idaho conditions. 4. Distribution of barley thrips within Idaho.

RESULTS

After preliminary sampling of soil and plant tissues, it was determined that barley thrips most likely overwinter in soil rather than the plant tissues of aspen bark or sagebrush. Further soil sampling was concentrated within three major vegetative zones; sagebrush, aspen stands and CRP areas. The results of this sampling showed significantly more barley thrips in sagebrush than in aspen stands with virtually none being found in CRP plantings.

Observations of early spring migrations from overwintering sites were made by utilizing white and yellow sticky cards. Sixteen sites were monitored weekly from mid-April to 10 August 1992. Data collected indicated barley thrips catches on the white cards were significantly greater than on the yellow cards. Yellow cards were discontinued on 8 July and counts were then made from the white cards only until 10 August. Peak flights were observed in mid- to late May and again in early August. The first flight peak represents the migration from overwintering sites to, and probably within the barley fields. The second flight peak represents the migration out of the maturing barley crop back to overwintering sites.

Barley plant tissue sampling was conducted weekly at the same 16 sites when fields reached at least the 3 to 4 leaf stage (early June) and continued through harvest. Adult counts (100% female bias sex ratio) increased to mid-June, dropped slightly through July with a second increase peaking in early August. Immature barley thrips were first observed in early July with counts increasing to a single peak in late July. The peak of immature thrips probably resulted in the early August adult peak. Data also indicated a single generation was produced in eastern Idaho during the 1992 growing season.

The Idaho, Washington and Oregon aphid suction trap system coordinated by Dr. Susan Halbert, University of Idaho, Aberdeen Research and Extension Center, was made available in 1992 to determine, within the systems limits, the range of barley thrips in Idaho. This system also provided valuable information concerning barley thrips in eastern Washington and Oregon. Barley thrips were collected in suction traps from Tetonia, Bonners Ferry, Moscow, Lewiston, Craigmont and Ririe. In Washington, with several sites still to be counted, thrips were collected in trap samples from Wilbur, Prescott, Ritzville and Central Ferry. With only half of the Oregon locations counted at this time, no barley thrips have been counted in Corvallis, Pendleton or Moro. Although in 1992 none of these locations, other than Tetonia, have reported economic losses in barley to the barley thrips, further monitoring of these areas is indicated. Proposed projects for the 1993 season include repeating many of the same sampling procedures from 1992 with the addition of chemical efficacy and thrips density effects on yield.