POPULATION DEVELOPMENT AND ECONOMIC IMPACT OF APHIDS ON WHEAT IN SOUTH IDAHO

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Five species of aphids commonly infest cereals in Idaho. These are the oat-bird-cherry aphid Rhopalosiphum padi, corn leaf aphid, R. maidis, English grain aphid, Sitobion avenae, rose grass aphid, Acyrthosiphon dirhodum and the greenbug, Schizaphis graminum. Sipha agropyrella and S. kurdjumovi have occasionally infested wheat in southwest Idaho.

R. padi has been commonly associated with spread of barley yellow dwarf virus (BYDV) throughout the state. Controlled inoculations of BYDV in field tests at several localities on irrigated winter wheat over a 2 year period show yield declines of 10 to 50%. On-farm comparisons have indicated yield losses of 20 to 25%. In the irrigated areas of south Idaho R. padi from corn fields infest fall planted wheat. Flights commence in late summer and continue until corn is killed by frost with the peak flight period during late September and early October. Corn is a symptomless carrier of BYDV. Numbers of aphids developing on the fall crop increase until early to mid-November then gradually decline through the winter.

S. avenae is the most common of the several head infesting species. Small plot field comparisons showed that infestations averaging 25 aphids per head reduced yields about 20%. S. avenae overwinters as eggs in winter wheat crops. Winged forms move from winter wheat to spring wheat during the spring.

WIREWORM CONTROL ON WHEAT IN IDAHO

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A total of 14 wireworm control trials were initiated at previously identified infested field sites throughout Idaho. Wireworm species varied among sites but Limonius infuscatus and L. californicus were most abundant. Insecticide seed treatments were evaluated for both spring and winter wheat. Stand reduction from wireworm feeding was noted in every experiment and ranged from a low of near 15% (check compared to the best treatment) to a high of 73%. At one site wireworms essentially destroyed the spring wheat trials. Stand reductions in the unprotected fall-planted wheat allowed serious weed infestations to develop and differences in the appearance of the wheat among protected and unprotected wireworm plots were apparent all season. At one rain-fed site seed yields in the check averaged 9 bu/a compared to 35 and 43 bu/a where seeds were protected with a standard or experimental seed treatment, respectively. At an irrigated site, the average yield for the check was 47 bu/a compared to 81 bu/a for lindane as the standard seed treatment and 100 bu/a for an experimental seed treatment. In conclusion, yield potential was protected by seed treatments where damage was observed. Experimental seed treatments of Advantage or Amaze were superior in protecting seeds and seedlings from wireworm attack when compared to the standard lindance treatment. However, lindane protection was superior to untreated control plots.