

Section V
Cereal Crop Pests

EFFECT OF BARLEY YELLOW DWARF ON YIELD OF WINTER WHEAT

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Field experiments were conducted at three locations in south Idaho from 1980 to 1983 to estimate the impact of barley yellow dwarf on yield of winter wheat. Replicated series of $1/2 \text{ m}^2$ field cages were placed in the test fields just after wheat emergence in the fall of 1980. In the next two seasons cages were put out pre-emergence. In 1980 and 1982 there were three treatments: (1) field cages with viruliferous aphids, (2) field cages with no aphids and (3) uncaged check. The oat birdcherry aphid, Rhopalosiphum padi, was used to transmit a PAV isolate of barley yellow dwarf virus. In 1981 a treatment consisting of caged non-viruliferous aphids was included. About 200 aphids were released into each cage 17 to 36 days after planting varying with year and location. Aphids were put in the center and allowed to spread naturally. Percent infested plants varied from 20 to 80 a week after release.

Symptoms expression was apparent in inoculated series by April of the following year. In one case when plants were inoculated on Oct 2 some plants showed distinct symptoms by late fall. Yield reduction in the 9 experiments varied from 1% to 42%. Significant yield reductions ($P > .05$) occurred in 8 cases. Highest yield reductions were generally with an early planting date followed by inoculation at an early growth stage. Aphid feeding alone showed no yield effects.