

UPDATE ON GLANDULAR-HAIRED ALFALFA VARIETIES

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Glandular haired (GH) alfalfa varieties with resistance to potato leafhopper (PLH) have been commercially available since 1997. Although the presence of glandular hairs on the leaves and stems is thought to be responsible for PLH resistance, the mechanism by which this occurs is poorly understood. In fact, evidence exists with GH alfalfa for the all three main types of crop resistance to insects to be operating: antibiosis, nonpreference, and tolerance.

Starting in 1997, we have conducted variety trials with PLH resistant material at the UW Lancaster Agricultural Research Station. Each year (1997, 1998, 1999) we established a new seeding with 18, 17, and 14 entries, respectively. In each year the entries in the trial included commercial and experimental GH varieties, and one or more susceptible (non-hairy) checks. In 1997 & 98 we included an insecticide split in the trial, but not in 1999. Yields were recorded at each harvest. In addition, PLH nymph counts (using a “pan sweep” method), hopperburn ratings (visual assessment of percent yellowing), and crop heights were taken at irregular intervals.

PLH infestations at Lancaster were light or fleeting in 1997 & 98, and thus results from those two growing seasons were not particularly interesting. However, PLH infestations and severity in 1999 were at a ten year high, and useful results were obtained for the 1998 and 1999 seedings. Briefly, strong responses were found for yield, PLH nymph numbers, hopperburn and crop stunting. However, yield response to PLH injury in GH varieties was not always related in expected or predictable ways to the other three indicators of leafhopper severity. These relationships will be explored and their significance for the mechanism(s) of resistance at work and the implications for PLH management will be discussed. Data from these trials and statistical results (analyses of variance) can be found at <http://www.uwex.edu/ces/forage/>.

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