Aster Yellows and Barley Yellow Dwarf Diseases in Small Grains

Purpose of Study:
Determine aster yellows and barley yellow dwarf disease distributions on small grains in the Red River Valley.

Results:

Aster Yellows. During 2003, aster yellows infected small grains plants were confirmed in all 19 counties where commercial fields were surveyed (Fig. 1). Most of the 272 surveyed fields were planted to wheat (255), but barley (15) and oat (2) were represented to a lesser extent. Aster yellows diseased plants were detected in about half of the wheat fields, 73% of the barley and both of the oat fields. During 2004, a total of 835 fields were surveyed. Diseased plants were confirmed from 13 of 17 counties (Fig. 2). Approximately 10% of the wheat fields were diseased and 12.5% of barley. None of the five oat fields were diseased.

Barley Yellow Dwarf. During 2003, seven of 272 fields (2.6%) were identified to have barley yellow dwarf diseased plants. The virus was not detected from any surveyed fields during 2004.

This two-year small grains survey indicates that aster yellows is a more consistent disease issue in the Red River Valley compared with barley yellow dwarf. Disease symptoms of aster yellows are easily confused with those of barley yellow dwarf, making the accuracy of past disease diagnoses of barley yellow dwarf questionable.

Fig. 1. Minnesota counties surveyed during 2003. Counties confirmed positive for aster yellows (gray) and counties not surveyed (white). The disease was detected in at least one field in all counties surveyed.

Fig. 2. Minnesota counties surveyed during 2004. Map illustrates counties confirmed positive for aster yellows (gray), negative for aster yellows (black), and counties not surveyed (white).