

0203-SH-034 New Sources of Resistance to Fusarium Head Blight of Wheat.

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PROJECT ABSTRACT

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Fusarium head blight is a devastating disease of wheat and barley in many areas of North America. No one approach to control is likely to be sufficiently effective. Successful management will require several approaches. Host resistance will be an important component of the management program. Most North American breeders are using two related Chinese wheat cultivars (Sumai 3 and Ning 7840) as the source of resistance to *Fusarium* head blight. This resistance may not be adequate under intense disease pressure. If most wheat cultivars grown in a region carry the same genes for resistance, this may create genetic vulnerability should the head blight pathogens adapt to this resistance. To provide a more durable and greater degree of resistance, other sources of resistance should be incorporated into wheat cultivars produced in areas at risk from head blight. We have selected several lines of wheat that are resistant to *Fusarium graminearum*, from accessions from Asia and Italy. Work already completed suggests that these contain genes for resistance different from those in Sumai 3 and Ning 7840. We will evaluate crosses of these new sources of resistance with both susceptible cultivars and Sumai 3 or Ning 7840 to determine the inheritance of resistance and to learn whether the resistance in these sources differs from that in Sumai 3 and Ning 7840. From crosses and testcrosses involving these new sources of resistance, we will test progeny from both resistance and susceptible plants to determine the reliability of single-plant selection for Type II resistance when attempting to combine different genes for resistance.