U.S. Wheat and Barley Scab Initiative
FY00 Final Performance Report (approx. May 00 – April 01)
July 30, 2001

Cover Page

<table>
<thead>
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<tr>
<td>Year:</td>
<td>FY2000 (approx. May 00 – April 01)</td>
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<tr>
<td>Grant Number:</td>
<td>59-0790-9-036</td>
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<tr>
<td>Grant Title:</td>
<td>Fusarium Head Blight Research</td>
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<tr>
<td>2000 ARS Award Amount:</td>
<td>$78,049</td>
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<thead>
<tr>
<th>Project</th>
<th>Program Area</th>
<th>Project Title</th>
<th>Requested Amount</th>
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<tbody>
<tr>
<td></td>
<td>Variety Development &amp; Uniform Nurseries</td>
<td>Development of hard red spring wheat cultivars resistant to scab.</td>
<td>$70,000</td>
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Requested Total  $70,000

Principal Investigator                      Date

Note: The Requested Total and the Award Amount are not equal.

(Form – FPR00)
Project 1: Development of hard red spring wheat cultivars resistant to scab.

1. What major problem or issue is being resolved and how are you resolving it?

   The major problem is reduced yield levels and quality characteristics of hard red spring (HRS) wheat induced by Fusarium head blight (FHB). This problem is being resolved by the development and selection of elite lines, parental genotypes, and breeding populations to incorporate diverse genetic resistance to FHB with the desired agronomic and quality traits for a HRS wheat cultivar adapted to ND. The selection, introgression and combination of several types of genetic resistance to FHB from diverse germplasm sources should provide a long-term solution to the control of FHB in HRS wheat.

2. What were the most significant accomplishments?

   Advanced breeding lines were tested that have FHB resistance derived from germplasm sources other than Sumai 3 and its derivatives.

   Analysis of ergosterol and DON in grain from inoculated tests showed that most of the variation in DON is due to differences in Fusarium colonization in the kernels.

   A mapping population for FHB resistance was developed from a cross with a selected Hungarian parental line.

   Monosomic analysis indicates a major gene for FHB type 2 resistance in chromosome 5A of ND2710. Mapping of this gene by DNA marker techniques has not been reported.

   A HRS wheat cultivar, Alsen, was released by North Dakota State University. Alsen has FHB resistance derived from Sumai 3.
Include below a list of the publications, presentations, peer-reviewed articles, and non-peer reviewed articles written about your work that resulted from all of the projects included in the grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Publications:


Non-peer reviewed articles and published abstracts:


Presentations:


