Western Regional IPM Grants
Annual Progress Report Guidelines

Due October 15, 2008

INSTRUCTIONS: PLEASE PROVIDE ONLY THE ESSENTIAL COMPONENTS OF ACCOMPLISHMENT WHICH ARE:

1. A CLEAR IDENTIFICATION OF THE PROBLEM/ISSUE ADDRESSED BY THE RESEARCH/EXTENSION.
2. A CONCISE EXPLANATION OF HOW THE RESEARCH/EXTENSION ACHIEVEMENT CONTRIBUTED TO THE SOLUTION OF THE PROBLEM/ISSUE BEING RESEARCHED.
3. THE IDENTIFICATION OF OTHER BENEFITS RESULTING FROM THE RESEARCH/EXTENSION, EVEN IF UNPLANNED.
4. **PLEASE ATTACH A SUMMARY OF THE PAST YEARS PROGRESS, ONE PAGE MINIMUM.**

PROJECT NUMBER: 2006-34103-16968

PROJECT TITLE: Wheat seed quality effects on competitive ability with wild oat

LEAD PRINCIPAL INVESTIGATOR: Bob Stougaard

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WHO MAY WE CONTACT FOR ADDITIONAL INFORMATION IF NOT THE LEAD PI?

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THE PROBLEM, ISSUE, OR REASON FOR PURSUING THIS RESEARCH/ EXTENSION PROJECT. Wild oat management systems have evolved to the point that producers rely on herbicides to the virtual exclusion of all other strategies. While generally effective, herbicide use erodes profits and poses concerns with respect to environmental quality. Moreover, despite the intensive use of herbicides, wild oat populations continue to persist! Wild oat seed dormancy and variable herbicide efficacy contribute to this problem. However, this situation is worsened due to the wide spread occurrence of herbicide resistant biotypes. A strict reliance on herbicides for wild oat management has not been sufficient. It is therefore critical that integrated weed management systems be developed that provide for more consistent reductions in wild oat growth and fecundity. This requires a proactive approach that shifts focus to the crop rather than the weed, and thus an emphasis on improving crop competitive ability.

THE SINGLE MOST IMPORTANT ACCOMPLISHMENT OR BENEFIT RESULTING FROM THIS RESEARCH/EXTENSION PROJECT. The results of these studies demonstrate that improved spring wheat seed quality significantly increases crop competitive ability and weed control. Seed size appears to be the most important factor, having affected all of the early growth traits. Protein content also impacts crop competitive ability. However, the effect of seed protein may vary depending on soil nitrogen concentrations and wheat market class. With the exception of a slight GA effect on enhanced seedling emergence, GA treatments do not appear to measurably affect any early growth traits. Nonetheless, the 2008 percent control data indicate that herbicide efficacy improves as seed quality increases.

BRIEFLY DESCRIBE ADDITIONAL BENEFITS, SUCH AS:

SOCIAL BENEFITS -

ECONOMIC BENEFITS -

ENVIRONMENTAL BENEFITS -

OTHER –

Wheat seed quality can be manipulated to favor the crop over the weed. The resultant improvement in competitive ability improves weed control, reducing yield losses and dockage penalties in the process. This technology correspondingly improves herbicide efficacy. In turn, this could reduce herbicide input costs, environmental contamination and slow the development of herbicide resistance. If robust associations between these seed quality factors and competitive ability are realized, all three traits could ultimately be used to initiating a breeding program directed toward the development of competitive small grain varieties.

PLEASE SUBMIT A HIGH RESOLUSION DIGITAL IMAGE REPRESENTATIVE OF YOUR RESEARCH/EXTENSION PROJECT THAT WE CAN USE IN WESTERN IPM CENTER PUBLICATIONS WHICH MENTION YOUR PROJECT.

When you have completed this form, return to

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THIS FORM WAS COMPLETED BY:

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