RESEARCH PROJECT TITLE: Identifying Spring Habit Specialty Barley Varieties for Direct-Seeding and Development of Winter Habit Forms

INVESTIGATORS:
Dr. Steve Petrie, Professor of Soils and Superintendent, OSU/Columbia Basin Agricultural Research Center, P.O. Box 370, Pendleton, OR 97801, phone: 541-278-4186, Fax: 541-278-4188, Email: steven.petrie@oregonstate.edu Dr. Patrick Hayes, Barley Breeder, Professor of Crop Science, OSU, 3017 Ag and Life Science, Corvallis, OR 97331, Phone: 541-737-5878, Fax: 541-737-1589, Email: patrick.m.hayes@oregonstate.edu

INTERIM REPORT

PROJECT OBJECTIVES:
1. Screen available spring specialty barley varieties and advanced lines for adaptation to direct-seed production in the intermediate and low precipitation zones.
2. Develop winter specialty barley varieties that are adapted to direct seed production in the intermediate and low precipitation areas.

KEY WORDS: Direct-seeding, food barley, spring barley, winter barley

STATEMENT OF PROBLEM: Growers in the dryland PNW are searching for an agronomically suitable and economically profitable alternative crop. Winter and spring barley are potential crops for much of the low and intermediate rainfall areas where fallow is practiced to minimize the potential for barley to contaminate wheat. Unfortunately, feed barley markets are stagnant or declining throughout the region resulting in relatively lower prices and varieties with acceptable malt quality are not yet available. There is increasing interest in ‘functional foods’ which have specific characteristics that are desired by consumers for their added health, nutrition, or other benefits. One such example is the pending health claim for barley. The FDA has approved a ‘heart healthy’ claim for barley because the B-glucans in barley have been shown to lower cholesterol (Behall et al., 2004). Barley is also a potential input for starch-based ethanol production.

ZONE OF INTEREST: Intermediate and low rainfall zones

ABSTRACT OF RESEARCH FINDINGS: The field trials were established in the spring of 2006 at the Pendleton and Sherman Stations of the Columbia Basin Agricultural Research Center and harvested in late summer. No data is yet available from the field trials. We have 1,500 backcross seeds from strider/waxbar//strider; luca/waxbar//luca; and luca/merlin//luca. The backcross progeny will be planted for marker assisted selection in the fall of 2006.

RESULTS AND INTERPRETATION: Field trials were successfully established at the Pendleton and Sherman stations in the spring of 2006. We received only very limited amounts of seed from the cooperating breeders and we were not able to use the direct-seed drill to establish the trials because of the greater seed requirement for this drill. The trial at Pendleton was established following several years of spring wheat and the trial at Moro was established following fallow in the 2004-05 crop year after spring cereal harvested in 2004. Seedling vigor
was rated at Pendleton. The trials were harvested in late July and the samples have not been processed so no yield or grain quality data are available yet. We have 1,500 backcross seeds from strider/waxbar//strider; luca/waxbar//luca; and luca/merlin//luca. The backcross progeny will be planted for marker assisted selection in the fall of 2006.

**IMPACTS OF RESEARCH:** This work is in its infancy and has not yet impacted crop production in the PNW.

**INTERACTION WITH SCIENTISTS CONDUCTING RELATED ACTIVITIES:** We have collaborated with Dr. Brad Brown, University of Idaho, who has been working on specialty barley for three years; Dr. Steve Norberg, OSU/Malheur County Extension Service, who has received funding from the Oregon Grains Commission to conduct field research on irrigated specialty barley; Dr. Mike Flowers, OSU Extension Cereal Specialist; and Darrin Walenta, OSU/Union County Extension Service, who is conducting field trials in Union County.

**PUBLICATIONS AND PRESENTATIONS:** There are no publications from this work. We presented information on this research at the Pendleton Field Day (180 attendees) and the Sherman Station Field Day (100 attendees). We also discussed this work at a food barley conference we organized in June at the Umatilla County Extension Office. This research has also been the subject of an article in the Agri-Times bi-weekly agricultural newspaper and the East Oregonian daily newspaper.