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Spring Wheat Variety Performance Summary in Montana

By H.Y. Heo, Research Associate, MSU; N. Blake, Research Associate, MSU; R.N. Stougaard, Superintendent and Professor of Weed Science, NARC, Kalispell; K.D. Kephart, Superintendent and Professor of Agronomy, SARC, Huntley; V. Smith, Research Associate, SARC; J. Eberly, Assistant Professor of Agronomy and Soil Microbiology, CARC, Moccasin; E. Magnuson, Research Associate, CARC; P. Carr, Superintendent and Associate Professor of Cropping System, CARC, Moccasin; J. Miller, Research Scientist, WTAC, Conrad; P.F. Lamb, Research Scientist, NARC, Havre; C. Chen, Superintendent and Professor, EARC, Sidney; D. Nash, Cereal Quality Laboratory, MSU; and L.E. Talbert, Professor, Spring Wheat Breeding, MSU

INTRODUCTION

The agronomic characteristics of spring wheat varieties evaluated by the Montana Agricultural Experiment Station are compared in this publication with other varieties commonly grown in the state. The objective of this summary is to help farmers select the varieties which will perform best in their area. Data from 2015-2018 is provided for each of the testing sites. Data for varieties grown in previous years can be found on this website: <http://plantsciences.montana.edu/crops/index.html>.

The map on the cover shows the districts in the state for purposes of reference for specific areas of adaptation. A brief description is given which may include a variety's particular advantages or disadvantages. The information was extracted from data collected and analyzed from the Advanced Spring Wheat nursery. These reports are prepared by research personnel of the Montana Agricultural Experiment Station.

VARIETY TESTING PROCEDURES

Locations

Typically, the Advanced Spring Wheat nursery is planted at 8 Montana sites; including Bozeman (dryland), Kalispell (high rainfall), Havre (dryland), Sidney (dryland and irrigated), Huntley (dryland), Moccasin (dryland) and Conrad (dryland).

Experimental Design and Data Collection

Varieties currently recommended, widely grown, or recently released are evaluated for agronomic performance in the Advanced Spring Wheat nursery. Also evaluated in these nurseries are experimental breeding lines tested against the check varieties

Agronomic data collected throughout the growing season includes heading date, plant height, lodging, disease and insect reactions. Experimental plots are trimmed, measured and harvested with small plot combines. The grain is weighed for yield and test weight. One trait important to wheat growers is resistance to the wheat stem sawfy. The major mode of resistance is a solid versus hollow stemmed variety. To evaluate this trait we cut several stems of each variety and score them on a scale of 1=hollow, 2=2/5 solid, 3=3/5 solid, 4=4/5 solid and 5=solid. The cuts are made in the center of each internode, so there are 5 scores per stem. The five scores are added up to get a total number ranging from 5=very hollow up to 25=very solid. Entries are submitted to the Cereal Quality Lab at MSU, Bozeman for protein, milling, baking and Asian noodle quality evaluation as needed. Data is analyzed and summarized for each location and overall comparisons are made to determine which varieties and/or experimental lines look promising for Montana producers. When sufficient data is collected and analyzed, promising experimental lines are submitted to the MAES wheat variety release committee.

ADDITIONAL DESCRIPTIVE INFORMATION ON SPRING WHEAT VARIETIES

Hard Red Spring Wheats

BRENNAN – Brennan was developed by Syngenta Seeds, Inc. and released to AgriPro Associates in 2009. Brennan was derived from the cross Reeder//China Scab

#140/N90- 0690. It is a hollow stemmed, semidwarf, hard red spring variety that has shown good adaptation across the northern plains including several areas in Montana. It is resistant to stem and leaf rust and has good tolerance to leaf spotting diseases. Its scab rating is intermediate which would make it a good choice for use under irrigation. Brennan has acceptable overall bread-making quality. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

CHOTEAU – Developed and released by the Montana Agricultural Experiment Station in 2003. Choteau was derived from the cross of MT 9401/MT 9328. Choteau is a semi dwarf hard red spring wheat with solid stems conferring tolerance to the wheat stem saw fy. The spike is lax and tapered with white awns and glumes. Kernels are red, ovate with a medium crease and brush. Choteau is resistant to the prevalent race of stem rust in Montana. Choteau has good grain protein and acceptable milling and baking quality. This variety is protected under the Plant Variety Protection Act and can only be sold or advertised by variety name as a class of certified seed.

CONAN – Developed and released by WestBred, LLC. in 1999. Conan was selected from the cross WestBred Rambo/WestBred 906R. Conan is a saw fy tolerant, white chaffed, semi dwarf, hard red spring wheat. The spike is mid-dense, strap shaped and awned. The seeds are elliptical with rounded cheeks. The brush is long and colored. Conan is similar to WestBred

Rambo in yield, but is 2 to 4 days earlier, .5 to .9 percentage points higher in protein, and has good milling and baking qualities. Conan is resistant to the prevalent races of stripe rust and leaf rust, and has shown good tolerance to Septoria and Tan spot. This variety is protected under the Plant Variety Protection Act.

CORBIN – Developed and released by WestBred, LLC in 2006. Corbin is a hard red spring wheat derived from the cross Border/Conan. This line is best adapted to the wheat stem sawfy areas of Montana. Corbin is a one gene semi-dwarf with moderately strong straw. Disease/saw fy ratings for Corbin show it to be moderately resistant to stripe rust and similar to Conan for saw fy tolerance. Milling and baking quality is acceptable for the market class being grown in Montana, as determined by the MSU Quality Lab. This variety is protected under the Plant Variety Protection Act.

DUCLAIR – Developed and released by the Montana Agricultural Experiment Station in 2011. Duclair was derived from a cross of Choteau//ND695/MT9433. Duclair is an awned semi dwarf hard red spring wheat heading one day earlier than and growing ~ one inch taller than Choteau. Duclair generally has more solid stems than Fortuna but slightly less than Choteau. Duclair is resistant to the prevalent races of stem rust and has moderately good resistance to stripe rust in Montana. Duclair exhibits acceptable milling and baking traits. This variety is protected under the

