

**OREGON AGRICULTURAL EXPERIMENT STATION  
OREGON STATE UNIVERSITY  
CORVALLIS, OR 97331**

**Release of 'Tubbs 06' soft white winter wheat**

'Tubbs 06' (PIXXXXXX) is a soft white winter wheat (*Triticum aestivum* L.) developed by Oregon State University for release in cooperation with USDA-Agricultural Research Service. Tubbs 06 is a reselection of the variety Tubbs (PI 629114) with reduced susceptibility to current races of stripe rust (*Puccinia striiformis* Westend.). Tubbs 06 is agronomically similar to Tubbs and has broad adaptation to wheat production areas of northeast Oregon, southeast Washington, and Idaho.

Tubbs is a semidwarf soft white winter wheat derived from the cross 'Madsen'/'Malcolm' made in 1990 and released in 2002. Tubbs is an F<sub>3</sub>-derived line, which was identified in 1994 as an F<sub>4</sub> headrow and designated as experimental number OR939526 in 1995. In 2004 and 2005, significant levels of stripe rust were observed on Tubbs in production fields and research trials. The increased disease incidence was the result of new aggressive stripe rust races, including Pst-100, Pst-101, Pst-102, and Pst-114, and favorable environmental conditions for the disease. It was determined that Tubbs was heterogeneous for response to stripe rust, with reaction of individual plants ranging from resistant to fully susceptible.

In 2004, a Breeder seed production block of over 1,600 headrows was established for Tubbs near Othello, Washington. The block became severely infected by stripe rust in June of 2005. Significant variation in disease response was observed among the headrows. Approximately 1/3 of the 1,600 headrows with susceptible to moderately susceptible response to stripe rust were eliminated. The remaining 2/3, with disease response ranging from moderately to highly resistant, were bulked to form Breeder seed of Tubbs 06.

Similar to Tubbs, Tubbs 06 carries VPM-1 resistance to strawbreaker footrot (*Pseudocercospora herpotrichoides* (Fron.) Deighton) from the parent variety Madsen and has a similar reaction to this important disease. It is moderately susceptible to Septoria leaf blotch (*Septoria tritici* Roberge in Desmaz.) and has acceptable levels of resistance to leaf rust (*Puccinia triticina* Eriks.). It is susceptible to Cephalosporium stripe (*Cephalosporium gramineum* Nis. & Ika.), with reaction similar to Stephens, and is moderately susceptible to crown rot (*Fusarium pseudograminearum* O'Donnell et. T. Aoki sp. nov.). Tubbs 06 is resistant to common bunt (*Tilletia tritici* (Bjerk.) G. Wint. in Rabenh) and susceptible to dwarf bunt (*Tilletia controversa* Kühn in Rabenh).

Tubbs 06 has reduced susceptibility to current races of stripe rust as compared with Tubbs. Although incidence and severity of stripe rust was relatively low in 2006, average disease ratings for Tubbs 06 were lower than for Tubbs. The proportion of highly susceptible 'spreader' plants in the variety also was reduced. Tubbs 06 is rated

as moderately susceptible to moderately resistant to stripe rust relative to other commercial soft white winter wheat varieties.

Tubbs 06 and Tubbs were evaluated in variety trials throughout Oregon, Washington, and Idaho in 2006, a year with relatively low levels of stripe rust. Average grain yields of Tubbs 06 and Tubbs were essentially equal when averaged over 36 test sites. Test weight of Tubbs 06 was essentially unchanged from that of Tubbs, with 0.04 lb/bu difference averaged over 26 locations. Tubbs 06 averaged 0.5 days later in heading date than Tubbs, which averages 2 days later than Stephens. Plant height of Tubbs 06 averaged 0.43 inches greater than for Tubbs. Straw strength, lodging resistance, and winterhardiness of Tubbs 06 are considered similar to Tubbs.

Grain samples of Tubbs 06 and Tubbs from 2006 variety trials were evaluated for end-use quality by the USDA-ARS Western Wheat Quality Laboratory. There were no differences observed in attributes or measures of milling or baking quality. Tubbs 06 is considered acceptable for soft wheat applications.

Breeder and Foundation seed will be maintained by Washington State Crop Improvement Association (WSCIA). Breeder seed of Tubbs 06 was planted by WSCIA to produce Foundation seed in 2006. Registered and Certified seed will be available in 2007.

Tubbs 06 will be submitted for Plant Variety Protection, but without the Title 5 option. Certification classes recognized for Tubbs 06 include Foundation, Registered and Certified. Seed of Tubbs 06 has been deposited in the USDA National Small Grains Collection, Aberdeen, Idaho. It is requested that the source of this material be acknowledged in future use by wheat breeding and genetics programs.

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