Registration of 'Boundary' Wheat

'Boundary' hard red winter wheat (Triticum aestivum L.) (Reg. no. CV-864, PI 603039) was released in 1997 by the Idaho Agricultural Experimental Station and the USDA-ARS. Boundary is a semi-
dwarf wheat adapted to high-yield production zones of the Pacific Northwest area of the United States.

Boundary is a selection from a 1986 cross, A86115W, with the parentage A76327W-2-3T-5P/A7457W-13-1-1T-2P. The breeding line A76327W-2-3T-5P was derived from the cross 'Norin 10'/'
'Brevor'/2/*Centana', ID034/3/Centana/2/Cir14106. The breeding line A7457W-13-1-1T-2P had the pedigree: 1105-15/Cir
14106/*McCall'/4/Kiowa'/UT222a-437-2/'/Delmar'/3/PI
47612/MT6619. A86115W was bulk advanced through the F3
generation. In 1988, F3 head selections were made in Aberdeen, ID, for resistance to common bunt (caused by Tilletia tritici (Berk.)
G. Wint. in Rabenh.). Selected F3 seed was planted at Aberdeen in
1989, from which the line A86115W-2 was selected and entered into yield testing in southern Idaho. In 1993, A86115W-2 was
identified in advanced trials at Preston and Tetonia, ID, as tolerant to snow mold (caused by Typhula spp.). Based on this evaluation,
A86115W-2 was advanced to regional testing in 1994 under the designation Idaho 467. Idaho 467 was tested in the Western Regional Nursery from 1994 to 1996 and the Northern Regional Performance nursery in 1996 and 1997. Pure lines derived from 100 F3 heads of Idaho 467 were evaluated for uniformity of resistance
or 'T. controversa' in Rabenh. (the causal organism of dwarf bunt) for 2 yr at Logan, UT. In 1996, 56 of these lines, evaluated as resistant to dwarf bunt, were bulked to form breeder
seed for Boundary.

Boundary has a prostrate juvenile growth habit with blue green
foliage and no waxy bloom. The flag leaves of Boundary are erect
with auricles that are glabrous and green to yellow green in color.
The heads of Boundary are dense, clavate, and awnless. Boundary’s glumes are long, medium wide, with a squared shoulder
shape, and an acute beak. Boundary flowers moderately late, approximately 260 d after planting, 2 d earlier than ‘Bonneville’
and 2 d later than ‘Manning’. When irrigated, Boundary’s mature
height is approximately 90 cm, 20 cm taller than ‘Garland’ and 5
cm shorter than Manning. At maturity, Boundary has white chaff
color. Seed of Boundary is ovate in shape, with rounded cheeks,
and a medium long brush. The seed crease is narrow and shallow
in depth. Boundary is moderately resistant to dwarf bunt, similar
to the cultivars ‘Eltan’ and ‘Fairview’. In 3 yr of Western Regional
Testing in Idaho and Washington, Boundary had adult plant resistance
to stripe rust (caused by Puccinia striiformis Westend.,) when inoculated with races CDL37, CDL43, and CDL45, but had seedling susceptibility to the same races. In the same trials, Boundary had resistance to Pacific Northwest races of leaf rust (caused by P.
recondita Roberge ex Desmar. f. sp. tritici) and powdery mildew
[caused by Erysiphe graminis DC. f, sp, tritici Amp. Marsh.; syn.
Blumeria graminis (DC.) E.O. Sper]. Boundary is tolerant to snow mold, similar to ‘Blizzard’.

In southeastern Idaho rainfed yield trials, 1993 to 1996 (16 site-
years), Boundary had an average yield of 3.9 Mg ha-1, compared
with 3.4 Mg ha-1 for Bonneville, 3.6 Mg ha-1 for ‘Weston’, and
3.8 Mg ha-1 for ‘Promontory’. In 7 site-years of testing in north
Idaho and Pullman, WA, Boundary had an average yield of 5.2 Mg
ha-1, compared with 4.4 Mg ha-1 for ‘Wanser’. In 6 site-years of
testing in western Montana, the yields of Boundary and Wanser
were 7.2 Mg ha-1 and 6.0 Mg ha-1, respectively. In 6 site-years
of southern Idaho irrigated testing, Boundary yielded 7.4 Mg ha-1,
compared with 7.0 Mg ha-1 for Garland and 6.9 Mg ha-1 for
‘Ute’. Boundary is a stiff-strawed cultivar, with greater resistance
to lodging than most dryland hard red winter and similar to the irrig-
ated wheats Garland and Ute. Based on milling and baking evaluations
by the University of Idaho Wheat Quality Laboratory, Boundary
has good quality characteristics. Milling quality of Boundary
in 22 site-years of southeastern Idaho trials was similar to Weston.
Compared with Weston, Boundary had 63% longer mixing time and
13% better mixing tolerance, but 8% smaller loaf volume.

Seed of Boundary will be maintained by the University of
Idaho, Foundation Seed Program and may be obtained by contact-
ing the Foundation Seed Director, University of Idaho, Kimberly
Research and Extension Center, Kimberly, ID.

REGISTRATION OF 'JEFFERSON' WHEAT

'Jefferson' hard red winter wheat (Triticum aestivum L.) (Reg. no. CV-865, PI 603040) was released in 1998 by the Idaho Agricultural Experimental Station in cooperation with the Oregon and Washington Agricultural Experiment Stations and the USDA-ARS. Jefferson is a semidwarf wheat adapted to rainfed and irrigated production at elevations above 1200 m. It has excellent yield and milling quality.

Jefferson was derived from the cross A8541S with the pedigree A78240S-'2'Westbred 906P', whereas A78240S-'2' was derived from the cross ID0230/ID0166 with the expanded pedigree 'Fielder'/2/*'
'Mengai'/8156'/6//'Frontana'/3//'Thatcher'/5//'Frontana'/Kenya 58'/'Norin 10'/'
'Brevor'/3//'Yaqi'54'/4//'Twin' sib. In the F3 generation, heads were selected from short plants and planted as F4 heads in 1987. From these headrows, the selection A8541S-12 was advanced to yield trials in southeastern Idaho for 5 years. In 1993, A8541S-12 was designated ID0462 and entered into the Tri-State Spring Wheat Nursery. ID0462 was advanced the next year into the Western Regional Spring Wheat Nursery for three years of testing (1994 to 1996). In 1996, ID0462 was evaluated by the Pacific Northwest Wheat Quality Council and in Idaho on-farm trials conducted by the Idaho Cooperative Extension Service. In 1995, 100 head selections were grown at Tetonia, ID, and selected for uniform plant type. Seed from headrows that were true to type were harvested and planted at Tetonia in 1996 to form breeder seed.

Jefferson is most similar in appearance to the cultivar Probrand
751. Jefferson has an unpigmented coleoptile and erect juvenile growth. Jefferson has a recurved flag leaf and an awned, erect,
middense head that is white-chaffed at maturity. Jefferson is 91 cm
tall, which is 4 cm taller than Probrand 751 and 12 cm shorter than
'Amidon'. Jefferson is approximately 1 d later in heading than Pro-
brand 751 and 1 d earlier than Amidon. Seed of Jefferson is a dark
red color and is hard, ovate and plum, with a kernel type similar
to 'Westbred 936'; kernel weight is approximately 40 mg (3 mg
lighter than Probrand 751). Based on field evaluations in Wash-
ington and Idaho, Jefferson has adult plant resistance to stripe rust
(caused by Puccinia striiformis Westend.,); moderate resistance to

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References and Notes

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