

1 IDAHO AGRICULTURAL EXPERIMENT STATION
2 Moscow, ID

3
4 Announces the release of:
5

6
7 IDO533 **LOLO**
8 Hard White SpringWheat
9
10

11 'IDO533' hard white spring wheat (*Triticum aestivum* L.) was released in 1999
12 by the Idaho Agricultural Experiment Station. IDO533 is a semi-dwarf wheat adapted to
13 irrigated and rain-fed production in the Pacific Northwest of the United States. It has
14 excellent grain yield and end-use for Asian noodle products.

15 IDO533 was derived from the cross A9158S with the pedigree 'Oasis'/IDO377.
16 Oasis, a semi-dwarf hard white spring developed by CIMMYT, has the pedigree
17 'Yecora'*3/'Agatha'. IDO377 was the original heterogeneous population from which
18 'Idaho 377s' was selected. In the F₃ generation at Aberdeen, heads were selected from
19 short plants of A9158S and planted as F₃ headrows in 1994. From these headrows,
20 selection A9158S-8 was advanced to yield trials in southeastern Idaho for 2 years. In
21 1997, A9158S-8 was designated IDO533 and entered into the Tri-State Spring Wheat
22 Nursery for one year. IDO533 was tested in the Western Regional Spring Wheat Nursery
23 in 1998 and 1999 and the Uniform Regional Performance Nursery in 1999. IDO533 was
24 evaluated by the Pacific Northwest Wheat Quality Council in 1999. On-farm yield trials
25 of IDO533 were conducted by the Idaho Cooperative Extension Service in 1998 and
26 1999, with similar evaluations occurring in Oregon and Washington for the same years.
27 In 1998, 200 head selections were grown at Tetonia, ID and selected for uniform plant

1 type. Seed from headrows that were true-to-type were harvested and planted at El
2 Centro, CA to form breeder seed.

3 IDO533 is most similar in appearance to the cultivar 'Idaho 377s'. IDO533 is
4 most readily distinguished from Idaho 377s by its uniformity of plant height and slightly
5 delayed heading (average Julian heading date is 181 for IDO533 and 180 for Idaho 377s).
6 IDO533 is composed of plants uniform for the *Glu-1B* locus with the *Glu-1B*₁₇₊₁₈ allele,
7 as compared with Idaho 377s, which is a composite of biotypes carrying either the *Glu*-
8 *1B*₁₇₊₁₈ or the *Glu 1B*₆₊₈ alleles. IDO533 has an unpigmented coleoptile and erect juvenile
9 growth. IDO533 has an erect flag leaf and an awned, curved, mid-dense head that is
10 white-chaffed at maturity. IDO533 is 35 inches tall, 4 inches taller than 'Westbred 936,
11 and 3 inches shorter than 'Amidon'. IDO533 is approximately 1 d later in heading than
12 Westbred 936 and similar in heading date to Amidon. Seed of IDO533 is hard, white,
13 ovate, and plump. The kernel shape is similar to 'Idaho 377s', only slightly less
14 elongated. Based on field evaluations in Washington and Idaho, IDO533 has adult plant
15 resistance to stripe rust [caused by *Puccinia striiformis* (Westend.), races CDL37,
16 CDL43, and CDL45] and leaf rust [caused by *P. recondita* (Roberge ex Desmaz.)].
17 IDO533 is susceptible to the Russian wheat aphid [*Diuraphis noxia* (Mordvilko)] and
18 north Idaho populations of the Hessian fly [*Mayetiola destructor* (Say): biotypes GP, E,
19 F, G].

20 IDO533 compares favorably in yield to current hard white spring wheats. In 99
21 research and extension trials conducted in five western states, IDO533 had an average
22 yield of 74 bu ac⁻¹ compared with an average yield of 71 bu ac⁻¹ for Idaho 377s
23 (difference significant at p>99.9%). In 31 site-years of testing in southern Idaho,

1 IDO533, 'ML455' hard white spring, and 'Penawawa' soft white spring wheat had grain
2 yields of 88 bu ac⁻¹, 77 bu ac⁻¹, and 86 bu ac⁻¹, respectively. In 50 site-years of testing
3 during 1998 and 1999 in Oregon and Washington, IDO533, ML455, and 'Winsome' hard
4 white spring wheat had average yields of 64 bu ac⁻¹, 63 bu ac⁻¹, and 62 bu ac⁻¹,
5 respectively. Since 1997, in extension and research testing, IDO533 had an average test
6 weight of 60.4 lb bu⁻¹ compared with 59.9 lb bu⁻¹ for Idaho 377s (difference significant at
7 p>99%). In individual state tests in 1998 and 1999, IDO533 had significantly higher test
8 weight than ML455, Winsome, and Penawawa (difference significant at p>99%).
9 IDO533 is significantly less prone to lodging than Idaho 377s. In Pacific Northwest
10 research and extension trials since 1997, where significant lodging has occurred, IDO533
11 and Idaho 377s had 27% and 41% lodging, respectively (difference significant at
12 p>99%).

13 In three years of southeastern Idaho trials, IDO533 had a flour protein content of
14 108 g kg⁻¹, lower than the 116 g kg⁻¹ for Idaho 377s (difference significant at p>99%).
15 IDO533 and Idaho 377s were not significantly different in grain protein content in 15
16 site-years of testing in Washington state (123 g kg⁻¹ and 121 g kg⁻¹, respectively).
17 IDO533 is a partial waxy genotype with elevated starch paste viscosity, similar to Idaho
18 377s. In three years of baking evaluations by the University of Idaho Wheat Quality
19 Laboratory, IDO533 had a higher milling yield (663 g kg⁻¹) than Idaho 377s (647 g kg⁻¹,
20 difference significant at p>99%). In evaluations of the milled flour, IDO533 and Idaho
21 377s are similar for bread and noodle characteristics with the exception that IDO533
22 produces a slightly less yellow noodle than Idaho 377s (Minolta b* values 19.7 for
23 IDO533 and 21.6 for Idaho 377s).

1 **Seed of IDO533 will be maintained by the Idaho Agricultural Experiment Station.**
2 **Foundation seed may be obtained by contacting the Foundation Seed Program at the**
3 **University of Idaho, Kimberly Research and Extension Center, Kimberly, ID. Plant**
4 **variety protection has been requested for IDO533.**

5

6

7

8

9

10

11 Director, Idaho Agricultural Experiment Station

Date