

Summary of proposed release of WA8189 soft white spring wheat

Plant Breeder: Mike Pumphrey

Breeding Team Members:

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A. Identification:

1. **Selection No's:** S0900230, WA8189
2. **Proposed Name:** Tekoa
3. **Pedigree:** WA7985/Zak Yr5+Yr15 SRZ05267//Babe

B. Justification. WA8189 has the highest 3-year average yield of all elite commercial varieties in high-rainfall WSU Variety trials from 2013-2015. WA8189 has also performed well in fall-seeded/facultative trials, and may be the variety of choice for over-seeding soft white winter wheat stands damaged due to poor emergence or winter kill.

- Excellent yield potential
- Later maturity
- Excellent stripe rust resistance
- Medium-shorter height
- Good straw strength
- Good test weight
- Hessian fly resistance
- Aluminum tolerance
- Excellent quality
- Consistently high falling numbers
- Average protein
- Consistently grades SW
- Facultative growth potential
- Irrigated production

WA8189 was evaluated in advanced (17 site-years) breeding nurseries from 2011-2015 (summarized in Table 1), where WA8189 yields were consistently higher than Diva and Louise in locations with >60 bushel/acre production. In 2013-2015 WSU variety testing trials at 38 site-years (summarized in Table 2), WA8189 three-year average yields were significantly higher than all comparison varieties in >20" rainfall areas.

Table 1: Mean grain yield (bu/A), test weight (lb/bu), grain protein content (%), heading date (Julian), and plant height (inches) of WA8189 and checks over 17 advanced breeder trials from 2011-2015.

Location	Experiment	Precip. (in)	Yield				LSD @.10
			WA8189	Alpowa	Diva	Louise	
Lind	2011-12, 14-15	<12	29	28	33	31	1.4
Endicott	2011, 12	12-16	54	49	55	57	3.1
Pendleton	2011, 12	16-20	85	55	72	69	5.9
Reardan	2012, 14	16-20	46	43	45	51	3.9
Dayton	2014,15	16-20	34	35	38	37	3.0
Walla	2011,12	16-20	69	66	64	63	3.6

Walla								
Pullman	2011, 12, 15	>20	68	62	64	63	4.4	
Overall Mean yield (17 site years)			53	47	51	51	1.3	
Test Weight			60.6	60.4	60.4	60.0	n/a	
Protein Content			12.0	11.9	11.7	11.7	n/a	
Heading Date			175	174	173	173	0.2	
Plant Height			30	30	32	32	0.4	

Table 2: Mean grain yield (bu/A), test weight (lb/bu), grain protein content (%), heading date (Julian), and plant height (inches) of WA8189 and check cultivars over 38 site-years from 2013-2015 in WSU Extension Cereal Variety Testing trials.

		Yield								
Precip. (in)	Year	WA8189	Babe	Diva	Louise	Seahawk	UI-Stone	Whit	WB-1035CL+	LSD @.10
<12	2013-2015	25	24	26	25	23	23	24	23	0.6
12-16	2013-2015	36	38	38	38	32	34	36	35	1.3
16-20	2013-2015	57	58	61	58	57	56	59	54	0.9
>20	2013-2015	77	72	71	70	72	69	74	68	1.7
Overall Mean Yield		48	47	48	47	46	45	47	44	0.5
Test Weight		59.3	59.5	59.2	57.9	59.5	59.7	58.5	58.8	0.1
Protein Content		12.5	12.3	12.2	12.2	12.6	12.2	12.6	13.7	0.8
Heading Date		169	165	166	166	167	164	164	163	0.1
Plant height		29	29	31	32	28	28	29	28	0.2

C. Trait Summary. Test weight of WA8189 trends significantly higher than Whit, Louise, and WB-1035CL+. WA8189's protein content trends similar to Whit and Seahawk. Heading date of WA8189 is later than comparison varieties. Plant height is similar to Whit, and two-three inches shorter than Diva and Louise in higher production environments. WA8189 has excellent stripe rust resistance, consistently better than Louise. Lodging in irrigated trials has been minimal, compared to comparison cultivars Diva and Louise. T-score analysis of milling and baking quality compared to Louise indicate it would be in the "most desirable" category. PNW Wheat Quality council evaluations place it among the best of soft white wheat varieties based on end-use quality.