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MAR 14 2016

**Summary of proposed release of WA8214 soft white spring wheat**

**Plant Breeder:** Mike Pumphrey

"Ryan"

**Breeding Team Members:**

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**A. Identification:**

1. **Selection No's:** SW08051-2, WA8214
2. **Proposed Name:** Ryan
3. **Pedigree:** Diva/IDO644

**B. Justification.** WA8214 should benefit wheat producers with lower risk and higher reward compared to current varieties. WA8214 has consistently been a top yielding line since plot testing started in 2011, across cool-wet and hot-dry locations and years.

- Excellent yield potential
- Early maturity
- Very good stripe rust resistance
- Medium-shorter height
- Good straw strength
- Average test weight
- Hessian fly resistance
- Aluminum tolerance
- Very good quality
- Consistently high falling numbers
- Average protein
- Consistently grades SW

WA8214 was evaluated in advanced (15 site-years) breeding nurseries from 2012-2015 (summarized in Table 1), where WA8214 yields were consistently higher than Diva and Louise in locations with >16" average precipitation.

<b>Table 1.</b> Grain yield (bu/A), test weight (lb/bu), grain protein content (%), heading date (Julian), and plant height (inches) of WA8214 and checks in advanced breeder trials.						
Location	Experiment	Precip. (in)	Yield			LSD @.10
			WA8214	Diva	Louise	
Lind	2013-2015	<12	24	27	26	1.4
Endicott	2013	12-16	59	53	58	6.9
Reardan	2013-2015	16-20	60	58	58	3.6
Dayton	2013-2015	16-20	48	44	44	2.4
Pullman	2012, 2014-15	>20	74	n/a	64	3.7
<b>Overall Mean Yield (15 site-years)</b>			<b>51</b>	<b>n/a</b>	<b>48</b>	<b>1.4</b>
<b>Test Weight</b>			60.1	n/a	59.4	n/a
<b>Protein Content</b>			12.0	n/a	12.2	n/a
<b>Heading Date</b>			165	n/a	168	0.2
<b>Plant Height</b>			29	n/a	32	0.4

In 2014-2015 WSU variety testing trials at 24 site-years (summarized in Table 2), WA8214 two-year average yields were equal or better than all comparison varieties in each precipitation zone.

**Table 2:** Grain yield (bu/A), test weight (lb/bu), protein content (%), heading date, and plant height (inches) of WA 8214 and checks in 24 WSU VTP trials from 2014-2015.

Precip.	Year	Yield									
		WA8214	Babe	Diva	Louise	Seahawk	UI-Stone	Whit	WB6341	WB-1035CL+	LSD @.10
<12	2014-2015	23	21	23	21	20	20	21	23	20	0.7
12-16	2014-2015	30	28	30	30	23	25	28	29	26	1.7
16-20	2014-2015	47	43	46	43	42	42	44	45	40	1.2
>20	2014-2015	73	71	70	63	69	68	73	71	65	2.4
<b>Overall Mean Yield</b>		<b>40</b>	<b>38</b>	<b>40</b>	<b>37</b>	<b>36</b>	<b>36</b>	<b>39</b>	<b>39</b>	<b>35</b>	<b>0.7</b>
<b>Test Weight</b>		58.3	58.6	58.6	56.9	58.8	59.2	57.6	58.1	58.0	0.2
<b>Protein Content</b>		12.5	12.6	12.5	12.6	13.0	12.6	12.9	12.0	14.1	0.1
<b>Heading Date</b>		162	165	164	165	166	163	163	163	163	0.2
<b>Plant height</b>		27	28	29	30	26	27	28	26	26	0.4

**C. Trait Summary.** Test weight of WA8214 trends significantly higher than Whit, Louise, and WB-1035CL+. WA8214's protein content trends average. Heading date of WA8214 trends earlier than comparison varieties. Plant height is similar to Whit, and two-three inches shorter than Diva and Louise in higher production environments. WA8214 has very good adult plant stripe rust resistance, consistently better than Louise (Table 3). Lodging in irrigated trials has been minimal (3% average), compared to comparison cultivars Diva and Louise (35-40% average), in four irrigated trials. T-score analysis of milling and baking quality compared to Louise indicate it should be in the "most desirable" category.

**Table 3.** Average stripe rust infection type (IT) and flag leaf severity (%) rated by Xianming Chen's program at multiple locations (N=observations) from 2012-2015.

	2012 (N=2)		2013 (N=2)		2014 (N=6)		2015 (N=14)		Overall (N=24)	
	IT	%	IT	%	IT	%	IT	%	IT	%
WA8214	2.5	12.5	4.0	12.5	4.0	10.2	3.5	5.2	<b>3.6</b>	<b>7.7</b>
Louise	5.0	17.5	5.0	17.5	4.5	18.3	3.2	8.4	<b>3.8</b>	<b>12.4</b>