

**2013**

**Marker Reports for all Alleles**

**Eastern Regional Nurseries**

**Uniform Eastern Soft Red Winter Wheat Nursery  
Uniform Southern Soft Red Winter Wheat Nursery**

**Eastern Regional Small Grains Genotyping Lab**

**Collaborator: Gina Brown-Guedira**

**USDA-ARS**

## Notes

"nd" = not determined or lack of amplification

if marker is dominant, samples with no amplification are left blank 2008-2010; in 2011-2013 dominant markers are indicated with \*\*

"?" indicates that markers may not be diagnostic or data was not clear; therefore, can not be sure if gene is present or not

All numbers are size in base pairs of amplified fragments  
HEX? = not quite a Y allele; FAM? = not quite an X allele  
Target alleles are in **bold or bold italics**

NT = marker Not Tested on those samples

**Rht-B1b** = dwarfing allele; Rht-B1a = tall allele

**Rht-D1b** = dwarfing allele; RhtD1a = tall allele

**Ppd-D1a** = photoperiod insensitive; Ppd-D1b = photosensitive allele

**Ppd-B1a** = photoperiod insensitive for either Chinese Spring [CS] or Sonora 64/Timstein [S64]; null = photosensitive allele

**Ppd-A1a** = photoperiod insensitive allele Ppd-A1a.1 in Japanese winter wheat cultivar Chikokukomugi; Ppd-A1b = photosensitive allele

**vrn-A1** = short vernalization allele

**vrn-B1** = short vernalization allele - in 2013 wmc75 for vrn-B1 was replaced by a SNP marker with the short vernalization allele present in AGS2000 which identifies fewer lines as having the short vern allele

**Vrn-D1a** = spring type; vrn-D1 = winter type

in 2013 - KASP markers for the Fhb QTL on 3BL reported in Massey were identified (thought to be the same as the one in Ernie) and are reported in a new column as **Fhb\_Massey\_3BL** following the **Fhb Ernie 3Bc** column. The new markers have been integrated with the old markers in the order of their chromosome location

in 2013 - the columns **Fhb 5A Ernie & Fhb 5A Ning7840** were combined into a single column **Fhb\_5A**

**Lr34/Yr18** - lines identified as **Lr34/Yr18** are checked with Lr34Jagger marker - presence of Jagger allele reported as nonfunctional-Lr34/Yr18

**Lr9 - Y:Y?** were reported as 'no' for Lr9 based on correlation of data from Jim Kolmer at the Cereal Disease Lab

**Tsn1** = susceptibility to the necrotrophic effector SnToxA involved in development of Stagonospora leaf blotch and tan spot. This is a dominant marker since the gene is deleted in lines that are not susceptible.

in 2013 - **Texture** = **Pina-D1** is **pina-D1a\_soft**; D1b = hard and **Pinb-D1** is **pinb\_D1\_soft**; D1b = hard  
previously Texture was pina\_taqman(AlleleX) = hard; **pinb D1a-b\_taqman(AlleleY) = D1a\_soft**; **pinb D1a-d\_taqman(AlleleX) = D1a\_soft**

\* pedigrees, contributors and other notes that were available, are at the far right side of the tables

## TABLE OF CONTENTS

Entry Lists of Regional Nurseries

Summary of Marker Data

All Marker Data

Dwarfing, Photoperiod Insensitive & Vernalization alleles

FHB QTLs

Leaf, Stem & Stripe Rusts and Powdery Mildew

Rye Translocations, Hessian Fly, Barley Yellow Dwarf Virus, Soil Borne Mosaic Virus, Stagonospora Leaf Blotch and Tan Spot

Quality Traits - Glutenins, Pre-Harvest sprouting, Hardness & Mill Quality (Sucrose Synthase)

Kernel Color

**2013 UESRWWN**

<b>ID</b>	<b>Year</b>	<b>Nursery</b>	<b>Entry</b>	<b>Sample_Name</b>	<b>Contributor</b>	<b>1st year in Nursery</b>
A000001	2013	UESRWWN	1	Branson	Check	03-04
A000002	2013	UESRWWN	2	Bess	Check	02-03
A000003	2013	UESRWWN	3	Shirley	Check	05-06
A000004	2013	UESRWWN	4	MO080104	Check	09-10
A000005	2013	UESRWWN	5	NC08-23324	Murphy	11-12
A000006	2013	UESRWWN	6	KY03C-1237-32	Van Sanford	11-12
A000007	2013	UESRWWN	7	KY03C-1002-02	Van Sanford	11-12
A000008	2013	UESRWWN	8	VA08MAS-369	Griffey	11-12
A000009	2013	UESRWWN	9	VA09W-73	Griffey	11-12
A000010	2013	UESRWWN	10	VA10W-21	Griffey	11-12
A000011	2013	UESRWWN	11	DANW1003	Etienne	11-12
A000012	2013	UESRWWN	12	OH08-180-48	Sneller	11-12
A000013	2013	UESRWWN	13	ARS07-0525	Marshall	11-12
A000014	2013	UESRWWN	14	NC08-140	Murphy	12-13
A000015	2013	UESRWWN	15	NC09-20768	Murphy	12-13
A000016	2013	UESRWWN	16	OH08-172-42	Sneller	12-13
A000017	2013	UESRWWN	17	OH07-264-35	Sneller	12-13
A000018	2013	UESRWWN	18	IL07-4415	Kolb	12-13
A000019	2013	UESRWWN	19	IL07-19334	Kolb	12-13
A000020	2013	UESRWWN	20	IL07-20728	Kolb	12-13
A000021	2013	UESRWWN	21	KWS008	Murche	12-13
A000022	2013	UESRWWN	22	KWS009	Murche	12-13
A000023	2013	UESRWWN	23	KWS010	Murche	12-13
A000024	2013	UESRWWN	24	AR00255-16-1	Mason	12-13
A000025	2013	UESRWWN	25	AR01209-2-1	Mason	12-13
A000026	2013	UESRWWN	26	KY03C-1237-39	Van Sanford	12-13
A000027	2013	UESRWWN	27	LCS10516	Obert	12-13
A000028	2013	UESRWWN	28	LCS19228	Obert	12-13
A000029	2013	UESRWWN	29	LCS19229	Obert	12-13
A000030	2013	UESRWWN	30	GA04121-11E26	Johnson	12-13
A000031	2013	UESRWWN	31	GA04434-11E44	Johnson	12-13
A000032	2013	UESRWWN	32	P04606RA1-1-7-1-6-3	Ohm	12-13
A000033	2013	UESRWWN	33	P05247A1-7-3-121	Ohm	12-13
A000034	2013	UESRWWN	34	P05222A1-1-2-7	Ohm	12-13
A000035	2013	UESRWWN	35	DANW1006	Etienne	12-13
A000036	2013	UESRWWN	36	DANW1008	Etienne	12-13
A000037	2013	UESRWWN	37	MD04W249-11-7	Costa	12-13
A000038	2013	UESRWWN	38	MD04W249-11-12	Costa	12-13
A000039	2013	UESRWWN	39	MD04W249-11-16	Costa	12-13

**2013 USSRWWN**

<b>ID</b>	<b>Year</b>	<b>Nursery</b>	<b>Entry</b>	<b>Sample_Name</b>	<b>Contributor</b>	<b>1st year in Nursery</b>
A000040	2013	USSRWWN	1	AGS 2000	Check	97-98
A000041	2013	USSRWWN	2	Pioneer Brand 26R61	Check	97-98
A000042	2013	USSRWWN	3	USG 3555	Check	04-05
A000043	2013	USSRWWN	4	Jamestown	Check	04-05
A000044	2013	USSRWWN	5	NC08-23089	Murphy	11-12
A000045	2013	USSRWWN	6	NC08-23324	Murphy	11-12
A000046	2013	USSRWWN	7	VA10W-119	Griffey	11-12
A000047	2013	USSRWWN	8	NC08-21273	Murphy	12-13
A000048	2013	USSRWWN	9	NC09-20765	Murphy	12-13
A000049	2013	USSRWWN	10	TN1301	West	12-13
A000050	2013	USSRWWN	11	TN1302	West	12-13
A000051	2013	USSRWWN	12	TN1303	West	12-13
A000052	2013	USSRWWN	13	VA07W-415	Griffey	12-13
A000053	2013	USSRWWN	14	VA10W-123	Griffey	12-13
A000054	2013	USSRWWN	15	VA09W-110	Griffey	12-13
A000055	2013	USSRWWN	16	KWS011	Murche	12-13
A000056	2013	USSRWWN	17	KWS012	Murche	12-13
A000057	2013	USSRWWN	18	KWS013	Murche	12-13
A000058	2013	USSRWWN	19	AR00343-5-1	Mason	12-13
A000059	2013	USSRWWN	20	AR01040-4-1	Mason	12-13
A000060	2013	USSRWWN	21	LA03200E-2	Harrison	12-13
A000061	2013	USSRWWN	22	LA05038D-105	Harrison	12-13
A000062	2013	USSRWWN	23	LA05130D-P5	Harrison	12-13
A000063	2013	USSRWWN	24	LCS19701	Obert	12-13
A000064	2013	USSRWWN	25	LCS29817	Obert	12-13
A000065	2013	USSRWWN	26	LCS19227	Obert	12-13
A000066	2013	USSRWWN	27	GA041052-11E51	Johnson	12-13
A000067	2013	USSRWWN	28	GA041293-11E54	Johnson	12-13
A000068	2013	USSRWWN	29	GA041323-11E63	Johnson	12-13
A000069	2013	USSRWWN	30	GA041293-11LE37	Johnson	12-13
A000070	2013	USSRWWN	31	MD04W249-11-7	Costa	12-13
A000071	2013	USSRWWN	32	MD04W249-11-12	Costa	12-13
A000072	2013	USSRWWN	33	MD07W272-11-5	Costa	12-13

2013 UESRWWN				Dwarfing alleles		
Year	Nursery	Entry	Sample_Name	Rht-B1	Rht-D1	Rht8c
2013	UESRWWN	1	Branson	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	2	Bess	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	3	Shirley	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	4	MO080104	Rht-B1a	Rht-D1a	no
2013	UESRWWN	5	NC08-23324	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	6	KY03C-1237-32	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	7	KY03C-1002-02	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	8	VA08MAS-369	Rht-B1a	<b>Rht-D1b</b>	nd
2013	UESRWWN	9	VA09W-73	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	10	VA10W-21	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	11	DANW1003	<b>Rht-B1b</b>	Rht-D1a	<b>Rht8c</b>
2013	UESRWWN	12	OH08-180-48	<b>Rht-B1b</b>	Rht-D1a	<b>Rht8c</b>
2013	UESRWWN	13	ARS07-0525	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	14	NC08-140	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	15	NC09-20768	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	16	OH08-172-42	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	17	OH07-264-35	<b>Rht-B1b</b>	Rht-D1a	<b>Rht8c_het</b>
2013	UESRWWN	18	IL07-4415	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	19	IL07-19334	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	20	IL07-20728	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	21	KWS008	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	22	KWS009	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	23	KWS010	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	24	AR00255-16-1	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	25	AR01209-2-1	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	26	KY03C-1237-39	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	27	LCS10516	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	28	LCS19228	<b>Rht-B1b</b>	Rht-D1a	nd
2013	UESRWWN	29	LCS19229	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	30	GA04121-11E26	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	31	GA04434-11E44	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	<b>Rht-B1b</b>	Rht-D1a	nd
2013	UESRWWN	33	P05247A1-7-3-121	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	34	P05222A1-1-2-7	<b>Rht-B1b</b>	Rht-D1a	no
2013	UESRWWN	35	DANW1006	<b>Rht-B1b</b>	Rht-D1a	<b>Rht8c</b>
2013	UESRWWN	36	DANW1008	<b>Rht-B1b</b>	Rht-D1a	<b>Rht8c</b>
2013	UESRWWN	37	MD04W249-11-7	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	38	MD04W249-11-12	Rht-B1a	<b>Rht-D1b</b>	no
2013	UESRWWN	39	MD04W249-11-16	Rht-B1a	<b>Rht-D1b</b>	nd

2013 USSRWWN				Dwarfing alleles		
Year	Nursery	Entry	Sample_Name	Rht-B1	Rht-D1	Rht8c
2013	USSRWWN	1	AGS 2000	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	2	Pioneer Brand 26R61	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	3	USG 3555	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	4	Jamestown	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	5	NC08-23089	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	6	NC08-23324	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	7	VA10W-119	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	8	NC08-21273	<b>Rht-B1b</b>	<b>Rht-D1b_het</b>	no
2013	USSRWWN	9	NC09-20765	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	10	TN1301	<b>Rht-B1b</b>	Rht-D1a	no
2013	USSRWWN	11	TN1302	Rht-B1a	<b>Rht-D1b</b>	nd
2013	USSRWWN	12	TN1303	<b>Rht-B1b_het</b>	<b>Rht-D1b</b>	nd
2013	USSRWWN	13	VA07W-415	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	14	VA10W-123	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	15	VA09W-110	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	16	KWS011	<b>Rht-B1b</b>	Rht-D1a	no
2013	USSRWWN	17	KWS012	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	18	KWS013	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	19	AR00343-5-1	<b>Rht-B1b</b>	Rht-D1a	<b>Rht8c</b>
2013	USSRWWN	20	AR01040-4-1	<b>Rht-B1b</b>	Rht-D1a	nd
2013	USSRWWN	21	LA03200E-2	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	22	LA05038D-105	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	23	LA05130D-P5	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	24	LCS19701	<b>Rht-B1b</b>	Rht-D1a	nd
2013	USSRWWN	25	LCS29817	<b>Rht-B1b</b>	Rht-D1a	no
2013	USSRWWN	26	LCS19227	Rht-B1a	<b>Rht-D1b</b>	nd
2013	USSRWWN	27	GA041052-11E51	Rht-B1a	<b>Rht-D1b</b>	nd
2013	USSRWWN	28	GA041293-11E54	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	29	GA041323-11E63	Rht-B1a	<b>Rht-D1b</b>	nd
2013	USSRWWN	30	GA041293-11LE37	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	31	MD04W249-11-7	Rht-B1a	<b>Rht-D1b</b>	nd
2013	USSRWWN	32	MD04W249-11-12	Rht-B1a	<b>Rht-D1b</b>	no
2013	USSRWWN	33	MD07W272-11-5	Rht-B1a	<b>Rht-D1b</b>	no

## 2013 UESRWWN

## Photoperiod Insensitivity alleles

Year	Nursery	Entry	Sample_Name	Ppd-D1	Ppd-B1	Ppd-A1
2013	UESRWWN	1	Branson	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	2	Bess	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	3	Shirley	<b>Ppd-D1a_insens</b>	null	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	4	MO080104	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	5	NC08-23324	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	6	KY03C-1237-32	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	7	KY03C-1002-02	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	8	VA08MAS-369	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	9	VA09W-73	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	10	VA10W-21	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	UESRWWN	11	DANW1003	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	12	OH08-180-48	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	13	ARS07-0525	Ppd-D1b	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_het</b>
2013	UESRWWN	14	NC08-140	<b>Ppd-D1a_het</b>	<b>Ppd-B1a_CS_insens</b>	Ppd-A1b
2013	UESRWWN	15	NC09-20768	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	UESRWWN	16	OH08-172-42	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	17	OH07-264-35	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	18	IL07-4415	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	19	IL07-19334	<b>Ppd-D1a_het</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	20	IL07-20728	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	21	KWS008	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	22	KWS009	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	23	KWS010	Ppd-D1b	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	24	AR00255-16-1	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	25	AR01209-2-1	<b>Ppd-D1a_het</b>	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	26	KY03C-1237-39	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	UESRWWN	27	LCS10516	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	28	LCS19228	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	29	LCS19229	Ppd-D1b	null	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	30	GA04121-11E26	Ppd-D1b	<b>Ppd-B1a_S64_insens</b>	Ppd-A1b
2013	UESRWWN	31	GA04434-11E44	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	Ppd-D1b	**	nd
2013	UESRWWN	33	P05247A1-7-3-121	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	34	P05222A1-1-2-7	Ppd-D1b	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	35	DANW1006	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	36	DANW1008	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	UESRWWN	37	MD04W249-11-7	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_insens</b>	Ppd-A1b
2013	UESRWWN	38	MD04W249-11-12	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_insens</b>	Ppd-A1b
2013	UESRWWN	39	MD04W249-11-16	<b>Ppd-D1a_insens</b>	**	Ppd-A1b

## 2013 USSRWWN

## Photoperiod Insensitivity alleles

Year	Nursery	Entry	Sample_Name	Ppd-D1	Ppd-B1	Ppd-A1
2013	USSRWWN	1	AGS 2000	Ppd-D1b	<b>Ppd-B1a_S64_insens</b>	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	2	Pioneer Brand 26R61	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	3	USG 3555	<b>Ppd-D1a_insens</b>	null	Ppd-A1b
2013	USSRWWN	4	Jamestown	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	5	NC08-23089	<b>Ppd-D1a_het</b>	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	6	NC08-23324	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	7	VA10W-119	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_S64_insens</b>	Ppd-A1b
2013	USSRWWN	8	NC08-21273	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_het?</b>	<b>Ppd-A1a.1_het</b>
2013	USSRWWN	9	NC09-20765	<b>Ppd-D1a_insens</b>	null	Ppd-A1b
2013	USSRWWN	10	TN1301	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	11	TN1302	<b>Ppd-D1a_het</b>	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	12	TN1303	<b>Ppd-D1a_het</b>	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_het</b>
2013	USSRWWN	13	VA07W-415	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	14	VA10W-123	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_S64_insens</b>	Ppd-A1b
2013	USSRWWN	15	VA09W-110	<b>Ppd-D1a_insens</b>	null	Ppd-A1b
2013	USSRWWN	16	KWS011	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	17	KWS012	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	18	KWS013	<b>Ppd-D1a_insens</b>	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	19	AR00343-5-1	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	20	AR01040-4-1	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	21	LA03200E-2	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	22	LA05038D-105	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	23	LA05130D-P5	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	24	LCS19701	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	25	LCS29817	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	26	LCS19227	Ppd-D1b	**	<b>Ppd-A1a.1_insens</b>
2013	USSRWWN	27	GA041052-11E51	<b>Ppd-D1a_insens</b>	**	nd
2013	USSRWWN	28	GA041293-11E54	<b>Ppd-D1a_insens</b>	**	Ppd-A1b
2013	USSRWWN	29	GA041323-11E63	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_het</b>
2013	USSRWWN	30	GA041293-11LE37	<b>Ppd-D1a_insens</b>	null	Ppd-A1b
2013	USSRWWN	31	MD04W249-11-7	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_insens</b>	Ppd-A1b
2013	USSRWWN	32	MD04W249-11-12	<b>Ppd-D1a_insens</b>	<b>Ppd-B1a_CS_insens</b>	<b>Ppd-A1a.1_het</b>
2013	USSRWWN	33	MD07W272-11-5	<b>Ppd-D1a_insens</b>	**	Ppd-A1b



2013 UESRWWN				Vernalization alleles		
Year	Nursery	Entry	Sample_Name	vrn-A1	vrn-B1	Vrn-D1
2013	UESRWWN	1	Branson	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	2	Bess	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	3	Shirley	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	4	MO080104	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	5	NC08-23324	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	6	KY03C-1237-32	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	7	KY03C-1002-02	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	8	VA08MAS-369	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	9	VA09W-73	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	10	VA10W-21	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	11	DANW1003	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	12	OH08-180-48	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	13	ARS07-0525	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	14	NC08-140	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	15	NC09-20768	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	16	OH08-172-42	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	17	OH07-264-35	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	18	IL07-4415	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	19	IL07-19334	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	20	IL07-20728	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	21	KWS008	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	22	KWS009	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	23	KWS010	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	24	AR00255-16-1	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	25	AR01209-2-1	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	26	KY03C-1237-39	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	27	LCS10516	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	28	LCS19228	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	29	LCS19229	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	30	GA04121-11E26	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	31	GA04434-11E44	vrn-A1	<b>vrn-B1_short</b>	vrn-D1
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	33	P05247A1-7-3-121	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	34	P05222A1-1-2-7	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	35	DANW1006	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	36	DANW1008	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	37	MD04W249-11-7	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	38	MD04W249-11-12	vrn-A1	vrn-B1	vrn-D1
2013	UESRWWN	39	MD04W249-11-16	vrn-A1	vrn-B1	vrn-D1

2013 USSRWWN				Vernalization alleles		
Year	Nursery	Entry	Sample_Name	vrn-A1	vrn-B1	Vrn-D1
2013	USSRWWN	1	AGS 2000	vrn-A1	<b>vrn-B1_short</b>	vrn-D1
2013	USSRWWN	2	Pioneer Brand 26R61	<b>vrn-A1_short</b>	vrn-B1	vrn-D1
2013	USSRWWN	3	USG 3555	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	4	Jamestown	<b>vrn-A1_short</b>	vrn-B1	vrn-D1
2013	USSRWWN	5	NC08-23089	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	6	NC08-23324	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	7	VA10W-119	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	8	NC08-21273	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	9	NC09-20765	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	10	TN1301	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	11	TN1302	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	12	TN1303	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	13	VA07W-415	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	14	VA10W-123	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	15	VA09W-110	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	16	KWS011	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	17	KWS012	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	18	KWS013	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	19	AR00343-5-1	<b>vrn-A1_short</b>	vrn-B1	vrn-D1
2013	USSRWWN	20	AR01040-4-1	<b>vrn-A1_short</b>	<b>vrn-B1_short</b>	vrn-D1
2013	USSRWWN	21	LA03200E-2	<b>vrn-A1_short</b>	vrn-B1	vrn-D1
2013	USSRWWN	22	LA05038D-105	<b>vrn-A1_short</b>	vrn-B1	vrn-D1
2013	USSRWWN	23	LA05130D-P5	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	24	LCS19701	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	25	LCS29817	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	26	LCS19227	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	27	GA041052-11E51	vrn-A1	<b>vrn-B1_short</b>	vrn-D1
2013	USSRWWN	28	GA041293-11E54	<b>vrn-A1_short</b>	vrn-B1	vrn-D1
2013	USSRWWN	29	GA041323-11E63	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	30	GA041293-11LE37	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	31	MD04W249-11-7	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	32	MD04W249-11-12	vrn-A1	vrn-B1	vrn-D1
2013	USSRWWN	33	MD07W272-11-5	vrn-A1	vrn-B1	vrn-D1

2013 UESRWWN				Fusarium Head Blight alleles			
Year	Nursery	Entry	Sample_Name	Fhb1	Fhb_Massey_3BL	Fhb_2DL-Wuhan1/W14	Fhb_5A
2013	UESRWWN	1	Branson	no	<b>Fhb_Massey_3BL</b>	no	no
2013	UESRWWN	2	Bess	no	no	no	no
2013	UESRWWN	3	Shirley	no	no	no	no
2013	UESRWWN	4	MO080104	no	no	no	no
2013	UESRWWN	5	NC08-23324	no	no	no	no
2013	UESRWWN	6	KY03C-1237-32	<b>Fhb1</b>	no	no	no
2013	UESRWWN	7	KY03C-1002-02	<b>Fhb1</b>	no	no	no
2013	UESRWWN	8	VA08MAS-369	no	no	nd	no
2013	UESRWWN	9	VA09W-73	no	no	no	no
2013	UESRWWN	10	VA10W-21	no	no	no	no
2013	UESRWWN	11	DANW1003	no	no	no	no
2013	UESRWWN	12	OH08-180-48	no	no	no	no
2013	UESRWWN	13	ARS07-0525	no	<b>Fhb_Massey_3BL_het</b>	no	no
2013	UESRWWN	14	NC08-140	no	<b>Fhb_Massey_3BL_het</b>	no	no
2013	UESRWWN	15	NC09-20768	no	no	no	no
2013	UESRWWN	16	OH08-172-42	no	<b>Fhb_Massey_3BL_het</b>	no	no
2013	UESRWWN	17	OH07-264-35	no	<b>Fhb_Massey_3BL</b>	no	no
2013	UESRWWN	18	IL07-4415	<b>Fhb1_het</b>	no	no	no
2013	UESRWWN	19	IL07-19334	no	no	no	<b>Fhb_5A_Ning7840?</b>
2013	UESRWWN	20	IL07-20728	no	no	no	no
2013	UESRWWN	21	KWS008	no	no	no	no
2013	UESRWWN	22	KWS009	no	no	no	<b>Fhb_5A_Ernie</b>
2013	UESRWWN	23	KWS010	no	<b>Fhb_Massey_3BL</b>	no	no
2013	UESRWWN	24	AR00255-16-1	no	no	no	no
2013	UESRWWN	25	AR01209-2-1	no	no	no	no
2013	UESRWWN	26	KY03C-1237-39	no	no	no	no
2013	UESRWWN	27	LCS10516	no	no	no	no
2013	UESRWWN	28	LCS19228	no	no	no	no
2013	UESRWWN	29	LCS19229	no	<b>Fhb_Massey_3BL</b>	no	no
2013	UESRWWN	30	GA04121-11E26	no	no	no	no
2013	UESRWWN	31	GA04434-11E44	no	no	no	no
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	no	no	no	no
2013	UESRWWN	33	P05247A1-7-3-121	no	no	no	<b>Fhb_5A_Ernie</b>
2013	UESRWWN	34	P05222A1-1-2-7	no	no	no	<b>Fhb_5A_Ernie</b>
2013	UESRWWN	35	DANW1006	no	no	no	no
2013	UESRWWN	36	DANW1008	no	no	no	no
2013	UESRWWN	37	MD04W249-11-7	no	no	no	no
2013	UESRWWN	38	MD04W249-11-12	no	no	no	no
2013	UESRWWN	39	MD04W249-11-16	no	no	no	no

2013 USSRWWN				Fusarium Head Blight alleles			
Year	Nursery	Entry	Sample_Name	Fhb1	Fhb_Massey_3BL	Fhb_2DL-Wuhan1/W14	Fhb_5A
2013	USSRWWN	1	AGS 2000	no	no	no	no
2013	USSRWWN	2	Pioneer Brand 26R61	no	no	no	no
2013	USSRWWN	3	USG 3555	no	<b>Fhb_Massey_3BL</b>	no	no
2013	USSRWWN	4	Jamestown	no	no	no	no
2013	USSRWWN	5	NC08-23089	no	no	no	no
2013	USSRWWN	6	NC08-23324	no	no	no	no
2013	USSRWWN	7	VA10W-119	no	no	no	no
2013	USSRWWN	8	NC08-21273	no	no	no	<b>Fhb_5A_Ernie_het</b>
2013	USSRWWN	9	NC09-20765	no	no	no	no
2013	USSRWWN	10	TN1301	no	<b>Fhb_Massey_3BL</b>	no	no
2013	USSRWWN	11	TN1302	no	no	no	no
2013	USSRWWN	12	TN1303	no	no	no	no
2013	USSRWWN	13	VA07W-415	no	no	no	no
2013	USSRWWN	14	VA10W-123	no	no	no	no
2013	USSRWWN	15	VA09W-110	no	no	no	no
2013	USSRWWN	16	KWS011	no	no	no	no
2013	USSRWWN	17	KWS012	no	no	no	no
2013	USSRWWN	18	KWS013	no	no	no	<b>Fhb_5A_Ernie</b>
2013	USSRWWN	19	AR00343-5-1	no	no	no	no
2013	USSRWWN	20	AR01040-4-1	no	no	no	no
2013	USSRWWN	21	LA03200E-2	no	no	no	no
2013	USSRWWN	22	LA05038D-105	no	no	no	no
2013	USSRWWN	23	LA05130D-P5	no	no	no	<b>Fhb_5A_Ernie</b>
2013	USSRWWN	24	LCS19701	no	no	no	no
2013	USSRWWN	25	LCS29817	no	<b>Fhb_Massey_3BL_het</b>	no	no
2013	USSRWWN	26	LCS19227	no	no	no	no
2013	USSRWWN	27	GA041052-11E51	no	no	no	no
2013	USSRWWN	28	GA041293-11E54	no	no	no	no
2013	USSRWWN	29	GA041323-11E63	no	no	no	no
2013	USSRWWN	30	GA041293-11LE37	no	no	no	no
2013	USSRWWN	31	MD04W249-11-7	no	no	no	no
2013	USSRWWN	32	MD04W249-11-12	no	no	no	no
2013	USSRWWN	33	MD07W272-11-5	<b>Fhb1</b>	no	no	no

2013 UESRWWN				Leaf, Stem and Stripe Rust & Powdery Mildew alleles					
Year	Nursery	Entry	Sample Name	Sr2	Sr36	Sr24/Lr24	Yr17/Lr37/Sr38	Lr34/Yr18	Lr9
2013	UESRWWN	1	Branson	no	no	no	no	no	no
2013	UESRWWN	2	Bess	no	no	no	no	no	no
2013	UESRWWN	3	Shirley	no	<b>Sr36</b>	no	no	no	no
2013	UESRWWN	4	MO080104	no	no	no	no	no	no
2013	UESRWWN	5	NC08-23324	no	no	no	no	no	<b>Lr9</b>
2013	UESRWWN	6	KY03C-1237-32	no	no	no	no	no	no
2013	UESRWWN	7	KY03C-1002-02	no	no	no	no	no	no
2013	UESRWWN	8	VA08MAS-369	no	no	nd	no	no	no
2013	UESRWWN	9	VA09W-73	no	no	no	no	no	<b>Lr9</b>
2013	UESRWWN	10	VA10W-21	no	no	no	no	no	no
2013	UESRWWN	11	DANW1003	no	no	no	no	no	no
2013	UESRWWN	12	OH08-180-48	no	no	<b>Sr24/Lr24</b>	no	no	no
2013	UESRWWN	13	ARS07-0525	no	<b>Sr36_het</b>	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	UESRWWN	14	NC08-140	no	<b>Sr36</b>	no	no	no	no
2013	UESRWWN	15	NC09-20768	no	<b>Sr36</b>	no	no	no	no
2013	UESRWWN	16	OH08-172-42	no	no	<b>Sr24/Lr24</b>	no	no	no
2013	UESRWWN	17	OH07-264-35	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	UESRWWN	18	IL07-4415	no	no	no	<b>Yr17/Lr37/Sr38_het</b>	no	no
2013	UESRWWN	19	IL07-19334	no	no	no	no	no	no
2013	UESRWWN	20	IL07-20728	no	no	<b>Sr24/Lr24</b>	no	no	no
2013	UESRWWN	21	KWS008	no	no	no	no	no	no
2013	UESRWWN	22	KWS009	no	no	no	no	no	no
2013	UESRWWN	23	KWS010	no	<b>Sr36</b>	no	no	no	no
2013	UESRWWN	24	AR00255-16-1	no	no	no	no	no	no
2013	UESRWWN	25	AR01209-2-1	no	no	no	no	no	no
2013	UESRWWN	26	KY03C-1237-39	no	no	no	no	no	no
2013	UESRWWN	27	LCS10516	no	no	no	no	no	no
2013	UESRWWN	28	LCS19228	no	no	no	no	no	no
2013	UESRWWN	29	LCS19229	no	<b>Sr36</b>	no	no	no	no
2013	UESRWWN	30	GA04121-11E26	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	UESRWWN	31	GA04434-11E44	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	no	no	no	no	no	no
2013	UESRWWN	33	P05247A1-7-3-121	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	UESRWWN	34	P05222A1-1-2-7	no	<b>Sr36</b>	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	UESRWWN	35	DANW1006	no	no	no	no	no	no
2013	UESRWWN	36	DANW1008	no	no	no	no	no	no
2013	UESRWWN	37	MD04W249-11-7	no	no	no	no	no	no
2013	UESRWWN	38	MD04W249-11-12	no	no	no	no	no	no
2013	UESRWWN	39	MD04W249-11-16	no	no	no	no	no	no

2013 USSRWWN				Leaf, Stem and Stripe Rust & Powdery Mildew alleles					
Year	Nursery	Entry	Sample_Name	Sr2	Sr36	Sr24/Lr24	Yr17/Lr37/Sr38	Lr34/Yr18	Lr9
2013	USSRWWN	1	AGS 2000	no	no	no	no	no	no
2013	USSRWWN	2	Pioneer Brand 26R61	no	no	no	no	no	no
2013	USSRWWN	3	USG 3555	no	<b>Sr36</b>	no	no	no	no
2013	USSRWWN	4	Jamestown	no	no	no	no	no	no
2013	USSRWWN	5	NC08-23089	no	no	<b>Sr24/Lr24</b>	no	no	no
2013	USSRWWN	6	NC08-23324	no	no	no	no	no	<b>Lr9</b>
2013	USSRWWN	7	VA10W-119	no	no	no	no	no	no
2013	USSRWWN	8	NC08-21273	no	<b>Sr36</b>	<b>Sr24/Lr24</b>	no	no	no
2013	USSRWWN	9	NC09-20765	no	<b>Sr36</b>	no	no	no	no
2013	USSRWWN	10	TN1301	no	<b>Sr36</b>	no	no	no	no
2013	USSRWWN	11	TN1302	no	no	no	no	no	no
2013	USSRWWN	12	TN1303	no	<b>Sr36_het?</b>	no	no	no	no
2013	USSRWWN	13	VA07W-415	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	14	VA10W-123	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	15	VA09W-110	no	<b>Sr36</b>	<b>Sr24/Lr24</b>	no	no	no
2013	USSRWWN	16	KWS011	no	no	no	no	<b>Lr34/Yr18</b>	no
2013	USSRWWN	17	KWS012	no	no	no	no	no	no
2013	USSRWWN	18	KWS013	no	no	no	no	no	no
2013	USSRWWN	19	AR00343-5-1	no	no	no	no	no	no
2013	USSRWWN	20	AR01040-4-1	no	no	<b>Sr24/Lr24</b>	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	21	LA03200E-2	no	no	no	no	no	no
2013	USSRWWN	22	LA05038D-105	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	23	LA05130D-P5	no	no	no	no	no	no
2013	USSRWWN	24	LCS19701	no	no	no	no	no	no
2013	USSRWWN	25	LCS29817	no	<b>Sr36_het?</b>	no	no	no	no
2013	USSRWWN	26	LCS19227	no	no	no	no	no	no
2013	USSRWWN	27	GA041052-11E51	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	28	GA041293-11E54	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	29	GA041323-11E63	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	30	GA041293-11LE37	no	no	no	<b>Yr17/Lr37/Sr38</b>	no	no
2013	USSRWWN	31	MD04W249-11-7	no	no	no	no	no	no
2013	USSRWWN	32	MD04W249-11-12	no	no	no	no	no	no
2013	USSRWWN	33	MD07W272-11-5	no	no	no	no	no	no

2013 UESRWWN				Rye Translocations	Hessian Fly		BYDV	SBMV	SnToxA
Year	Nursery	Entry	Sample_Name	1RS	H13	H9	Bdv2/3	Sbm1	Tsn1
2013	UESRWWN	1	Branson	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	2	Bess	non-1RS	no	no	no	Sbm1	Tsn1
2013	UESRWWN	3	Shirley	1RS:1BL	no	no	no	Sbm1	no
2013	UESRWWN	4	MO080104	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	5	NC08-23324	1RS:1AL	no	nd	no	Sbm1	no
2013	UESRWWN	6	KY03C-1237-32	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	7	KY03C-1002-02	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	8	VA08MAS-369	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	9	VA09W-73	non-1RS	no	no	no	no	no
2013	UESRWWN	10	VA10W-21	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	11	DANW1003	1RS:1BL	no	no	no	no	no
2013	UESRWWN	12	OH08-180-48	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	13	ARS07-0525	1RS:1BL_and_1RS:1AL	H13_het	no	no	Sbm1_het	Tsn1
2013	UESRWWN	14	NC08-140	non-1RS	no	no	Bdv2/3_het	Sbm1	Tsn1
2013	UESRWWN	15	NC09-20768	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	16	OH08-172-42	1RS:1AL	no	no	no	Sbm1_het	no
2013	UESRWWN	17	OH07-264-35	non-1RS	no	no	no	no	no
2013	UESRWWN	18	IL07-4415	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	19	IL07-19334	non-1RS	no	no	no	no	no
2013	UESRWWN	20	IL07-20728	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	21	KWS008	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	22	KWS009	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	23	KWS010	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	24	AR00255-16-1	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	25	AR01209-2-1	1RS:1AL	no	no	no	Sbm1	no
2013	UESRWWN	26	KY03C-1237-39	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	27	LCS10516	non-1RS	no	no	no	Sbm1	Tsn1
2013	UESRWWN	28	LCS19228	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	29	LCS19229	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	30	GA04121-11E26	non-1RS	no	H9	no	no	no
2013	UESRWWN	31	GA04434-11E44	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	non-1RS	no	no	Bdv2/3	Sbm1	no
2013	UESRWWN	33	P05247A1-7-3-121	1RS:1BL	no	no	Bdv2/3	no	no
2013	UESRWWN	34	P05222A1-1-2-7	1RS:1BL	no	no	Bdv2/3	Sbm1	no
2013	UESRWWN	35	DANW1006	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	36	DANW1008	1RS:1BL	no	no	no	Sbm1	no
2013	UESRWWN	37	MD04W249-11-7	1RS:1BL	no	no	no	Sbm1	no
2013	UESRWWN	38	MD04W249-11-12	non-1RS	no	no	no	Sbm1	no
2013	UESRWWN	39	MD04W249-11-16	non-1RS	no	no	no	Sbm1	no

2013 USSRWWN				Rye Translocations	Hessian Fly		BYDV	SBMV	SnToxA
Year	Nursery	Entry	Sample_Name	1RS	H13	H9	Bdv2/3	Sbm1	Tsn1
2013	USSRWWN	1	AGS 2000	1RS:1BL	no	no	no	no	no
2013	USSRWWN	2	Pioneer Brand 26R61	1RS:1BL	no	no	no	Sbm1	no
2013	USSRWWN	3	USG 3555	1RS:1BL	no	no	no	Sbm1	no
2013	USSRWWN	4	Jamestown	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	5	NC08-23089	1RS:1AL	no	no	no	Sbm1	no
2013	USSRWWN	6	NC08-23324	1RS:1AL	no	nd	no	Sbm1	no
2013	USSRWWN	7	VA10W-119	non-1RS	H13	no	no	Sbm1	Tsn1
2013	USSRWWN	8	NC08-21273	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	9	NC09-20765	non-1RS	no	nd	no	Sbm1	no
2013	USSRWWN	10	TN1301	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	11	TN1302	non-1RS	nd	no	no	Sbm1	no
2013	USSRWWN	12	TN1303	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	13	VA07W-415	non-1RS	H13	no	no	Sbm1	no
2013	USSRWWN	14	VA10W-123	non-1RS	no	no	no	Sbm1	Tsn1
2013	USSRWWN	15	VA09W-110	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	16	KWS011	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	17	KWS012	1RS:1AL	no	nd	no	Sbm1	no
2013	USSRWWN	18	KWS013	non-1RS	no	no	no	no	no
2013	USSRWWN	19	AR00343-5-1	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	20	AR01040-4-1	non-1RS	no	no	no	no	no
2013	USSRWWN	21	LA03200E-2	1RS:1BL	H13	no	no	Sbm1	no
2013	USSRWWN	22	LA05038D-105	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	23	LA05130D-P5	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	24	LCS19701	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	25	LCS29817	non-1RS	no	nd	no	Sbm1	no
2013	USSRWWN	26	LCS19227	non-1RS	no	no	no	no	no
2013	USSRWWN	27	GA041052-11E51	non-1RS	H13	no	no	Sbm1	no
2013	USSRWWN	28	GA041293-11E54	1RS:1BL	no	no	no	Sbm1	Tsn1
2013	USSRWWN	29	GA041323-11E63	non-1RS	H13_het	no	no	Sbm1	no
2013	USSRWWN	30	GA041293-11LE37	non-1RS	no	no	no	Sbm1	Tsn1
2013	USSRWWN	31	MD04W249-11-7	non-1RS	no	no	no	Sbm1	no
2013	USSRWWN	32	MD04W249-11-12	non-1RS	no	no	no	Sbm1	Tsn1
2013	USSRWWN	33	MD07W272-11-5	1RS:1BL	no	no	no	Sbm1	no



2013 UESRWWN				Glutenin alleles			Mill Quality
Year	Nursery	Entry	Sample_Name	Glu-B1	Glu-D1	Glu-A1	Sucrose_Synthase
2013	UESRWWN	1	Branson	no	2+12	Ax2*	no
2013	UESRWWN	2	Bess	no	2+12	Ax1_or_null	no
2013	UESRWWN	3	Shirley	nd	2+12	Ax1_or_null	TaSus2-2B
2013	UESRWWN	4	MO080104	no	5+10	Ax2*	no
2013	UESRWWN	5	NC08-23324	no	2+12	Ax1_or_null	no
2013	UESRWWN	6	KY03C-1237-32	no	5+10	Ax2*	no
2013	UESRWWN	7	KY03C-1002-02	no	2+12	Ax2*	no
2013	UESRWWN	8	VA08MAS-369	no	nd	Ax2*	no
2013	UESRWWN	9	VA09W-73	no	2+12	Ax2*	no
2013	UESRWWN	10	VA10W-21	no	5+10	Ax1_or_null	no
2013	UESRWWN	11	DANW1003	no	5+10	Ax1_or_null	no
2013	UESRWWN	12	OH08-180-48	no	5+10	Ax2*	no
2013	UESRWWN	13	ARS07-0525	no	2+12	Ax2*	TaSus2-2B
2013	UESRWWN	14	NC08-140	no	het	Ax2*	TaSus2-2B
2013	UESRWWN	15	NC09-20768	no	2+12	Ax2*	TaSus2-2B
2013	UESRWWN	16	OH08-172-42	no	5+10	Ax2*	no
2013	UESRWWN	17	OH07-264-35	Bx7oe	2+12	Ax1_or_null	TaSus2-2B
2013	UESRWWN	18	IL07-4415	no	5+10	Ax1_or_null	TaSus2-2B
2013	UESRWWN	19	IL07-19334	no	5+10	Ax2*	no
2013	UESRWWN	20	IL07-20728	no	2+12	Ax2*	no
2013	UESRWWN	21	KWS008	no	5+10	het	no
2013	UESRWWN	22	KWS009	no	5+10	Ax2*	no
2013	UESRWWN	23	KWS010	no	5+10	Ax1_or_null	TaSus2-2B
2013	UESRWWN	24	AR00255-16-1	no	2+12	Ax1_or_null	no
2013	UESRWWN	25	AR01209-2-1	no	het	Ax1_or_null	no
2013	UESRWWN	26	KY03C-1237-39	no	2+12	Ax2*	no
2013	UESRWWN	27	LCS10516	no	2+12	nd	no
2013	UESRWWN	28	LCS19228	no	5+10	Ax2*	no
2013	UESRWWN	29	LCS19229	no	5+10	het	TaSus2-2B
2013	UESRWWN	30	GA04121-11E26	no	2+12	Ax2*	no
2013	UESRWWN	31	GA04434-11E44	no	2+12	Ax2*	no
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	Bx7oe	2+12	Ax1_or_null	no
2013	UESRWWN	33	P05247A1-7-3-121	no	2+12	Ax2*	no
2013	UESRWWN	34	P05222A1-1-2-7	Bx7oe_het	2+12	Ax1_or_null	TaSus2-2B
2013	UESRWWN	35	DANW1006	no	5+10	Ax2*	no
2013	UESRWWN	36	DANW1008	no	5+10	Ax1_or_null	no
2013	UESRWWN	37	MD04W249-11-7	no	2+12	Ax1_or_null	no
2013	UESRWWN	38	MD04W249-11-12	no	2+12	Ax1_or_null	no
2013	UESRWWN	39	MD04W249-11-16	no	2+12	Ax1_or_null	no

2013 USSRWWN				Glutenin alleles			Mill Quality
Year	Nursery	Entry	Sample_Name	Glu-B1	Glu-D1	Glu-A1	Sucrose_Synthase
2013	USSRWWN	1	AGS 2000	no	5+10	Ax2*	no
2013	USSRWWN	2	Pioneer Brand 26R61	Bx7oe	5+10	Ax2*	no
2013	USSRWWN	3	USG 3555	no	2+12	Ax2*	TaSus2-2B
2013	USSRWWN	4	Jamestown	no	2+12	nd	no
2013	USSRWWN	5	NC08-23089	no	2+12	het	no
2013	USSRWWN	6	NC08-23324	no	2+12	Ax1_or_null	no
2013	USSRWWN	7	VA10W-119	no	2+12	Ax2*	no
2013	USSRWWN	8	NC08-21273	no	nd	nd	TaSus2-2B
2013	USSRWWN	9	NC09-20765	no	2+12	Ax2*	TaSus2-2B
2013	USSRWWN	10	TN1301	no	5+10	Ax2*	TaSus2-2B
2013	USSRWWN	11	TN1302	no	2+12	nd	no
2013	USSRWWN	12	TN1303	no	het	het	TaSus2-2B_het
2013	USSRWWN	13	VA07W-415	no	2+12	Ax2*	no
2013	USSRWWN	14	VA10W-123	no	2+12	Ax2*	no
2013	USSRWWN	15	VA09W-110	no	2+12	Ax2*	TaSus2-2B
2013	USSRWWN	16	KWS011	no	5+10	Ax1_or_null	no
2013	USSRWWN	17	KWS012	no	2+12	Ax2*	no
2013	USSRWWN	18	KWS013	no	2+12	Ax1_or_null	no
2013	USSRWWN	19	AR00343-5-1	no	5+10	Ax1_or_null	no
2013	USSRWWN	20	AR01040-4-1	no	5+10	Ax1_or_null	no
2013	USSRWWN	21	LA03200E-2	Bx7oe	2+12	Ax2*	no
2013	USSRWWN	22	LA05038D-105	no	2+12	Ax2*	no
2013	USSRWWN	23	LA05130D-P5	Bx7oe	het	Ax2*	no
2013	USSRWWN	24	LCS19701	no	2+12	Ax2*	no
2013	USSRWWN	25	LCS29817	no	5+10	Ax2*	TaSus2-2B_het
2013	USSRWWN	26	LCS19227	no	het	Ax1_or_null	no
2013	USSRWWN	27	GA041052-11E51	no	2+12	nd	no
2013	USSRWWN	28	GA041293-11E54	Bx7oe	5+10	Ax2*	no
2013	USSRWWN	29	GA041323-11E63	no	2+12	Ax2*	no
2013	USSRWWN	30	GA041293-11LE37	Bx7oe	5+10	Ax2*	no
2013	USSRWWN	31	MD04W249-11-7	no	2+12	nd	no
2013	USSRWWN	32	MD04W249-11-12	no	2+12	het	no
2013	USSRWWN	33	MD07W272-11-5	no	2+12	Ax2*	no

2013 UESRWWN				Kernel Color genes				
Year	Nursery	Entry	Sample_Name	Tamby10-A1	Tamby10_Nor17	Tamby10-B1	Tamby10-D1	Combined_Color
2013	UESRWWN	1	Branson	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	2	Bess	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	UESRWWN	3	Shirley	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	4	MO080104	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	5	NC08-23324	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	rr rr rr
2013	UESRWWN	6	KY03C-1237-32	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	7	KY03C-1002-02	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	8	VA08MAS-369	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	9	VA09W-73	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	10	VA10W-21	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	UESRWWN	11	DANW1003	R-A1	R-A1	R-B1	<b>r-D1_white</b>	RR RR rr
2013	UESRWWN	12	OH08-180-48	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	13	ARS07-0525	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	UESRWWN	14	NC08-140	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	15	NC09-20768	<b>r-A1_het</b>	R-A1	<b>r-B1_white</b>	R-D1	Rr rr RR
2013	UESRWWN	16	OH08-172-42	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	17	OH07-264-35	R-A1	R-A1	R-B1	<b>r-D1_white</b>	RR RR rr
2013	UESRWWN	18	IL07-4415	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	19	IL07-19334	R-A1	R-A1	R-B1	<b>r-D1_white</b>	RR RR rr
2013	UESRWWN	20	IL07-20728	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	21	KWS008	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	22	KWS009	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	23	KWS010	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	UESRWWN	24	AR00255-16-1	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	25	AR01209-2-1	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	26	KY03C-1237-39	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	27	LCS10516	R-A1	R-A1	R-B1	<b>r-D1_white</b>	RR RR rr
2013	UESRWWN	28	LCS19228	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	29	LCS19229	<b>r-A1_white</b>	R-A1	R-B1	<b>r-D1_white</b>	rr RR rr
2013	UESRWWN	30	GA04121-11E26	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UESRWWN	31	GA04434-11E44	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	32	P04606RA1-1-7-1-6-3	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	UESRWWN	33	P05247A1-7-3-121	R-A1	R-A1	R-B1	<b>r-D1_white</b>	RR RR rr
2013	UESRWWN	34	P05222A1-1-2-7	<b>r-A1_white</b>	R-A1	R-B1	<b>r-D1_white</b>	rr RR rr
2013	UESRWWN	35	DANW1006	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	UESRWWN	36	DANW1008	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	UESRWWN	37	MD04W249-11-7	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	38	MD04W249-11-12	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	UESRWWN	39	MD04W249-11-16	R-A1	R-A1	R-B1	R-D1	RR RR RR

2013 USSRWWN				Kernel Color genes				
Year	Nursery	Entry	Sample_Name	Tamby10-A1	Tamby10_Nor17	Tamby10-B1	Tamby10-D1	Combined_Color
2013	USSRWWN	1	AGS 2000	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	USSRWWN	2	Pioneer Brand 26R61	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	3	USG 3555	R-A1	R-A1	R-B1	<b>r-D1_white</b>	RR RR rr
2013	USSRWWN	4	Jamestown	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	USSRWWN	5	NC08-23089	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	USSRWWN	6	NC08-23324	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	rr rr rr
2013	USSRWWN	7	VA10W-119	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	8	NC08-21273	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	9	NC09-20765	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	USSRWWN	10	TN1301	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	USSRWWN	11	TN1302	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	12	TN1303	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	13	VA07W-415	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	14	VA10W-123	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	15	VA09W-110	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	16	KWS011	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	17	KWS012	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	18	KWS013	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	USSRWWN	19	AR00343-5-1	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	20	AR01040-4-1	R-A1	R-A1	<b>r-B1_white</b>	<b>r-D1_white</b>	RR rr rr
2013	USSRWWN	21	LA03200E-2	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	USSRWWN	22	LA05038D-105	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	23	LA05130D-P5	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	USSRWWN	24	LCS19701	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	25	LCS29817	<b>r-A1_white</b>	R-A1	<b>r-B1_white</b>	R-D1	rr rr RR
2013	USSRWWN	26	LCS19227	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	27	GA041052-11E51	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	28	GA041293-11E54	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	USSRWWN	29	GA041323-11E63	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	30	GA041293-11LE37	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	USSRWWN	31	MD04W249-11-7	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	32	MD04W249-11-12	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR
2013	USSRWWN	33	MD07W272-11-5	R-A1	R-A1	<b>r-B1_white</b>	R-D1	RR rr RR