

2013

**Marker Reports for all Alleles
[corrected for Sbm1 - 6/11/2013]
Eastern Regional Nurseries**

Uniform Bread Wheat Trial

Eastern Regional Small Grains Genotyping Lab

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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

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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 Uniform Bread Wheat Trial

Year	Nursery	Entry	Sample_Name	Pedigree	Class	Contributor	Plant Source
2013	UBWT	1	Shirley	VA94-52-25/Coker 9835//VA96-54-234 (=PI656753; VA03W-409)	SRW	VA	2
2013	UBWT	2	USG 3120	GA901146/GA96004//AGS2000	SRW	GA	3
2013	UBWT	3	Appalachian White	KS2016-U2/Lakin (=ARS05-1234; WX03ARS1080-19)	HWW	ARS	7
2013	UBWT	4	Endurance	HBV756A/Siouxland//2180 (=PI639233; OK94P549-11)	HRW	OK	4
2013	UBWT	5	NuEast	KS00U755/TAM 303 (=ARS03-4736; WX02ARS113-9)	HRW	ARS	8
2013	UBWT	6	TAM 303	TX89D1253*2/TTCC404 (=WX93D208-9-1-2) (=TX98D1170)	HRW	TX	11
2013	UBWT	7	Vision 30	92PAN1 #33/ RENWOOD 3260"S" (VA97W-414),F11 (=VA06HRW-49)	HRW	VA	6
2013	UBWT	8	Vision 40	92PIN#109 / 92PAN1 #33,F11 (=VA06HRW-66)	HRW	VA	6
2013	UBWT	9	VA07HRW-45	PROVINCIALE/ VISION 10	HRW	VA	5
2013	UBWT	10	ARS07-1073	TX99D4441/TAM303	HRW	ARS	1
2013	UBWT	11	ARS07-1214	McCormick/Dominator	HRW	ARS	4
2013	UBWT	12	ARS09-082	FL95A331/TX99D4628	HRW	ARS	1
2013	UBWT	13	ARS09-228	IN9712C1-4/PI434658	HRW	ARS	2
2013	UBWT	14	ARS09-367	McCormick/Dominator	HRW	ARS	2
2013	UBWT	15	ARS09-446	FL89250/WX02ARS130	HRW	ARS	2
2013	UBWT	16	ARS09-641	LA95283CA78-1-2-B/TX94D4360	HRW	ARS	1
2013	UBWT	17	ARS09-643	LA95283CA78-1-2-B/TAM303	HRW	ARS	2
2013	UBWT	18	ARS09-653	M99*3098/PI434658	HRW	ARS	1
2013	UBWT	19	ARS09-724	AR800-1-3-1/WX03ARS0011	HRW	ARS	2
2013	UBWT	20	ARS09-745	GA951079-3-5/WX03ARS0256	HRW	ARS	1
2013	UBWT	21	ARS10-028	AR800-1-3-1/NW97S320	HRW	ARS	1
2013	UBWT	22	ARS10-030	AR800-1-3-1/NW97S320	HRW	ARS	1
2013	UBWT	23	ARS10-031	AR800-1-3-1/PI564392	HRW	ARS	1
2013	UBWT	24	ARS10-163	NC96BGTA4/WX02ARS158	HRW	ARS	1
2013	UBWT	25	ARS10-389	IN9712C1-4/WX03ARS0214	HRW	ARS	1
2013	UBWT	26	KWS 020	Puffy / Tatoo	HRW	KWS	1
2013	UBWT	27	LCH10-187	B88/2180//T811, F11	HRW	Limagrain	1
2013	UBWT	28	LCH11-1117	T154 / T158	HRW	Limagrain	1
2013	UBWT	29	LCH11-1130	T158 / T157	HRW	Limagrain	1
2013	UBWT	30	LCH11-1172	T81 / KS600F5-57-8	HRW	Limagrain	1
2013	UBWT	31	T152	B88 / 2180 // T81	HRW	Limagrain	1
2013	UBWT	32	T153	T136 / T151	HRW	Limagrain	2
2013	UBWT	33	VA08HRW-98	KS01HW54 (94HW123-5/BTY SIB) / Provinciale	HRW	VT	3
2013	UBWT	34	VA08HRW-103	KS01HW54 (94HW123-5/BTY SIB) / Provinciale	HRW	VT	4
2013	UBWT	35	VA09HRW-6	Provinciale / Vision 10 (92PAN2#26)	HRW	VT	2
2013	UBWT	36	VA09HRW-43	KS01HW54 (94HW123-5/BTY SIB) / Provinciale	HRW	VT	2
2013	UBWT	37	VA09HRW-64	Jagalene[Jagger/Abilene(=PI631376;W98-362): Lr17,24;Hi TWT;G-QWL;ML] / Provinciale	HRW	VT	2
2013	UBWT	38	VA10HRW-13	Vision 20 (Hickok/KS94U213//Karl92 = 00F5--58-3) / Stanof	HRW	VT	1
2013	UBWT	39	VA10HRW-14	Vision 20 (Hickok/KS94U213//Karl92 = 00F5--58-3) / Stanof	HRW	VT	1
2013	UBWT	40	VA10HRW-42	SX1411 / Pioneer 25R78 // 00F5--22-1 (KSU-Bulk Selection)	HRW	VT	1
2013	UBWT	41	VA10HRW-60	SX1411 / Pioneer 25R78 // 00F5--22-1 (KSU-Bulk Selection)	HRW	VT	1
2013	UBWT	42	VA11HRW-109	SX1406W / 00F5--22-1(KSU-Bulk Seln) // KS00F5--20-3-2 (KSU-Bulk Seln)	HRW	VT	1
2013	UBWT	43	VA11HRW-120	KS01HW54 (KSU-J.Martin) / Lakin (KS96HW115= KS89H130/Arlin) // KS00F5--20-3-2 (Bulk Seln) , F8	HRW	VT	1
2013	UBWT	44	VA11HRW-176	KS00WGRC44 (TAM107*3/ TA 1715) / Lakin (KS96HW115=KS89H130/ Arlin) // TX99D4478 [TX92D8040*3/ TTCC259 (=WX93D230-1)]	HRW	VT	1
2013	UBWT	45	VA11HWW-113	KS01HW54 (KSU-J.Martin) / Lakin (KS96HW115= KS89H130/Arlin) // KS00F5--20-3-2 (Bulk Seln) , F8	HWW	VT	1
2013	UBWT	46	VA11HWW-117	KS01HW54 (KSU-J.Martin) / Lakin (KS96HW115= KS89H130/Arlin) // KS00F5--20-3-2 (Bulk Seln) , F8	HWW	VT	1

2013 Uniform Bread Wheat Trial				Dwarfing alleles			Photoperiod Insensitivity alleles			Vernalization alleles		
Year	Nursery	Entry	Sample_Name	Rht-B1	Rht-D1	Rht8c	Ppd-D1	Ppd-B1	Ppd-A1	vrn-A1	vrn-B1	Vrn-D1
2013	UBWT	1	Shirley	Rht-B1b	Rht-D1a	no	Ppd-D1a_insens	null	Ppd-A1a.1_insens	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	2	USG 3120	Rht-B1a	Rht-D1b	nd	Ppd-D1b	Ppd-B1a_S64_insens	Ppd-A1a.1_insens	vrn-A1	vrn-B1_short	vrn-D1
2013	UBWT	3	Appalachian White	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	4	Endurance	Rht-B1a	Rht-D1b	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	5	NuEast	Rht-B1b	Rht-D1a	nd	Ppd-D1b	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	6	TAM 303	Rht-B1b	Rht-D1a	nd	Ppd-D1a_het	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	7	Vision 30	Rht-B1a	Rht-D1b	nd	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	8	Vision 40	Rht-B1a	Rht-D1b	nd	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	9	VA07HRW-45	Rht-B1a	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	10	ARS07-1073	Rht-B1a	Rht-D1b	no	Ppd-D1b	Ppd-B1a_S64_insens	nd	vrn-A1	vrn-B1_short	vrn-D1
2013	UBWT	11	ARS07-1214	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1a.1_insens	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	12	ARS09-082	Rht-B1a	Rht-D1b	nd	Ppd-D1a_insens	null	Ppd-A1a.1_insens	vrn-A1	vrn-B1_short	vrn-D1
2013	UBWT	13	ARS09-228	Rht-B1a	Rht-D1a	Rht8c	Ppd-D1a_insens	Ppd-B1a_CS_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	14	ARS09-367	Rht-B1b	Rht-D1a	nd	Ppd-D1b	**	Ppd-A1a.1_insens	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	15	ARS09-446	Rht-B1a	Rht-D1a	nd	Ppd-D1b	Ppd-B1a_CS_insens	Ppd-A1b	vrn-A1	vrn-B1_short	vrn-D1
2013	UBWT	16	ARS09-641	Rht-B1a	Rht-D1b	nd	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1_short	vrn-D1
2013	UBWT	17	ARS09-643	Rht-B1a	Rht-D1b	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1_short	vrn-D1
2013	UBWT	18	ARS09-653	Rht-B1a	Rht-D1a	Rht8c	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	19	ARS09-724	Rht-B1b	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1a.1_insens	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	20	ARS09-745	Rht-B1a	Rht-D1b	no	Ppd-D1a_insens	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	21	ARS10-028	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1a.1_insens	vrn-A1_short	vrn-B1	vrn-D1
2013	UBWT	22	ARS10-030	Rht-B1b	Rht-D1a	nd	Ppd-D1b	**	Ppd-A1a.1_insens	vrn-A1_short	vrn-B1	vrn-D1
2013	UBWT	23	ARS10-031	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1a.1_insens	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	24	ARS10-163	Rht-B1a	Rht-D1b	no	Ppd-D1a_insens	Ppd-B1a_CS_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	25	ARS10-389	Rht-B1a	Rht-D1a	no	Ppd-D1b	Ppd-B1a_CS_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	26	KWS 020	Rht-B1b_het	Rht-D1a	no	Ppd-D1a_insens	Ppd-B1a_CS_het	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	27	LCH10-187	Rht-B1b	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	28	LCH11-1117	Rht-B1b	Rht-D1a	no	Ppd-D1b	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	29	LCH11-1130	Rht-B1b	Rht-D1a	nd	Ppd-D1b	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	30	LCH11-1172	Rht-B1b	Rht-D1a	nd	Ppd-D1b	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	31	T152	Rht-B1b	Rht-D1a	no	Ppd-D1b	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1_short	vrn-B1	vrn-D1
2013	UBWT	32	T153	nd	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	33	VA08HRW-98	Rht-B1a	nd	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	34	VA08HRW-103	Rht-B1a	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1_het	vrn-B1	vrn-D1
2013	UBWT	35	VA09HRW-6	Rht-B1a	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	36	VA09HRW-43	Rht-B1b_het	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1_het	vrn-B1	vrn-D1
2013	UBWT	37	VA09HRW-64	Rht-B1a	Rht-D1a	nd	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	38	VA10HRW-13	Rht-B1b	Rht-D1a	nd	Ppd-D1b	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	39	VA10HRW-14	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	40	VA10HRW-42	Rht-B1b	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1a.1_het	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	41	VA10HRW-60	Rht-B1b	Rht-D1a	no	Ppd-D1a_insens	**	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	42	VA11HRW-109	Rht-B1b	Rht-D1a	nd	Ppd-D1a_het	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	43	VA11HRW-120	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1b	vrn-A1_het	vrn-B1	vrn-D1
2013	UBWT	44	VA11HRW-176	Rht-B1b	Rht-D1a	no	Ppd-D1b	Ppd-B1a_S64_insens	Ppd-A1b	vrn-A1	vrn-B1	vrn-D1
2013	UBWT	45	VA11HWW-113	Rht-B1b	Rht-D1a	no	Ppd-D1b	**	Ppd-A1b	vrn-A1_short	vrn-B1	vrn-D1
2013	UBWT	46	VA11HWW-117	Rht-B1b	Rht-D1a	nd	Ppd-D1b	**	Ppd-A1b	vrn-A1_short	vrn-B1	vrn-D1

2013 Uniform Bread Wheat Trial				Fusarium Head Blight alleles				Leaf, Stem and Stripe Rusts & Powdery Mildew alleles					
Year	Nursery	Entry	Sample Name	Fhb1	Fhb_Massey_3BL	Fhb_2DL-Wuhan1/W14	Fhb_5A	Sr2	Sr36	Sr24/Lr24	Yr17/Lr37/Sr38	Lr34/Yr18	Lr9
2013	UBWT	1	Shirley	no	no	no	no	no	Sr36	no	no	no	no
2013	UBWT	2	USG 3120	no	no	no	no	no	no	no	no	no	no
2013	UBWT	3	Appalachian White	no	no	no?	nd	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	4	Endurance	no	no	no	no	no	no	no	no	no	no
2013	UBWT	5	NuEast	no	no	no	no	no	no	no	no	no	no
2013	UBWT	6	TAM 303	no	no	no	no	no	no	no	no	no	no
2013	UBWT	7	Vision 30	no	no	no	no	no	Sr36	no	no	no	no
2013	UBWT	8	Vision 40	no	no	no	no	no	Sr36_het?	no	no	no	no
2013	UBWT	9	VA07HRW-45	no	no	no	no	no	no	no	no	no	no
2013	UBWT	10	ARS07-1073	no	no	no	nd	no	no	no	no	no	no
2013	UBWT	11	ARS07-1214	no	no	no	no	no	no	Sr24/Lr24	no	no	no
2013	UBWT	12	ARS09-082	no	no	no	no	no	Sr36	no	no	no	Lr9
2013	UBWT	13	ARS09-228	no	no	no	no	no	Sr36	no	no	no	no
2013	UBWT	14	ARS09-367	no	no	no	no	no	no	Sr24/Lr24	no	no	no
2013	UBWT	15	ARS09-446	no	no	no	no	no	Sr36	no	no	no	no
2013	UBWT	16	ARS09-641	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	Lr9
2013	UBWT	17	ARS09-643	no	no	no	no	no	no	no	no	no	no
2013	UBWT	18	ARS09-653	no	no	no	no	no	no	no	no	no	no
2013	UBWT	19	ARS09-724	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	20	ARS09-745	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	21	ARS10-028	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	22	ARS10-030	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	23	ARS10-031	no	Fhb_Massey_3BL	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	24	ARS10-163	no	no	no	no	no	Sr36	no	no	no	no
2013	UBWT	25	ARS10-389	no	no	no	no	no	Sr36	no	no	no	no
2013	UBWT	26	KWS 020	no	no	no	nd	no	Sr36_het?	no	no	no	no
2013	UBWT	27	LCH10-187	no	no	no	no	no	no	no	no	no	no
2013	UBWT	28	LCH11-1117	no	no	no	no	no	no	no	no	no	no
2013	UBWT	29	LCH11-1130	no	no	no	no	no	no	no	no	no	no
2013	UBWT	30	LCH11-1172	no	no	no	no	no	no	Sr24/Lr24	no	no	no
2013	UBWT	31	T152	no	no	no	no	no	no	no	Yr17/Lr37/Sr38_het	no	no
2013	UBWT	32	T153	no	no	no	no	no	no	no	no	no	no
2013	UBWT	33	VA08HRW-98	no	no	no	no	no	no	nd	Yr17/Lr37/Sr38_het	no	no
2013	UBWT	34	VA08HRW-103	no	no	no	no	no	no	Sr24/Lr24	no	no	no
2013	UBWT	35	VA09HRW-6	no	no	no	no	no	no	no	no	no	no
2013	UBWT	36	VA09HRW-43	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	37	VA09HRW-64	no	no	no	no	no	no	Sr24/Lr24	Yr17/Lr37/Sr38	Lr34/Yr18	no
2013	UBWT	38	VA10HRW-13	no	no	no	no	no	no	Sr24/Lr24	no	no	no
2013	UBWT	39	VA10HRW-14	no	no	no	no	no	no	Sr24/Lr24	no	no	no
2013	UBWT	40	VA10HRW-42	no	no	no	no	no	no	no	no	no	no
2013	UBWT	41	VA10HRW-60	no	no	no	no	no	no	no	no	no	no
2013	UBWT	42	VA11HRW-109	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	43	VA11HRW-120	no	no	no	nd	no	no	no	no	no	no
2013	UBWT	44	VA11HRW-176	no	no	no	no	no	no	no	no	no	no
2013	UBWT	45	VA11HWW-113	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no
2013	UBWT	46	VA11HWW-117	no	no	no	no	no	no	no	Yr17/Lr37/Sr38	no	no

2013 Uniform Bread Wheat Trial				Rye Translocations	Hessian Fly		BYDV	SBMV	SnToxA
Year	Nursery	Entry	Sample_Name	IRS	H13	H9	Bdv2/3	Sbm1	Tsn1
2013	UBWT	1	Shirley	IRS:1BL	no	no	no	Sbm1	no
2013	UBWT	2	USG 3120	IRS:1BL	no	no	no	no	no
2013	UBWT	3	Appalachian White	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	4	Endurance	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	5	NuEast	IRS:1AL	no	no	no	no	Tsn1
2013	UBWT	6	TAM 303	IRS:1AL	no	nd	no	Sbm1	Tsn1
2013	UBWT	7	Vision 30	non-IRS	no	no	no	Sbm1	no
2013	UBWT	8	Vision 40	non-IRS	no	no	no	Sbm1	no
2013	UBWT	9	VA07HRW-45	non-IRS	no	no	no	Sbm1	no
2013	UBWT	10	ARS07-1073	non-IRS	no	nd	no	Sbm1	no
2013	UBWT	11	ARS07-1214	non-IRS	no	no	no	Sbm1	no
2013	UBWT	12	ARS09-082	non-IRS	no	no	no	Sbm1	no
2013	UBWT	13	ARS09-228	non-IRS	H13	no	no	Sbm1	no
2013	UBWT	14	ARS09-367	non-IRS	no	no	no	Sbm1	no
2013	UBWT	15	ARS09-446	non-IRS	no	no	no	no	no
2013	UBWT	16	ARS09-641	non-IRS	no	no	nd	no	no
2013	UBWT	17	ARS09-643	IRS:1AL	no	nd	no	Sbm1	no
2013	UBWT	18	ARS09-653	non-IRS	no	no	no	Sbm1	no
2013	UBWT	19	ARS09-724	non-IRS	no	no	no	no	no
2013	UBWT	20	ARS09-745	non-IRS	no	nd	no	Sbm1	Tsn1
2013	UBWT	21	ARS10-028	IRS:1BL	no	no	no	no	no
2013	UBWT	22	ARS10-030	IRS:1BL	no	no	no	no	no
2013	UBWT	23	ARS10-031	non-IRS	no	no	no	no	no
2013	UBWT	24	ARS10-163	non-IRS	no	no	no	Sbm1	no
2013	UBWT	25	ARS10-389	non-IRS	no	no	no	no	no
2013	UBWT	26	KWS 020	IRS:1AL	no	nd	no	no	Tsn1
2013	UBWT	27	LCH10-187	IRS:1AL	no	nd	no	Sbm1	Tsn1
2013	UBWT	28	LCH11-1117	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	29	LCH11-1130	non-IRS	no	no	no	no	Tsn1
2013	UBWT	30	LCH11-1172	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	31	T152	IRS:1AL	no	nd	no	no	Tsn1
2013	UBWT	32	T153	IRS:1AL	no	nd	no	Sbm1	Tsn1
2013	UBWT	33	VA08HRW-98	non-IRS	no	no	no	Sbm1	no
2013	UBWT	34	VA08HRW-103	IRS:1AL	no	no	no	Sbm1	no
2013	UBWT	35	VA09HRW-6	non-IRS	no	no	no	no	no
2013	UBWT	36	VA09HRW-43	non-IRS	no	no	no	no	no
2013	UBWT	37	VA09HRW-64	non-IRS	no	no	no	Sbm1	no
2013	UBWT	38	VA10HRW-13	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	39	VA10HRW-14	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	40	VA10HRW-42	non-IRS	no	no	no	no	no
2013	UBWT	41	VA10HRW-60	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	42	VA11HRW-109	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	43	VA11HRW-120	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	44	VA11HRW-176	non-IRS	no	no	nd	no	Tsn1
2013	UBWT	45	VA11HWW-113	non-IRS	no	no	no	Sbm1	Tsn1
2013	UBWT	46	VA11HWW-117	non-IRS	no	no	no	Sbm1	Tsn1

2013 Uniform Bread Wheat Trial				Glutenin alleles			Hardness Quality			Mill Quality
Year	Nursery	Entry	Sample_Name	Glu-B1	Glu-D1	Glu-A1	Pina-D1	Pinb-D1	Texture	Sucrose_Synthase
2013	UBWT	1	Shirley	no	2+12	Ax1_or_null	pina-D1a_soft	pinb-D1a_soft	soft	TaSus2-2B
2013	UBWT	2	USG 3120	no	5+10	Ax2*	pina-D1a_soft	pinb-D1a_soft	soft	no
2013	UBWT	3	Appalachian White	no	2+12	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	4	Endurance	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	5	NuEast	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	6	TAM 303	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	7	Vision 30	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	8	Vision 40	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	9	VA07HRW-45	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	10	ARS07-1073	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	11	ARS07-1214	no	5+10	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	12	ARS09-082	no	5+10	Ax1_or_null	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	13	ARS09-228	no	5+10	Ax1_or_null	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	14	ARS09-367	no	5+10	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	15	ARS09-446	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	16	ARS09-641	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	17	ARS09-643	Bx7oe_het	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	18	ARS09-653	no	het	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	19	ARS09-724	no	2+12	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	20	ARS09-745	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	21	ARS10-028	no	2+12	Ax2*	pina-D1a_soft	nd	?	no
2013	UBWT	22	ARS10-030	no	2+12	Ax2*	nd	D1b	hard	no
2013	UBWT	23	ARS10-031	no	2+12	Ax1_or_null	pina-D1a_soft	pinb-D1a_soft	soft	no
2013	UBWT	24	ARS10-163	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	25	ARS10-389	no	5+10	Ax1_or_null	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	26	KWS 020	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	TaSus2-2B_het
2013	UBWT	27	LCH10-187	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	28	LCH11-1117	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	29	LCH11-1130	no	2+12	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	30	LCH11-1172	no	2+12	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	31	T152	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	32	T153	no	2+12	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	33	VA08HRW-98	no	2+12	Ax1_or_null	D1b	D1b	hard	no
2013	UBWT	34	VA08HRW-103	no	2+12	het	D1b	D1b	hard	TaSus2-2B_het
2013	UBWT	35	VA09HRW-6	no	2+12	Ax2*	D1b	pinb-D1a_soft	hard	no
2013	UBWT	36	VA09HRW-43	no	2+12	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	37	VA09HRW-64	no	5+10	Ax1_or_null	pina-D1a_soft	D1b	hard	no
2013	UBWT	38	VA10HRW-13	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	39	VA10HRW-14	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	40	VA10HRW-42	no	5+10	het	pina-D1a_soft	D1b	hard	no
2013	UBWT	41	VA10HRW-60	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	TaSus2-2B
2013	UBWT	42	VA11HRW-109	no	het	nd	D1b	D1b	hard	no
2013	UBWT	43	VA11HRW-120	no	2+12	Ax1_or_null	D1b	D1b	hard	no
2013	UBWT	44	VA11HRW-176	no	5+10	Ax2*	pina-D1a_soft	D1b	hard	no
2013	UBWT	45	VA11HWW-113	no	2+12	Ax1_or_null	D1b	pinb-D1a_soft	hard	no
2013	UBWT	46	VA11HWW-117	no	2+12	Ax1_or_null	D1b	pinb-D1a_soft	hard	no

2013 Uniform Bread Wheat Trial				Kernel Color genes				
Year	Nursery	Entry	Sample_Name	Tamby10-A1	Tamby10_Nor17	Tamby10-B1	Tamby10-D1	Combined_Color
2013	UBWT	1	Shirley	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	2	USG 3120	r-A1_white	R-A1	r-B1_white	R-D1	rr rr RR
2013	UBWT	3	Appalachian White	R-A1	r-A1_N17_het	r-B1_white	r-D1_white	RrN17 rr rr
2013	UBWT	4	Endurance	R-A1	R-A1	R-B1	r-D1_white	RR RR rr
2013	UBWT	5	NuEast	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	6	TAM 303	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	7	Vision 30	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	8	Vision 40	r-A1_het	R-A1	R-B1	R-D1	Rr RR RR
2013	UBWT	9	VA07HRW-45	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	10	ARS07-1073	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	11	ARS07-1214	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	12	ARS09-082	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	13	ARS09-228	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	14	ARS09-367	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	15	ARS09-446	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	16	ARS09-641	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	17	ARS09-643	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	18	ARS09-653	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	19	ARS09-724	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	20	ARS09-745	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	21	ARS10-028	R-A1	R-A1	R-B1	r-D1_white	RR RR rr
2013	UBWT	22	ARS10-030	R-A1	R-A1	R-B1	r-D1_white	RR RR rr
2013	UBWT	23	ARS10-031	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	24	ARS10-163	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	25	ARS10-389	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	26	KWS 020	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	27	LCH10-187	r-A1_white	R-A1	R-B1	r-D1_white	rr RR rr
2013	UBWT	28	LCH11-1117	r-A1_white	R-A1	R-B1	r-D1_white	rr RR rr
2013	UBWT	29	LCH11-1130	R-A1	R-A1	R-B1	R-D1	RR RR RR
2013	UBWT	30	LCH11-1172	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	31	T152	r-A1_white	R-A1	r-B1_white	R-D1	rr rr RR
2013	UBWT	32	T153	r-A1_white	R-A1	R-B1	r-D1_white	rr RR rr
2013	UBWT	33	VA08HRW-98	r-A1_white	R-A1	r-B1_white	R-D1	rr rr RR
2013	UBWT	34	VA08HRW-103	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	35	VA09HRW-6	r-A1_white	R-A1	R-B1	R-D1	rr RR RR
2013	UBWT	36	VA09HRW-43	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	37	VA09HRW-64	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	38	VA10HRW-13	r-A1_white	R-A1	R-B1	r-D1_white	rr RR rr
2013	UBWT	39	VA10HRW-14	r-A1_white	R-A1	R-B1	r-D1_white	rr RR rr
2013	UBWT	40	VA10HRW-42	R-A1	r-A1_N17_het	r-B1_white	R-D1	RrN17 rr RR
2013	UBWT	41	VA10HRW-60	R-A1	R-A1	r-B1_white	R-D1	RR rr RR
2013	UBWT	42	VA11HRW-109	R-A1	R-A1	r-B1_white	r-D1_white	RR rr rr
2013	UBWT	43	VA11HRW-120	r-A1_white	R-A1	r-B1_white	r-D1_white	rr rr rr
2013	UBWT	44	VA11HRW-176	r-A1_white	R-A1	r-B1_white	R-D1	rr rr RR
2013	UBWT	45	VA11HWW-113	r-A1_white	R-A1	r-B1_white	r-D1_white	rr rr rr
2013	UBWT	46	VA11HWW-117	r-A1_white	R-A1	nd	r-D1_white	rr nd rr