

**2009**

**Uniform Bread Wheat Trial**

**Marker Report**

**Eastern Regional Small Grains Genotyping Lab**

**Collaborator: Gina Brown-Guedira**

**USDA-ARS**

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2009

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### Some details of notations in the Marker tables

"nd" = not determined or lack of amplification

if marker is dominant, samples with no amplification are left blank

"?" 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

Target alleles are in **bold** or *italics*

Rht1-B1b & Rht2-D1b = **M** = dwarfing = yes

Ppd-D1a = photoperiod insensitive = yes

## 2009 Uniform Bread Wheat Trial

### Entry List

Nursery	Entry	Sample Name	Pedigree
UBWT	1	ARS03-3806	X94-748-2-2/TAM 301 (=WX02ARS143-37)
UBWT	2	ARS03-4736	KS00U755/TAM 303 (=WX02ARS113-9)
UBWT	3	ARS03-6180	TX94D4360/TAM 302 (=WX02ARS130-45)
UBWT	4	ARS04-1249	CO960293-1/KS98HW151-6//KS99HW37 (=KS2023-U18)
UBWT	5	ARS05-0005	TX85-264*2/TTCC512
UBWT	6	ARS05-0043	TAM 303*2/TTCC365
UBWT	7	ARS05-0401	TAM 303*2/TTCC365
UBWT	8	ARS05-0403	TAM 303*2/TTCC365
UBWT	9	ARS05-0404	TAM 303*2/TTCC365
UBWT	10	ARS05-0469	TAM 303*2/TTCC365
UBWT	11	ARS05-0470	TAM 303*2/TTCC365
UBWT	12	ARS05-0146	WX98D126-U3//TAM 302/Coker 9835
UBWT	13	ARS05-0148	TX98D1519/WX98D024-U52
UBWT	14	ARS05-0241	Coker9835/RL6042//TX99D4657
UBWT	15	ARS05-0242	Coker9835/RL6042//TX99D4657 (WX02ARS030-591-25)
UBWT	16	ARS05-0438	Neuse//TAM 301/TTCC365
UBWT	17	ARS05-0596	TX94D4360/KS98HW122
UBWT	18	ARS05-0658	TX97D6355/KS98U665
UBWT	19	ARS05-0894	KS95HW538/2*Trego
UBWT	20	ARS05-0895	KS95HW538/2*Trego
UBWT	21	ARS05-1034	KS2136-U142/Trego (=WX03ARS1066-8)
UBWT	22	ARS05-1041	unknown
UBWT	23	ARS05-1044	KS2132-U138/Trego (=WX03ARS1069-26)
UBWT	24	ARS05-1150	KS98HW151-6(Arlin/TA2460/*3 TAM 107)/KS01HW39(01-6039)(94HW123-5*2/95HW42)
UBWT	25	ARS05-1234	KS2016-U2/Lakin (=WX03ARS1080-19)
UBWT	26	ARS05-1266	KS98HW151-6(Arlin/TA2460/*3 TAM 107)/KS01HW101(01-6101)(94HW115/Betty sib)
UBWT	27	OK03522	N566/OK94P597
UBWT	28	OK03305	N40/OK94P455
UBWT	29	TX01V5134RC-3	TAM-200/Jagger
UBWT	30	VA06HRW-3	VA97W-469[IN81401A1-32-2(Pm-Res)/ CK9803] / HEYNE=KS85W663-42,F9
UBWT	31	VA06HRW-49	92PAN1 #33 / RENWOOD 3260"S" (VA97W-414),F9
UBWT	32	VA07HRW-22	92PAN1 #33/ RENWOOD 3260"S" (VA97W-414),F9
UBWT	33	VA06HRW-66	92PIN#109 / 92PAN1 #33,F9
UBWT	34	VA06HRW-79	ETECHO(VG-YR Res: VG Bread QWL) / RENWOOD 3260 (VA96-54-326= SC861562/CK9803) // 92PIN#109,F9
UBWT	35	VA06HRW-108	HEYNE (KS85W633-11-6-42) / RENWOOD 3260 (VA96-54-326= SC861562/CK9803) // 92PIN#135,F9
UBWT	36	VA07HRW-45	PROVINCIALE / 92PAN2#26,F8
UBWT	37	VA07HRW-79	RECITAL / 92PAN2 #26 // 92PAN1#33,F8
UBWT	38	VA07HRW-97	92PAN1 #33 / 2137 // 92PAN2#26,F8
UBWT	39	VA07HRW-100	92PAN1 #33 / 2137 // 92PAN2#26,F8
UBWT	40	VA07HRW-130	JOSEF(AUSTRIAN BREAD WHEAT: QWL GROUP 8, VERY EARLY, HIGH SED. VOL. AND PROTEIN)/ PIONEER 25W33 // HEYNE,F8

**2009 Uniform Bread Wheat Trial**  
Summary of all Markers

Nursery	Entry	Sample Name				Ppd-D1a	Fhb Ernie		Fhb 2DL-	Fhb 5A	Fhb 5A
			Rht1-B1b	Rht2-D1b	Rht8		Wuhan1/W14	Ernie	Ning7840		
UBWT	1	ARS03-3806	yes	no	no	no	no	no	no	no	no
UBWT	2	ARS03-4736	yes	no	no	no	no	no	?	no	no
UBWT	3	ARS03-6180	yes	no	no	no	no	no	no	no	no
UBWT	4	ARS04-1249	yes	no	no	no	no	no	no	?	?
UBWT	5	ARS05-0005	yes	no	no	yes	no	no	no	no	no
UBWT	6	ARS05-0043	yes	no	no	yes	no	no	no	no	no
UBWT	7	ARS05-0401	yes	no	no	yes	no	no	no	?	?
UBWT	8	ARS05-0403	yes	no	no	yes	no	no	no	no	no
UBWT	9	ARS05-0404	yes	no	no	yes	no	no	no	yes?	no
UBWT	10	ARS05-0469	yes	no	no	yes	no	no	no	no	no
UBWT	11	ARS05-0470	yes	no	no	yes	no	no	no	no	no
UBWT	12	ARS05-0146	no	yes	no	yes	no	yes?	no	no	no
UBWT	13	ARS05-0148	yes	no	no	no	no	no	no	no	no
UBWT	14	ARS05-0241	het	het	no	no	no	no	no	no	no
UBWT	15	ARS05-0242	no	yes	no	no	no	no	no	no	no
UBWT	16	ARS05-0438	yes	no	no	no	no	no	no	no	no
UBWT	17	ARS05-0596	yes	no	no	no	no	no	no	no	no
UBWT	18	ARS05-0658	yes	no	no	no	no	no	no	no	no
UBWT	19	ARS05-0894	yes	no	no	no	no	no	no	no	no
UBWT	20	ARS05-0895	yes	no	no	no	no	no	no	no	no
UBWT	21	ARS05-1034	yes	no	no	no	no	no	no	no	no
UBWT	22	ARS05-1041	yes	no	no	no	no	no	no	no	no
UBWT	23	ARS05-1044	yes	no	no	no	no	no	no	no	no
UBWT	24	ARS05-1150	yes	no	no	no	no	no	no	no	no
UBWT	25	ARS05-1234	yes	no	no	no	no	no	no	no	het?
UBWT	26	ARS05-1266	yes	no	no	no	no	no	no	no	no
UBWT	27	OK03522	yes	no	no	yes	no	no	no	no	no
UBWT	28	OK03305	yes	no	yes	yes	no	no	no	no	no
UBWT	29	TX01V5134RC-3	yes	no	no	no	no	no	no	no	no
UBWT	30	VA06HRW-3	yes	no	no	no	nd	no	no	yes?	no
UBWT	31	VA06HRW-49	no	yes	no	yes	no	no	no	no	no
UBWT	32	VA07HRW-22	no	yes	no	yes	no	het	no	no	no
UBWT	33	VA06HRW-66	no	yes	het	yes	no	no	no	no	no
UBWT	34	VA06HRW-79	yes	no	no	yes	no	no	no	no	no
UBWT	35	VA06HRW-108	no	yes	no	yes	no	no	no	no	no
UBWT	36	VA07HRW-45	no	no	no	yes	no	no	no	no	no
UBWT	37	VA07HRW-79	no	yes	yes	yes	no	no	no	no	no
UBWT	38	VA07HRW-97	no	yes	yes	yes	no	no	no	no	no
UBWT	39	VA07HRW-100	no	yes	het	yes	no	no	no	no	no
UBWT	40	VA07HRW-130	yes	no	yes	no	no	no	no	no	no

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Target alleles are in **bold** or *italics*

## 2009 Uniform Bread Wheat Trial

### Summary of all Markers

Nursery	Entry	Sample Name	Sr24/ Yr17/Lr37/ Lr34/Yr18/				1RS	H13	H9	Bdv2/3	Bx7 over-expressing	Glu-D1	Glu-A1
			Sr36	Lr24	Sr38	Pm38							
UBWT	1	ARS03-3806	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	2	ARS03-4736	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	3	ARS03-6180	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	4	ARS04-1249	no	no	<b>yes</b>	no	<b>1RS:1AL</b>	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	5	ARS05-0005	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	6	ARS05-0043	no	<b>yes</b>	no	<b>het?</b>	<b>1RS:1AL</b>	no	no	no	no	<b>het</b>	<b>het</b>
UBWT	7	ARS05-0401	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax1 or null</b>
UBWT	8	ARS05-0403	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax1 or null</b>
UBWT	9	ARS05-0404	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax1 or null</b>
UBWT	10	ARS05-0469	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>het</b>
UBWT	11	ARS05-0470	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	12	ARS05-0146	<b>yes</b>	no	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	13	ARS05-0148	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	14	ARS05-0241	<b>yes</b>	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	15	ARS05-0242	<b>yes</b>	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	16	ARS05-0438	no	no	no	no	<b>1RS:1BL</b>	no	no	no	no	<b>5+10</b>	<b>Ax1 or null</b>
UBWT	17	ARS05-0596	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	18	ARS05-0658	no	no	no	no	<b>1RS:1BL</b>	no	no	no	no	<b>5+10</b>	<b>Ax1 or null</b>
UBWT	19	ARS05-0894	no	no	no	no	<b>1RS:1BL</b>	no	no	no	no	<b>5+10</b>	<b>Ax1 or null</b>
UBWT	20	ARS05-0895	no	no	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax1 or null</b>
UBWT	21	ARS05-1034	no	no	<b>yes</b>	no	<b>1RS:1AL</b>	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	22	ARS05-1041	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>het</b>	<b>Ax2*</b>
UBWT	23	ARS05-1044	no	no	no	<b>yes?</b>	<b>1RS:1AL</b>	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	24	ARS05-1150	no	no	no	<b>no?</b>	<b>1RS:1AL</b>	no	no	no	no	<b>het</b>	<b>Ax2*</b>
UBWT	25	ARS05-1234	no	no	<b>yes</b>	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax1 or null</b>
UBWT	26	ARS05-1266	no	no	no	no	<b>1RS:1AL</b>	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	27	OK03522	no	<b>yes</b>	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax1 or null</b>
UBWT	28	OK03305	no	no	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	29	TX01V5134RC-3	no	no	<b>yes</b>	<b>no?</b>	<b>1RS:1AL</b>	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	30	VA06HRW-3	no	no	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax1 or null</b>
UBWT	31	VA06HRW-49	<b>yes</b>	no	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	32	VA07HRW-22	<b>yes</b>	no	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>
UBWT	33	VA06HRW-66	no	no	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	34	VA06HRW-79	<b>het</b>	no	no	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax1 or null</b>
UBWT	35	VA06HRW-108	<b>het</b>	no	<b>yes</b>	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	36	VA07HRW-45	no	no	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	37	VA07HRW-79	no	no	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	38	VA07HRW-97	no	no	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	39	VA07HRW-100	no	no	no	no	non-1RS	no	no	no	no	<b>2+12</b>	<b>Ax2*</b>
UBWT	40	VA07HRW-130	no	no	<b>yes</b>	no	non-1RS	no	no	no	no	<b>5+10</b>	<b>Ax2*</b>

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## Dwarfing genes & Photoperiod insensitivity

2009

Nursery	Entry	Sample Name	Rht1-taqman	Rht2-taqman	Rht1-B1b	Rht2-D1b	gwm261	gwm261	Rht8	Ppd	Ppd	Ppd-D1a
UBWT	1	ARS03-3806	<b>M</b>	W	yes	no	175		no	413		no
UBWT	2	ARS03-4736	<b>M</b>	W	yes	no	165		no	455		no
UBWT	3	ARS03-6180	<b>M</b>	W	yes	no	175		no	413		no
UBWT	4	ARS04-1249	<b>M</b>	W	yes	no	165	211	no	455		no
UBWT	5	ARS05-0005	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	6	ARS05-0043	<b>M</b>	W	yes	no	165	203	no	<b>283</b>		yes
UBWT	7	ARS05-0401	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	8	ARS05-0403	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	9	ARS05-0404	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	10	ARS05-0469	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	11	ARS05-0470	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	12	ARS05-0146	W	<b>M</b>	no	yes	203		no	<b>283</b>		yes
UBWT	13	ARS05-0148	<b>M</b>	W	yes	no	165		no	413	455	no
UBWT	14	ARS05-0241	W/M	W/M	het	het	165	203	no	413	453	no
UBWT	15	ARS05-0242	W	<b>M</b>	no	yes	165		no	453		no
UBWT	16	ARS05-0438	<b>M</b>	W	yes	no	211		no	413		no
UBWT	17	ARS05-0596	<b>M</b>	W	yes	no	165		no	455		no
UBWT	18	ARS05-0658	<b>M</b>	W	yes	no	211		no	413		no
UBWT	19	ARS05-0894	<b>M</b>	W	yes	no	211		no	413		no
UBWT	20	ARS05-0895	<b>M</b>	W	yes	no	211		no	413		no
UBWT	21	ARS05-1034	<b>M</b>	W	yes	no	165		no	455		no
UBWT	22	ARS05-1041	<b>M</b>	W	yes	no	165		no	455		no
UBWT	23	ARS05-1044	<b>M</b>	W	yes	no	165		no	455		no
UBWT	24	ARS05-1150	<b>M</b>	W	yes	no	165		no	413		no
UBWT	25	ARS05-1234	<b>M</b>	W	yes	no	165	211	no	413		no
UBWT	26	ARS05-1266	<b>M</b>	W	yes	no	165		no	455		no
UBWT	27	OK03522	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	28	OK03305	<b>M</b>	W	yes	no	<b>193</b>		yes	<b>283</b>		yes
UBWT	29	TX01V5134RC-3	<b>M</b>	W	yes	no	211		no	413		no
UBWT	30	VA06HRW-3	<b>M</b>	W	yes	no	201		no	413		no
UBWT	31	VA06HRW-49	W	<b>M</b>	no	yes	175		no	<b>283</b>		yes
UBWT	32	VA07HRW-22	W	<b>M</b>	no	yes	175		no	<b>283</b>		yes
UBWT	33	VA06HRW-66	W	<b>M</b>	no	yes	175	<b>193</b>	het	<b>283</b>		yes
UBWT	34	VA06HRW-79	<b>M</b>	W	yes	no	165		no	<b>283</b>		yes
UBWT	35	VA06HRW-108	W	<b>M</b>	no	yes	175		no	<b>283</b>		yes
UBWT	36	VA07HRW-45	W	W	no	no	175		no	<b>283</b>		yes
UBWT	37	VA07HRW-79	W	<b>M</b>	no	yes	<b>193</b>		yes	<b>283</b>		yes
UBWT	38	VA07HRW-97	W	<b>M</b>	no	yes	<b>193</b>		yes	<b>283</b>		yes
UBWT	39	VA07HRW-100	W	<b>M</b>	no	yes	165	<b>193</b>	het	<b>283</b>		yes
UBWT	40	VA07HRW-130	<b>M</b>	W	yes	no	175		yes	413		no

Rht1-B1b & Rht2-D1b = **M** = dwarfing = yes

Ppd-D1a = photoperiod insensitive = yes

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## FHB QTLs

2009

Nursery	Entry	Sample Name	umn 10	umn 10	gwm 533	gwm 533	gwm 533	Fhb1	wmc 1	wmc 1	wmc 418	wmc 418	Fhb Ernie 3Bc
UBWT	1	ARS03-3806	236		nd			no	163		271		no
UBWT	2	ARS03-4736	236		nd			no	161		265		no
UBWT	3	ARS03-6180	236		nd			no	163		<b>262</b>		no
UBWT	4	ARS04-1249	236		nd			no	157		269		no
UBWT	5	ARS05-0005	236		nd			no	157		269		no
UBWT	6	ARS05-0043	236		119			no	157	161	271		no
UBWT	7	ARS05-0401	236		nd			no	157		271		no
UBWT	8	ARS05-0403	236		nd			no	157		271		no
UBWT	9	ARS05-0404	236		nd			no	157		271		no
UBWT	10	ARS05-0469	236		nd			no	157		nd		no
UBWT	11	ARS05-0470	236		nd			no	157		269		no
UBWT	12	ARS05-0146	236		119			no	<b>153</b>		<b>262</b>		yes?
UBWT	13	ARS05-0148	236		nd			no	161		265		no
UBWT	14	ARS05-0241	236		119			no	151	161	265	271	no
UBWT	15	ARS05-0242	236		119			no	161		265		no
UBWT	16	ARS05-0438	236		nd			no	155		271		no
UBWT	17	ARS05-0596	236		nd			no	161		265		no
UBWT	18	ARS05-0658	236		nd			no	155		271		no
UBWT	19	ARS05-0894	228		nd			no	161		271		no
UBWT	20	ARS05-0895	228		nd			no	161		271		no
UBWT	21	ARS05-1034	236		119			no	157		<b>262</b>		no
UBWT	22	ARS05-1041	236		nd			no	161		nd		no
UBWT	23	ARS05-1044	236		129			no	161		265		no
UBWT	24	ARS05-1150	236		nd			no	161		265		no
UBWT	25	ARS05-1234	236		nd			no	163		269		no
UBWT	26	ARS05-1266	236		nd			no	161		265		no
UBWT	27	OK03522	236		nd			no	<b>153</b>		269		no
UBWT	28	OK03305	236		150			no	157		269		no
UBWT	29	TX01V5134RC-3	236		nd			no	161		<b>262</b>		no
UBWT	30	VA06HRW-3	nd		nd			nd	151		269		no
UBWT	31	VA06HRW-49	236		119			no	<b>153</b>		271		no
UBWT	32	VA07HRW-22	236		119			no	<b>153</b>		<b>262</b>	271	het
UBWT	33	VA06HRW-66	236		119			no	<b>153</b>		271		no
UBWT	34	VA06HRW-79	236		119			no	155		260		no
UBWT	35	VA06HRW-108	236		119			no	151	163	271		no
UBWT	36	VA07HRW-45	236		nd			no	<b>153</b>		271		no
UBWT	37	VA07HRW-79	236		119			no	161		271		no
UBWT	38	VA07HRW-97	236		119			no	<b>153</b>		271		no
UBWT	39	VA07HRW-100	228	236	119	147	156	no	nd		270		no
UBWT	40	VA07HRW-130	236		119			no	151		nd		no

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All numbers are size in base pairs of amplified fragments

Target alleles are in **bold or italics**

## FHB QTLs

2009

Nursery	Entry	Sample Name	cfd	cfd	gwm	gwm	gwm	gwm	Fhb 2DL-Wuhan1/W14
			233	233	539	539	608	608	
UBWT	1	ARS03-3806	278		<b>126</b>		150		no
UBWT	2	ARS03-4736	nd		nd		nd		?
UBWT	3	ARS03-6180	278		<b>126</b>		150		no
UBWT	4	ARS04-1249	270		157		158		no
UBWT	5	ARS05-0005	262		<b>126</b>		172		no
UBWT	6	ARS05-0043	262	270	<b>126</b>		158	172	no
UBWT	7	ARS05-0401	262		<b>126</b>		172		no
UBWT	8	ARS05-0403	262		<b>126</b>		172		no
UBWT	9	ARS05-0404	262		<b>126</b>		172		no
UBWT	10	ARS05-0469	262	268	<b>126</b>		172		no
UBWT	11	ARS05-0470	262		<b>126</b>		172		no
UBWT	12	ARS05-0146	272		139		158		no
UBWT	13	ARS05-0148	270		157		156		no
UBWT	14	ARS05-0241	272	278	131	137	156	158	no
UBWT	15	ARS05-0242	272		131		156		no
UBWT	16	ARS05-0438	274		135		<b>152</b>		no
UBWT	17	ARS05-0596	278		<b>126</b>		154		no
UBWT	18	ARS05-0658	274		135		<b>152</b>		no
UBWT	19	ARS05-0894	278		133	137	154		no
UBWT	20	ARS05-0895	278		135		154		no
UBWT	21	ARS05-1034	270		157		158		no
UBWT	22	ARS05-1041	270		nd		158		no
UBWT	23	ARS05-1044	274		<b>126</b>		156		no
UBWT	24	ARS05-1150	270		157		158		no
UBWT	25	ARS05-1234	274	<b>276</b>	<b>126</b>		158		no
UBWT	26	ARS05-1266	270	274	<b>126</b>	157	156	158	no
UBWT	27	OK03522	288		<b>126</b>		156		no
UBWT	28	OK03305	288		<b>126</b>		156		no
UBWT	29	TX01V5134RC-3	278		135		158		no
UBWT	30	VA06HRW-3	280		137		<b>152</b>		no
UBWT	31	VA06HRW-49	282		133		150		no
UBWT	32	VA07HRW-22	282	284	133		150		no
UBWT	33	VA06HRW-66	282		133		150		no
UBWT	34	VA06HRW-79	268		124	135	158		no
UBWT	35	VA06HRW-108	278		135		150		no
UBWT	36	VA07HRW-45	288		137		158		no
UBWT	37	VA07HRW-79	282		137		150	<b>152</b>	no
UBWT	38	VA07HRW-97	nd		133	137	158		no
UBWT	39	VA07HRW-100	288		137		158		no
UBWT	40	VA07HRW-130	270	274	137	159	150	156	no

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All numbers are size in base pairs of amplified fragments

Target alleles are in **bold** or *italics*



## FHB QTLs

2009

Nursery	Entry	Sample Name	gwm	gwm	wmc	wmc	barc	barc	barc	barc	Fhb 5A	Fhb 5A
			304	304	705	705	117	117	186	186	Ernie	Ning7840
UBWT	1	ARS03-3806	201		<b>135</b>		217		<b>203</b>		no	<i>no</i>
UBWT	2	ARS03-4736	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	3	ARS03-6180	201		<b>135</b>		217		<b>203</b>		no	<i>no</i>
UBWT	4	ARS04-1249	nd		nd		217	<b>221</b>	<b>203</b>	<i>213</i>	?	?
UBWT	5	ARS05-0005	201		141		217		<b>203</b>		no	<i>no</i>
UBWT	6	ARS05-0043	201		141		217		<b>203</b>		no	<i>no</i>
UBWT	7	ARS05-0401	nd		nd		<b>221</b>		<i>213</i>		?	?
UBWT	8	ARS05-0403	201		141		217		<b>203</b>		no	<i>no</i>
UBWT	9	ARS05-0404	<b>220</b>		<b>135</b>		<b>221</b>		<i>213</i>		yes?	<i>no</i>
UBWT	10	ARS05-0469	201		141		217		<b>203</b>		no	<i>no</i>
UBWT	11	ARS05-0470	201		139	141	217	225	<b>203</b>	<i>213</i>	no	<i>no</i>
UBWT	12	ARS05-0146	223		139		<b>221</b>		<i>213</i>		no	<i>no</i>
UBWT	13	ARS05-0148	199	201	nd		217		<b>203</b>		no	<i>no</i>
UBWT	14	ARS05-0241	199	215	133	164	217	225	<b>203</b>	<i>213</i>	no	<i>no</i>
UBWT	15	ARS05-0242	199		164		217		<b>203</b>		no	<i>no</i>
UBWT	16	ARS05-0438	199		164		217		<b>203</b>		no	<i>no</i>
UBWT	17	ARS05-0596	201		<b>135</b>		217		<b>203</b>		no	<i>no</i>
UBWT	18	ARS05-0658	199		164		217		<b>203</b>		no	<i>no</i>
UBWT	19	ARS05-0894	201		<b>135</b>		217		<b>203</b>		no	<i>no</i>
UBWT	20	ARS05-0895	201		<b>135</b>		217		<b>203</b>		no	<i>no</i>
UBWT	21	ARS05-1034	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	22	ARS05-1041	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	23	ARS05-1044	201		<b>135</b>		217		<b>203</b>		no	<i>no</i>
UBWT	24	ARS05-1150	199		158		217		<b>203</b>		no	<i>no</i>
UBWT	25	ARS05-1234	201	<b>220</b>	137	<i>168</i>	217	<b>221</b>	<b>203</b>	215	no	<i>het?</i>
UBWT	26	ARS05-1266	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	27	OK03522	223		139		<b>221</b>		<b>203</b>		no	<i>no</i>
UBWT	28	OK03305	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	29	TX01V5134RC-3	213		162		<b>221</b>		<i>213</i>		no	<i>no</i>
UBWT	30	VA06HRW-3	<b>220</b>		<b>135</b>		<b>221</b>		<b>203</b>		yes?	<i>no</i>
UBWT	31	VA06HRW-49	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	32	VA07HRW-22	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	33	VA06HRW-66	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	34	VA06HRW-79	201	<b>221</b>	131	133	217	<b>221</b>	<b>203</b>	<i>213</i>	no	<i>no</i>
UBWT	35	VA06HRW-108	199		166		217		<b>203</b>		no	<i>no</i>
UBWT	36	VA07HRW-45	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	37	VA07HRW-79	203		139		217		<b>203</b>		no	<i>no</i>
UBWT	38	VA07HRW-97	201		133		217	<b>221</b>	<b>203</b>		no	<i>no</i>
UBWT	39	VA07HRW-100	201		133		217		<b>203</b>		no	<i>no</i>
UBWT	40	VA07HRW-130	223		139		<b>221</b>		<i>213</i>		no	<i>no</i>

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## Leaf, Stripe & Stem Rusts

2009

Nursery	Entry	Sample Name	wmc	wmc	Sr36	barc	barc	Sr24/Lr24	Ventriup	Yr17/Lr37/Sr38	cslv	cslv	Lr34	Lr34/Yr18/Pm38
			477	477		71	71				34	34		
UBWT	1	ARS03-3806	169		no	105		no		no	235	515		no
UBWT	2	ARS03-4736	169		no	105		no		no	235	515		no
UBWT	3	ARS03-6180	169		no	105		no		no	235	515		no
UBWT	4	ARS04-1249	167		no	94		no	<b>256</b>	<b>yes</b>	235	515		no
UBWT	5	ARS05-0005	169		no	<b>88</b>		<b>yes</b>		no	235	515		no
UBWT	6	ARS05-0043	169		no	<b>88</b>	105	<b>yes</b>		no	<b>155</b>	235	515	<b>het?</b>
UBWT	7	ARS05-0401	169		no	<b>88</b>		<b>yes</b>		no	235	515		no
UBWT	8	ARS05-0403	169		no	<b>88</b>		<b>yes</b>		no	235	515		no
UBWT	9	ARS05-0404	169		no	<b>88</b>		<b>yes</b>		no	235	515		no
UBWT	10	ARS05-0469	169		no	<b>88</b>		<b>yes</b>		no	235	515		no
UBWT	11	ARS05-0470	169		no	<b>88</b>		<b>yes</b>		no	235	515		no
UBWT	12	ARS05-0146	<b>187</b>		<b>yes</b>	105		no		no	235	515		no
UBWT	13	ARS05-0148	167		no	105		no		no	nd	515		no
UBWT	14	ARS05-0241	<b>187</b>		<b>yes</b>	113		no		no	235	515		no
UBWT	15	ARS05-0242	<b>187</b>		<b>yes</b>	94		no		no	235	515		no
UBWT	16	ARS05-0438	169		no	105		no		no	235	515		no
UBWT	17	ARS05-0596	165		no	105		no		no	235	515		no
UBWT	18	ARS05-0658	169		no	105		no		no	235	515		no
UBWT	19	ARS05-0894	165		no	113		no		no	235	515		no
UBWT	20	ARS05-0895	165		no	113		no		no	235	515		no
UBWT	21	ARS05-1034	169		no	105		no	<b>256</b>	<b>yes</b>	235	515		no
UBWT	22	ARS05-1041	167	169	no	105		no		no	235	515		no
UBWT	23	ARS05-1044	169		no	105		no		no	<b>155</b>	<b>510</b>		<b>yes?</b>
UBWT	24	ARS05-1150	167		no	105		no		no	<b>155</b>	515		<b>no?</b>
UBWT	25	ARS05-1234	169		no	113		no	<b>256</b>	<b>yes</b>	235	515		no
UBWT	26	ARS05-1266	167		no	94		no		no	235	515		no
UBWT	27	OK03522	169		no	<b>88</b>	113	<b>yes</b>		no	235	515		no
UBWT	28	OK03305	169		no	113		no		no	235	515		no
UBWT	29	TX01V5134RC-3	167		no	105		no	<b>256</b>	<b>yes</b>	<b>155</b>	515		<b>no?</b>
UBWT	30	VA06HRW-3	167		no	105		no		no	235	515		no
UBWT	31	VA06HRW-49	<b>187</b>		<b>yes</b>	113		no		no	235	515		no
UBWT	32	VA07HRW-22	<b>187</b>		<b>yes</b>	113		no		no	235	515		no
UBWT	33	VA06HRW-66	169		no	113		no		no	235	515		no
UBWT	34	VA06HRW-79	167	<b>187</b>	<b>het</b>	105		no		no	235	515		no
UBWT	35	VA06HRW-108	169	<b>187</b>	<b>het</b>	113		no	<b>256</b>	<b>yes</b>	235	515		no
UBWT	36	VA07HRW-45	169		no	113		no		no	235	515		no
UBWT	37	VA07HRW-79	169		no	105		no		no	235	515		no
UBWT	38	VA07HRW-97	169		no	113		no		no	235	515		no
UBWT	39	VA07HRW-100	169		no	113		no		no	235	515		no
UBWT	40	VA07HRW-130	167		no	113		no	<b>256</b>	<b>yes</b>	235	515		no

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## Rye Translocation -- Hessian Fly -- Barley Yellow Dwarf Virus

2009

Nursery	Entry	Sample Name	scm9	1RS	cf132	cf132	H13	cfa2153	cfa2153	H9	Bdv3	Bdv3	Bdv2/3
UBWT	1	ARS03-3806	<b>224</b>	<b>1RS:1AL</b>	164		no	null		no	185		no
UBWT	2	ARS03-4736	<b>224</b>	<b>1RS:1AL</b>	115		no	196		no	185		no
UBWT	3	ARS03-6180	<b>224</b>	<b>1RS:1AL</b>	164		no	null		no	185		no
UBWT	4	ARS04-1249	<b>224</b>	<b>1RS:1AL</b>	115	164	no	null		no	185		no
UBWT	5	ARS05-0005		non-1RS	115		no	196		no	185		no
UBWT	6	ARS05-0043	<b>224</b>	<b>1RS:1AL</b>	115		no	200		no	185		no
UBWT	7	ARS05-0401		non-1RS	115		no	200		no	185		no
UBWT	8	ARS05-0403		non-1RS	115		no	196	200	no	185		no
UBWT	9	ARS05-0404		non-1RS	115		no	200		no	185		no
UBWT	10	ARS05-0469		non-1RS	115		no	196		no	185		no
UBWT	11	ARS05-0470		non-1RS	115		no	196		no	185		no
UBWT	12	ARS05-0146		non-1RS	164		no	196		no	185		no
UBWT	13	ARS05-0148	<b>224</b>	<b>1RS:1AL</b>	115		no	213		no	185		no
UBWT	14	ARS05-0241	<b>224</b>	<b>1RS:1AL</b>	115		no	208		no	185		no
UBWT	15	ARS05-0242	<b>224</b>	<b>1RS:1AL</b>	115		no	208		no	185		no
UBWT	16	ARS05-0438	<b>208</b>	<b>1RS:1BL</b>	115		no	200		no	185		no
UBWT	17	ARS05-0596	<b>224</b>	<b>1RS:1AL</b>	164		no	null		no	185		no
UBWT	18	ARS05-0658	<b>208</b>	<b>1RS:1BL</b>	115		no	200		no	185		no
UBWT	19	ARS05-0894	<b>208</b>	<b>1RS:1BL</b>	115		no	196		no	185		no
UBWT	20	ARS05-0895		non-1RS	115		no	196		no	185		no
UBWT	21	ARS05-1034	<b>224</b>	<b>1RS:1AL</b>	115		no	null		no	185		no
UBWT	22	ARS05-1041	<b>224</b>	<b>1RS:1AL</b>	115		no	null		no	188		no
UBWT	23	ARS05-1044	<b>224</b>	<b>1RS:1AL</b>	115		no	null		no	185	188	no
UBWT	24	ARS05-1150	<b>224</b>	<b>1RS:1AL</b>	115		no	null		no	185		no
UBWT	25	ARS05-1234		non-1RS	115		no	null		no	183	188	no
UBWT	26	ARS05-1266	<b>224</b>	<b>1RS:1AL</b>	115		no	null		no	183	188	no
UBWT	27	OK03522		non-1RS	115		no	219		no	185		no
UBWT	28	OK03305		non-1RS	115		no	200		no	183	188	no
UBWT	29	TX01V5134RC-3	<b>224</b>	<b>1RS:1AL</b>	115		no	null		no	185		no
UBWT	30	VA06HRW-3		non-1RS	115		no	208		no	185		no
UBWT	31	VA06HRW-49		non-1RS	115		no	169		no	185	186	no
UBWT	32	VA07HRW-22		non-1RS	115		no	169		no	185	186	no
UBWT	33	VA06HRW-66		non-1RS	115		no	169		no	185	186	no
UBWT	34	VA06HRW-79		non-1RS	115		no	221		no	185		no
UBWT	35	VA06HRW-108		non-1RS	115		no	194		no	185		no
UBWT	36	VA07HRW-45		non-1RS	115		no	169		no	185		no
UBWT	37	VA07HRW-79		non-1RS	115		no	169		no	185	186	no
UBWT	38	VA07HRW-97		non-1RS	115		no	169		no	185		no
UBWT	39	VA07HRW-100		non-1RS	115		no	169		no	185		no
UBWT	40	VA07HRW-130		non-1RS	115		no	194	213	no	183	188	no

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Target alleles are in **bold or italics**

## Quality Traits

2009

Nursery	Entry	Sample Name	Bx7oe	Bx7 over-expressing	umn25	umn25	umn26	umn26	Glu-D1	umn19	umn19	Glu-A1
UBWT	1	ARS03-3806	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	2	ARS03-4736	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	3	ARS03-6180	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	4	ARS04-1249	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	5	ARS05-0005	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	6	ARS05-0043	404	no	<b>275</b>	<b>293</b>	<b>390</b>	<b>407</b>	het	<b>342</b>	<b>358</b>	het
UBWT	7	ARS05-0401	404	no		<b>293</b>		<b>407</b>	2+12		<b>358</b>	<b>Ax1 or null</b>
UBWT	8	ARS05-0403	404	no		<b>293</b>		<b>407</b>	2+12		<b>358</b>	<b>Ax1 or null</b>
UBWT	9	ARS05-0404	404	no		<b>293</b>		<b>407</b>	2+12		<b>358</b>	<b>Ax1 or null</b>
UBWT	10	ARS05-0469	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>	<b>358</b>	het
UBWT	11	ARS05-0470	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	12	ARS05-0146	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	13	ARS05-0148	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	14	ARS05-0241	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	15	ARS05-0242	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	16	ARS05-0438	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>		<b>358</b>	<b>Ax1 or null</b>
UBWT	17	ARS05-0596	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	18	ARS05-0658	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>		<b>358</b>	<b>Ax1 or null</b>
UBWT	19	ARS05-0894	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>		<b>358</b>	<b>Ax1 or null</b>
UBWT	20	ARS05-0895	404	no		<b>293</b>		<b>407</b>	2+12		<b>358</b>	<b>Ax1 or null</b>
UBWT	21	ARS05-1034	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	22	ARS05-1041	404	no	<b>275</b>	<b>293</b>	<b>390</b>	<b>407</b>	het	<b>342</b>		<b>Ax2*</b>
UBWT	23	ARS05-1044	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	24	ARS05-1150	404	no	<b>275</b>	<b>293</b>	<b>390</b>	<b>407</b>	het	<b>342</b>		<b>Ax2*</b>
UBWT	25	ARS05-1234	404	no		<b>293</b>		<b>407</b>	2+12		<b>358</b>	<b>Ax1 or null</b>
UBWT	26	ARS05-1266	404	no	<b>275</b>		nd		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	27	OK03522	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>		<b>358</b>	<b>Ax1 or null</b>
UBWT	28	OK03305	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	29	TX01V5134RC-3	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	30	VA06HRW-3	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>		<b>358</b>	<b>Ax1 or null</b>
UBWT	31	VA06HRW-49	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	32	VA07HRW-22	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>
UBWT	33	VA06HRW-66	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	34	VA06HRW-79	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>		<b>358</b>	<b>Ax1 or null</b>
UBWT	35	VA06HRW-108	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	36	VA07HRW-45	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	37	VA07HRW-79	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	38	VA07HRW-97	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	39	VA07HRW-100	404	no		<b>293</b>		<b>407</b>	2+12	<b>342</b>		<b>Ax2*</b>
UBWT	40	VA07HRW-130	404	no	<b>275</b>		<b>390</b>		<b>5+10</b>	<b>342</b>		<b>Ax2*</b>

"nd" = not determined or lack of amplification

if marker dominant, samples with no amplification are left blank

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

All numbers are size in base pairs of amplified fragments

Target alleles are in **bold or italics**