

Shepherd 1974

- The Aub 623 source was developed by Ray Shepherd from a cross of Wild Mexican by Cleviewilt 6-8.
- Auburn 623 was a transgressive segregate in later generations.
- Shepherd Manuscript Data

Wild Mexican Gall score	2.2
Cleviewilt Gall score	3.5
G. barbadense RNR	1.1
Auburn 623 Gall score	1.0

Hypothesis

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- There are at least 2 major genes involved in root knot resistance in the Auburn 623 source.
- One gene is on chromosome 14 and linked to the marker BNL 3545. This gene is present in Wild Mexican Jack Jones.
- One gene is on chromosome 11 and linked to the marker Cir 316a. This gene is present in Cleve wilt and Nemx.
- There are probably additional modifier genes

Markers

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- Marker Chromo Res Sus
- Allele Code Allele Code
- BNL 3545 14 118 A 138 B
- Cir 316a 11 200 A 188 B

RKN MARKERS

JNJ 2007 RKN Parents

	Chr 14	Chr 14	Chr 11	Chr 11
	B 3545	B 3545	C 316a	C 316a
Cotton	R = 118	S = 138	R = 200	S =188
Line	Code A	Code B	Code A	Code B
ST 213		138		188
M 8		138		188
Aub 56		138		188
Sus Iso		138		188

RKN MARKERS ACROSS LINES

JNJ RKN 2007 Parents

	Chr 14	Chr 14	Chr 11	Chr 11
	B 3545	B 3545	C 316a	C 316a
Cotton	R = 118	S = 138	R = 200	S =188
Line	Code A	Code B	Code A	Code B
Wild Mx	118			190
Cleviewlt		138	200	
Nemx		138	200	

RKN MARKERS ACROSS LINES

JNJ RKN 2007 Parents

	Chr 14	Chr 14	Chr 11	Chr 11
	B 3545	B 3545	C 316a	C 316a
Cotton	R=118	S = 138	R = 200	S= 188
Line	Code A	Code B	Code A	Code B
M 240	118		200	
M 315	118		200	
Aub 623	118		200	
Aub 634	118		200	
Res Iso	118		200	

Crosses for RIL

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- **Cleviewilt x St 213**
- **Cleviewilt x M 240**
- **M 240 x ST 213**

Cleviewilt x ST 213 Markers

JNJ RKN 207 RIL

CHR 14	CHR 11	No. Plants	Gall Score	Eggs/PL
B	A	39	3.1	11,207
B	B	25	3.9	36,503

Cleviewilt x M 240 Markers

JNJ RKN 2007 RIL

CHR 14	CHR 11	No. Plants	Gall Score	Eggs/PL
A	A	25	2.2	3,742
B	A	37	2.4	12,019

M 240 x ST 213 Markers

JNJ RKN 2007 RIL

CHR 14	CHR 11	No. Plants	Gall Score	Eggs/PL
A	A	24	2.6	3,133
A	B	20	3.2	5,047
B	A	34	2.9	8,606
B	B	31	3.7	15,318

Cleviewilt x ST 213 Regression

JNJ RKN 2007 RIL

		Gall Scr	Gall Scr	% Reduce
Marker	R 2	A	B	
316a	32.1**	3.07	3.89	20
		Eggs/Pl	Eggs/Pl	
316a	30.8**	11,206	35,868	69

Cleviewilt x M240 Regression

JNJ RKN 2007 RIL

		Gall Scr	Gall Scr	% Reduce
Marker	R 2	A	B	
3545	6.1*	2.16	2.44	12
		Eggs/Pl	Eggs/Pl	
3545	26.4**	3,742	12,019	69

M240 x ST 213 Regression

JNJ RKN 2007 RIL

		Gall Scr	Gall Scr	% Reduce
Marker	R 2	A	B	
3545	9.8**	2.9	3.3	12
316a	29.3**	2.8	3.5	20
		Eggs/Pl	Eggs/Pl	
3545	11.8**	4,000	11,807	66
316a	4.8*	6,341	11,288	44

M 240 x ST 213 Multiple Reg Markers 3545 and 316a

JNJ RKN 2007

• Trait	R^2
• Gall Index	38.4%**
• Eggs/Plant	16.3%**