

SUPPLEMENTAL LINKAGE DATA INVOLVING MARKERS ON CHROMOSOMES 3 AND 5

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The results of two multi-point tests, hitherto unreported, seem worth placing on record.

Table 1 presents the analysis of a three-point cross involving st, wel and b on chromosome 3. The data, collected in 1971 from a cross wel St b x Wel st B, are noteworthy primarily because they provide an exception to results I have reported previously (1). In the present case the order of the three genes appears to be st-wel-b whereas in all previous instances the order was indicated as wel-st-b. There is nothing to indicate that the populations segregated for semi-sterility. It is evident, however, that there was a statistically significant deficiency in wel segregants.

Table 1. F_2 Analysis of a three-point cross wel St b x Wel st B

		Chi-square			Recomb. Fract.	Std. Error
		A	B	Linkage		
St Wel B	295					
St Wel b	47					
St wel B	29					
St wel b	97	St-Wel	1.20	9.08**	54.9**	8.8
st Wel B	163	St-B	1.20	0.41	46.2**	23.3
st Wel b	8	Wel-B	9.08**	0.41	247.1**	14.4
st wel B	0					
st wel b	1					
	640					

** = significant at 0.01 level

(B271-789-807)

An analysis of a cross involving markers on chromosome 5 is given in Table 2. The cross was performed in 1970 to check the possibility that wex is situated on chromosome 5. No definite linkage was indicated between wex and the markers scored but the cross represents a three-point cross verifying the order of gp, .cp and fs, as given in the most recent map (Blixt 1972). The estimated recombination fractions are:

gp 10 cr 29 fs

For other reports in the literature concerning linkage among these and other markers on chromosome 5, see Yarnell (2).

Table 2. F_2 analysis of a cross gp Cr Fs Wex x Gp cr fs wex

Genes	XY	Xy	xY	xy	Total	Chi-square			Recomb. fract.	Std. error
						X	Y	Linkage		
Fs-Gp	199	87	84	11	381	0.00	0.11	13.5**	33.4	4.5
Cr-Gp	191	91	99	1	382	0.25	0.17	39.8**	10.2	5.1
Cr-Fs	231	50	48	51	380	0.22	0.51	45.8**	29.5	2.9
Wex-Fs	215	74	65	27	381	0.15	0.46	0.5	-	-
Wex-Gp	214	75	78	16	383	0.04	0.31	3.0	42.5	4.1
Wex-Cr	220	69	63	31	383	0.04	0.25	3.1	43.8	3.6

** = Significant at 0.01 level

(B270-588-597)

1. Marx, G. A. 1982. PNL 14:43-46.
2. Yarnell, S. H. 1962. Botanical Review 28(4):465-537.