

## Supplementary Table 1

Segregation of herbicide resistance among the self-pollinated progeny of *Brassica napus* plants not sprayed with chlorsulfuron. The plants were heterozygous for a chlorsulfuron-resistant allele at a single locus and expected to segregate in a 3:1 ratio for herbicide-resistant and herbicide-sensitive individuals among the progeny.

Plant number (wt x 30a)	Number of herbicide-resistant progeny	Number of herbicide-sensitive progeny	Chi-square for 3:1 ratio <sup>1</sup>
i	61	20	0.00
ii	46	16	0.02
iii	53	16	0.12
iv	81	28	0.03
v	48	23	2.07
vi	62	27	1.35
vii	79	29	0.20
viii	54	14	0.71
ix	67	14	2.57
x	39	21	3.20
xi	47	12	0.68
xii	53	19	0.07
xiii	93	30	0.02
ixv	80	21	0.95
xv	66	22	0.00
xvi	48	20	0.71
xvii	108	37	0.02
xviii	3	3	2.00
ixx	69	19	0.55
xx	22	12	1.92
xxi	109	22	4.71
xxii	65	16	1.19
xxiii	49	23	1.85

<sup>1</sup>Chi-square values less than 3.84 for one degree of freedom are indicative of the observed segregation being not significantly different at the 5% probability level from the expected 3:1 segregation ratio for herbicide-resistant and herbicide-sensitive progeny.

## Supplementary Table 2

Segregation of herbicide resistance among the self-pollinated progeny of *Brassica napus* plants sprayed once with chlorsulfuron just as the plants were beginning to bolt to flower formation. The plants were heterozygous for a chlorsulfuron-resistant allele at a single locus and expected to segregate in a 3:1 ratio for herbicide-resistant and herbicide-sensitive individuals among the progeny.

Plant number (wt x 30a)	Number of herbicide-resistant progeny	Number of herbicide-sensitive progeny	Chi-square for 3:1 ratio <sup>1</sup>
i	4	0	1.33
ii	125	0	41.7
iii	83	7	14.2
iv	73	1	22.1
v	75	0	25.0
vi	105	0	35.0
vii	125	0	41.7
viii	67	0	22.3
ix	86	1	26.4
x	71	1	21.4
xi	89	2	25.2
xii	88	0	29.3
xiii	94	1	29.1
ixv	56	0	18.7
xv	80	1	24.4
xvi	76	0	25.3
xvii	145	2	43.8
xviii	92	0	30.7
ixx	54	1	15.8

<sup>1</sup>Chi-square values greater than 3.84 for one degree of freedom are indicative of the observed segregation being significantly different at the 5% probability level (i.e. distorted segregation) from the expected 3:1 segregation ratio for herbicide-resistant and herbicide-sensitive progeny.

### Supplementary Table 3

Segregation of herbicide resistance among the self-pollinated progeny of *Brassica napus* plants sprayed with chlorsulfuron just as the plants were beginning to bolt to flower formation, and then repeatedly every two weeks until initiation of plant senescence. The plants were heterozygous for a chlorsulfuron-resistant allele at a single locus and expected to segregate in a 3:1 ratio for herbicide-resistant and herbicide-sensitive individuals among the progeny.

Plant number (wt x 30a)	Number of herbicide-resistant progeny	Number of herbicide-sensitive progeny	Chi-square for 3:1 ratio <sup>1</sup>
i	5	0	1.67
ii	50	0	16.7
iii	78	0	26.0
iv	50	0	16.7
v	48	0	16.0
vi	83	0	27.7
vii	52	0	17.3
viii	30	1	7.84
ix	20	0	6.67
x	10	0	3.33
xi	40	0	13.3
xii	60	0	20.0
xiii	17	0	5.67
ixv	10	0	3.33
xv	57	1	16.8
xvi	100	0	33.3
xvii	37	0	12.3
xviii	7	0	2.33

<sup>1</sup>Chi-square values greater than 3.84 for one degree of freedom are indicative of the observed segregation being significantly different at the 5% probability level (i.e. distorted segregation) from the expected 3:1 segregation ratio for herbicide-resistant and herbicide-sensitive progeny.