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Locus-dependent selection in crop-wild hybrids of lettuce under field conditions and its implication for GM crop development

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			S ₁			BC ₁			BC _{1S1}		
			L. serriola	Hetero-zygous	L. sativa	L. serriola	Hetero-zygous	L. sativa	L. serriola	Hetero-zygous	L. sativa
Mendelian	Co-dominant		0.25	0.5	0.25	0.5	0.5	-	0.625	0.25	0.125
Mendelian	Dominant: L. serriola band		0.75	-	0.25	-	-	-	0.375	-	0.125
Mendelian	Dominant: L. sativa band		0.25	-	0.75	0.5	-	0.5	0.625	-	0.375
Number of valid loci per generation			220			158			211		
Number of valid plants tested (N)			92			91			90		
Resulting alpha (1/ #loci per generation) =			0.0045			0.0063			0.0047		
# value in ranked 50,000 bootstrap array			49773			49684			49764		
LG	cMorgan	Loci (incl band presence state)	Marker type								
5	0	NBS-24 (L. serriola)	NBS	0.902	-	0.315	-	-	0.989	-	0.154
5	3.3	CO9C-CTC-017 (L. sativa)	SSAP	0.413	-	0.837	0.670	-	0.593	-	0.440
5	8.3	CO9C-ATC-006 (L. serriola)	SSAP	0.891	-	0.337	-	-	0.978	-	0.176
5	13.5	E44/M48-F-223 (L. serriola)	AFLP	0.424	0.663	0.293	0.659	0.615	-	0.791	0.374
5	18.8	CO9C-CTC-004 (L. serriola)	SSAP	0.902	-	0.315	-	-	0.989	-	0.154
5	22.8	CO9C-ACG-005 (L. serriola)	SSAP	0.870	-	0.359	-	-	0.967	-	0.209
5	28.4	CO9C-AAT-162 (L. serriola)	SSAP	0.870	-	0.359	-	-	0.967	-	0.209
5	35.9	1A31-F-129 (L. serriola)	AFLP	0.435	0.587	0.370	0.703	0.560	-	0.824	0.308
5	43.7	1A31-F-224 (L. sativa)	AFLP	0.446	0.576	0.370	0.714	0.560	-	0.835	0.297
5	46	CO9C-ATT-014 (L. serriola)	SSAP	0.870	-	0.359	-	-	0.967	-	0.209
5	66	CO9C-CTG-96 (L. sativa)	SSAP	0.391	-	0.848	0.648	-	0.626	0.780	-
5	66.6	CO9C-ATC-005 (L. sativa)	SSAP	0.359	-	0.870	0.615	-	0.659	0.725	-
5	70.8	CO9C-ATC-002 (L. serriola)	SSAP	0.848	-	0.402	-	-	0.945	-	0.253
5	72.6	CO9C-ACG-013 (L. serriola)	SSAP	0.870	-	0.370	-	-	0.956	-	0.220
5	75.6	CO9C-AAT-200 (L. sativa)	SSAP	0.424	-	0.826	0.692	-	0.582	0.835	-
5	78.5	CO9C-ACT-009 (L. sativa)	SSAP	0.293	-	0.913	0.538	-	0.736	0.560	-
5	84.6	CO9C-AAT-172 (L. sativa)	SSAP	0.304	-	0.913	0.560	-	0.714	0.593	-
5	86.7	1A36-F-160 (L. serriola)	AFLP	0.348	0.663	0.370	0.593	0.681	-	0.714	0.418
5	107.9	E44/M49-F-316 (L. serriola)	AFLP	0.207	0.685	0.478	0.429	0.824	-	0.516	0.516
5	109.6	E45/M48-F-127 (L. serriola)	AFLP	0.261	0.554	0.554	0.560	0.703	-	0.648	0.363
5	110.3	E35/M59-F-129 (L. serriola)	AFLP	0.315	0.630	0.446	0.582	0.692	-	0.681	0.407
5	111	CO9C-GTG-111 (L. sativa)	SSAP	0.304	-	0.913	0.560	-	0.714	0.593	-
5	111.5	CO9C-GTT-213 (L. serriola)	SSAP	0.848	-	0.402	-	-	0.934	-	0.264
5	112.8	CO9C-CTG-178 (L. sativa)	SSAP	0.293	-	0.913	0.538	-	0.725	0.560	-
5	117.3	E35/M59-F-270 (L. sativa)	AFLP	0.391	0.641	0.370	0.648	0.626	-	0.758	0.374
5	120.1	NBS-10 (L. sativa)	NBS	0.315	-	0.902	0.560	-	0.714	0.604	-
5	126.2	E35/M59-F-178 (L. serriola)	AFLP	0.370	0.543	0.489	0.670	0.593	-	0.780	0.308
5	126.5	E35/M59-F-182 (L. sativa)	AFLP	0.370	0.533	0.511	0.681	0.582	-	0.780	0.286
5	129	NBS-22 (L. serriola)	NBS	0.728	-	0.533	-	-	0.758	-	0.505
5	131.5	CO9C-AAT-431 (L. sativa)	SSAP	0.207	-	0.967	0.407	-	0.835	0.319	-
5	133.2	1A36-F-156 (L. serriola)	AFLP	0.380	0.522	0.489	0.703	0.571	-	0.802	0.286
5	134.3	NBS26 (L. sativa)	NBS	0.359	-	0.870	0.615	-	0.659	0.714	-
5	140.2	CO9C-AAT-340 (L. serriola)	SSAP	0.859	-	0.380	-	-	0.956	-	0.242
5	163.9	E35/M59-F-198 (L. sativa)	AFLP	0.370	0.652	0.370	0.626	0.648	-	0.747	0.396
6	7.1	NBS-07 (L. serriola)	NBS	0.859	-	0.380	-	-	0.956	-	0.231
6	7.8	1A36-F-304 (L. sativa)	AFLP	0.359	0.663	0.370	0.604	0.670	-	0.725	0.407
6	11.7	CO9C-ATT-013 (L. sativa)	SSAP	0.293	-	0.913	0.538	-	0.736	0.560	-
6	40	CO9C-ACG-004 (L. serriola)	SSAP	0.815	-	0.435	-	-	0.912	-	0.319
6	43.4	CO9C-AAG-005 (L. serriola)	SSAP	0.870	-	0.370	-	-	0.956	-	0.220
6	45.1	E35/M59-F-217 (L. sativa)	AFLP	0.402	0.641	0.348	0.648	0.626	-	0.780	0.374
6	45.7	CO9C-ATT-005 (L. sativa)	SSAP	0.326	-	0.902	0.571	-	0.703	0.626	-
6	53.7	CO9C-ACG-012 (L. sativa)	SSAP	0.413	-	0.837	0.670	-	0.593	0.824	-
6	55.6	CO9C-AAG-008 (L. sativa)	SSAP	0.402	-	0.837	0.670	-	0.604	0.813	-
6	56.6	CO9C-CTT-006 (L. sativa)	SSAP	0.435	-	0.826	0.692	-	0.571	0.846	-
6	71.6	E35/M59-F-103 (L. sativa)	AFLP	0.478	0.587	0.315	0.736	0.538	-	0.857	0.297
6	82.8	CO9C-CTC-008 (L. sativa)	SSAP	0.435	-	0.826	0.692	-	0.582	0.846	-
6	82.9	CO9C-CTA-253 (L. serriola)	SSAP	0.870	-	0.359	-	-	0.967	-	0.209
7	3.8	CO9C-GTT-155 (L. serriola)	SSAP	0.891	-	0.337	-	-	0.978	-	0.187
7	4.3	CO9C-CTA-406 (L. serriola)	SSAP	0.902	-	0.315	-	-	0.989	-	0.154
7	6.3	CO9C-ATA-004 (L. sativa)	SSAP	0.337	-	0.891	0.593	-	0.681	0.670	-
7	14.2	E44/M49-F-248 (L. sativa)	AFLP	0.391	0.652	0.337	0.637	0.626	-	0.769	0.385
7	15.3	1A36-F-171 (L. sativa)	AFLP	0.380	0.652	0.359	0.626	0.648	-	0.758	0.385
7	15.6	CO9C-ACG-002 (L. serriola)	SSAP	0.870	-	0.359	-	-	0.967	-	0.209
7	15.9	E45/M48-F-142 (L. sativa)	AFLP	0.391	0.641	0.359	0.637	0.637	-	0.769	0.374
7	17.7	CO9C-ACT-010 (L. serriola)	SSAP	0.891	-	0.326	-	-	0.978	-	0.176
7	25.6	CO9C-AAT-098 (L. sativa)	SSAP	0.359	-	0.870	0.615	-	0.659	0.725	-
7	30.9	CO9C-AAG-007 (L. sativa)	SSAP	0.337	-	0.891	0.582	-	0.681	0.659	-
7	40.4	CO9C-ACT-013 (L. serriola)	SSAP	0.880	-	0.348	-	-	0.978	-	0.187
7	42.1	NBS-04 (L. sativa)	NBS	0.380	-	0.859	0.648	-	0.626	0.769	-
7	43.5	NBS-16 (L. sativa)	NBS	0.370	-	0.870	0.626	-	0.648	0.747	-
7	50.6	CO9C-CTG-112 (L. serriola)	SSAP	0.870	-	0.359	-	-	0.967	-	0.209
7	60.5	CO9C-ACT-006 (L. serriola)	SSAP	0.913	-	0.304	-	-	0.989	-	0.143
7	61.6	1A31-F-170 (L. serriola)	AFLP	0.283	0.728	0.359	0.505	0.758	-	0.615	0.505
7	63.2	E35/M59-F-101 (L. serriola)	AFLP	0.217	0.696	0.457	0.440	0.824	-	0.527	0.527
7	66.8	CO9C-CTT-002 (L. serriola)	SSAP	0.880	-	0.359	-	-	0.967	-	0.198
7	68.6	CO9C-ACT-001 (L. serriola)	SSAP	0.859	-	0.380	-	-	0.956	-	0.231
7	90.7	1A36-F-223 (L. sativa)	AFLP	0.337	0.696	0.348	0.571	0.703	-	0.681	0.451
7	97	CO9C-ATA-009 (L. serriola)	SSAP	0.891	-	0.337	-	-	0.978	-	0.187
8	0	CO9C-GTT-270 (L. sativa)	SSAP	0.391	-	0.848	0.659	-	0.615	0.791	-
8	0.5	CO9C-CTC-014 (L. serriola)	SSAP	0.913	-	0.293	-	-	0.989	-	0.132
8	5.1	NBS-11 (L. serriola)	NBS	0.880	-	0.337	-	-	0.978	-	0.187
8	9.5	E45/M48-F-067 (L. serriola)	AFLP	0.348	0.609	0.435	0.626	0.648	-	0.736	0.363
8	18.4	E44/M49-F-262 (L. sativa)	AFLP	0.413	0.620	0.359	0.681	0.593	-	0.802	0.341
8	25.6	NBS-08 (L. serriola)	NBS	0.891	-	0.337	-	-	0.978	-	0.176
8	31.5	CO9C-CTC-005 (L. sativa)	SSAP	0.413	-	0.837	0.681	-	0.593	0.813	-
8	57.4	CO9C-ATC-009 (L. serriola)	SSAP	0.913	-	0.293	-	-	0.989	-	0.132
8	57.9	E35/M59-F-153 (L. sativa)	AFLP	0.435	0.663	0.283	0.670	0.604	-	0.791	0.374
8	60.8	1A36-F-127 (L. sativa)	AFLP	0.413	0.728	0.217	0.626	0.648	-	0.758	0.440
8	64.2	CO9C-CTG-370 (L. sativa)	SSAP	0.359	-	0.880	0.604	-	0.670	0.703	-
8	72.1	1A31-F-146 (L. serriola)	AFLP	0.413	0.674	0.283	0.648	0.626	-	0.780	0.396
8	79.3	CO9C-ATT-004 (L. serriola)	SSAP	0.935	-	0.272	-	-	1.000	-	0.110
8	80.6	E44/M48-F-141 (L. sativa)	AFLP	0.391	0.717	0.261	0.604	0.670	-	0.736	0.451
8	90.2	CO9C-CTC-012 (L. sativa)	SSAP	0.391	-	0.848	0.648	-	0.626	0.780	-
8	128.2	1A36-F-323 (L. sativa)	AFLP	0.413	0.685	0.283	0.637	0.626	-	0.769	0.396
8	133.6	CO9C-AAT-248 (L. sativa)	SSAP	0.370	-	0.870	0.615	-	0.659	0.725	-

		S ₁	S ₁	S ₁	BC ₁	BC ₁	BC ₁	BC _{1S1}	BC _{1S1}	BC _{1S1}		
		L.seriola	Hetero-zygous	L. sativa	L.seriola	Hetero-zygous	L. sativa	L.seriola	Hetero-zygous	L. sativa		
Mendelian	Co-dominant	0.25	0.5	0.25	0.5	0.5	-	0.625	0.25	0.125		
Mendelian	Dominant: L. seriola band	0.75	-	0.25	-	-	-	0.375	-	0.125		
Mendelian	Dominant: L. sativa band	0.25	-	0.75	0.5	-	0.5	0.625	-	0.375		
Number of valid loci per generation		220			158			211				
Number of valid plants tested (N)		92			91			90				
Resulting alpha (1/ #loci per generation) =		0.0045			0.0063			0.0047				
# value in ranked 50,000 bootstrap array		49773			49684			49764				
LG	cMorgan	Locs (incl band presence state)	Marker type									
8	143.3	E44/M48-F-192 (L. sativa)	AFLP	0.337	0.696	0.348	0.571	0.703	-	0.692	0.451	0.231
9	0	NBS-02 (L. seriola)	NBS	0.935	-	0.272	-	-	-	1.000	-	0.110
9	20.3	C09C-GTG-151 (L. seriola)	SSAP	0.837	-	0.413	-	-	-	0.934	-	0.275
9	24.4	C09C-AAG-003 (L. sativa)	SSAP	0.435	-	0.815	0.703	-	0.571	0.857	-	0.385
9	28.1	C09C-ACT-015 (L. sativa)	SSAP	0.413	-	0.837	0.670	-	0.604	0.824	-	0.440
9	36.5	C09C-ATC-008 (L. sativa)	SSAP	0.402	-	0.848	0.659	-	0.615	0.791	-	0.462
9	46.4	1A36-F-189 (L. sativa)	AFLP	0.435	0.630	0.326	0.681	0.582	-	0.813	0.341	0.176
9	49.5	C09C-CTC-002 (L. sativa)	SSAP	0.467	-	0.793	0.725	-	0.538	0.890	-	0.341
9	53.1	C09C-ATC-001 (L. sativa)	SSAP	0.446	-	0.815	0.714	-	0.560	0.868	-	0.374
9	60.7	E44/M49-F-175 (L. seriola)	AFLP	0.380	0.652	0.348	0.637	0.637	-	0.747	0.385	0.209
9	81.4	C09C-CTA-098 (L. seriola)	SSAP	0.848	-	0.391	-	-	-	0.945	-	0.253
9	92.6	C09C-CTT-007 (L. sativa)	SSAP	0.283	-	0.924	0.527	-	0.747	0.538	-	0.736
9	95.6	1A31-F-176 (L. seriola)	AFLP	0.261	0.696	0.413	0.495	0.769	-	0.593	0.495	0.297
9	100.2	NBS-19 (L. sativa)	NBS	0.359	-	0.870	0.615	-	0.659	0.725	-	0.549
9	102.5	NBS-25 (L. seriola)	NBS	0.859	-	0.380	-	-	-	0.956	-	0.231
9	106.1	C09C-TCC-123 (L. seriola)	SSAP	0.946	-	0.239	-	-	-	1.000	-	0.088
9	108.1	E35/M59-F-183 (L. sativa)	AFLP	0.348	0.739	0.272	0.560	0.714	-	0.681	0.484	0.187
9	113.1	E35/M59-F-096 (L. sativa)	AFLP	0.359	0.652	0.380	0.615	0.659	-	0.736	0.396	0.242
9	122.5	C09C-ATA-007 (L. sativa)	SSAP	0.326	-	0.902	0.571	-	0.692	0.637	-	0.637
9	127.7	C09C-AAG-004 (L. seriola)	SSAP	0.859	-	0.380	-	-	-	0.956	-	0.231
9	133.4	C09C-ACT-007 (L. sativa)	SSAP	0.315	-	0.902	0.549	-	0.714	0.593	-	0.681
9	137	C09C-ACT-002 (L. seriola)	SSAP	0.815	-	0.435	-	-	-	0.912	-	0.308
u	u	C09C-ATT-011 (L. sativa)	SSAP	0.337	-	0.891	0.582	-	0.681	0.659	-	0.615
u	u	E44/M48-F-212 (L. seriola)	AFLP	0.348	0.598	0.457	0.626	0.648	-	0.736	0.363	0.275
u	u	1A31-F-074 (L. sativa)	AFLP	0.359	0.587	0.446	0.648	0.626	-	0.747	0.341	0.264
u	u	1A31-F-244 (L. sativa)	AFLP	0.391	0.685	0.293	0.626	0.648	-	0.758	0.418	0.187
u	u	1A31-F-323 (L. sativa)	AFLP	0.380	0.641	0.370	0.637	0.637	-	0.758	0.374	0.220
u	u	1A31-F-402 (L. sativa)	AFLP	0.380	0.630	0.380	0.637	0.637	-	0.758	0.374	0.231
u	u	1A36-F-148 (L. sativa)	AFLP	0.380	0.630	0.380	0.637	0.637	-	0.758	0.374	0.220
u	u	1A36-F-246 (L. sativa)	AFLP	0.500	0.511	0.380	0.791	0.473	-	0.890	0.231	0.176
u	u	1A36-F-299 (L. sativa)	AFLP	0.380	0.630	0.380	0.637	0.637	-	0.758	0.374	0.220
u	u	1A36-Fb-126.70 (L. sativa)	AFLP	0.380	0.641	0.370	0.637	0.637	-	0.758	0.374	0.220
u	u	E35/M59-F-086 (L. sativa)	AFLP	0.380	0.630	0.370	0.637	0.637	-	0.758	0.374	0.220
u	u	E35/M59-F-204 (L. sativa)	AFLP	0.380	0.630	0.370	0.637	0.637	-	0.758	0.374	0.220
u	u	E35/M59-F-212 (L. sativa)	AFLP	0.315	0.674	0.380	0.560	0.703	-	0.670	0.440	0.253
u	u	E44/M48-F-328 (L. sativa)	AFLP	0.315	0.685	0.380	0.549	0.714	-	0.670	0.462	0.253
u	u	E44/M48-F-403 (L. sativa)	AFLP	0.380	0.630	0.380	0.637	0.637	-	0.758	0.374	0.220
u	u	E44/M49-F-231 (L. sativa)	AFLP	0.380	0.630	0.380	0.637	0.637	-	0.758	0.374	0.220
u	u	E44/M49-F-250 (L. sativa)	AFLP	0.380	0.641	0.380	0.637	0.637	-	0.758	0.374	0.220
u	u	E44/M49-F-337 (L. sativa)	AFLP	0.370	0.674	0.337	0.604	0.670	-	0.725	0.418	0.209
u	u	E45/M48-F-084 (L. sativa)	AFLP	0.380	0.630	0.370	0.374	0.857	-	0.758	0.374	0.220
u	u	E45/M48-F-103 (L. sativa)	AFLP	0.370	0.685	0.315	0.604	0.670	-	0.725	0.429	0.198
u	u	E45/M48-F-140 (L. sativa)	AFLP	0.391	0.641	0.359	0.648	0.626	-	0.769	0.374	0.209
u	u	E45/M48-F-146 (L. sativa)	AFLP	0.380	0.630	0.370	0.637	0.637	-	0.758	0.374	0.220
u	u	E45/M48-F-159 (L. sativa)	AFLP	0.380	0.641	0.380	0.637	0.637	-	0.758	0.374	0.220
u	u	1A36-F-434 (L. seriola)	AFLP	0.380	0.630	0.370	0.637	0.637	-	0.758	0.374	0.231
u	u	E44/M49-F-150 (L. seriola)	AFLP	0.380	0.641	0.370	0.637	0.637	-	0.758	0.374	0.220
u	u	E44/M49-F-447 (L. seriola)	AFLP	0.380	0.641	0.370	0.637	0.637	-	0.758	0.374	0.231
u	u	NBS-03 (L. sativa)	NBS	0.337	-	0.891	0.593	-	0.692	0.659	-	0.615
u	u	NBS-05 (L. sativa)	NBS	0.359	-	0.870	0.615	-	0.659	0.714	-	0.560
u	u	NBS-27 (L. sativa)	NBS	0.478	-	0.783	0.747	-	0.527	0.912	-	0.308
u	u	NBS-36 (L. sativa)	NBS	0.707	-	0.554	0.912	-	0.308	1.000	-	0.088
u	u	NBS37 (L. sativa)	NBS	0.761	-	0.500	0.934	-	0.275	1.000	-	0.077
u	u	C09C-AAT-097 (L. sativa)	SSAP	0.239	-	0.946	0.451	-	0.802	0.396	-	0.846
u	u	C09C-AAT-153 (L. sativa)	SSAP	0.402	-	0.848	0.659	-	0.604	0.802	-	0.462
u	u	C09C-AAT-180 (L. sativa)	SSAP	0.261	-	0.946	0.473	-	0.791	0.440	-	0.813
u	u	C09C-AAT-208 (L. sativa)	SSAP	0.141	-	0.989	0.297	-	0.923	0.154	-	0.989
u	u	C09C-ATA-003 (L. sativa)	SSAP	0.391	-	0.848	0.648	-	0.626	0.780	-	0.484
u	u	C09C-ATT-001 (L. sativa)	SSAP	0.435	-	0.815	0.703	-	0.571	0.857	-	0.385
u	u	C09C-CTT-003 (L. sativa)	SSAP	0.359	-	0.880	0.615	-	0.659	0.703	-	0.571
u	u	C09C-CTT-009 (L. sativa)	SSAP	0.380	-	0.859	0.637	-	0.626	0.758	-	0.505
u	u	C09C-GTG-700 (L. sativa)	SSAP	0.326	-	0.902	0.571	-	0.692	0.637	-	0.637
u	u	C09C-GTT-238 (L. sativa)	SSAP	0.348	-	0.891	0.593	-	0.681	0.681	-	0.593
u	u	C09-C-GTT-440 (L. sativa)	SSAP	0.380	-	0.859	0.637	-	0.637	0.758	-	0.516
u	u	C09C-TCC-088 (L. sativa)	SSAP	0.326	-	0.902	0.571	-	0.703	0.626	-	0.648
u	u	C09C-TCC-146 (L. sativa)	SSAP	0.380	-	0.859	0.637	-	0.637	0.758	-	0.516
u	u	C09C-TCC-199 (L. sativa)	SSAP	0.348	-	0.880	0.604	-	0.670	0.692	-	0.582
u	u	C09C-TCC-640 (L. sativa)	SSAP	0.380	-	0.859	0.637	-	0.637	0.758	-	0.516