

**Table 1s.-** Results of different parameters which define resistance to glyphosate in the *Bromus madritensis*. *d* is the upper coefficient and *b* is the slope of the curve. GR<sub>50</sub> is the 50% growth inhibition rate, LD<sub>50</sub> is the 50% death rate, RF the resistance factor and *P-value* is the significance of analysis.

Population code	<i>d</i>	<i>b</i>	GR <sub>50</sub> (g ae ha <sup>-1</sup> )	RF	<i>P-value</i>		<i>d</i>	<i>b</i>	LD <sub>50</sub> (g ae ha <sup>-1</sup> )	RF	<i>P-value</i>
<b>Bmr1</b>	101.23	1.84	301.65±20.07	2.67	<2.2e-16		96.19	6.83	812.23±12.71	2.79	<2.2e-16
<b>Bmr2</b>	97.24	2.78	376.93±17.46	2.62	<2.2e-16		95.28	6.79	802.15±13.17	2.76	<2.2e-16
<b>Bmr3</b>	98.22	2.68	498.33±21.57	3.37	<2.2e-16		98.86	8.35	916.80±12.16	3.55	<2.2e-16
<b>BmR4</b>	94.13	4.69	593.48±13.37	4.12	<2.2e-16		100.81	4.51	1091.22±25.76	3.75	<2.2e-16
<b>BmR5</b>	96.69	4.18	652.54±14.32	4.53	<2.2e-16		100.91	3.77	1274.12±30.16	4.38	<2.2e-16
<b>BmR6</b>	97.14	3.50	666.98±18.06	4.63	<2.2e-16		100.75	3.65	1398.60±33.54	4.81	<2.2e-16
<b>BmRR7</b>	96.67	3.47	757.19±20.01	5.26	<2.2e-16		100.89	3.16	1588.23±35.52	5.46	<2.2e-16
<b>Bms8</b>	99.91	3.29	176.02±5.07	1.22	<2.2e-16		101.17	2.99	317.52±11.03	1.09	<2.2e-16
<b>Bms9</b>	97.04	4.67	204.83±5.59	1.42	<2.2e-16		99.83	3.07	413.32±15.54	1.42	<2.2e-16
<b>BmRR10</b>	98.21	3.63	787.99±14.81	5.48	<2.2e-16		100.78	3.18	1718.60±37.60	5.91	<2.2e-16
<b>Bmr11</b>	100.43	3.17	342.03±11.95	2.37	<2.2e-16		97.85	6.85	762.96±13.83	2.62	<2.2e-16
<b>Bmr12</b>	95.21	3.57	510.19±16.24	3.45	<2.2e-16		99.53	5.90	844.98±13.57	2.9	<2.2e-16
<b>BmRR13</b>	97.69	4.07	1145.95±26.24	7.97	<2.2e-16		100.58	3.23	2153.03±43.98	7.4	<2.2e-16
<b>BmS14</b>	98.13	2.86	143.77±5.55	-	<2.2e-16		100.58	2.70	290.58±10.85	-	<2.2e-16

<sup>a</sup> Significance code 0 ‘\*\*\*’, 0,001 ‘\*\*’, 0,01 ‘\*’, 0,05 ‘.’

**Table 2s.-** Results of the GR<sub>50</sub>-based comparison of the *Bromus madritensis* populations. Data highlighted in red correspond to comparison of populations respect the susceptible Bms14

Population code	<i>P</i> -value	Significance <sup>a</sup>
<b>Bmr1/Bmr2</b>	8.966e-6	***
<b>Bmr1/Bmr3</b>	<2.2e-16	***
<b>Bmr1/BmR4</b>	<2.2e-16	***
<b>Bmr1/BmR5</b>	<2.2e-16	***
<b>Bmr1/BmR6</b>	<2.2e-16	***
<b>Bmr1/BmRR7</b>	<2.2e-16	***
<b>Bmr1/Bms8</b>	2.170e-14	***
<b>Bmr1/Bms9</b>	1.252e-9	***
<b>Bmr1/BmRR10</b>	<2.2e-16	***
<b>Bmr1/Bmr11</b>	0.011362	*
<b>Bmr1/Bmr12</b>	<2.2e-16	***
<b>Bmr1/BmRR13</b>	<2.2e-16	***
<b>Bmr1/BmS14</b>	<2.2e-16	***
<b>Bmr2/Bmr3</b>	2.739e-9	***
<b>Bmr2/BmR4</b>	<2.2e-16	***
<b>Bmr2/BmR5</b>	<2.2e-16	***
<b>Bmr2/BmR6</b>	<2.2e-16	***
<b>Bmr2/BmRR7</b>	<2.2e-16	***
<b>Bmr2/Bms8</b>	<2.2e-16	***
<b>Bmr2/Bms9</b>	<2.2e-16	***
<b>Bmr2/BmRR10</b>	<2.2e-16	***
<b>Bmr2/Bmr11</b>	0.082431	.
<b>Bmr2/Bmr12</b>	2.600e-14	***
<b>Bmr2/BmRR13</b>	<2.2e-16	***
<b>Bmr2/BmS14</b>	<2.2e-16	***
<b>Bmr3/BmR4</b>	3.428e-07	***
<b>Bmr3/BmR5</b>	2.434e-15	***
<b>Bmr3/BmR6</b>	<2.2e-16	***
<b>Bmr3/BmRR7</b>	<2.2e-16	***
<b>Bmr3/Bms8</b>	<2.2e-16	***
<b>Bmr3/Bms9</b>	<2.2e-16	***
<b>Bmr3/BmRR10</b>	<2.2e-16	***
<b>Bmr3/Bmr11</b>	6.624e-10	***
<b>Bmr3/Bmr12</b>	0.2859	
<b>Bmr3/BmRR13</b>	<2.2e-16	***
<b>Bmr3/BmS14</b>	<2.2e-16	***
<b>BmR4/BmR5</b>	0.00267	**
<b>BmR4/BmR6</b>	0.00041	***
<b>BmR4/BmRR7</b>	7.329e-15	***
<b>BmR4/Bms8</b>	<2.2e-16	***
<b>BmR4/Bms9</b>	<2.2e-16	***
<b>BmR4/BmRR10</b>	<2.2e-16	***
<b>BmR4/Bmr11</b>	<2.2e-16	***
<b>BmR4/Bmr12</b>	1.551e-15	***
<b>BmR4/BmRR13</b>	<2.2e-16	***
<b>BmR4/BmS14</b>	<2.2e-16	***
<b>BmR5/BmR6</b>	0.5120	
<b>BmR5/BmRR7</b>	3.119e-06	***
<b>BmR5/Bms8</b>	<2.2e-16	***
<b>BmR5/Bms9</b>	<2.2e-16	***
<b>BmR5/BmRR10</b>	7.076e-10	***

<b>BmR5/Bmr11</b>	<2.2e-16	***
<b>BmR5/Bmr12</b>	1.346e-13	***
<b>BmR5/BmRR13</b>	<2.2e-16	***
<b>BmR5/BmS14</b>	<2.2e-16	***
<b>BmR6/BmRR7</b>	0.0001	***
<b>BmrR6/Bms8</b>	<2.2e-16	***
<b>BmR6/Bms9</b>	<2.2e-16	***
<b>BmR6/BmRR10</b>	4.595e-07	***
<b>BmR6/Bmr11</b>	<2.2e-16	***
<b>BmR6/Bmr12</b>	9.735e-15	***
<b>BmR6/BmRR13</b>	<2.2e-16	***
<b>BmR6/BmS14</b>	<2.2e-16	***
<b>BmRR7/Bms8</b>	<2.2e-16	***
<b>BmRR7/Bms9</b>	<2.2e-16	***
<b>BmRR7/BmRR10</b>	0.3385292	
<b>BmRR7/Bmr11</b>	<2.2e-16	***
<b>BmRR7/Bmr12</b>	<2.2e-16	***
<b>BmRR7/BmRR13</b>	<2.2e-16	***
<b>BmRR7/BmS14</b>	<2.2e-16	***
<b>Bms8/Bms9</b>	0.00084	***
<b>Bms8/BmRR10</b>	<2.2e-16	***
<b>Bms8/Bmr11</b>	<2.2e-16	***
<b>Bms8/Bmr12</b>	<2.2e-16	***
<b>Bms8/BmRR13</b>	<2.2e-16	***
<b>Bms8/BmS14</b>	0.00046	***
<b>Bms9/BmRR10</b>	<2.2e-16	***
<b>Bms9/Bmr11</b>	<2.2e-16	***
<b>Bms9/Bmr12</b>	<2.2e-16	***
<b>Bms9/BmRR13</b>	<2.2e-16	***
<b>BmRR10/BmS14</b>	<2.2e-16	***
<b>BmRR10/Bmr11</b>	<2.2e-16	***
<b>BmRR10/Bmr12</b>	<2.2e-16	***
<b>BmRR10/BmRR13</b>	<2.2e-16	***
<b>BmRR10/BmS14</b>	<2.2e-16	***
<b>Bmr11/Bmr12</b>	<2.2e-16	***
<b>Bmr11/BmRR13</b>	<2.2e-16	***
<b>Bmr11/BmS14</b>	<2.2e-16	***
<b>Bmr12/BmRR13</b>	<2.2e-16	***
<b>Bmr12/Bms14</b>	<2.2e-16	***
<b>BmRR13/Bms14</b>	<2.2e-16	***

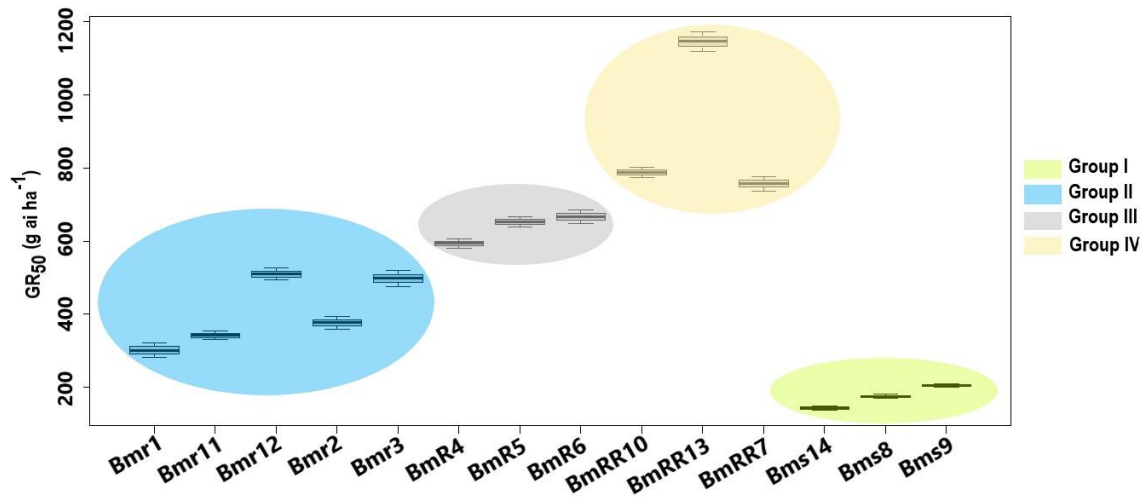
<sup>a</sup> Significance code 0 '\*\*\*', 0,001 '\*\*', 0,01 '\*', 0,05 '.'

**Table 3s.-** Results of the LD<sub>50</sub>-based comparison of the *Bromus madritensis* populations. Data highlighted in red correspond to comparison of populations respect the susceptible Bms14

Population code	<i>P</i> -value	Significance <sup>a</sup>
<b>Bmr1/Bmr2</b>	0.538514	
<b>Bmr1/Bmr3</b>	4.341e-12	***
<b>Bmr1/BmR4</b>	<2.2e-16	***
<b>Bmr1/BmR5</b>	<2.2e-16	***
<b>Bmr1/BmR6</b>	<2.2e-16	***
<b>Bmr1/BmRR7</b>	<2.2e-16	***
<b>Bmr1/Bms8</b>	<2.2e-16	***
<b>Bmr1/Bms9</b>	<2.2e-16	***
<b>Bmr1/BmRR10</b>	<2.2e-16	***
<b>Bmr1/Bmr11</b>	0.00435	**
<b>Bmr1/Bmr12</b>	0.04358	*
<b>Bmr1/BmRR13</b>	<2.2e-16	***
<b>Bmr1/BmS14</b>	<2.2e-16	***
<b>Bmr2/Bmr3</b>	9.325e-14	***
<b>Bmr2/BmR4</b>	<2.2e-16	***
<b>Bmr2/BmR5</b>	<2.2e-16	***
<b>Bmr2/BmR6</b>	<2.2e-16	***
<b>Bmr2/BmRR7</b>	<2.2e-16	***
<b>Bmr2/Bms8</b>	<2.2e-16	***
<b>Bmr2/Bms9</b>	<2.2e-16	***
<b>Bmr2/BmRR10</b>	<2.2e-16	***
<b>Bmr2/Bmr11</b>	0.025058	*
<b>Bmr2/Bmr12</b>	0.009150	**
<b>Bmr2/BmRR13</b>	<2.2e-16	***
<b>Bmr2/BmS14</b>	<2.2e-16	***
<b>Bmr3/BmR4</b>	1.177e-10	**
<b>Bmr3/BmR5</b>	<2.2e-16	***
<b>Bmr3/BmR6</b>	<2.2e-16	***
<b>Bmr3/BmRR7</b>	<2.2e-16	***
<b>Bmr3/Bms8</b>	<2.2e-16	***
<b>Bmr3/Bms9</b>	<2.2e-16	***
<b>Bmr3/BmRR10</b>	<2.2e-16	***
<b>Bmr3/Bmr11</b>	2.482e-16	***
<b>Bmr3/Bmr12</b>	2.671e-05	***
<b>Bmr3/BmRR13</b>	<2.2e-16	***
<b>Bmr3/BmS14</b>	<2.2e-16	***
<b>BmR4/BmR5</b>	9.8220e-06	***
<b>BmR4/BmR6</b>	3.152e-13	***
<b>BmR4/BmRR7</b>	<2.2e-16	***
<b>BmR4/Bms8</b>	<2.2e-16	***
<b>BmR4/Bms9</b>	<2.2e-16	***
<b>BmR4/BmRR10</b>	<2.2e-16	***
<b>BmR4/Bmr11</b>	<2.2e-16	***
<b>BmR4/Bmr12</b>	2.322e-13	***
<b>BmR4/BmRR13</b>	<2.2e-16	***
<b>BmR4/BmS14</b>	<2.2e-16	***
<b>BmR5/BmR6</b>	0.010184	*
<b>BmR5/BmRR7</b>	2.063e-10	***
<b>BmR5/Bms8</b>	<2.2e-16	***
<b>BmR5/Bms9</b>	<2.2e-16	***
<b>BmR5/BmRR10</b>	<2.2e-16	***

<b>BmR5/Bmr11</b>	<2.2e-16	***
<b>BmR5/Bmr12</b>	<2.2e-16	***
<b>BmR5/BmRR13</b>	<2.2e-16	***
<b>BmR5/BmS14</b>	<2.2e-16	***
<b>BmR6/BmRR7</b>	0.00044	***
<b>BmrR6/Bms8</b>	<2.2e-16	***
<b>BmR6/Bms9</b>	<2.2e-16	***
<b>BmR6/BmRR10</b>	2.857e-09	
<b>BmR6/Bmr11</b>	<2.2e-16	***
<b>BmR6/Bmr12</b>	<2.2e-16	***
<b>BmR6/BmRR13</b>	<2.2e-16	***
<b>BmR6/BmS14</b>	<2.2e-16	***
<b>BmRR7/Bms8</b>	<2.2e-16	***
<b>BmRR7/Bms9</b>	<2.2e-16	***
<b>BmRR7/BmRR10</b>	0.0322246	*
<b>BmRR7/Bmr11</b>	<2.2e-16	***
<b>BmRR7/Bmr12</b>	<2.2e-16	***
<b>BmRR7/BmRR13</b>	<2.2e-16	***
<b>BmRR7/BmS14</b>	<2.2e-16	***
<b>Bms8/Bms9</b>	7.095e-11	
<b>Bms8/BmRR10</b>	<2.2e-16	***
<b>Bms8/Bmr11</b>	<2.2e-16	***
<b>Bms8/Bmr12</b>	<2.2e-16	***
<b>Bms8/BmRR13</b>	<2.2e-16	***
<b>Bms8/BmS14</b>	0.061843	.
<b>Bms9/BmRR10</b>	<2.2e-16	***
<b>Bms9/Bmr11</b>	<2.2e-16	***
<b>Bms9/Bmr12</b>	<2.2e-16	***
<b>Bms9/BmRR13</b>	<2.2e-16	***
<b>BmRR10/BmS14</b>	5.412e-10	***
<b>BmRR10/Bmr11</b>	<2.2e-16	***
<b>BmRR10/Bmr12</b>	<2.2e-16	***
<b>BmRR10/BmRR13</b>	1.152e-11	***
<b>BmRR10/BmS14</b>	<2.2e-16	***
<b>Bmr11/Bmr12</b>	7.671e-07	***
<b>Bmr11/BmRR13</b>	<2.2e-16	***
<b>Bmr11/BmS14</b>	<2.2e-16	***
<b>Bmr12/BmRR13</b>	<2.2e-16	***
<b>Bmr12/Bms14</b>	<2.2e-16	***
<b>BmRR13/Bms14</b>	<2.2e-16	***

<sup>a</sup> Significance code 0 '\*\*\*', 0.001 '\*\*', 0.01 '\*', 0.05 '.'



**Figure 1s.** Grouping of *Bromus madritensis*. In each of the four graphs populations are grouped according to resistance levels and significance of analysis parameter ( $GR_{50}$ ): Group I, susceptible ( $143-204.83 \text{ g ha}^{-1}$ ); Group II, low resistance ( $301.65-510.19 \text{ g ha}^{-1}$ ); Group III, medium resistance ( $593.48-666.98 \text{ g ha}^{-1}$ ); Group IV, high resistance ( $757.19-1145.95 \text{ g ha}^{-1}$ ). Bars represent the standard error of the mean ( $n=20$ ).