

**APPENDIX S1:** Selection differentials (univariate selection analysis;  $S$ ) for *Ipomoea purpurea* plant traits. Shown are selection values and model  $F$ -values. Significant effects are indicated with bold font and asterisks: \*\*\* $P < 0.001$ .

	Selection ( $S$ )	$F$ -value
Flowering day	<b>-0.22</b>	36.78***
Size	<b>0.14</b>	14.96***
Growth	-0.03	0.45

**APPENDIX S2:** Selection gradients (multivariate selection analysis) for *Ipomoea purpurea* plant traits. Shown are linear (beta;  $\beta$ ) and quadratic (gamma;  $\gamma$ ) values. Linear coefficients were determined in each treatment from the first-order model only, whereas the second-order coefficients were determined from the full model with the linear, squared and cross-product terms. Quadratic regression coefficients were converted to selection gradients by doubling them. Significant effects are indicated with asterisks: \*\*\* $P < 0.001$ .

	linear ( $\beta$ )	quadratic ( $\gamma$ )
Flowering day	-0.20***	-0.26***
Size	0.18***	-0.01
Growth	-0.10***	-0.02
Flowering day x size		-0.08
Flowering day x growth		-0.04
Size x Growth		0.03