Oikos

OIK-06871

Alzate, A., Onstein, R. E., Etienne, R. S. and Bonte, D. 2020. The role of preadaptation, propagule pressure and competition in the colonization of new habitats. – Oikos doi: 10.1111/oik.06871

Appendix 1

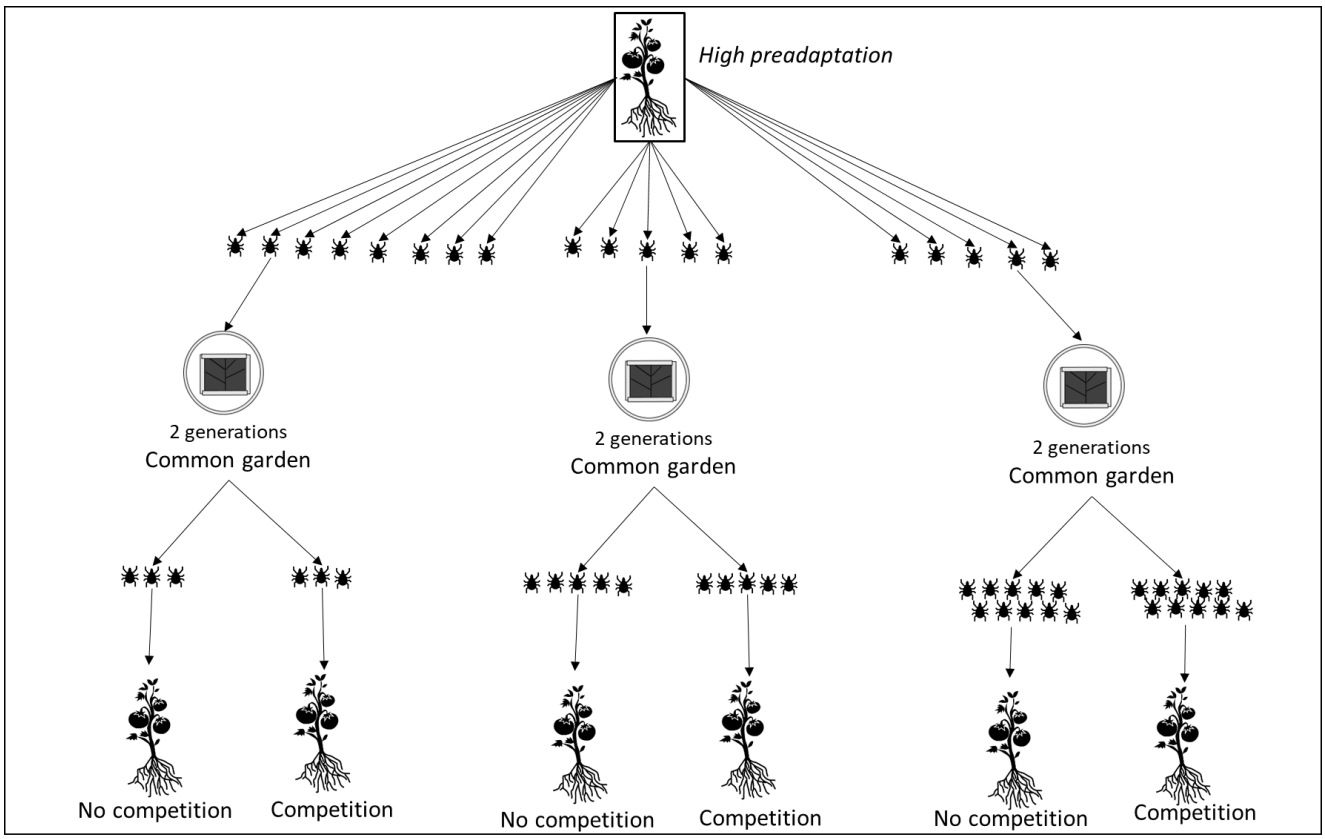

Figure A1. Design of propagule pressure - competition experiment. We removed epigenetic effects (juvenile and maternal effects) by collecting individual females from the highly adapted population (reared on tomato plants). We place each female separately in a common garden for two generations. The common garden consisted of a 5 cm diameter bean leaf disk (per female) on cotton wool soaked in distilled water. All individuals derived from a single female are therefore considered an iso-female line and each line was used as a replicate for the experiments performed in this study. Per iso-female line, we placed adult female mites (propagule pressure: 3, 5 or 10 females) on a complete (four weeks old) tomato plant either with or without competition. In total, we tested six treatment combinations with eight replicates (8 iso-female lines) for treatments with propagule pressure of 3 individuals and five replicates (5 iso-female lines) for treatments with propagule pressure of 5 and 10 individuals.

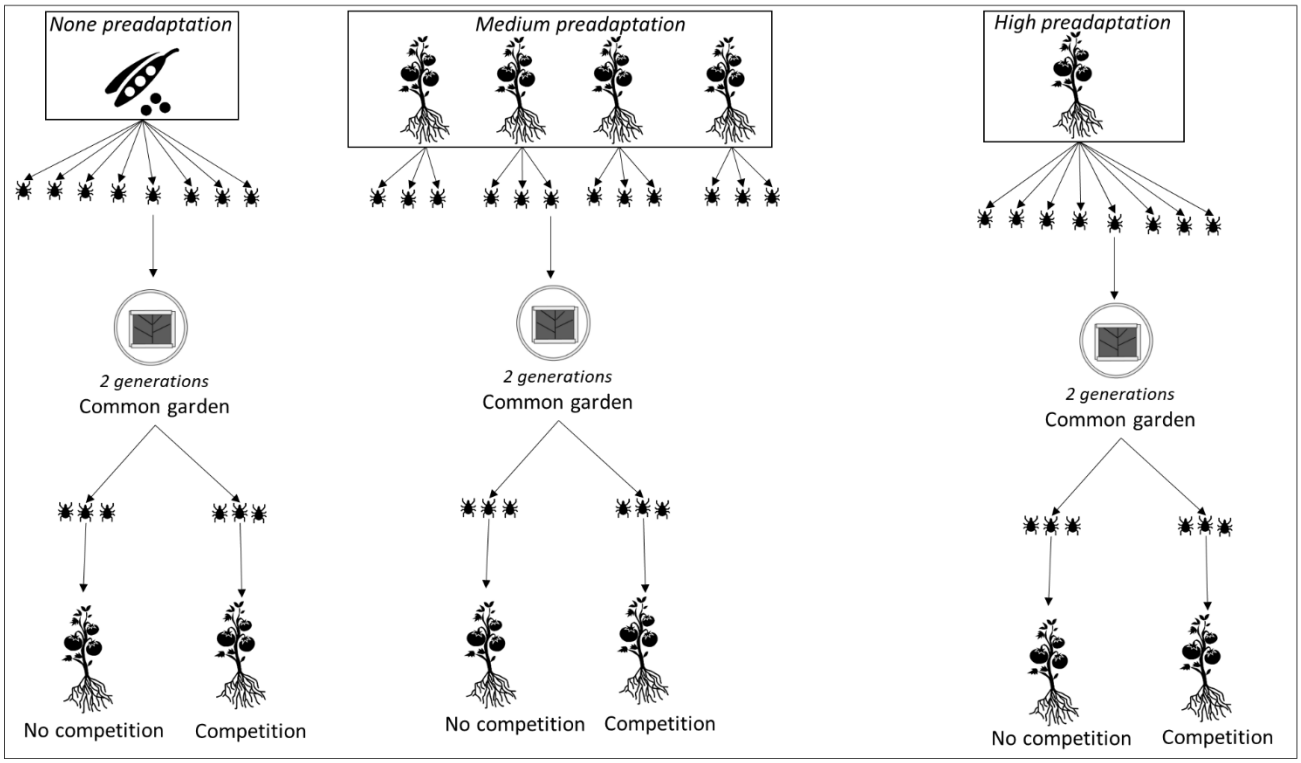

Figure A2. Design pre-adaptation - competition experiment. We removed epigenetic effects (juvenile and maternal effects) by collecting individual females from each population (non-adapted, medium adapted and highly adapted). We place each female separately in a common garden for two generations. The common garden consisted of a 5 cm diameter bean leaf disk (per female) on cotton wool soaked in distilled water. We placed 3 adult females from each adaptation treatment (and iso-female line) on a complete (four weeks old) tomato plant either without competition or on a complete tomato plant together with 3 females of *T. evansi* (competition treatment). We tested 3 preadaptation and two competition levels, for a total of 6 treatment combinations. We used 8 replicates (iso-female lines) for treatments with non-adapted and highly adapted populations and 12 replicates for the treatment with medium adapted populations. Medium adapted populations have more replicates because we collected females from four independent populations, whereas for the non-adapted and highly adapted treatments, females came from a single population.

Table A1. Model selection for the effect of propagule pressure/pre-adaptation and interspecific competition on per capita growth rate/ population size. The selection was performed a backward step-wise removal of non-significant effects (> 0.05), starting with the interaction terms

Test	Model comparison	df	AIC	BIC	log Lik	deviance	χ^2	χ df	p
Per capita growth rate ~ Propagule pressure and Competition	Per capita growth rate ~ Competition + Propagule pressure + (1 | iso-female line)	6	214.97	223.95	-101.49	202.97			
	Per capita growth rate ~ Competition × Propagule pressure + (1 | iso-female line)	**8**	**209.95**	**221.92**	**-96.97**	**193.95**	**9.02**	**2.00**	**0.011**
Population size ~ Propagule pressure and Competition	Population size ~ Competition + Propagule pressure + (1 | iso-female line)	5	343.39	350.87	-166.69	333.39			
	Population size ~ Competition × Propagule pressure + (1 | iso-female line)	**7**	**319.81**	**330.29**	**-152.91**	**305.81**	**27.58**	**2.00**	**0.00**
Per capita growth rate ~ Preadaptation and Competition	log(per capita growth rate + 2) ~ Competition + Adaptation + (1 | iso-female line)	6	97.74	109.68	-42.87	85.74			
	log(per capita growth rate + 2) ~ Competition × Adaptation + (1 | iso-female line)	**8**	**89.22**	**105.13**	**-36.61**	**73.22**	**12.53**	**2.00**	**0.002**
Population size ~ Preadaptation and Competition	**Population size ~ Competition + Adaptation + (1 | iso-female line)**	**5**	**345.31**	**355.26**	**-167.66**	**335.31**			
	Population size ~ Competition × Adaptation + (1 | iso-female line)	7	345.70	359.62	-165.85	331.70	3.61	2.00	0.16