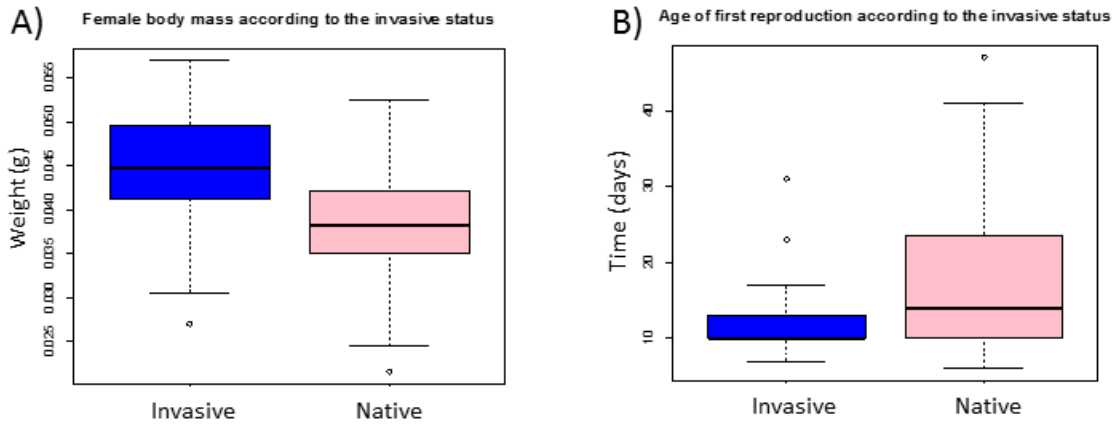
SUPPLEMENTARY MATERIALS

Supplementary Figure 1: Female body mass and female age of first reproduction for invasive and native populations of *H. axyridis*.

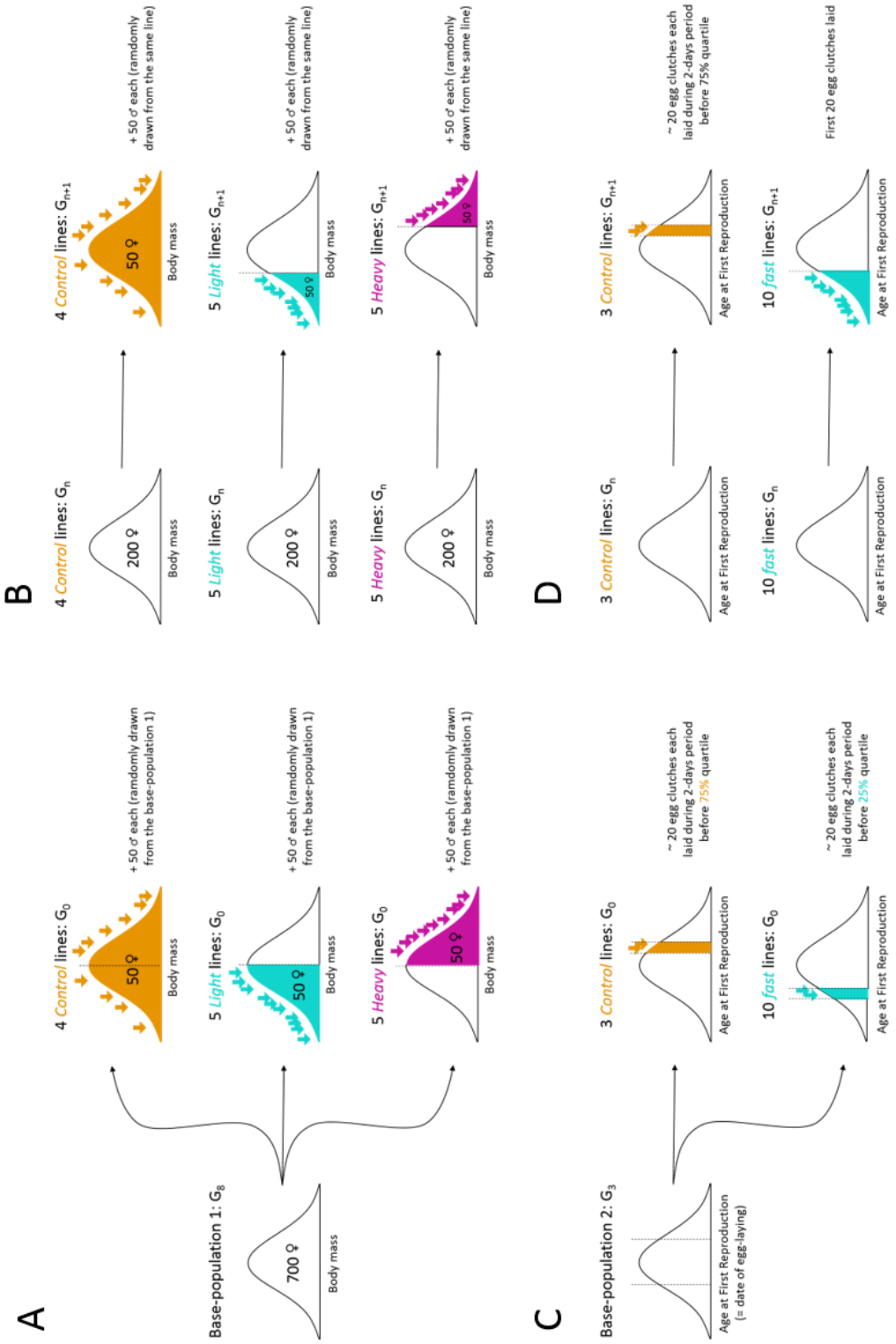
Data were produced during the experiment that led the following publication: Tayeh, A., Hufbauer, R. A., Estoup, A., Ravigné, V., Frachon, L., Facon, B. (2015). Biological invasion and biological control select for different life histories. Nature Communications, 6. 7268, DOI : 10.1038/ncomms8268.

(A) For female body mass, data are from 132 individuals coming from two invasive (n=33 for Santiago in Chile, n=43 for Brookings in USA) and two native (n=28 for Beijing in China, n=28 for Fuchu in Japan) populations. Invasive females are heavier than native ones (Wilcoxon signed-rank test: W=3147.5, $p < 0.0001$).

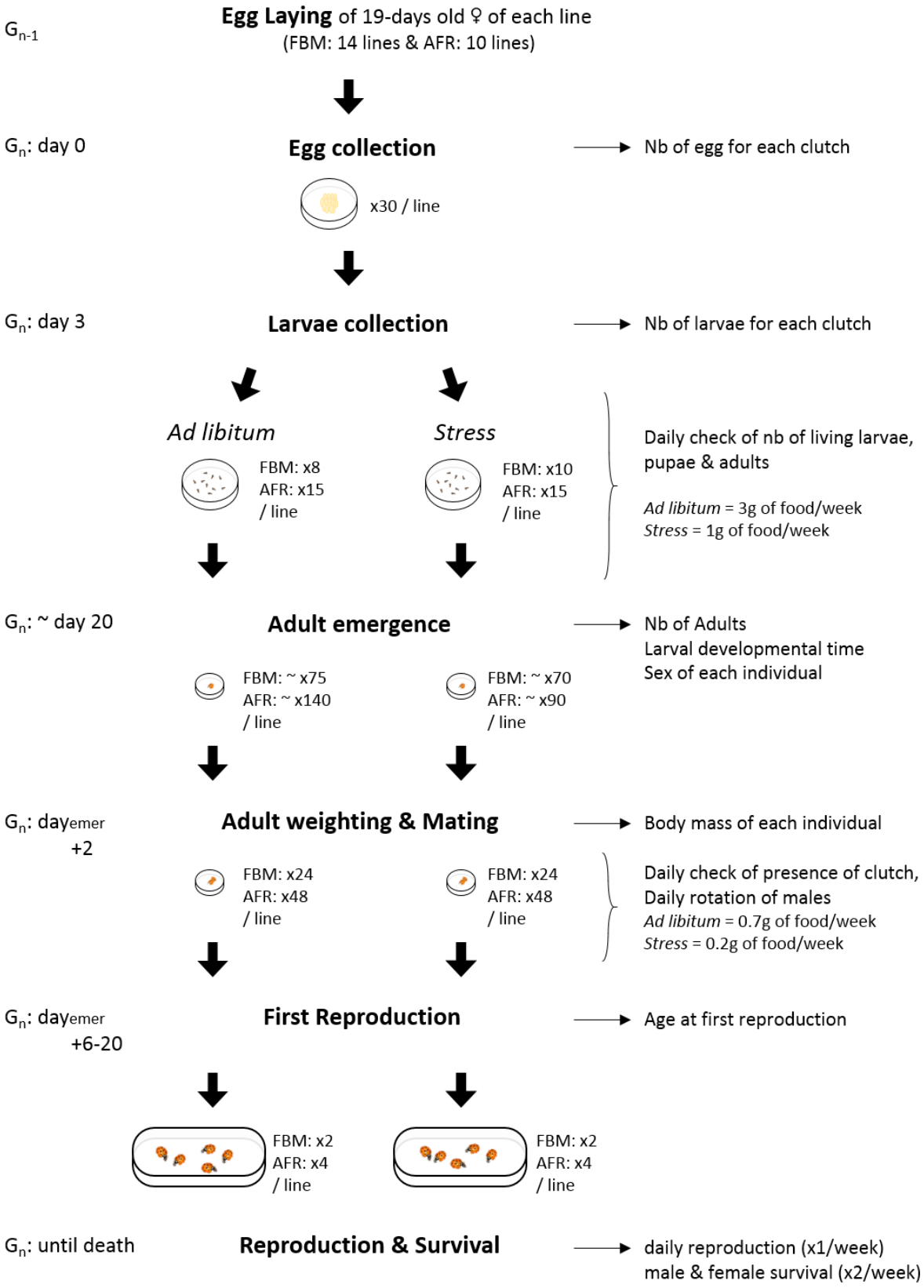
(B) For age at first reproduction, data are from 114 individuals coming from two invasive (n=27 for Santiago in Chile, n=36 for Brookings in USA) and two native (n=25 for Beijing in China, n=26 for Fuchu in Japan) populations. Invasive females initiate reproduction earlier than native ones (Wilcoxon signed-rank test: W=3147.5, $p < 0.0001$).



Supplementary Figure 2: Founding and selection design for female body mass and age at first reproduction (A) Founding of female body mass lines. (B) Selection of female body mass lines. (C) Founding of age at first reproduction lines. (D) Selection of age at first reproduction lines.

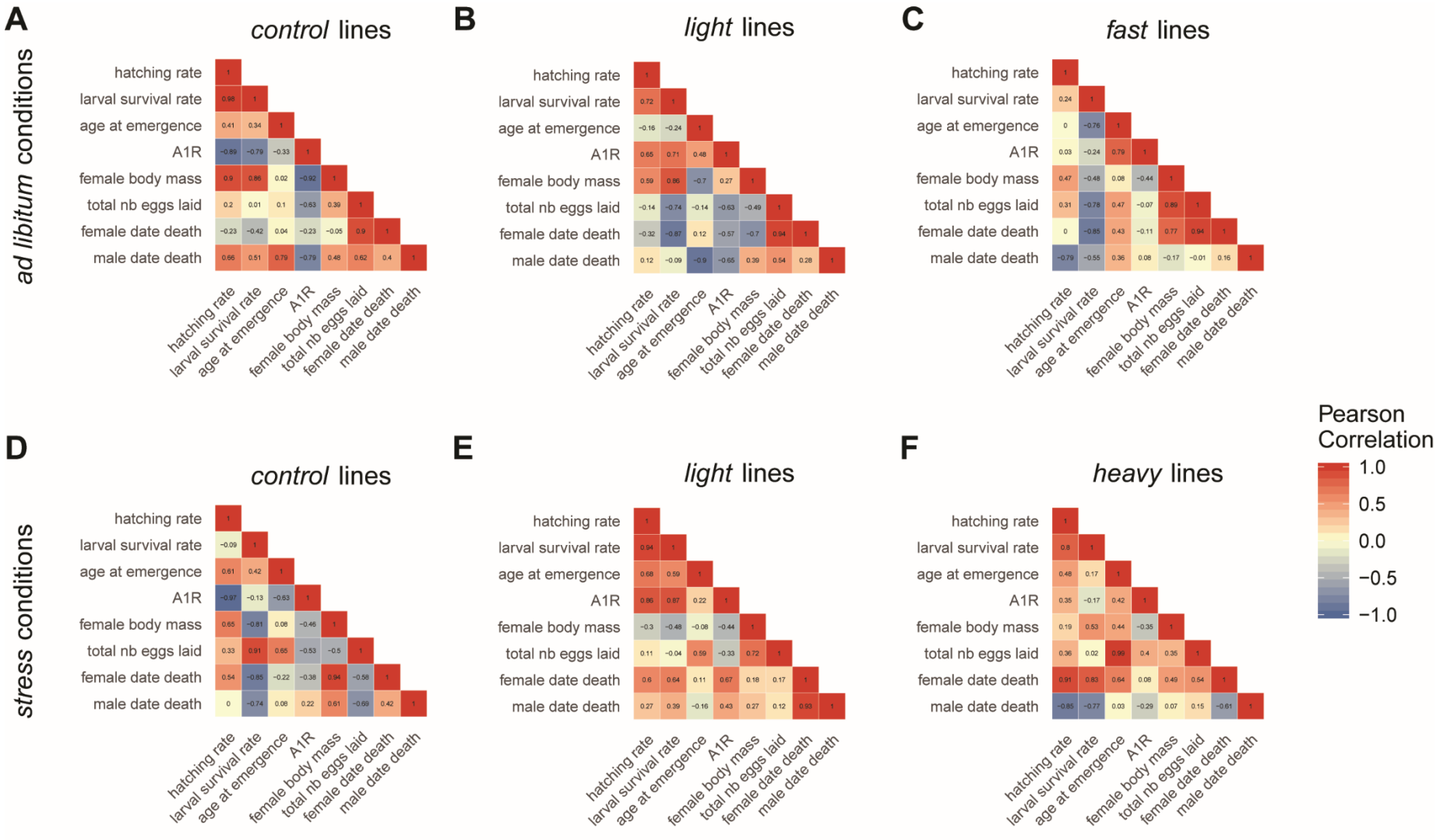


Supplementary Figure 3: Phenotyping procedure for female body mass (FBM) and age at first reproduction (AFR) lines



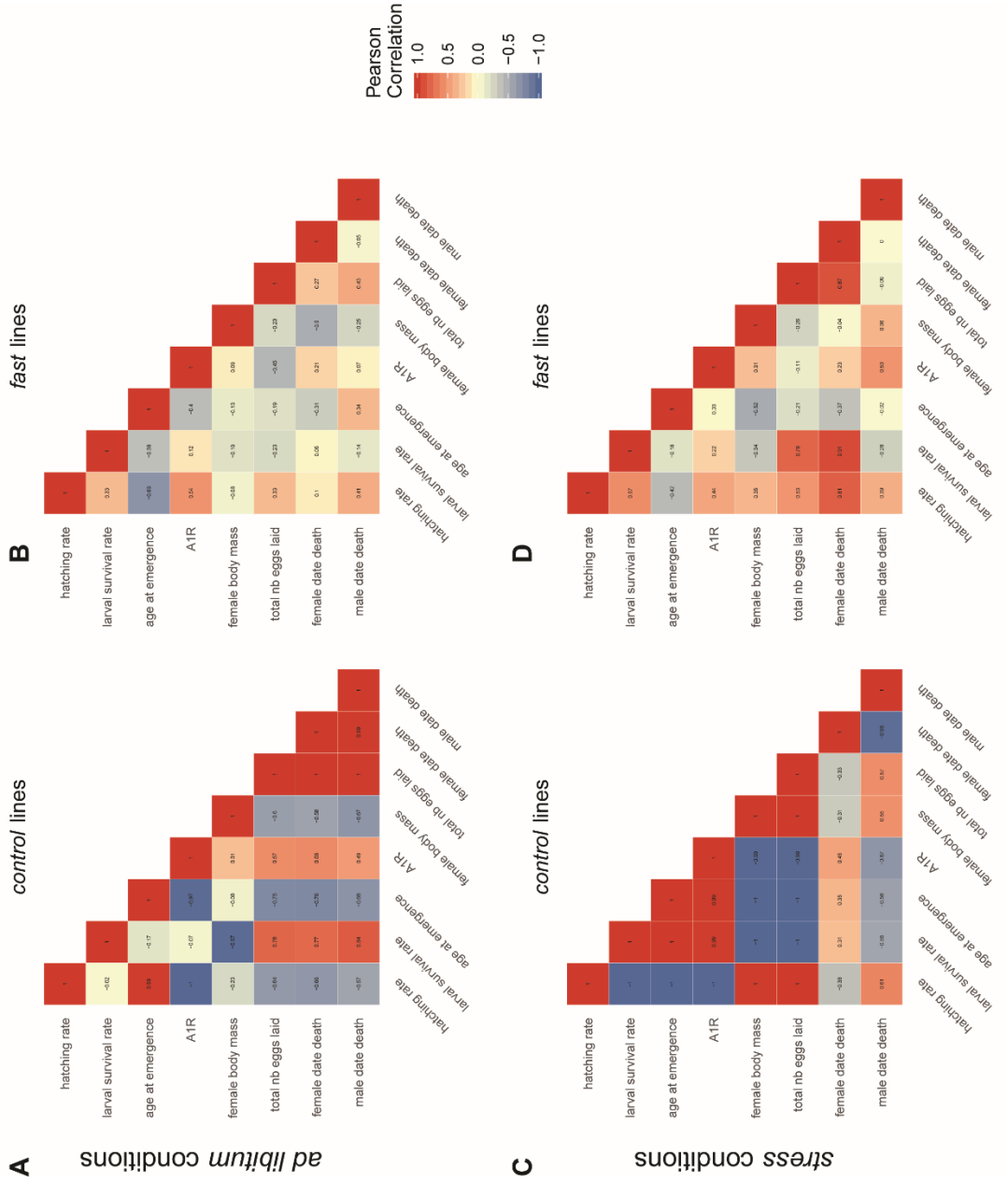
Supplementary Figure 4: Phenotypic correlation matrices of experimental lines of the female body mass selection scheme

(A-C) Phenotypic correlation matrices of G9 control, light and heavy lines phenotyped under *ad libitum* conditions for eight traits. A1R stands for age at first reproduction (D-F) Phenotypic correlation matrices of G9 control, light and heavy lines phenotyped under stressful conditions for eight traits. The phenotypic correlation matrices were strongly dissimilar according to both selection direction and environmental conditions.


A
ad libitum conditions
control lines
B
light lines
C
fast lines
D
stress conditions
control lines
E
light lines
F
heavy lines
hatching rate
larval survival rate
age at emergence
A1R
female body mass
total nb eggs laid
female date death
male date death
Pearson Correlation
1.0
0.5
0.0
−0.5
−1.0

Supplementary Figure 5: Phenotypic correlation matrices of experimental lines of the age at first reproduction selection scheme

(A-B) Phenotypic correlation matrices of G10 control and fast lines phenotyped under *ad libitum* conditions for eight traits. (C-D) Phenotypic correlation matrices of G10 control and fast lines phenotyped under stressful conditions for eight traits. The phenotypic correlation matrices were strongly dissimilar according to both selection direction and environmental conditions. Note also a distinctive pattern of relaxation of phenotypic correlations in the selected lines, illustrated by lighter shades for fast lines.



Supplementary Code & Data:

Code and data are freely available at the following address:
https://data.inra.fr/dataset.xhtml?persistentId=doi:10.15454/V9XCA2

Code file is provided as a .Rmd file (Harmonia Experimental Selection - Code-1.Rmd)

Description of datasets is given on the repository and in the Rmd code file.