TRANSGENERATIONAL PLASTICITY IN RESPONSE TO SHADE IN THE SNAPDRAGON

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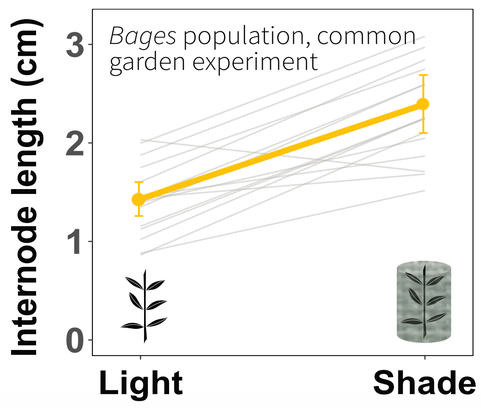
TRANSGENERATIONAL PLASTICITY

> Parental environment can affect offspring development and fitness

> The process can be **active** (*e.g. transmission of small RNAs, induced and transmitted epigenetic marks*)

> Potentially **adaptive** if cues experienced by parents are good predictors of offspring environment

SHADE AVOIDANCE RESPONSE IN THE SNAPDRAGON



> *Antirrhinum majus* exhibits a **shade avoidance syndrome**, a common plastic response in plants:

- increase of internode length, SLA, vegetative height **in the shade**

- response **varies between families**

(Mousset et al., submitted)

Are there transgenerational effects of shade on offsprings?

METHODS

> **Greenhouse experiment**
- three inbred lines
- treatment: **Light** v.s. **Shade** (45% green shading)

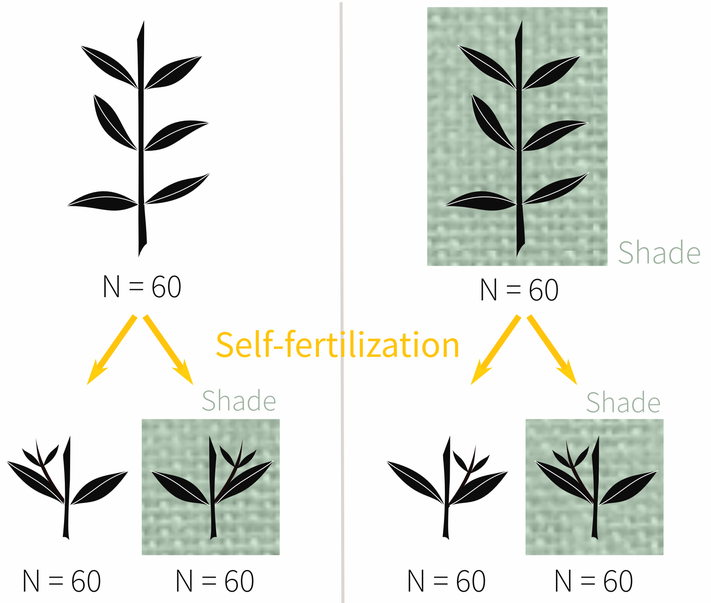
> **Traits measured on offsprings**
- mean internode length
- number of flowers (proxy for *reproductive output*)

> **Statistical analyses**
Linear Mixed Models

Antirrhinum majus
(common snapdragon)

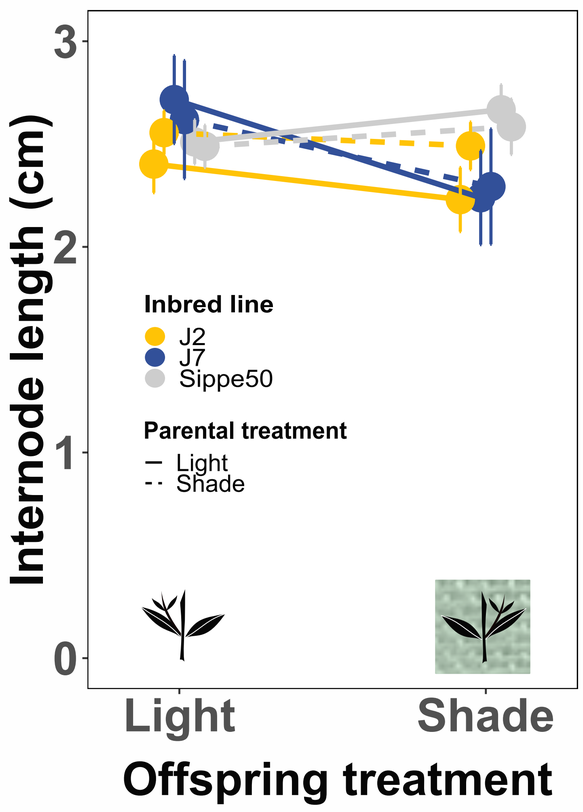
x 3 inbred lines

Parents



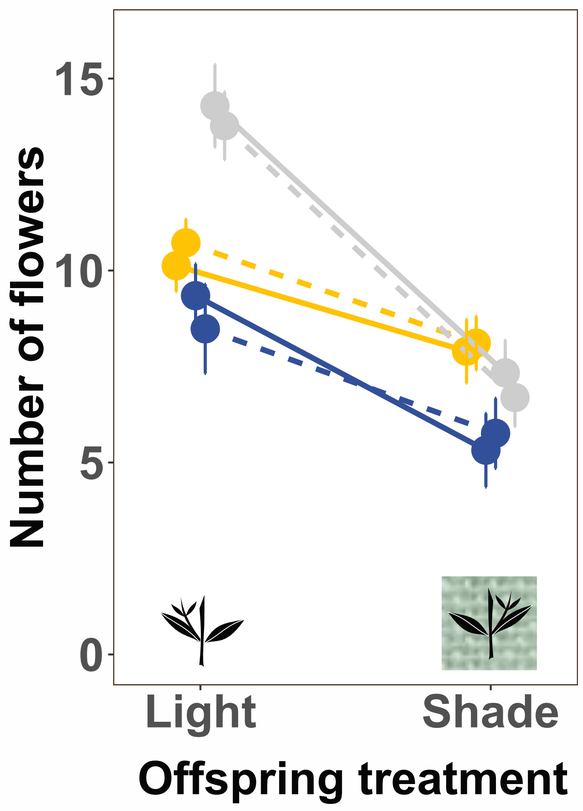
Offsprings

INTERNODE LENGTH



The effect of the **parental environment** differs between lines

NUMBER OF FLOWERS



Plants currently in the **shade** produce **less flowers**

Lines have fixed differences

No interaction between **parental** and **offspring environments**

Lines have different **plastic responses to shade** (offspring environment)

TAKE HOME MESSAGES

Transgenerational plasticity depends on genetic background and trait

> Parental environment affects lines differently

> Suggests that genetic variation for the transgenerational response could be found in natural populations

> Plasticity (within or between generations) was not enough to cancel the negative effect of shade on reproductive output (fewer flowers)

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