**RESULTS**

To determine if there were differences in style or anther growth in plants facing east, facing west, or facing west and treated with heat we used Bayesian regression modelling to fit a Weibull growth model (Weibull, 1951; Yang *et al.*, 1978). For styles, the predicted growth rate for west facing plants was less than that of east facing plants (posterior probability (pp) W < E = 0.9998 ; figure S6). Treatment of west facing plants with heat increased the growth rate compared to untreated west facing plants (pp WHeat>W = 0.9998; figure S6) so that they were more similar to east facing plants. Similarly, the inflection point of the style growth curves was later in west facing plants as compared to east facing pants (pp W > E = 0.9998; figure S6). Treatment of west facing plants with heat shifted the inflection point earlier (pp W > WHeat = 0.9998), more closely resembling east facing plants. In contrast, there was no evidence that anther growth rates differ between east and west plants (with or without heat) (pp W < E = 0.623; WHeat < E = 0.432; figure S6). The inflection point for anther growth was later for both west and west with heat when compared to east (posterior probability W or Wheat > E = 0.99), however there was no evidence that the heat treatment altered the inflection point (posterior probability W < WHeat = 0.492; figure S6).

**METHODS**

**Bayesian modeling of anther and style growth**

To determine if there were differences in style or anther growth in plants facing east, facing west, or facing west and treated with heat we fit a Weibull growth model (Weibull, 1951; Yang *et al.*, 1978) using the BRMS (Bürkner, 2017, 2018) package in R (R Core Team, 2021) as an interface to STAN (Stan Development Team). The model was parameterized as:

Where is the length at time , and are the upper and lower asymptotes, is the growth rate and is related to the inflection point of the growth curve. In this parameterization the inflection point, on the x-axis can be calculated as:

Observed style lengths shrank after the maximum length was reached, but this shrinkage cannot be fit with the Weibull model. Therefore any datapoints occurring after the maximum length was obtained were set to equal the maximum length.

Leave one out information criteria was used to compare models. In the best-fit model for style growth, and were modelled with growth trial (i.e. day) as a random effect predictor, whereas and were modeled with treatment as a fixed effect predictor and floret as a random effect predictor. In the best-fit model for anther growth, …

For information on priors, along with the scripts used for this analysis, please see <https://github.com/MaloofLab/Creux-New-Phytologist-2021>

**Figure S6. Bayesian modeling of style growth.** (A) Plots of actual and predicted growth. Each subplot is a different experimental day. Points represent averaged observations across the florets observed for a given treatment. Dashed lines represent predicted growth from the Bayesian growth model. Time 0 corresponds to ZT = -1. (B) and (C) parameter estimates and 95% confidence intervals for growth rate (k) and inflection point.

**Figure S7. Bayesian modeling of anther growth.** (A) Plots of actual and predicted growth. Each subplot is a different experimental day. Points represent averaged observations across the florets observed for a given treatment. Dashed lines represent predicted growth from the Bayesian growth model. Time 0 corresponds to ZT = -1. (B) and (C) parameter estimates and 95% confidence intervals for growth rate (k) and inflection point.