**Results**

*Flowering*

There was no significant difference between the regions for the day after growth initiation that the plant flowered (graph in appendix). There were 48 plants from the northern region that initially flowered and 17 from the southern region (figure 1). After all plants that flowered were placed in the treatments, not all of the plants flowered a second time. There were 21 plants in the control group and 24 plants in the heat treatment group that flowered for the northern plants. For the southern plants, 8 in the control and 6 in the heat treatment flowered again. Since the number of plants that flowered in the two regions differed substantially,

Chart, bar chart

Description automatically generated

Figure 1. The number of genets that flowered in the control and heat treatments before and after they were placed in the treatments. Counts for the northern and southern regions shown independently.

*Flower Development*

The flower type for the first flower after placement in the treatment was recorded. There was no significant difference between treatment groups and regions for flower type. Flower type did limit the data collected since staminate flowers were not used for variables such as ovule number, style and stigma length, stamen length, pollen diameter, fruit set, and seed number. Thus, treatment effects were only considered from plants from northern populations. There was a significant difference between regions for style and stigma length and stamen length. Southern plants had larger floral structures than northern plants when grown in control conditions. There were significant treatment effects for northern plants in both style and stigma length and stamen length. In both cases, development in heat reduced the lengths of the structures. There were no significant differences in ovule number between regions or treatments. Mean pollen diameter did not differ between the two regions, but there was a significant treatment difference. The diameter of pollen that developed in heat is significantly smaller than pollen that developed in the control conditions.

Chart, bar chart

Description automatically generated

Figure 2. Number of plants with hermaphroditic and staminate flowers for the treatment groups. Counts for northern and southern plants displayed independently.

Chart, box and whisker chart

Description automatically generated

Figure. Regional differences for the length of the stigma and style developed in the control treatment.

Chart, box and whisker chart

Description automatically generated

Figure. The stigma and style length of northern plants in the treatment groups.

Chart, box and whisker chart

Description automatically generated

Figure. Regional differences for the length of stamen developed in the control treatment.

Chart, box and whisker chart

Description automatically generated

Figure. The stamen length of northern plants in the respective treatment groups.

Chart, box and whisker chart

Description automatically generated

Figure. The mean pollen diameter of northern plants from flowers that developed in the respective treatment groups.

*Post-pollination*

Pollen germination at 40°C was significantly different between regions and treatment groups. In both treatment groups, northern plants had significantly higher pollen germination than southern plants. Pollen germination at 40°C was significantly lower for pollen that developed in the heat treatment than pollen that developed in the control treatment.

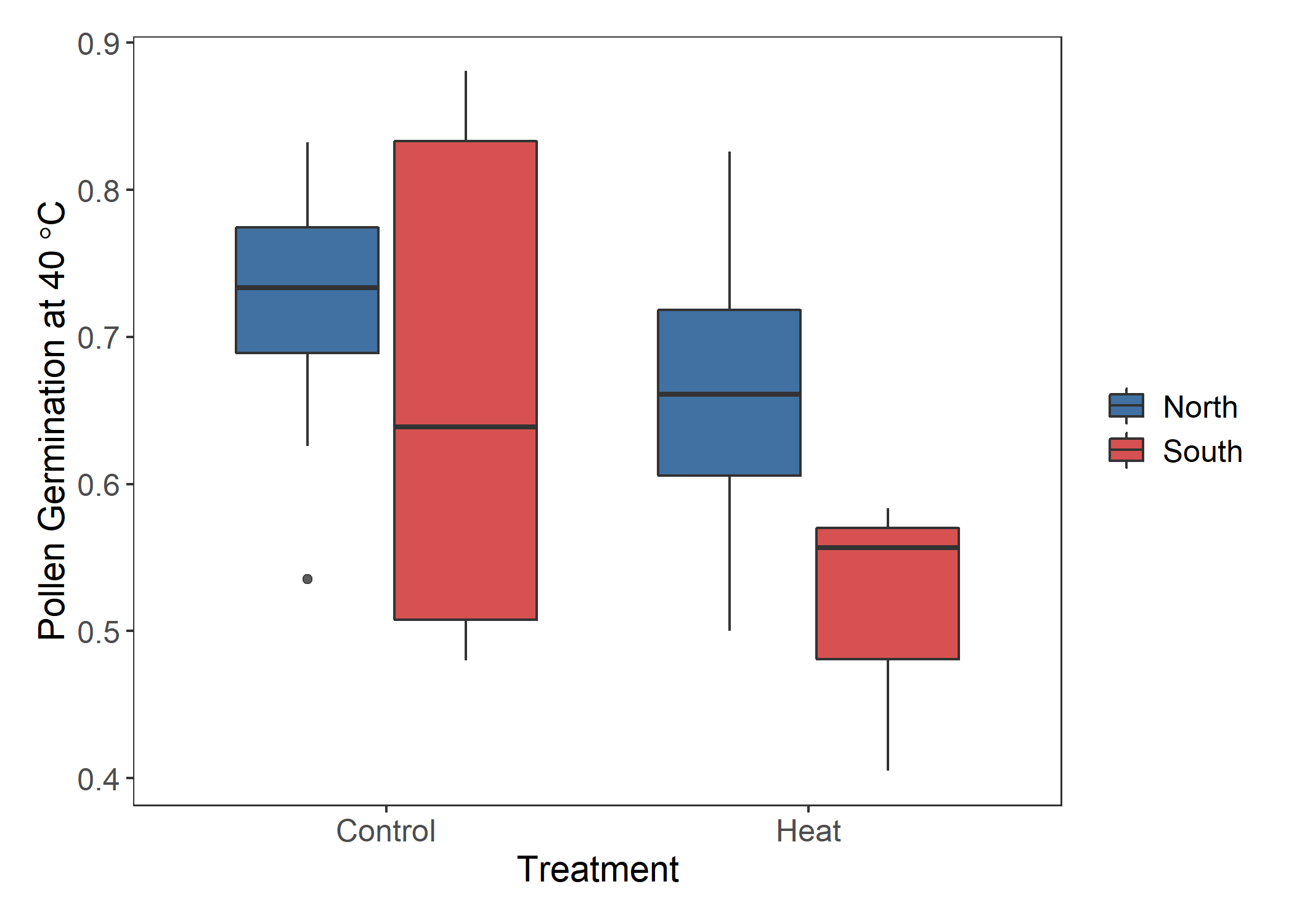


Figure. Pollen germination in the two treatment groups. Region indicated by color.

Chart, bar chart

Description automatically generated

