**Materials and Methods**

Plant Material/Seeds

Varieties of *Helianthus annuus* were stored in a cold room at 3 °C until the start of experimenting. Six different genotypes of seeds were acquired from USDA ARS GRIN: \_\_\_\_\_\_, \_\_\_\_\_\_, \_\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_\_. To account for maternal affects, seeds selected were all increased during the same year and in the same location/conditions.

Figure N: *Map of where the genotypes came from*

{Insert a map of the US here with pinpoints reflecting where each seed variety is from)

When the experiment was conducted (July 2021- \_\_\_\_ 2021), all seeds were approximately \_\_\_\_ old. Dry weights of the seeds are listed in Table 1.

Table N. *Fresh weights of seeds of wild Helianthus annuus*

{Insert table here once we have the data}

Fatty Acid Composition Analysis

Details of GC, also have a table here w composition values for FAMEs.

Seed Germination

Seeds were surface-sterilized with 2% sodium hypochlorite solution for 60 seconds and washed with deionized water five times (30 seconds per wash) under a fume hood (Belo et al., 2014). This sterilization process was performed to minimize contamination from epiphytic fungi during the germination process. Seeds were germinated in darkness in 9 cm Petri dishes, with three replications per treatment and 25 seeds per plate. In the Petri dishes, the seeds were placed on four sheets of qualitative filter paper and moistened with 11 mL of deionized water. During the treatment, dishes were given additional water as needed to avoid desiccation. Seeds were incubated at 10 different temperature treatments in an Espec EPU-3H germination chamber H: \_\_\_\_\_\_\_\_\_. Germination was defined by the emergence of the radicle (3 mm), and was recorded and imaged every 12h during the treatment. Treatments were considered “complete” when \_\_\_\_\_\_\_\_\_. To test the viability of seeds that remained ungerminated, tetrazolium analyses were performed.