Photoperiod sensitivity in Ivyleaf morning glory, *Ipomoea hederacea*

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**Background**

- *Ipomoea hederacea* is an annual weedy vine with a wide range that spans from the southern United States up into the Great Lakes
- Annual lifecycle starts in late spring and continues until a frost ends the season
- Evidence of photoperiodic response in flowering
- Previous studies have shown photoperiod is the most important factor for the initiation of flowering
- Observation: Southern populations are more difficult to induce flowering
- Climate change is predicted to promote species’ range shifts; photoperiodism may limit these shifts

**Aims**

- What are the importance of light cues for flowering?
- How do life history traits affect responses to changes in daylight?
- How will global change affect responses to novel photoperiodic cues?

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**Methods**

- 4 populations, 43 families from each
  - Pop 1 = Pennsylvania
  - Pop 2 = Maryland
  - Pop 3 = Hoffman, NC
  - Pop 4 = Ellerby, NC
- 4 chambers, 2 of each type
  - Chamber 54, 55 = PG155
  - Chambers 70, 74 = E15
- 5 racks in each chamber
- n = 688

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**Results**

**Figure 1** - Distribution of sampled populations. Map depicting origins of populations 1, 2, 3, and 4.

**Factors:**

- Leaf treatment (slow/fast)
- Population (1/2/3/4)

**Measured:**

- Leaf growth rate, leaf size, date of first flower; size at first flower, daylength at first flower
- Grow for 18 weeks at constant temperature of 25°C
  - First 2 weeks at 16h daylength
  - Slow light treatment: decrease daylength by 1h every 2 weeks
  - Fast light treatment: decrease daylength by 1h every week

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**Discussion**

- Populations vary in response to light cues, affecting leaf size
  - Despite being far apart, Pennsylvania and Ellerby display similar trends in leaf size
- Flowering time varies between populations and in response to the light treatments
- At this time, data on size at flowering, fruit number, and biomass has not been fully collected
- This additional data can be analyzed to further examine photoperiodic effects and how they vary between populations

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**References**


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