

Research Report: HORTICULTURE 2017

Foliar Sprays for Cut Flower Production



FARMER-RESEARCHER
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WHY IT MATTERS

Ecological cut flower growers are more limited in their options for managing pests and disease pressure. There is anecdotal and observational information around the use of organic foliar sprays, but quantitative data is lacking. **To generate robust data for herself and other growers, Jessica tested the efficacy of a nutrient foliar spray and an anti-fungal spray on two flower varieties.**

RESEARCH QUESTIONS

Does nutrient spray improve length of Sweet Pea? Does anti-fungal spray improve survivability of Lisianthus?

METHODS

Sweet Pea

Spray: Seaweed liquid fertilizer, \$75.89

Spray rate: 3 oz / 3 gal in spray pack.

Schedule: Weekly, 7 weeks, Jun 12-Jul 26

Measurements: On two dates, Jessica collected 3 stems at random per section, from the middle of each section to avoid drift. She measured the length of each stem as an indicator of marketability.

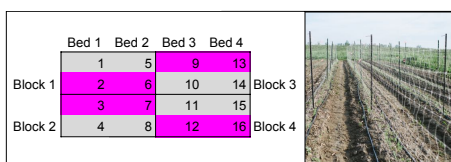


Figure 1 A) Layout with 4 replicate blocks and **B)** photo of the Sweet Pea trial, with 12 stems/bed. **Pink** = Spray; **Grey** = no spray control.

Lisianthus

Spray: Chamomile, \$197.75

Spray rate: 32 oz / pack

Schedule: Weekly for 7 weeks from June 30 to August 14, with one week skipped.

Measurements: Six times between Jul 11-Oct 4, Jessica removed and counted stems affected by fungal disease.

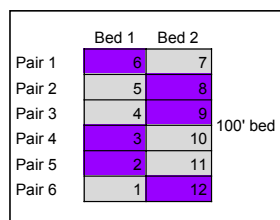


Figure 2A) Layout of the Lisianthus trial in 6 replicate pairs and 1200 stems/bed. **Purple** = Spray; **Grey** = no spray control.

RESULTS

Sweet Pea

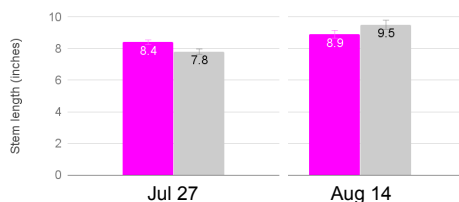


Figure 4. Average stem length for Sweet Peas. **Pink** = Spray; **Grey** = no spray control.

- July 27: **Sweet Pea stem length was longer in the spray sections** and we are confident this was due to the spray (P=0.02).
- August 14: Average stem length of the control plants was also longer but we do have evidence this was an effect of the spray (P=0.12).

TAKE HOME MESSAGES

Sweet Pea

- The efficacy of the nutrient foliar spray varied and resulted in longer stems at peak growth in July, but not August.
- Different nutrient foliar sprays are made for specific developmental stages. Jessica's results suggests the liquid seaweed spray helped Sweet Peas during early stages of development (flowering).
- The boost in stem length in July from the spray was ~1.5 cm. Jessica isn't sure whether this difference is worth the cost of the spray. She wants to replicate the trial to see if this difference increases with better growing conditions (i.e. less wet!)



Sweet Pea stem measurement

Lisianthus

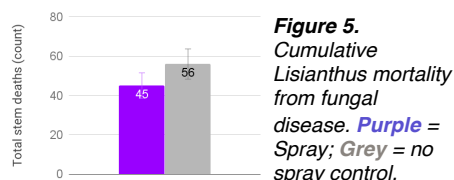


Figure 5. Cumulative Lisianthus mortality from fungal disease. **Purple** = Spray; **Grey** = no spray control.

- At each date separately (not shown), as well as cumulatively throughout the season (Fig 5), we were **unable to detect a spray effect on Lisianthus death from wilt** (P=0.63).
- Overall mortality from fungal disease was low (2-19 stems per section).

Lisianthus

- Lisianthus disease pressure from fungal pathogens was unaffected by the spray.
- The wet, cooler season was a perfect storm for fungal disease.
- Jessica is interested to try the efficacy of anti-fungal sprays in a more normal year for fungal pathogens.



Fungal wilt in Lisianthus

FUNDING

Ontario Trillium Foundation

Fondation Trillium de l'Ontario



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Earth to Table Farm Weather Data:

Monthly temperatures and precipitation for 2017 and historical averages.

Hamilton RBG CS was selected as the weather station for Earth to Table Farm. It is located 4km from the farm. However, there was no data for November and December 2017.

