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Prohexadione calcium for canopy management in cranberries

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Gibberellin (GA) stimulate stem elongation



Image: <https://doi.org/10.1093/aob/mcs049>

GA inhibitors make plants shorter

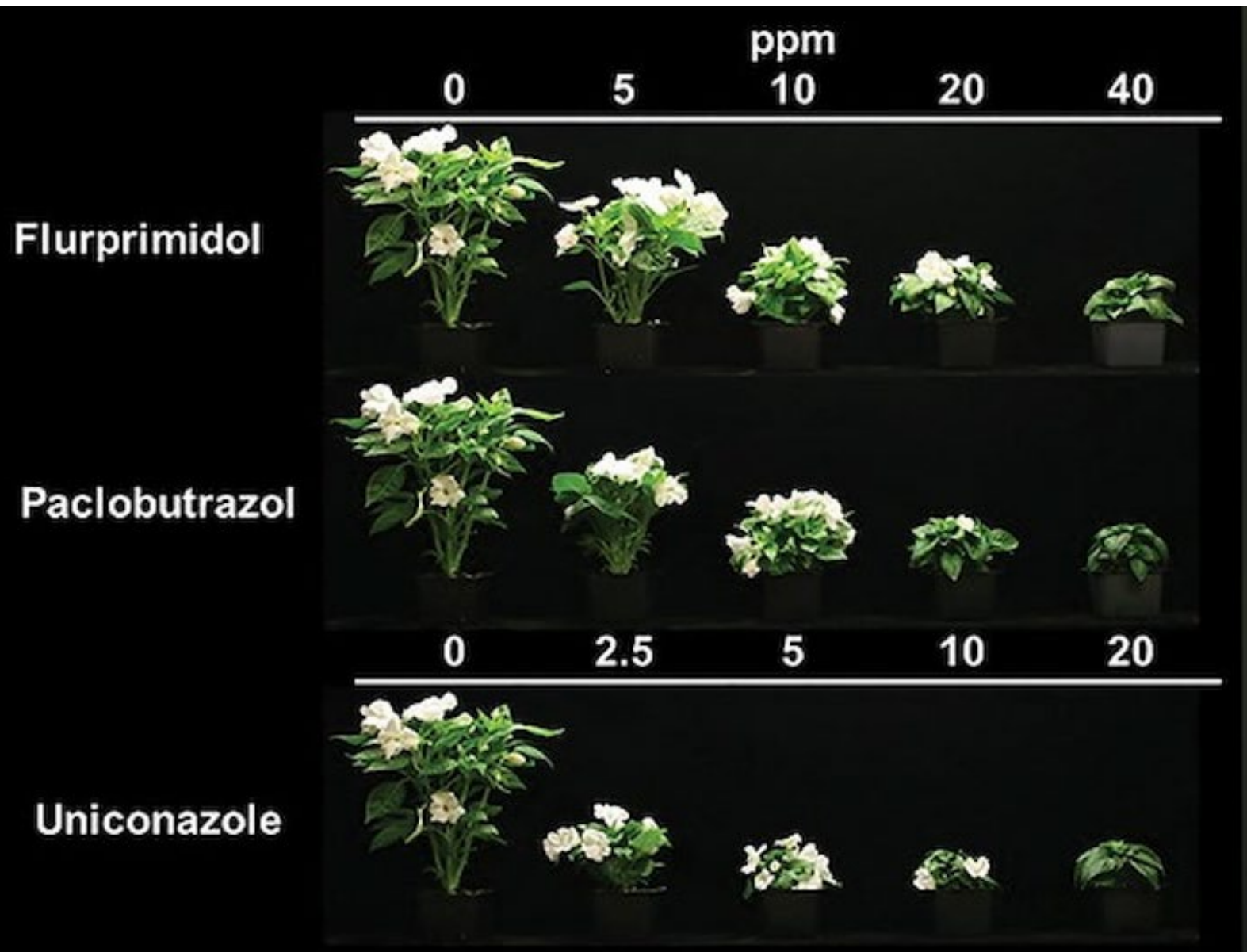


Image:
<https://www.greenhousemag.com/>
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Excessive vegetative growth in cranberries

Potential contributing factors

1. Genetics
2. Climate
3. Soil/nutrient conditions



GA inhibitors for canopy management

- Many GA inhibitors are available but,

Most are not suitable due to

1. Environmental concerns
2. Health concerns
3. Suboptimal activity

Prohexadione calcium
(Pro-Ca)



GA biosynthesis inhibitor
(Used in apples, cherries and
strawberries)

Important

Prohexadione calcium (Apogee®/Kudos®) is not labelled for use in cranberries. Our use of this product is for research purposes only.

DO NOT use this product in cranberries!

2021 study

- Cultivar: Stevens
- Apogee rates: 3 different rates
- Applications: 2 or 3
- Frequency: two-week intervals between applications



2021 study conclusions

- Applications of Apogee at the lowest rate tested (450 ppm) **reduced runner length** by approximately 30% **and** runner **density** by approximately 45%
- There was **no added advantage in higher rates**, and they may even reduce yield
- Treatment did not have an impact on **upright height**

2022 study

2022 Study Objectives

- To **optimize** Pro-Ca (Apogee) treatment rates and application timings in cv. Stevens
- To evaluate the **effects of previous year's** Apogee treatments on canopy growth parameters
- To evaluate the effects of Apogee growth regulator treatments on Mullica Queen

Stevens study 2022

- Rates: 300 and 450 ppm
- Number of applications: 2 or 3
- Application frequency:

2- or 3-week intervals;

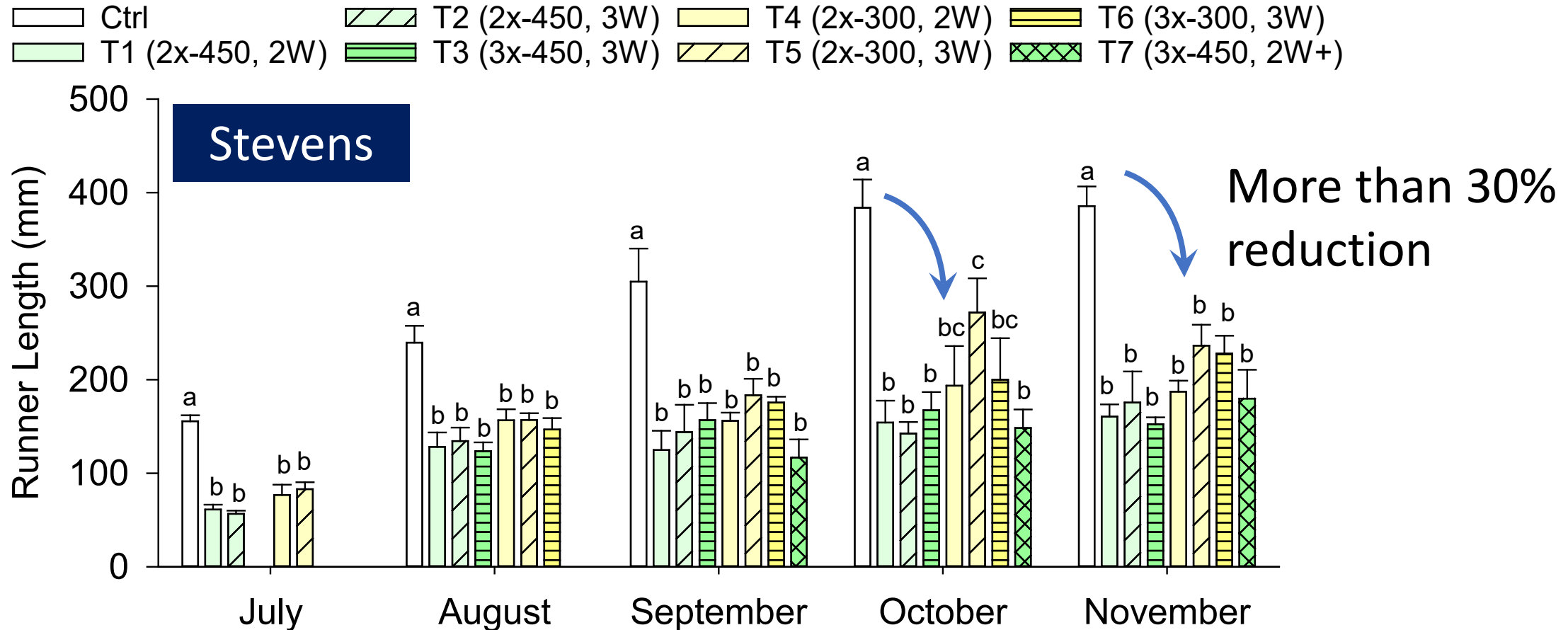
a treatment with two early applications followed by one late summer application was also included



Mullica Queen study 2022

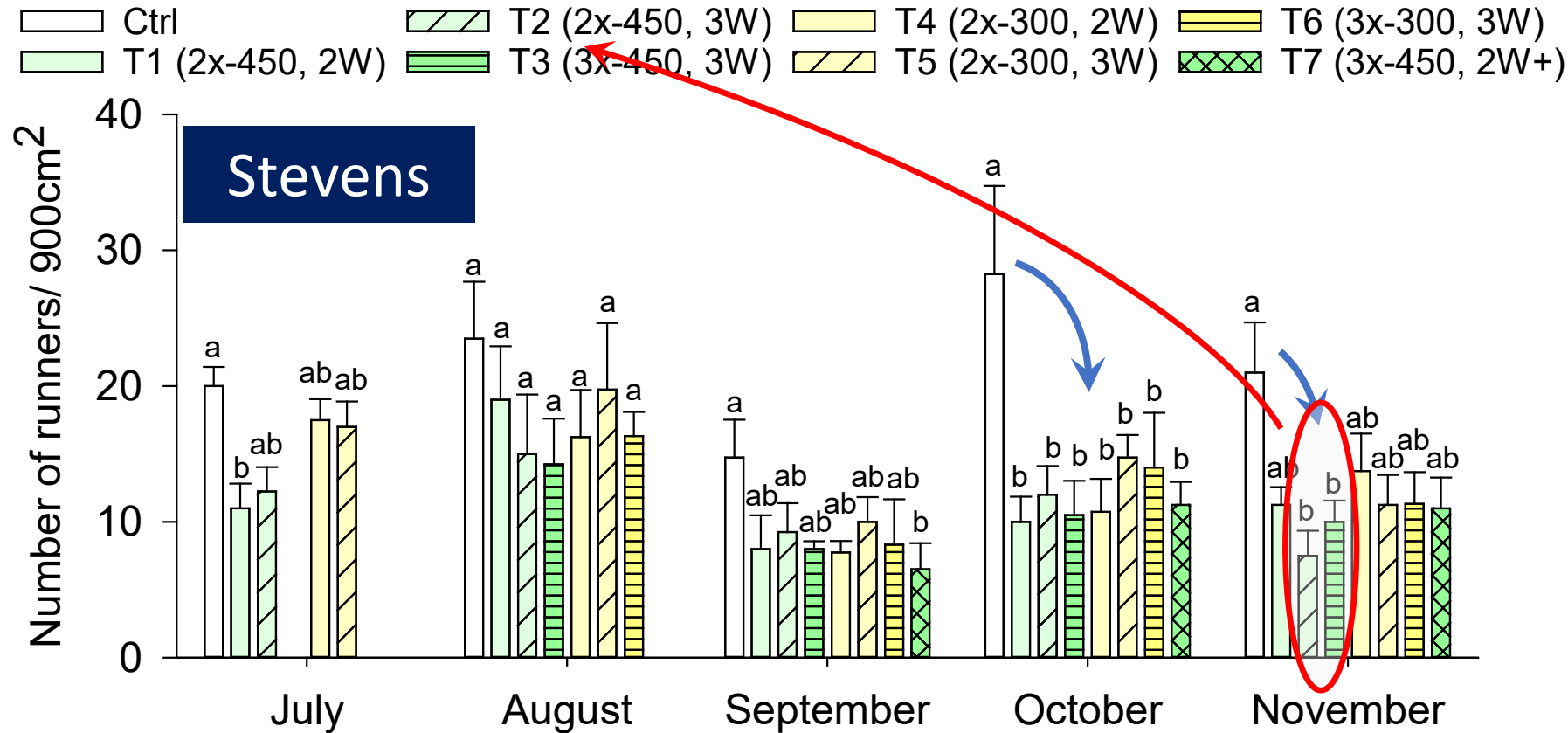
- Rates: 450 ppm
- Number of applications: 2 or 3
- Application frequency: 3-week intervals

Apogee treatment reduces runner length



Due to a limited number of runners, runner growth was not studied in Mullica Queen

Apogee treatment reduces runner density



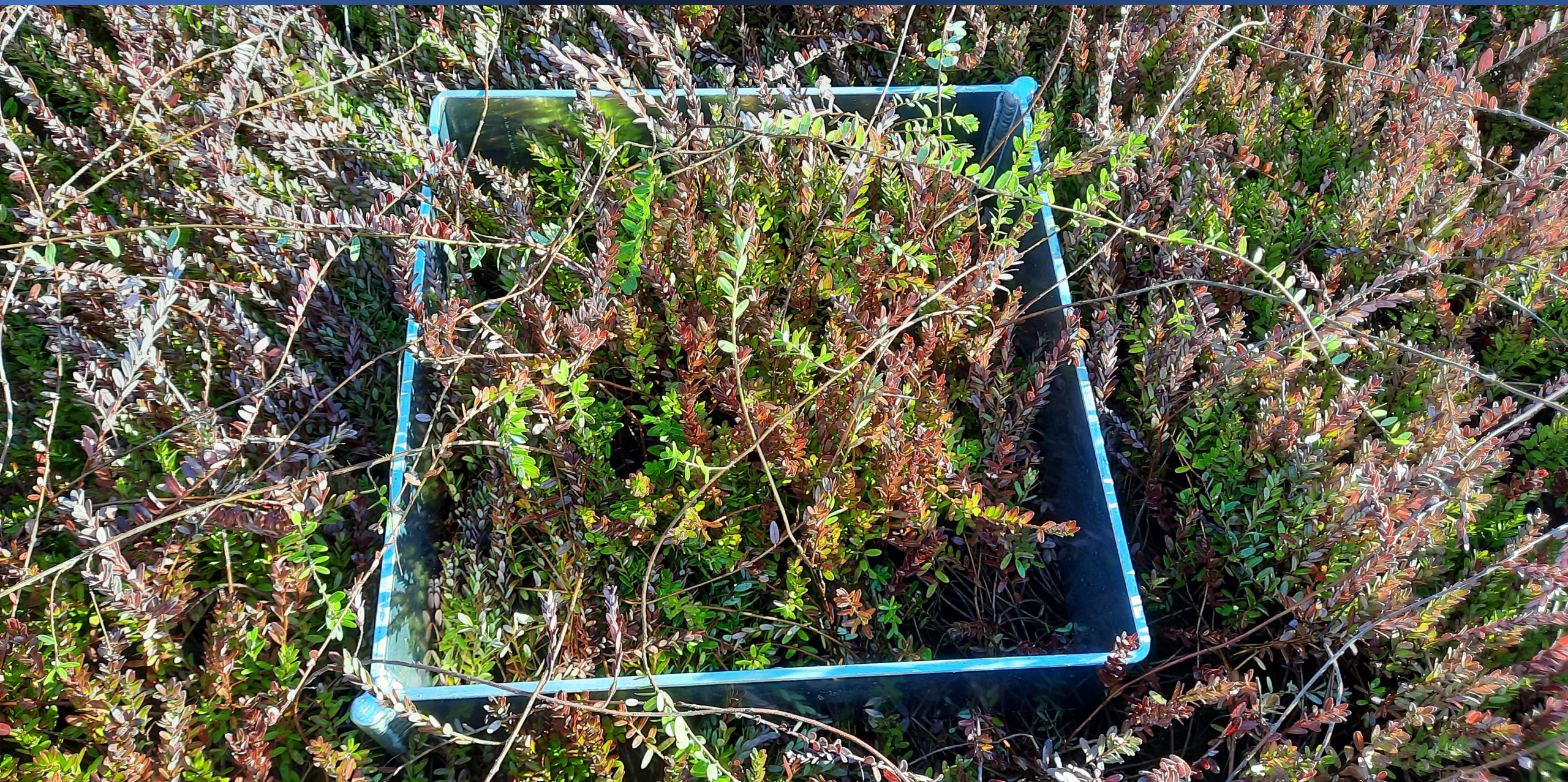
Due to a limited number of runners, runner growth was not studied in Mullica Queen

Apogee treatment effects

In both Stevens and Mullica Queen, Apogee treatment had no significant effect on:

- Upright height
- Fruit yield
- Fruit qualities, including anthocyanin content, Brix, and titratable acidity (TA)
- Fruit rot incidences

Q&A



Is apogee growth regulator an effective option for canopy growth control?

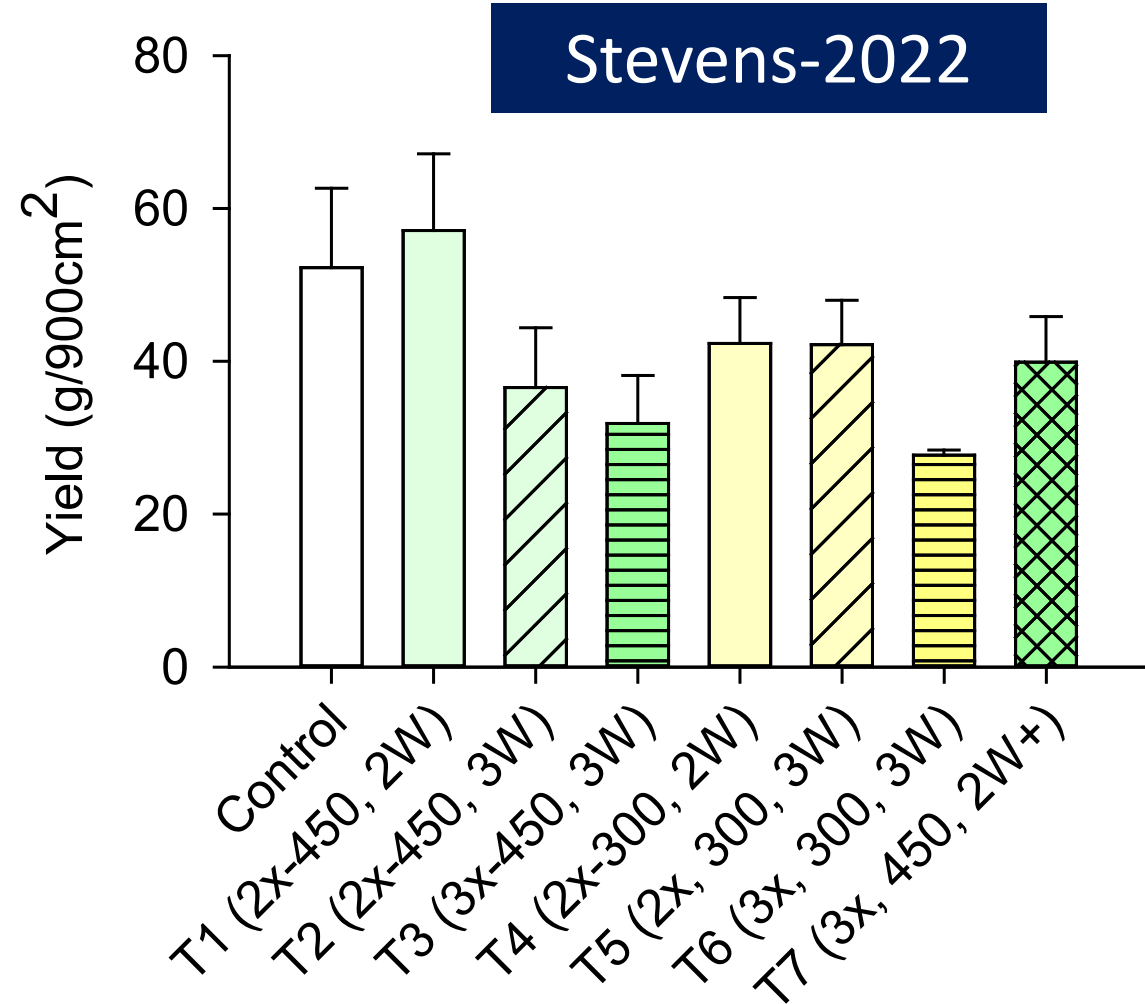
- Yes, Apogee growth regulator is an effective option for canopy growth control as it **limits runner growth**
- It may be particularly beneficial in cultivars with excessive runner growth

What if the cultivar produces limited runners?

- There is **no clear benefit** of Apogee treatment as it has no impact on upright growth
- Already **high variability in upright height**, which makes it difficult to detect smaller impacts
- Long term impacts are not clear

What are the impacts on fruit yield?

- No **significant** impact on yield but,
- A larger scale study is required to better understand smaller impacts
- Restricted canopy growth may result in positive impacts in the long run

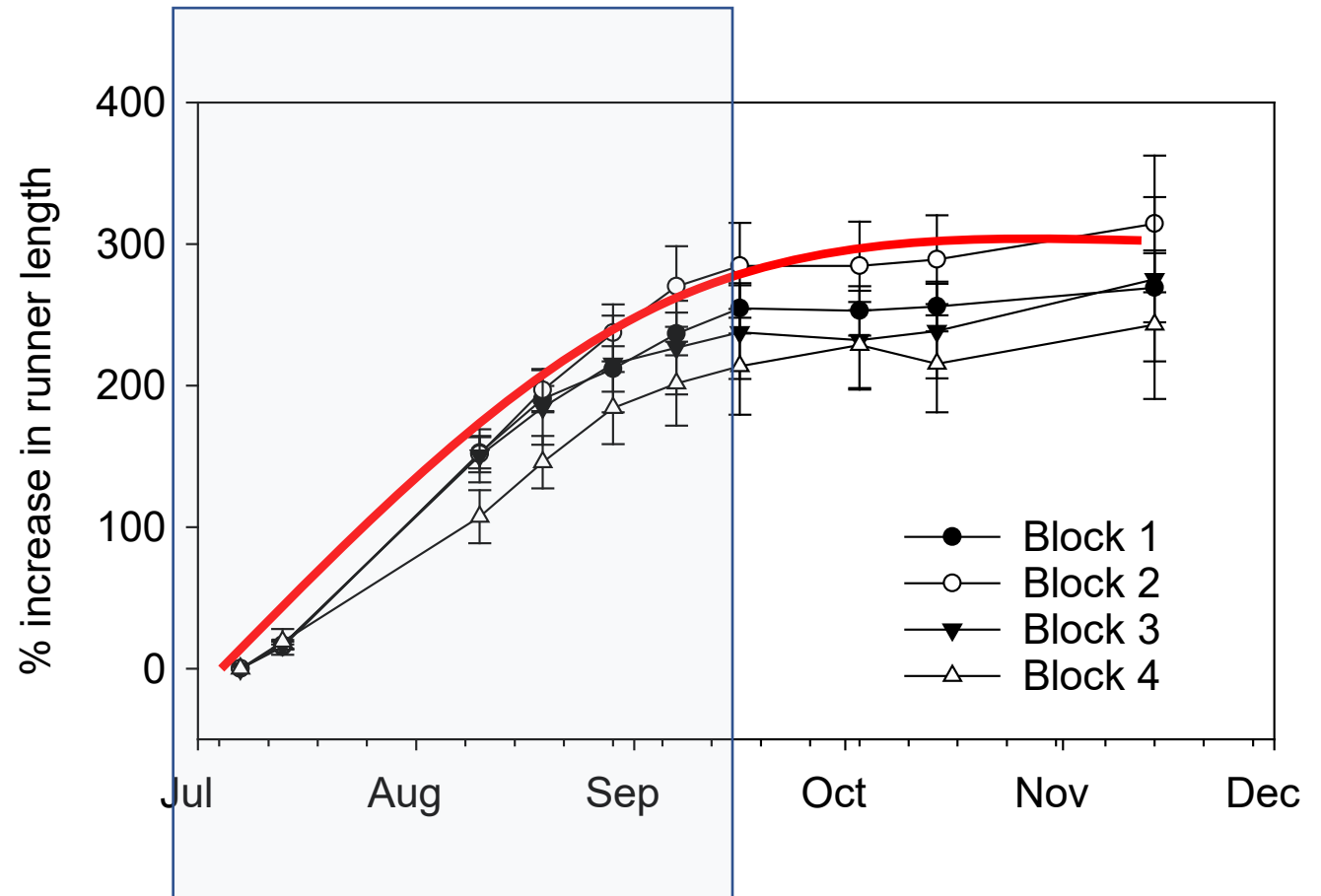


Will the vines catch up the lost growth later?

- Treated plants **may catch up a smaller percentage** of the lost growth when the treatment effect fades out
- However, including a late **August treatment** had **no benefit**
- **No growth catch up** was observed during the **next** growing season

When is the best time to do the spray?

- The general **recommendation** is to begin treatments at **early growth**
- Initiating **treatments on fast-growing shoots** on some plants further **accelerates growth**



When is the best time to do the spray?

- During the bud elongation stage in cranberries

What are the effective rates?

- Two applications of Apogee at 300-450 ppm range with 2-3 week intervals appear to give good results

Acknowledgments

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