

Increasing the Resilience of Potato Production to Combat Climate Change



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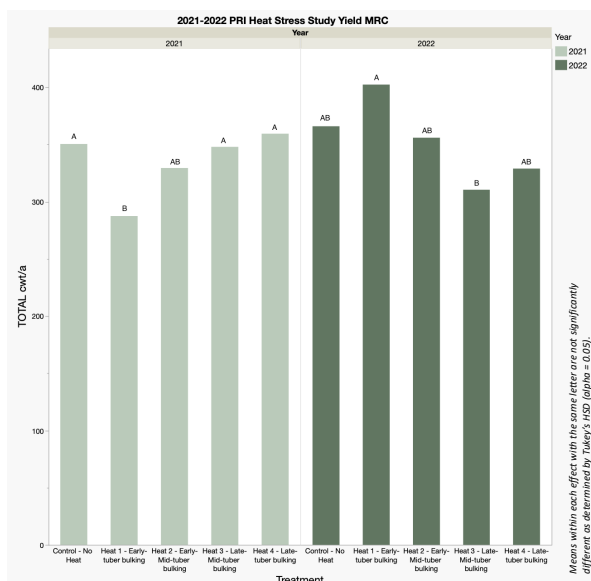
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The Challenge

Potato production is sensitive to heat stress. This sensitivity contributes to the vulnerability of US potato production to climate change, including projected increases in temperature and more frequent heatwaves. Storage, a key stage of potato production prior to marketing, is also vulnerable to climate change. Maintaining tuber quality through the storage period is essential to grower profitability.

Objective

Our overarching goal is to increase the resiliency of US potato production to climate change. We are conducting research to increase the resiliency of US potato production through the identification, development, and implementation of stress mitigation and adaptation tools (e.g., new management options, potato varieties with greater resilience) during production and storage stages. We conducted a set of field and storage studies that benchmark elite cultivars under variable heat stress conditions during the 2021-23 growing seasons.

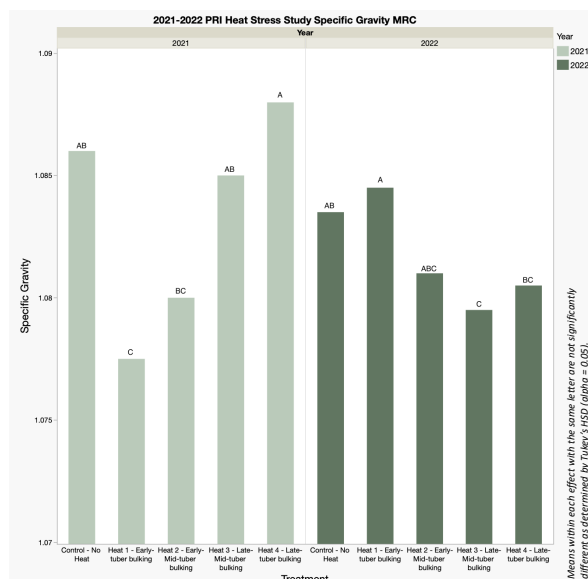


Summary

- Heat stress events at critical plant growth developmental stages can impact yield, tuber size profile, and specific gravity.
- Chip-processing quality and sugar chemistry from long-term storage does not appear to be significantly affected (data not shown) by the different heat stress events.
- Mackinaw is demonstrating heat stress tolerance and has significantly higher yields and specific gravity than Snowden.



A. Mobile Potato Heat Stress Structure is moved across the plots at different developmental plant stages. B. Temperature and moisture data logging and environmental controls in the structure. C. Heat stress effects at different developmental times compared between potato varieties Mackinaw and Snowden.



Acknowledgements

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