

Vine Killing Russet Burbank to Improve Skin Set

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Introduction

When harvesting potato tubers, it is difficult to not damage potato tuber skins because of the quantity and speed of moving tubers. Skinning of tuber occurs when the periderm is not fully developed and it is easily rubbed off, broken, or peeled during handling. Skin set is important for potato tubers, because the skin protects tubers from water loss and disease entry. Infected tubers that are put into storage risk the storability of the entire bin as diseases can spread in storage. Understanding skin set of russet tubers following different periods of time after vine kill can assist in reducing storage diseases. Lulai and Orr (1993) reported in non-irrigated Russet Burbank the torque pressure needed to shear the skin was greatest at 14 to 28 days after vine kill, followed by 7 days after vine kill, and the least amount of force needed was at 0 days after vine kill. No information is available on timing of skin set strength of irrigated Russet Burbank potatoes in Minnesota. The objective of this project was to determine skin set strength of Russet Burbank following different lengths of vine desiccation.

Methods

- Location: Perham, MN
- Years: 2022, 2024, 2025
- Cultivar: Russet Burbank
- Treatments:
 - A. Vine kill at 21, 14, 10, 7, and 0 days before harvest
 - » Skin strength measured with a Halderson periderm shear tester fitted with a flywheel attached to a torque meter (Lulai and Orr, 1993)
 - » All plots were harvested and graded
 - » Specific gravity measured
- Statistics: ANOVA (p=0.05)
 - » Tukey pair-wise to separate differences

Results

Figure 1. Skin strength (oz in⁻²) of Russet Burbank as affected by vine kill days before harvest (0, 7, 10, 14, 21) in 2022, 2023, and 2024 in Minnesota, USA.

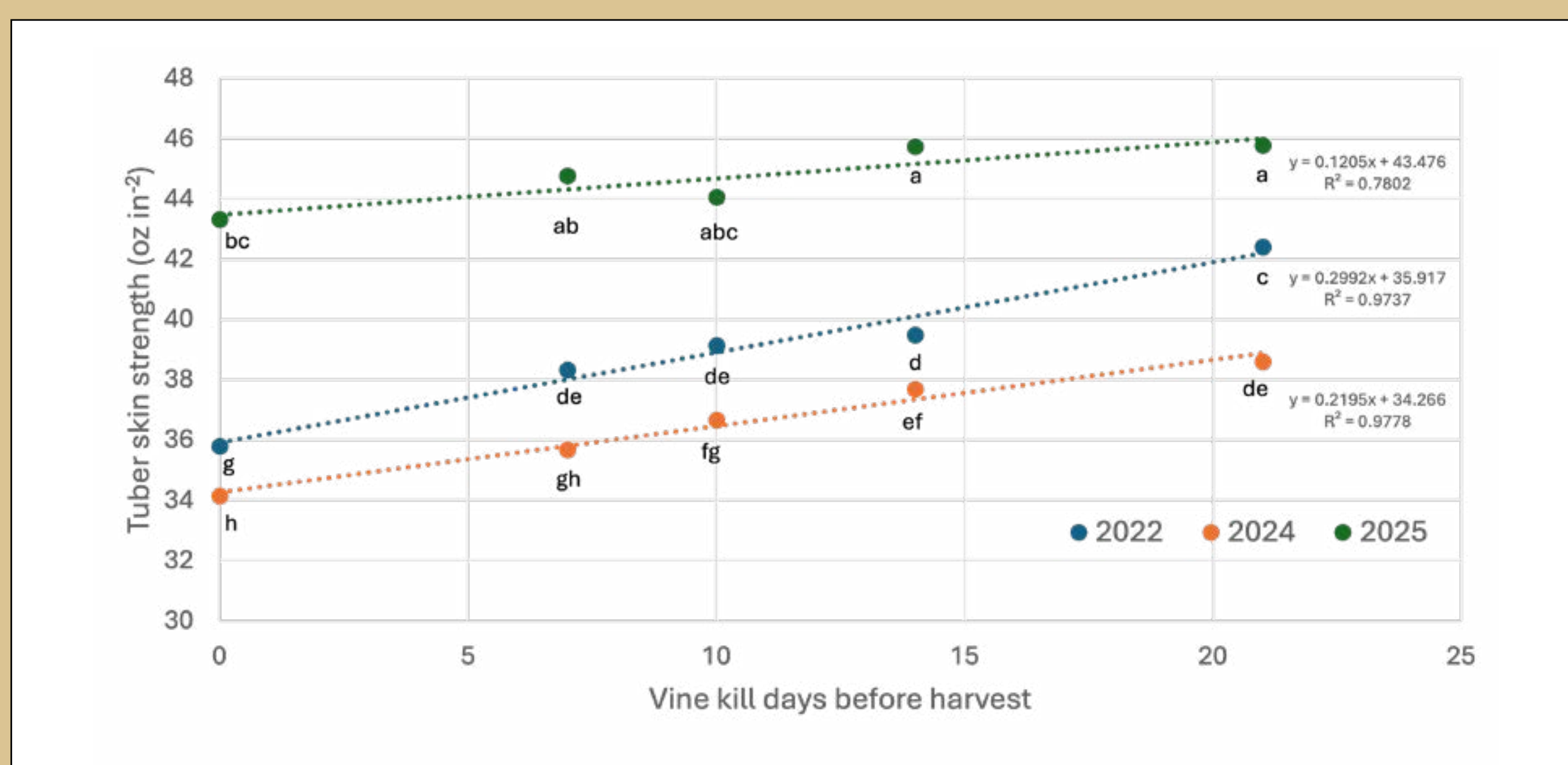


Figure 2. Russet Burbank tuber yield as affected by vine kill days before harvest (0, 7, 10, 14, 21) in 2022, 2023, and 2024 in Minnesota, USA.

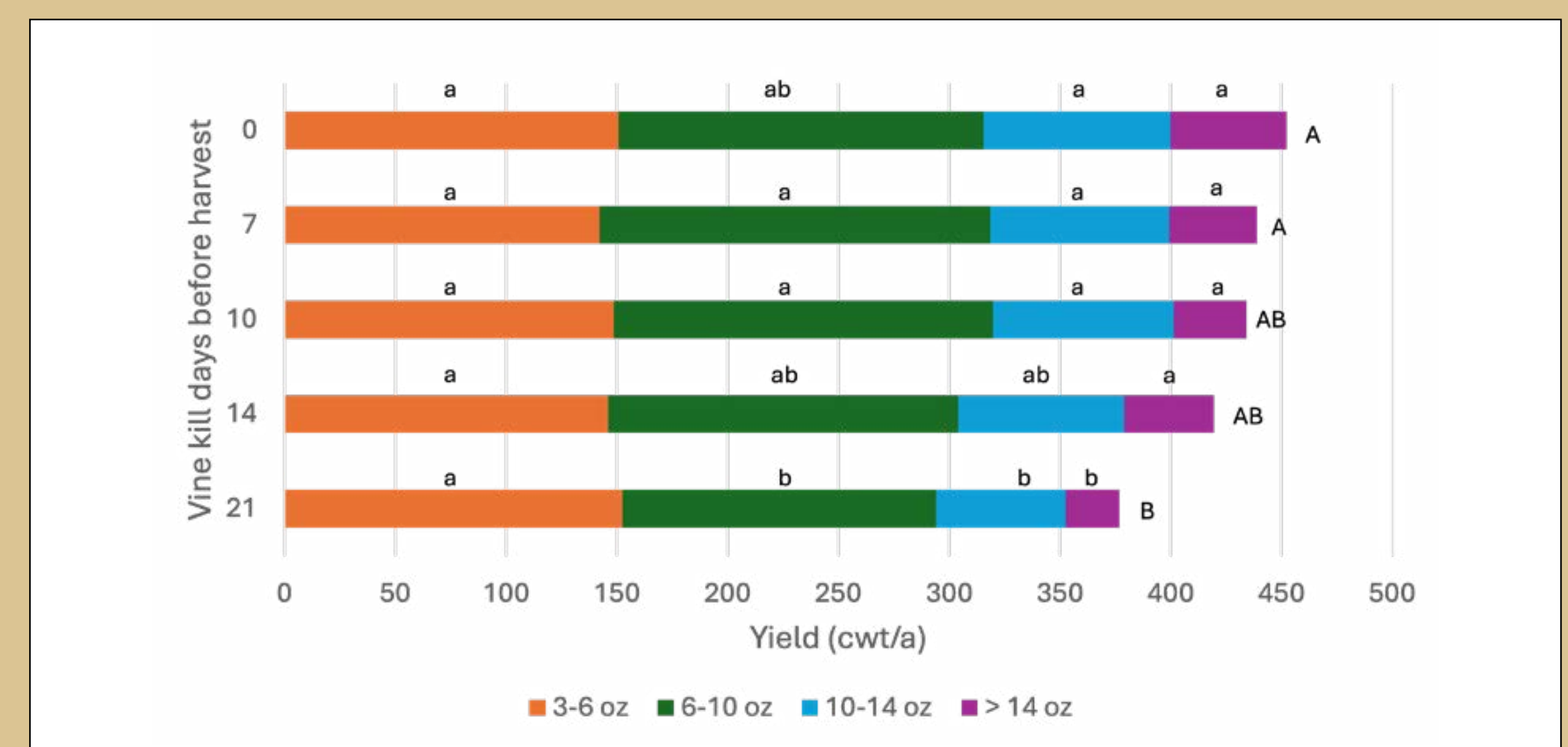
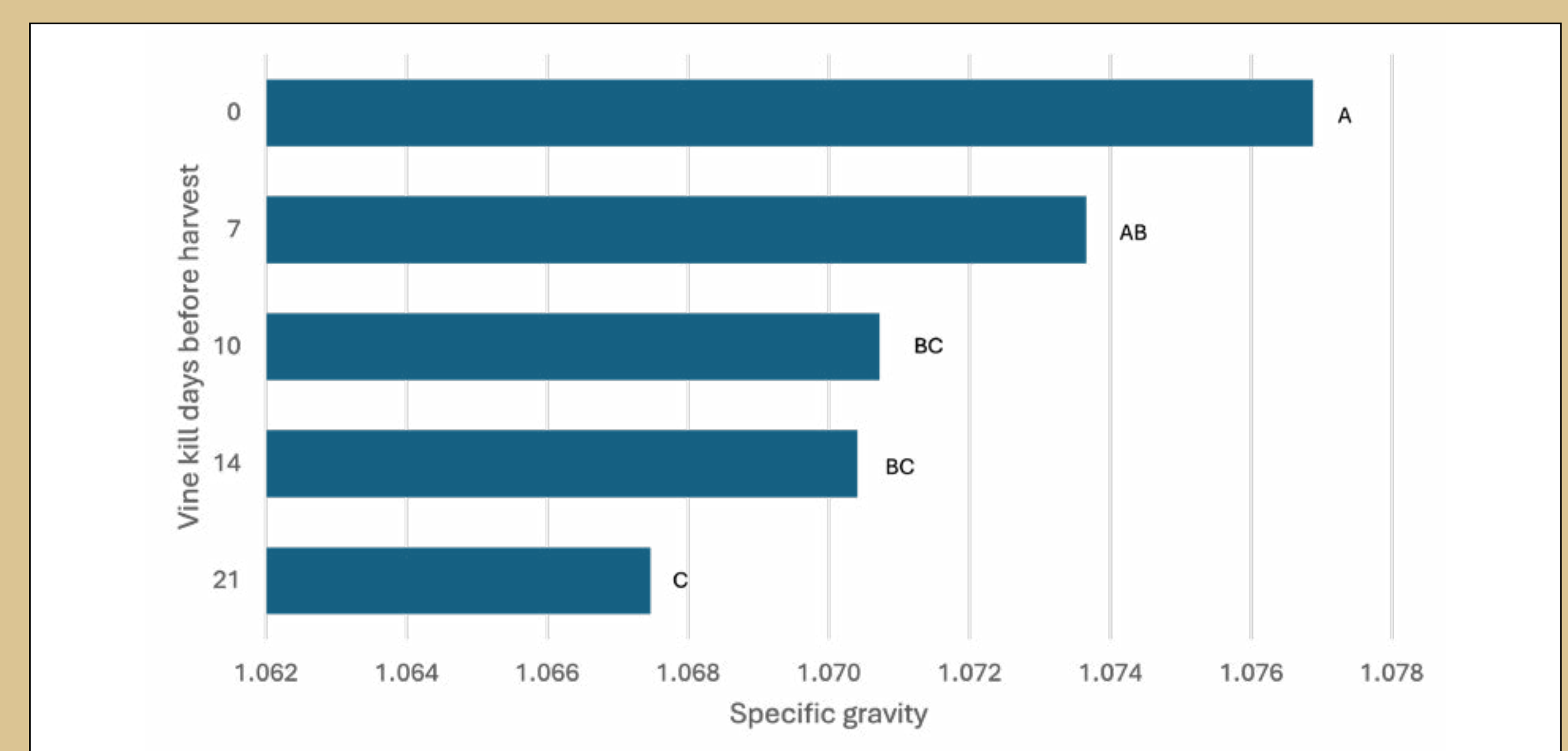


Figure 3. Russet Burbank specific gravity as affected by vine kill days before harvest (0, 7, 10, 14, 21) in 2022, 2023, and 2024 in Minnesota, USA.



Conclusion

Vine killing 7 to 14 days before harvest increased skin strength and did not significantly reduce yield, but specific gravity was reduced when vine killing occurred at 10 days or more before harvest of Russet Burbank potato in Minnesota.

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