Postharvest Handling Technology for Blackberry Quality and Shelf Life.

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Introduction

- Importance of post-harvest management
- •Consumer preference for quality
- •Short shelf life challenge in blackberries



- •Assess shelf-life and quality differences among cultivars
- •Measure changes in key biochemical and physical traits during storage

Hypothesis

"Storing blackberries for long durations affects shelf life quality among different cultivars."

Materials and Methods: Experimental Setup

- Cultivars Studied:
- → 'Freedom', 'Ponca', and 'Osage'

Replications:

→ 3 replicates per cultivar

• Packaging:

→ 12 oz clamshell containers used for each replicate

• Sample Size:

 → Individual fruits were placed uniformly in clamshells.

Materials and Methods: Storage Conditions

- Storage Temperature and Duration:
- 0°C (<mark>32°F</mark>):
- \rightarrow Day 0 to Day 7
- 5°C (<mark>41°F</mark>): :
- → Day 7 to Day 16
- Sampling Time Points:
- → Measurements taken at Day 0, 7, 12, and 16.



Materials and Methods: Parameters Measured

Postharvest Quality Assessments: Org

Organic Acids:

- Red Drupelet Reversion (%)
- Leaking Incidence (%)
- Weight and Weight Loss (%)
- Brix (Total Soluble Solids)
- pH Measurement

- Citric Acid
- Malic Acid
- Tartaric Acid

Blackberry at Different Days



Day 0



ponca Z day

Day 7





Day 12



Day 0





Weight Loss Percentage Across Varieties and Days



Leak Percentage Across Groups





Red Drupelet Percentage

Red Drupelet Percentage Across Days and Varieties



Brix and Citric Acid Content of Different cultivars





Sweet Sour Ratio

Brix: Citric Acid Ratio Across Days and Varieties



Changes of pH



Conclusion (Shelf Life and Quality Changes)

- Conclusion: Postharvest Quality Dynamics
- Storage duration and temperature significantly impacted blackberry quality across cultivars.
- Red drupelet reversion and leakiness increased with storage time, especially after Day 12.
- Freedom exhibited higher weight loss and red drupelet percentage compared to Ponca and Osage.
- Sweetness (Brix) decreased slightly, while acidity (citric acid) remained relatively stable, affecting flavor balance.

Cultivar Performance and Future Implications

- Cultivar Selection and Postharvest Implications
- 'Ponca' demonstrated better shelf-life stability with lower leakiness and red drupelet reversion.
- 'Osage' maintained a favorable Brix:acid ratio longer during storage compared to 'Freedom.'
- Selection of cultivar, proper postharvest handling, and optimized storage temperatures are critical for extending blackberry shelf life.
- Future research should explore improved storage technologies and cultivar breeding for enhanced postharvest resilience.