

A person in a plaid shirt and dark pants is walking away from the camera through a field of dry, yellowish grass. In the background, there is a large orchard of green trees. Further back, a tall white tower with a red top is visible. The sky is filled with dark, heavy clouds, suggesting an approaching storm.

2021 and 2022 Water Year: Impacts and Response Actions in WA Tree Fruit

Bernardita Sallato C.
Washington State University

Cherry production



Winter

Spring

Summer

Fall

Apple production

- Driven by environmental conditions –
Temperature



Winter

Spring

Summer

Fall



Spring Frost 2022

- March – April cold spells
- April Minimum Temp anomaly (- 3.0 F)
- A week of cold winds

Whiting, WSU



- April 12th
- 10% death with Temp 27 – 31 F
- Probability for upcoming lows
 - 56.9 – 92.5 Regina
 - 3.7 – 53.7 Sweetheart

Growers huddle to discuss cold strategies

Ross Courtney, TJ Mullinax // April 13, 2022



Snow covers cherry blossoms in Selah, Washington, on April 12, after a cold front brought freezing temperatures, snow and hail. Growers logged into a last-minute web meeting to discuss cold mitigation measures, among them whether to blow snow off blooms. “Don’t” is the answer.

 (TJ Mullinax/Good Fruit Grower)

Concerned about frost and poor pollination weather, nearly 250 Pacific Northwest fruit growers logged into a hastily organized Washington State University web meeting on April 12.

Spring
Frost
2022

Apples







Cold Spring 2022

- 2022 April – May
- Pollination
- Honeybees don't work below 55 F





- Fruit quality

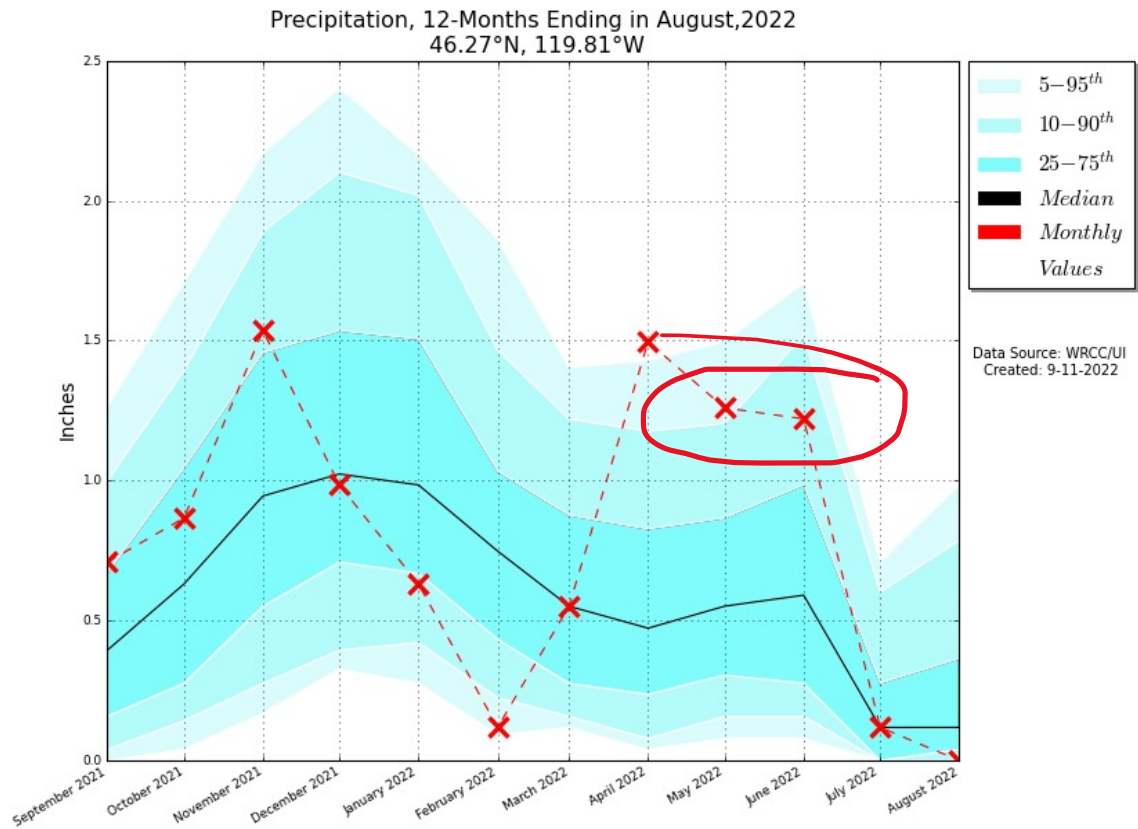


- Unpredictable pest and diseases



- Variability - Ripening

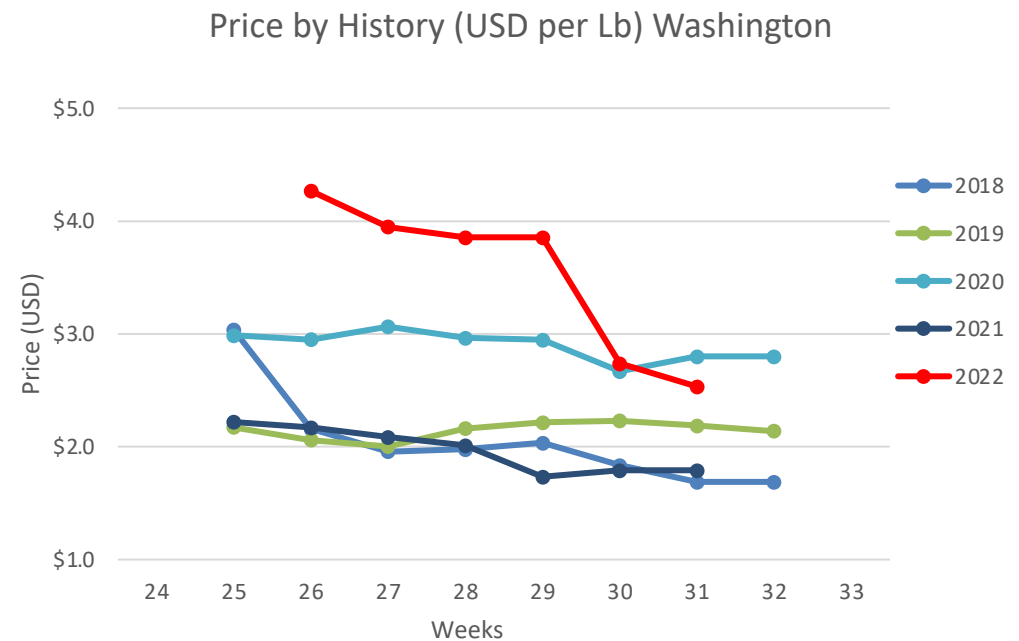
Pre harvest Rain 2022





Sweet cherry 2022

- Loss production
- 43% less shipments
- High price \$\$



Summer Heat

- Next year's buds
- Fruit maturity
- Tree growth

WestWideDroughtTracker

Current Maps

Archived Maps

Time Series

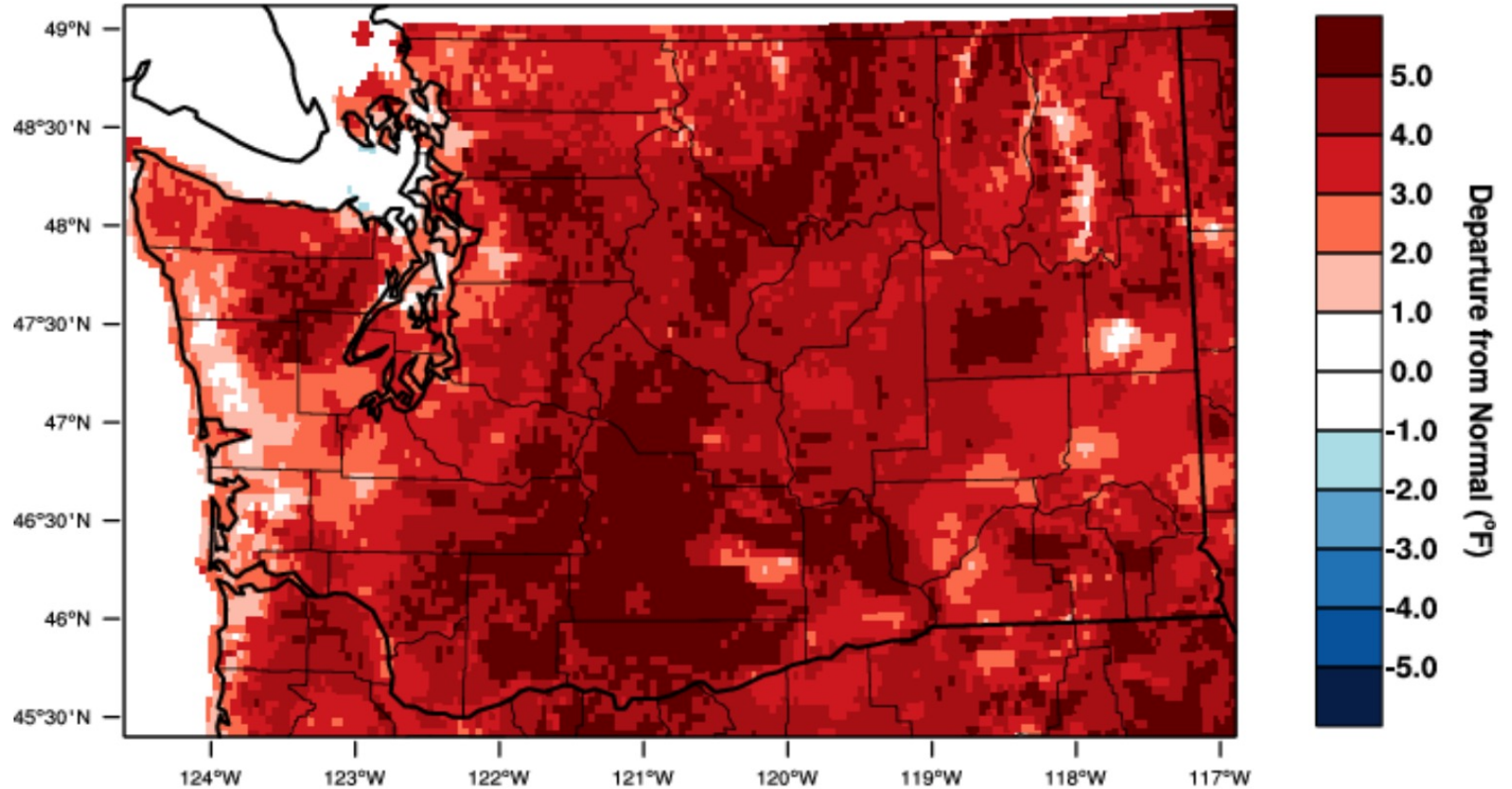
Download

Current Product:

PRISM > Temperature Anomaly 2 Month > Washington

Washington - Mean Temperature

July-August 2022 Departure from 1981-2010 Normal



WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 11 SEP 2022

<https://wrcc.dri.edu>

Post Harvest
Heat
2022



Doubles 2023



Whiting, WSU

Heat
2022



Crop losses

- Bitter pit 2022 + 36%
- Sunburn \pm 15%
- Storage ??



Irrigate

- Offers little benefit
- Can damage trees
- Water often not available



Expensive, only work during advective frost

Wind Machines



Expensive to operate, inefficient, concerns over air pollution

Heaters

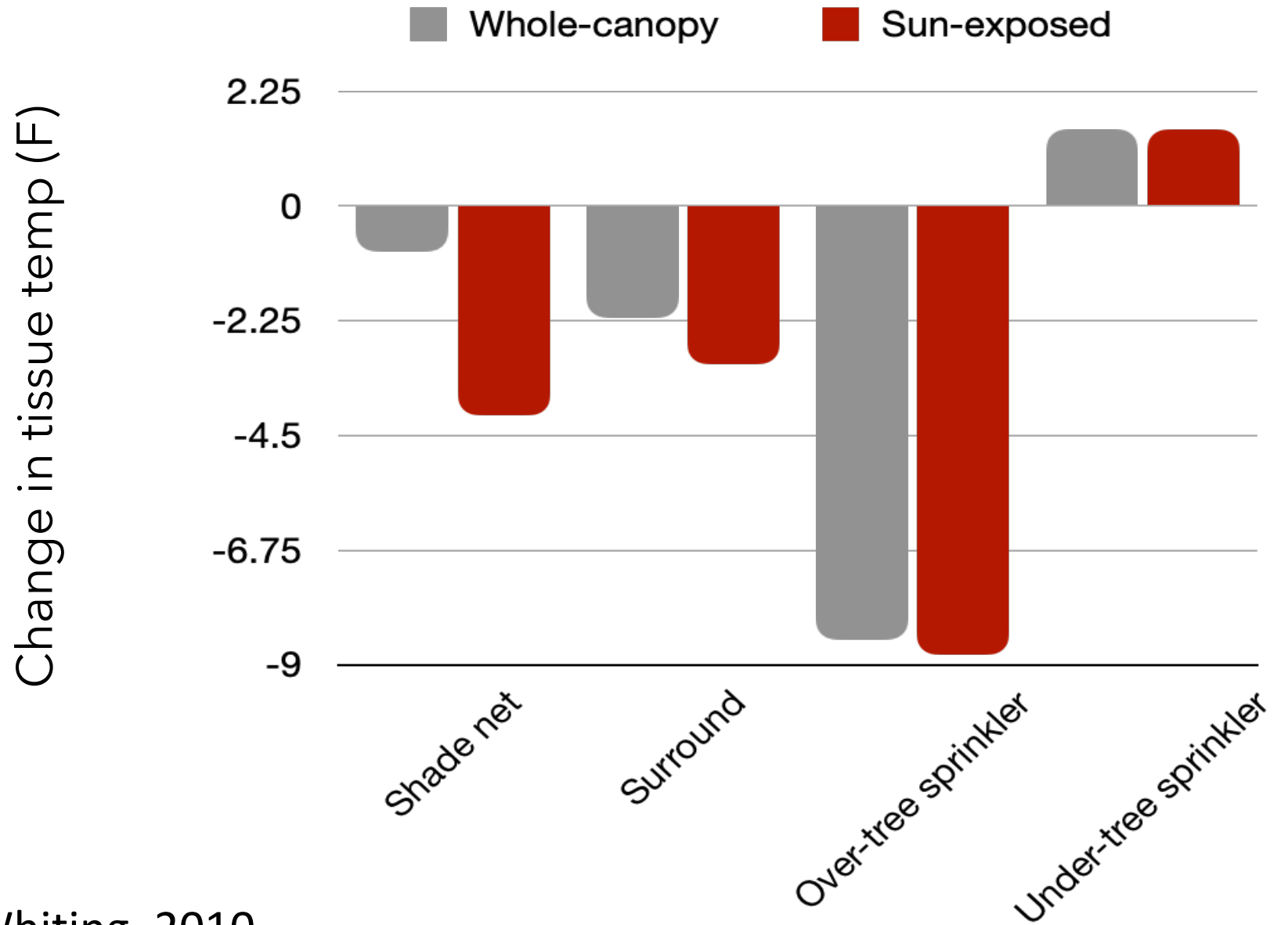


Netting





Heat protection



Whiting, 2010



TJ Mullinax/Good Fruit Grower







What is needed

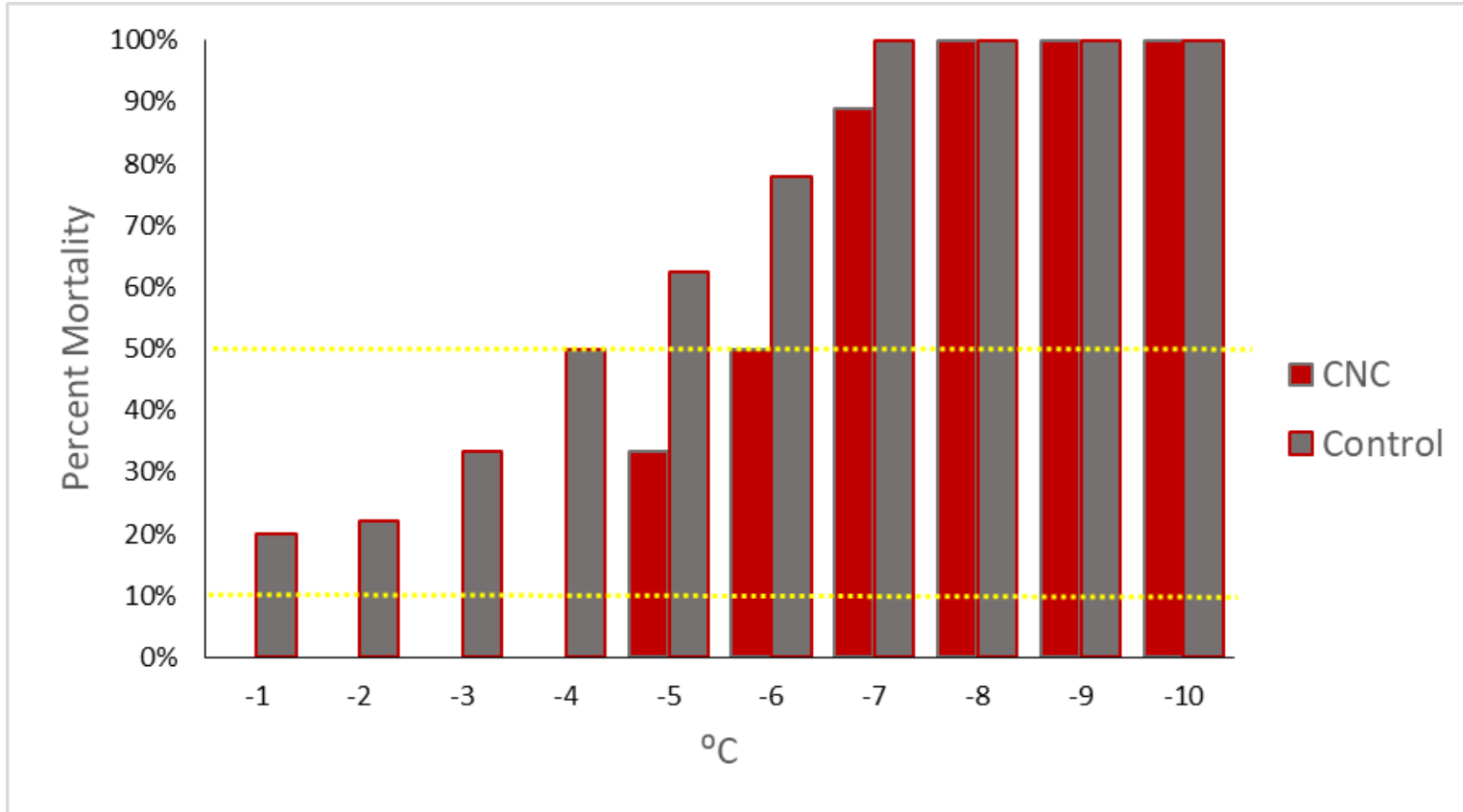
Forecasting





Innovating solutions

Protective solutions



7.9 F improvement in LT10

Whiting, 2022





Thank you

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Horticulture