

Climate Change and Strawberry Culture on the Central Coast

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Introduction

- Overview of strawberry culture on the Central Coast
- Discussion on how a warming trend would affect strawberry production here.
- Overview of strawberry plant production in Northern California
- Discussion on how a warming trend would affect strawberry plant production there.

Strawberry fruit production on the Central Coast

- During fruiting, daily minimums of about 55° F and daily maximums of about 75° F are optimum for maintaining high yields and fruit quality.



Examples of damage from temperature extremes

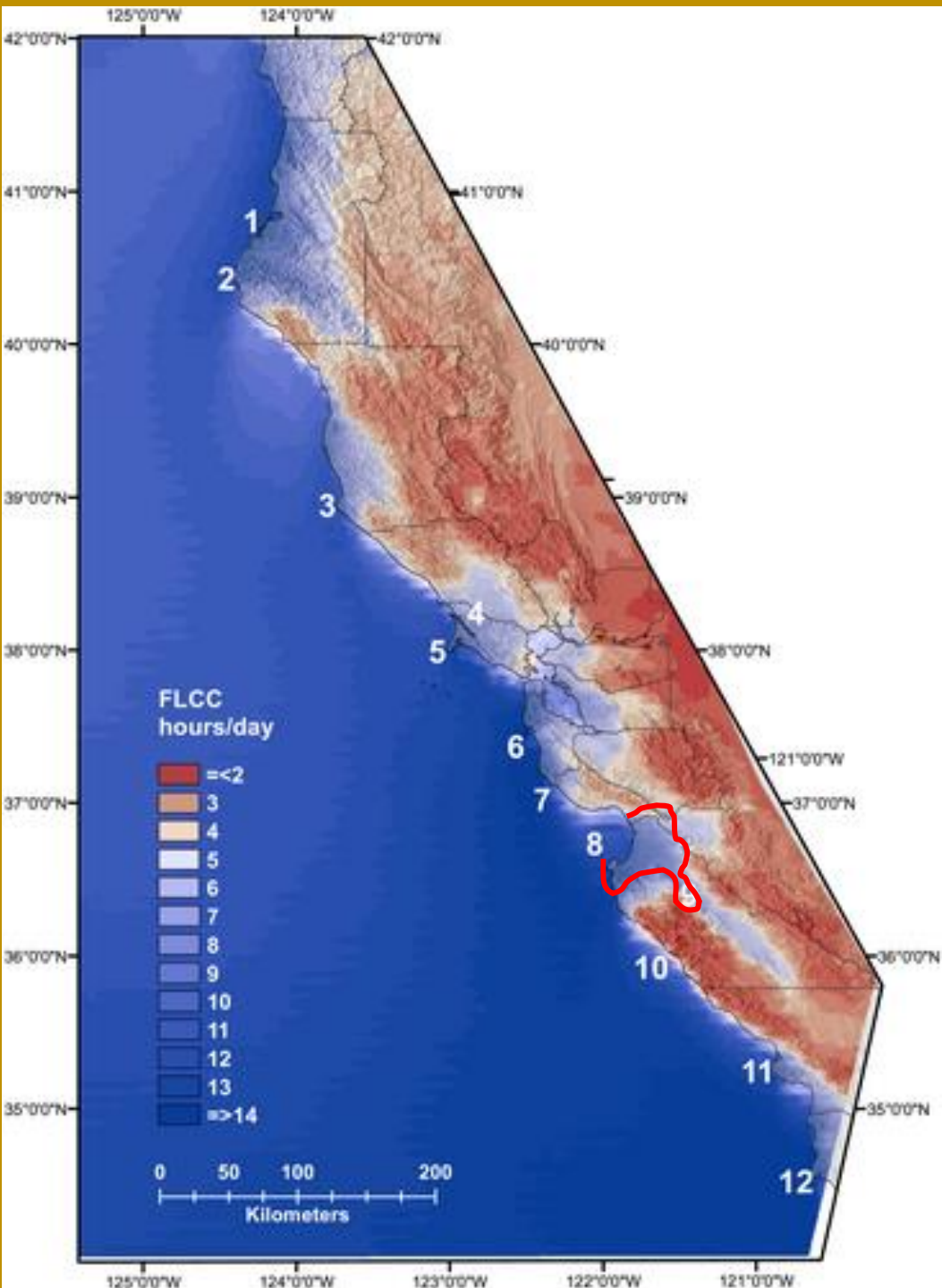
- High temperatures cause problems



Enhancement of other extant problems



The importance of fog



What is fog?



- Fog means that the air consists of water droplets between one and 50 microns
- It's a landfallen cloud, and there must be enough of these tiny droplets that impede our vision beyond a kilometer
- A temperature gradient is needed for it to form, but the fact of the gradient doesn't infallibly produce fog.

Difficulty of forecasting of what our fog will be like in the years to come:

- Decline in fog over the past 30 years may be due to less particulates in the air.
- But are we actually seeing a decline in fog overall?
- CSU Monterey Bay Environmental Studies Professor Daniel Fernandez, series of fog collectors up and down the state, but hasn't been collecting long enough to make a determination one way or the other.

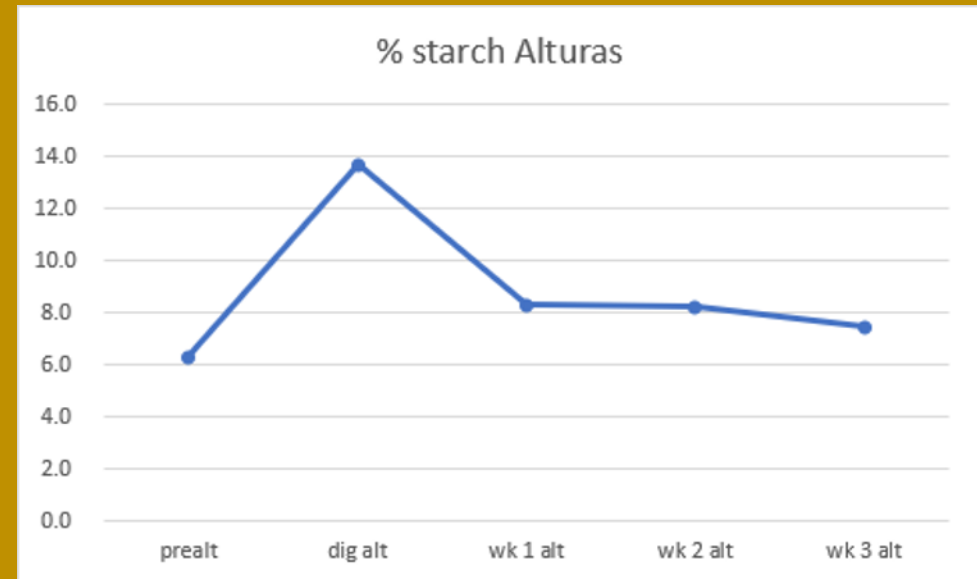
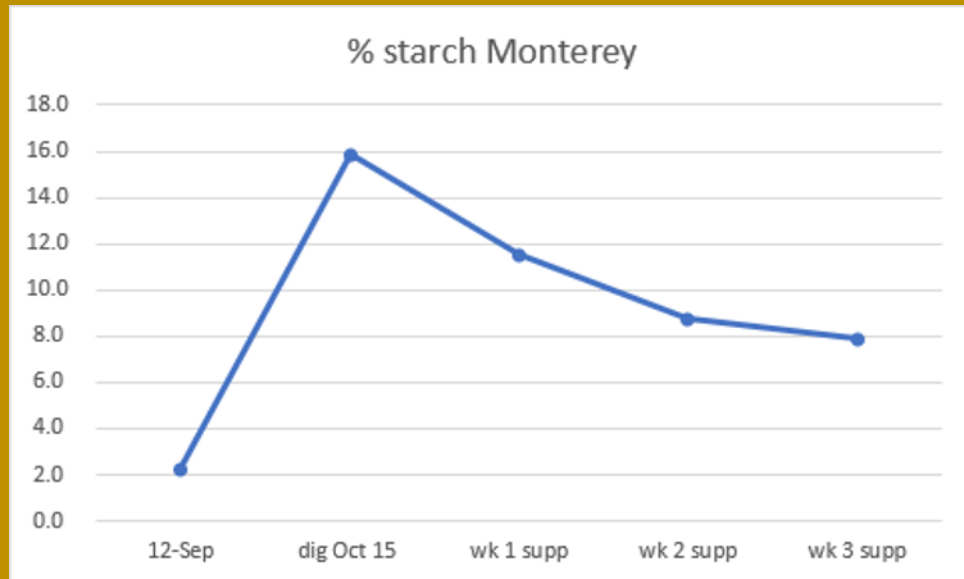
Strawberry plant production



Importance of strawberry plant nurseries

- Mostly produced in the area around MacDoel in Siskiyou County.
- Onset of cold 32° F – 45 ° F in early fall to induce plant starch accumulation and dormancy, it is generally thought that above 250 units (hours) between this range is sufficient for our day neutral varieties.
- Complications of using the Utah model (every hour above 65 ° F subtracts 1 unit of chill) to subtract units of chill already accumulate – heat waves are not good.

How much chill is actually needed?



* Data collected 2023

* Interesting: In the case of Monterey, whereas starch accumulation was 15.9% on October 15 (308 units of chill), it had barely advanced at all and was 16% on the last harvest date of November 2 (459 units of chill)

* Also important to note from these two graph that supplemental chill DOES NOT add to starch accumulation, but is rather adding something else to the transplant.

Concluding slide

- Effect of warmer temperatures in California is unclear on the Central Coast strawberry culture because of the nature of fog and our imperfect understanding of its formation.
- Effect of more extreme temperatures on the strawberry transplant production is also unclear, simply because we do not fully understand the parameters on the day neutral varieties.