Desert Farming Initiative

NACD Meeting – Nov 19, 2024

EXPERIMENT STATION
College of Agriculture,
Biotechnology & Natural Resources

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DFI
DESERT FARMING INITIATIVE

Land and Water Acknowledgment

We may gather here from different places, but we are all on the traditional lands of Indigenous Peoples past, present, and future. The DFI farm is situated on the ancestral land of the Waší·šiw (the people from here), or Washoe Tribe of Nevada and California as they are known today. DFI is also fed by the waters of Dáʔaw (known today as “Lake Tahoe”) which is at the center of Waší·šiw ʔítdeʔ (the homelands of the Washoe People). We honor and acknowledge the land, water and the people who steward them.

From the DFI farm, water flows into Numu (Northern Paiute) lands. DFI also does project work on the lands of the Numu, Nuwu (Southern Paiute), and Newe (Western Shoshone).

We commit to being respectful partners where we work, to let ongoing learning guide our practices, and to use our platform to advance Indigenous food sovereignty.

Climate Smart Farming at DFI

- Overview of DFI
- Introduction to areas of work
- Climate smart farming strategies
- Current research

Overview of DFI:

- Applied Ag program in Reno – small commercial farm that is part of the Experiment Station
- Mission is to advance climate smart farming and food systems – focusing on Ag industry training and resiliency
- We are faculty, contract staff, apprentices, academic/paid student interns, AmeriCorps service members

Areas of Work

Organic Teaching Farm and Nursery
Climate smart fruit and vegetable production; crop seedlings

Ag Industry Support
Apprenticeship; Nevada Farm Network; Grow Organic; Tribal Programs

Food Systems Development
Farmers market promotion and SNAP access; Food Business Center; Food Policy

University Engagement
Academic internships; classes; Food Sovereignty Program

Research
Cover crop in hoop houses; cider apples; wine grapes

Climate Smart Farming:
Questions and Strategies for Nevada

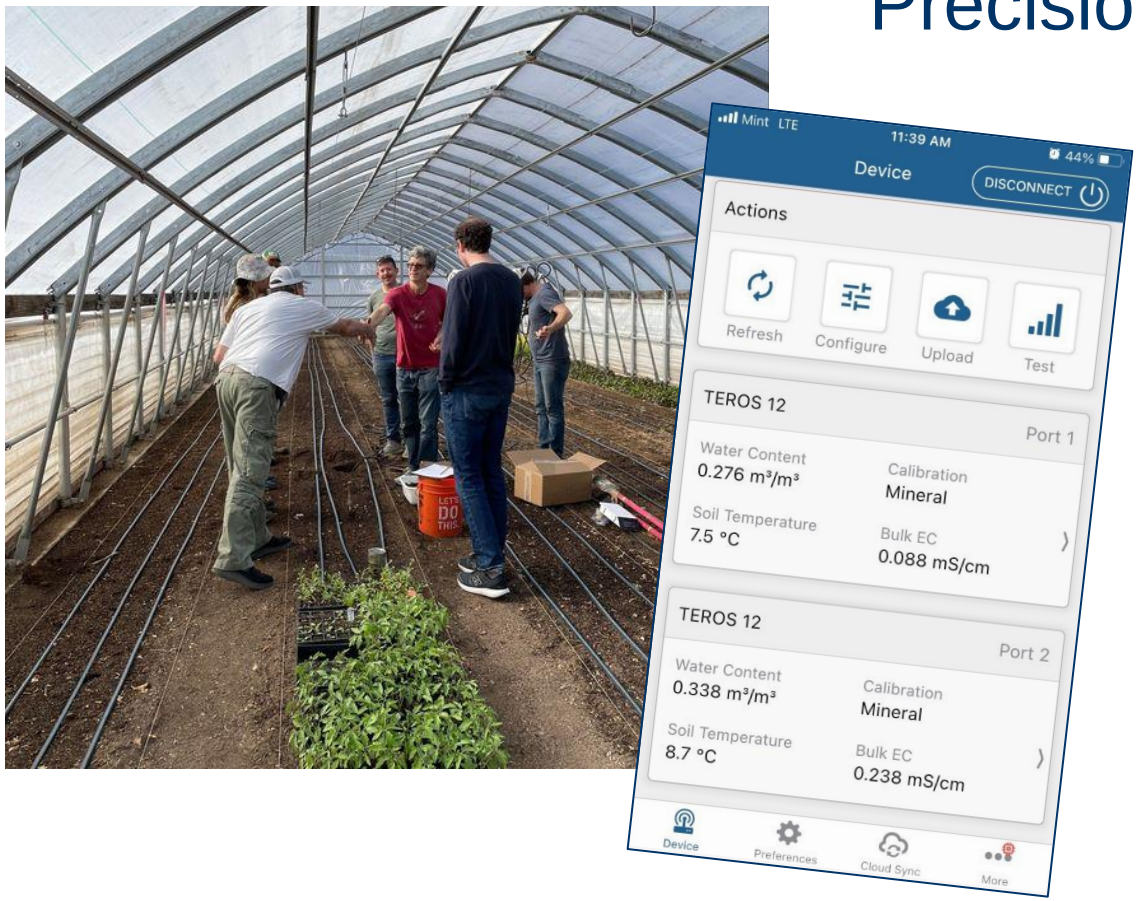
1. Capture more water, reduce erosion, sequester carbon? > Focus on regenerative soil health practices
2. Strategic water use? > Precision irrigation
3. Anticipate and manage changing pest and weed populations? > IPM, bio controls
4. Manage climate and market uncertainty? > Diversify farm enterprises and crops
5. Updated farm planning? > Adaptive management based on crop and economic data, taking the long view

naes.unr.edu/dfi/climate-smart-farming.aspx

Climate Smart Farming in Practice:
Reduced tillage system, cover cropping, mulch

Climate Smart Farming in Practice:
Mixed native hedgerows, wind breaks, perennial/annual insectaries

Climate Smart Farming in Practice:
Precision irrigation



- Measuring soil moisture in the root zone of cash crops (2 depths)
- Real time data downloaded to farmer's phone app
- Irrigation volume adjusted accordingly

Success story: Holley Family Farm reduced water usage 50% for tomatoes by using this technology.

Climate Smart Farming in Practice:
Small farm viability – making choices for enterprise resiliency

	2024			2025			
DFI Crop	Profit Margin (%)	Net Income ($/bed)	Labor %	Profit Margin (%)	Net Income ($/bed)	Labor %	2025 Planning Assumptions
Ungrafted Slicing Tomatoes	9%	$ 148.30	63%	14%	$ 288.57	65%	33% increase in yields (grafted to Maxifort); add'l GH time grafting; double the trellising time; 5% more wholesale; inc. wholesale by $2/case; 5% less retail; increase retail to $4.50/lb

Climate Smart Farming in Practice:
IPM and Bio Controls

<u>IPM annual planning</u>:

1. Target pests and management thresholds
2. Monitoring
3. Prevention methods
4. Control measures at thresholds

Bindweed mite bio control project with NDA and partner farms

Current DFI Research

- Climate adapted cider apples
- Wine grape performance
- **Cover crops** effects in hoop houses

Cover crop research

Evaluating cover crops for soil health improvement in high tunnels.

Key research questions:

- Which cover crops positively impact crop production and yields?
- How does planting and termination timing affect nitrogen availability and other soil properties?

Researchers:

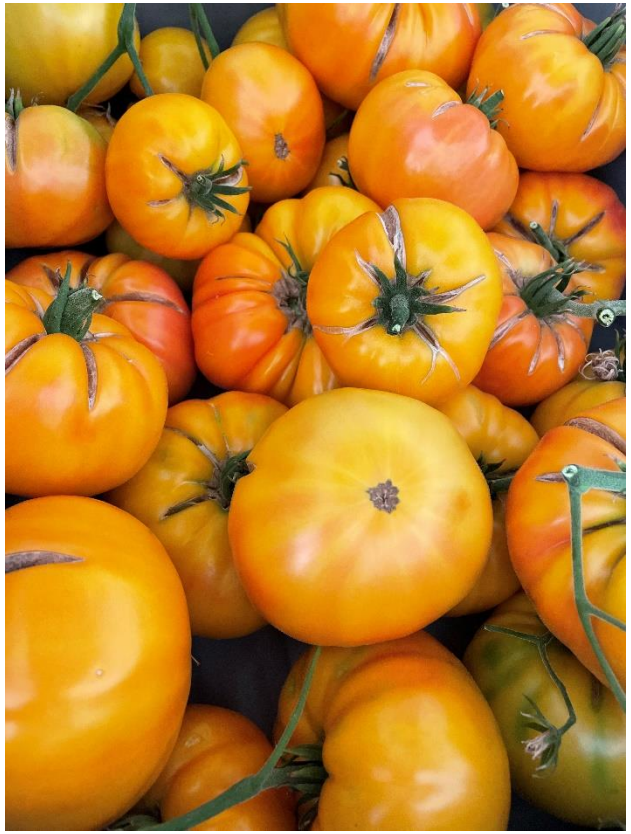
Dr. Felipe Barrios Masias, Dr. Juan Solomon

Cover crops in hoop houses

General approach:

- Planted 5 treatments in fall (randomized block design in 2 hoop houses – total 8 beds):
  - Berseem clover
  - Annual ryegrass
  - Triticale
  - Austrian pea
  - Mix of all 4 species
- Terminate in spring: mow and then tarp/harrow
- Follow with cash crops (tomato, pepper)
- Replicated 2 years

Cover crop project analyses:



Research objectives and associated data:

1. Identify cover crops that positively impact crop production and yields

    Data: tomato and pepper yields (lbs per plant), N leaf analysis, other physiological measurements

2. Determine the effects of cover crop on soil properties

    Data: biomass, soil organic matter, N availability and microbial activity

Sharing research results

- Outreach at conferences
- Extension publications
- Social media, Spotify
- Email
- DFI training programs (students, apprentices)

- Nevada Farm Network! Join today…
  https://naes.unr.edu/farm-network

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See you at the farm!

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An EEO/AA Institution: Funding for DFI programs comes from farm revenue, the UNR Experiment station, USDA grants, and donations. The contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of the USDA.

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