Surface water use and irrigation efficiency

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Today's talk

1. New surface water regulation
2. Do you need to comply
3. Metering and recordkeeping
4. Improved water use efficiency

Surface water regulation

VT Act 135

Applies to your farm if you:

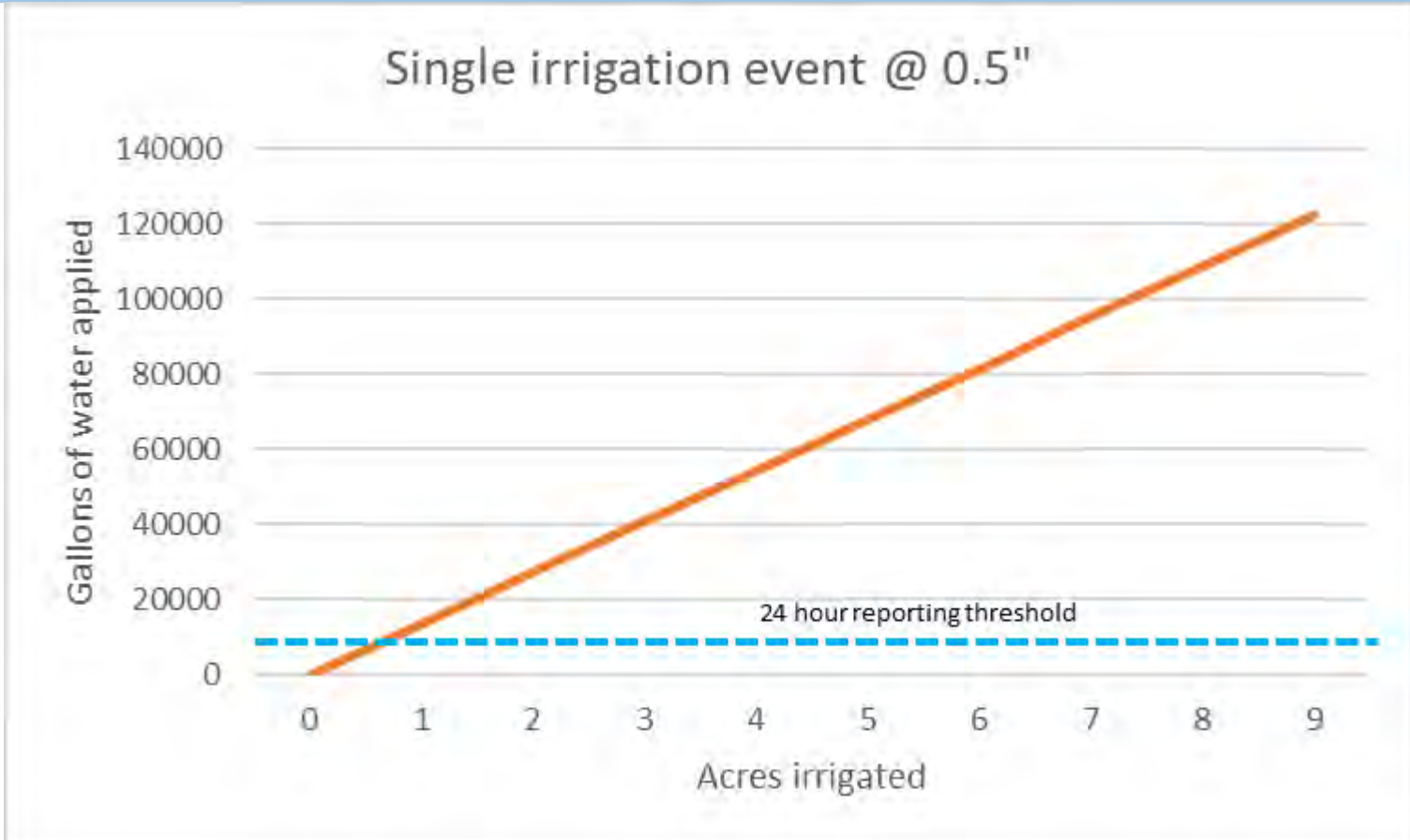
- **Irrigate from a surface water source** (*stream, river, lake, or natural pond*).
  - withdraw >10,000 gallons in a 24-hour period

—or—

  - withdraw >150,000 gallons in a 30-day period

Does this apply to you?

Estimate based on your typical water application



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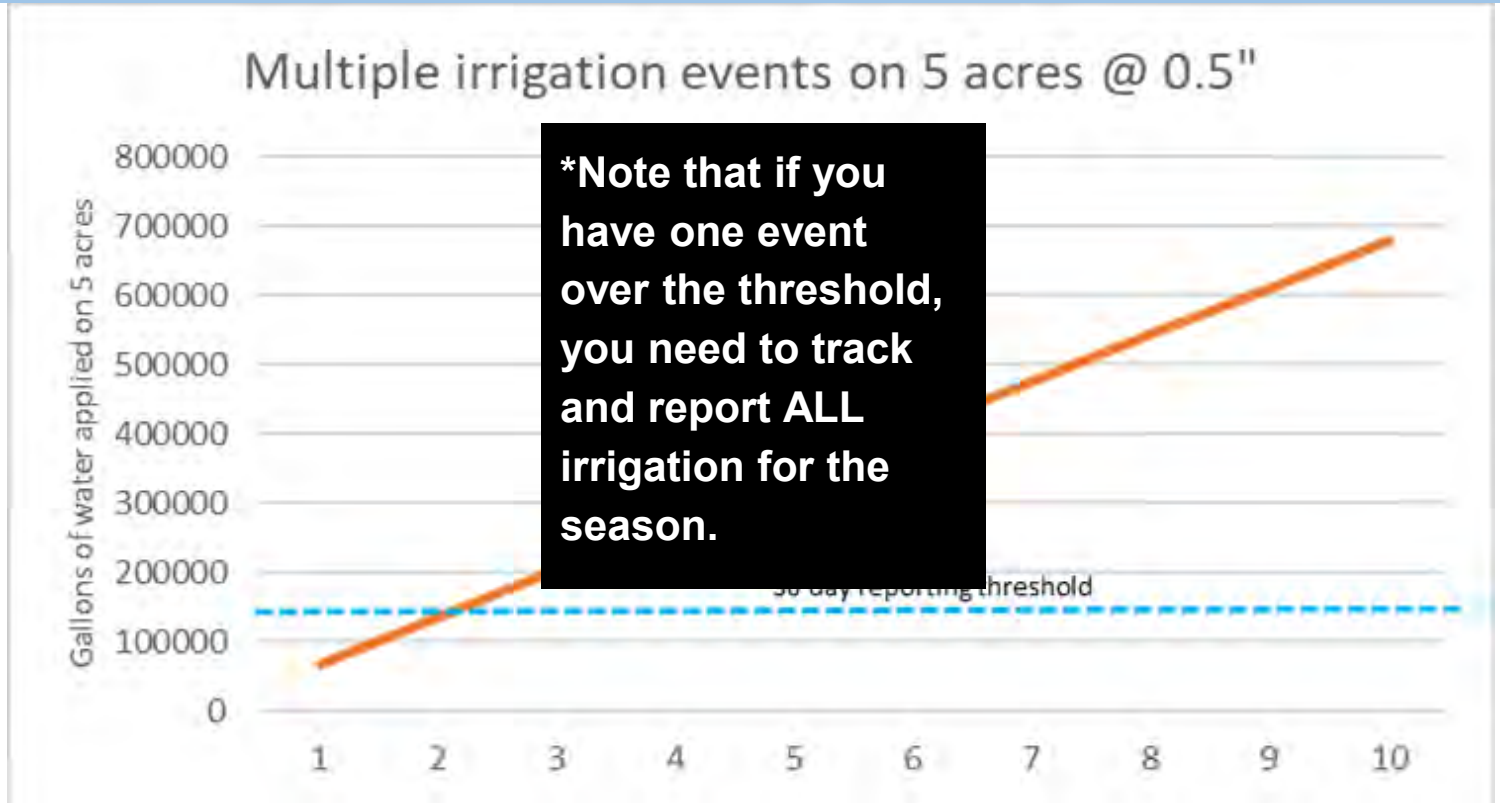


How can you keep track of water use?

- Regulation asks for **estimated water use.**
- Pump gpm x run time usually overestimates use.
- Water use meters are the most accurate way to track withdrawals.
- Keep clipboard at pump, take photos, or use data logger to record.
- Assign task to an enthusiastic employee.

What to report to VAAFM (annually)

1. Estimate gallons of water withdrawn;
2. Location of withdrawals;
3. Daily maximum withdrawal for each month;
4. Date of each daily maximum withdrawal.

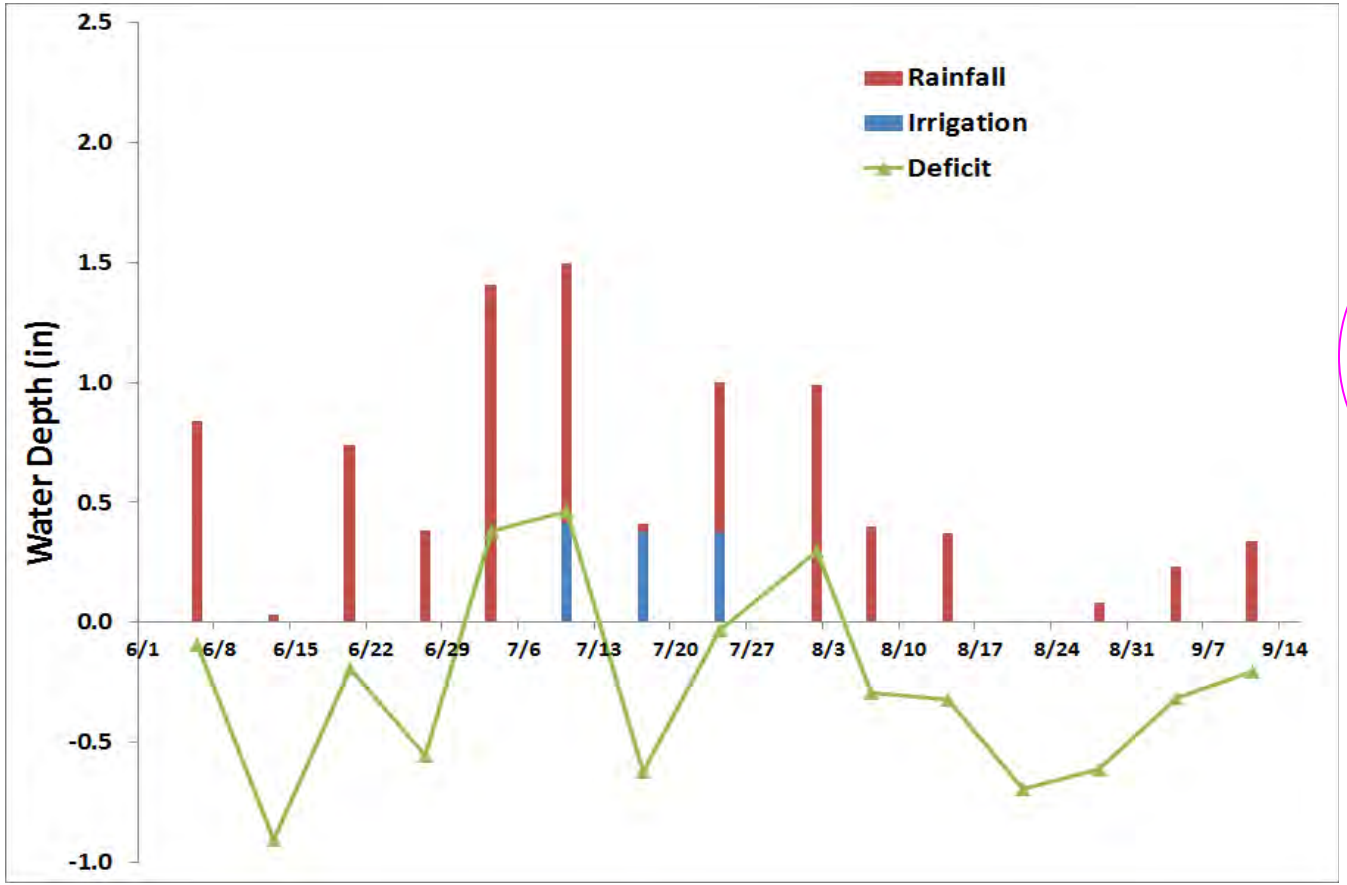
Reporting forms on VAAFM website or at VVBGA registration table.

2022 reporting from 7/1/22-12/31/22 is 1/31/23

What have we learned about water use?

- Tracked water use with meters on 5 farms July-October 2022
- Range of water use based on precip, soil type, practices, labor, crop value
- 3/5 farms exceeded 150,000 gallons withdrawal in 30-day period
- **Plan to keep records if overhead irrigating >2 acres from surface water**

Overhead Irrigation Results (2018)



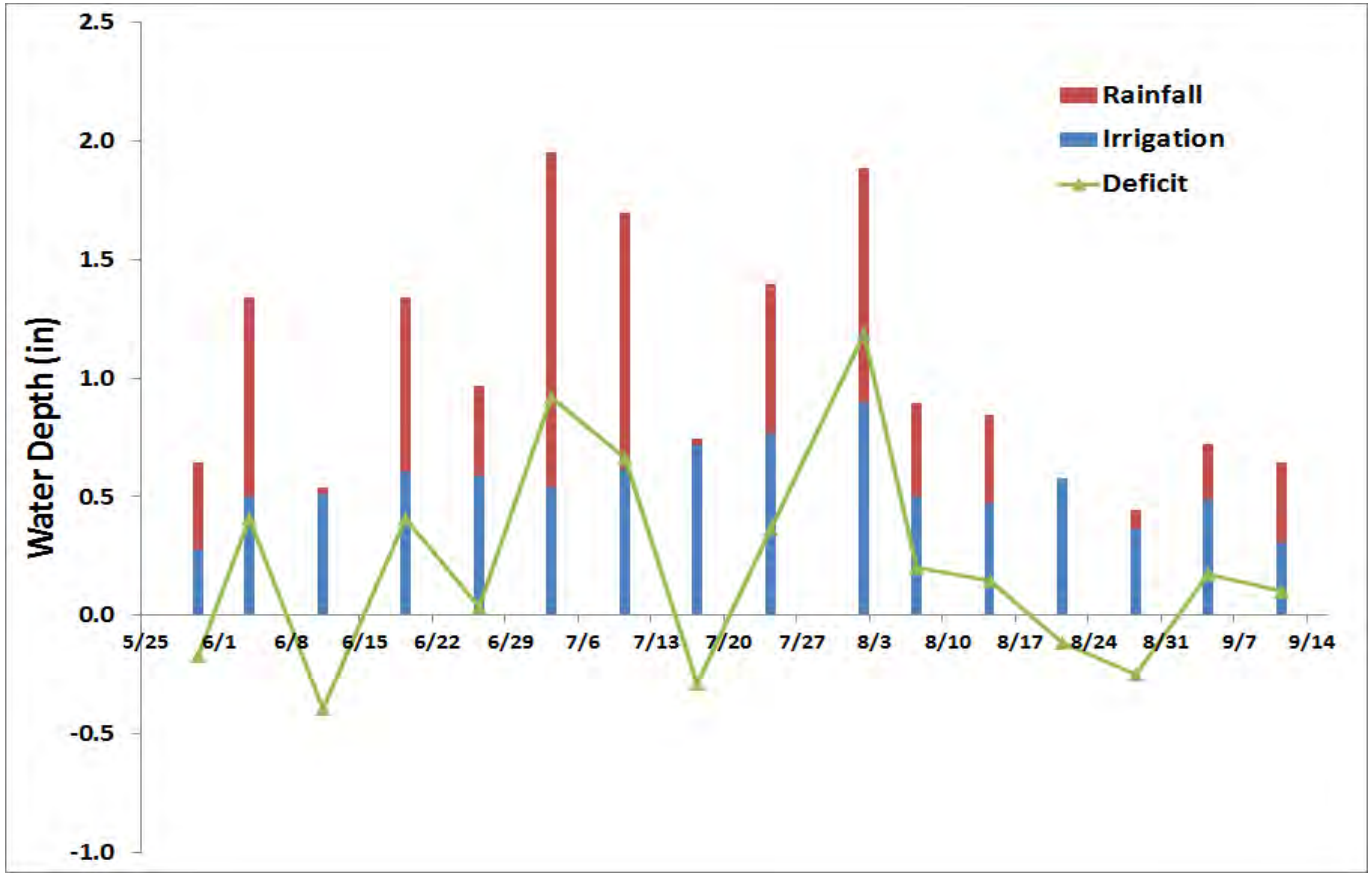
Total usage:
839,340 gal

Unit area usage:
31,673 gal/acre

Total deficit:
-2,672,000 gal

Unit area deficit:
-100,830 gal/acre
(apx 4")

Drip Irrigation Results (2018)



Total usage:
947,260 gal

Unit area usage:
236,816 gal/acre

Total surplus:
368,917 gal

Unit area surplus:
92,230 gal/acre

The opportunity hidden in regulation

Efficient use of water improves yield, quality, and nutrient management.

Opportunity to design more efficient systems.

Leverage funding and technical assistance for improvements.

Granular matrix sensors

How do they work?

- Uses Gypsum as a conductor in water
  - More water = more electric current flow
  - Less water = less electric current flow

Why would we choose these?

- Good in heavier soils
- Works with most irrigation systems
- Inexpensive (relatively)
- Easy to use
- Calibrated to your exact field
- Most accurate between 30-200 cb

Tensiometers

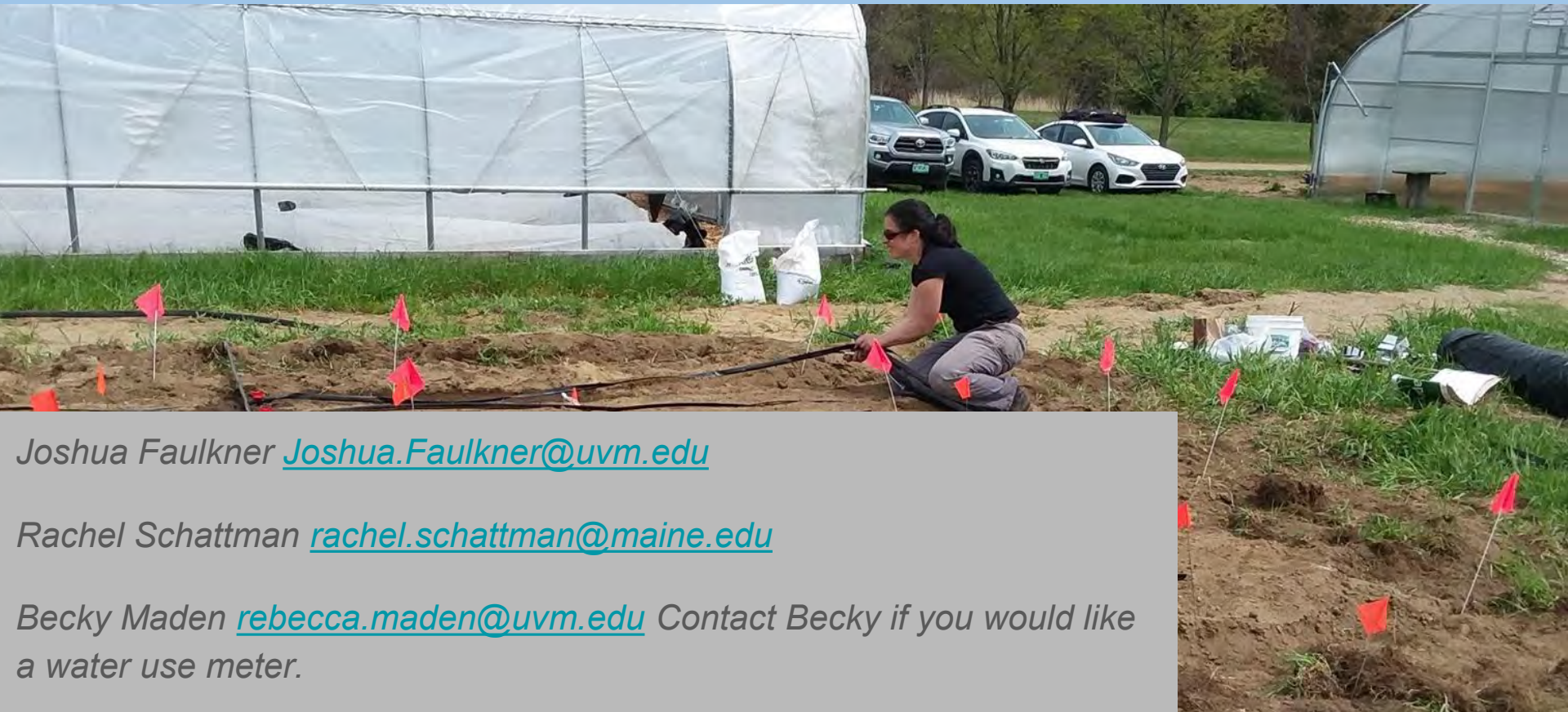
How do they work?

- Porous ceramic tip connected to a water-filled tube and a vacuum gauge
- Simulates soil water tension

Why would we choose these?

- Good in lighter soils
- Good for non soil medias
- No on-site calibration needed
- Very sensitive
- Most effective from 5-75 cb

Thank you!



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