Raised Bed Trough Substrate Production System Update

Hillary Q. Thomas
Production Research Manager
California Strawberry Commission
hthomas@calstrawberry.org

California STRAWBERRY COMMISSION

Team RaBeT: Dan Legard*, Mark Edsall, Alex Orosco, Tom Sjulin, Cliff Low, Shiv Reddy, Dwight Rowe

Farming without Fumigants Initiative

CDFA/DPR/EPA visit

Legislative Tour

RaBeT System components

2. Landscaping fabric

3. Substrate & pressure compensating drip

4. Mulch

Advantages

- Fumigant alternative system
- Input and water management
- Ability to match yield with operator experience, technical data collection tools and working knowledge

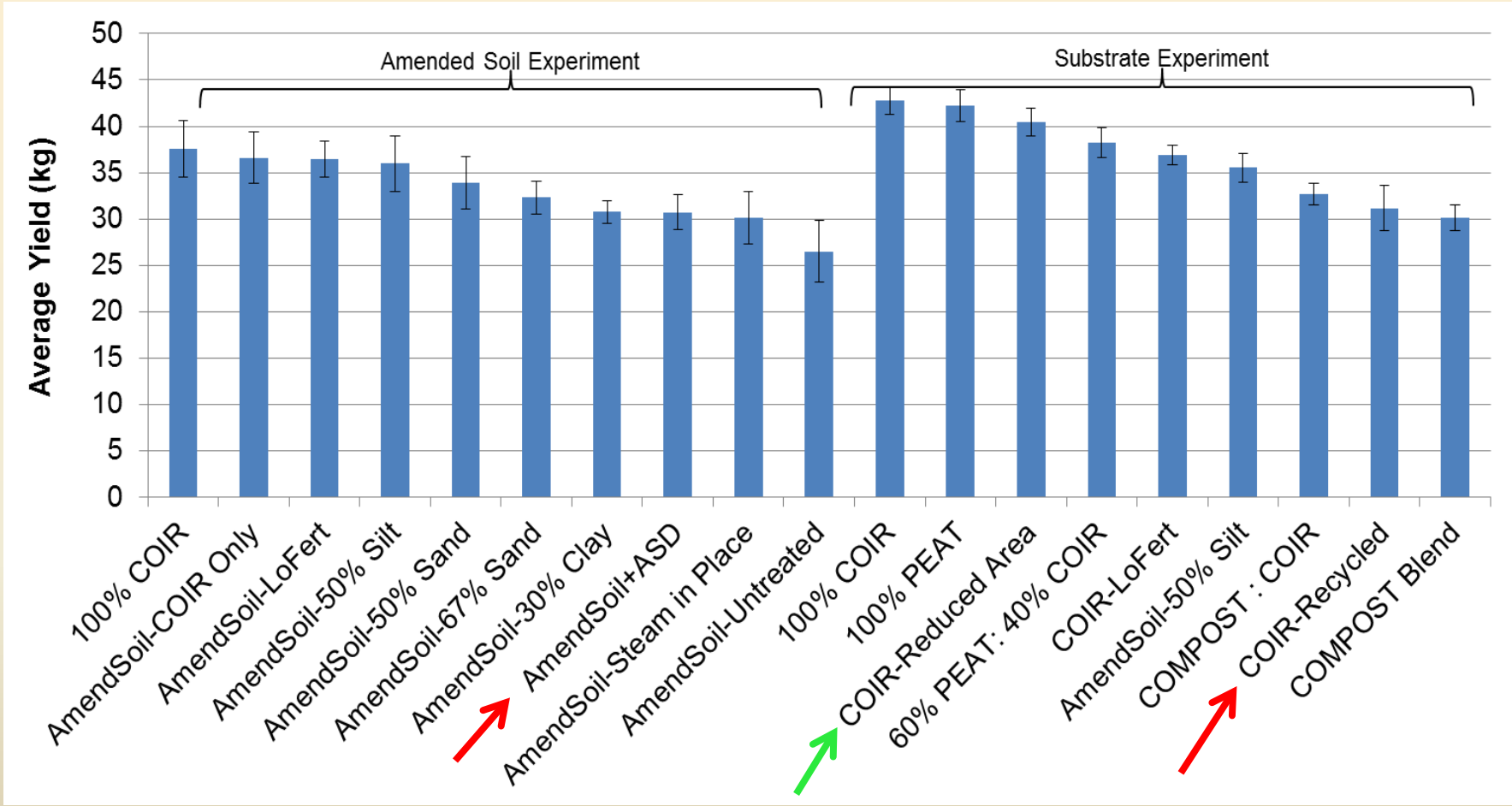
Challenges

- Requires high technical ability to manage the system
- Labor intensive in current form, no mechanization for commercial scale
- Optimal programs & specifications lacking & media-specific
    - irrigation, fertility management, planting parameters, automation/data collection
- Cost prohibitive in current form

Cost Reduction

- CH_3Br standard fumigation cost nearing $4000
- Upfront inputs of RaBeT system (pressurized drip, landscaping fabric, infrastructure) ameliorate over time/reuse 5-10 years
- How to reduce the recurring cost of substrate?

2011-2012 RaBeT Trials: Cost reduction



2012 2-row RaBeT system costs (*7.59 L/plant)

1 acre Peat-Coir blend	Cost
Full trough	~ $12,000 after freight
½ trough size (<4 L/plant)	$6,000
Reuse for 1 add'l year	$3000 + ~$350 fume + topper
Reuse for 2 additional years	$1500 + $350 fume + topper

2013 Season

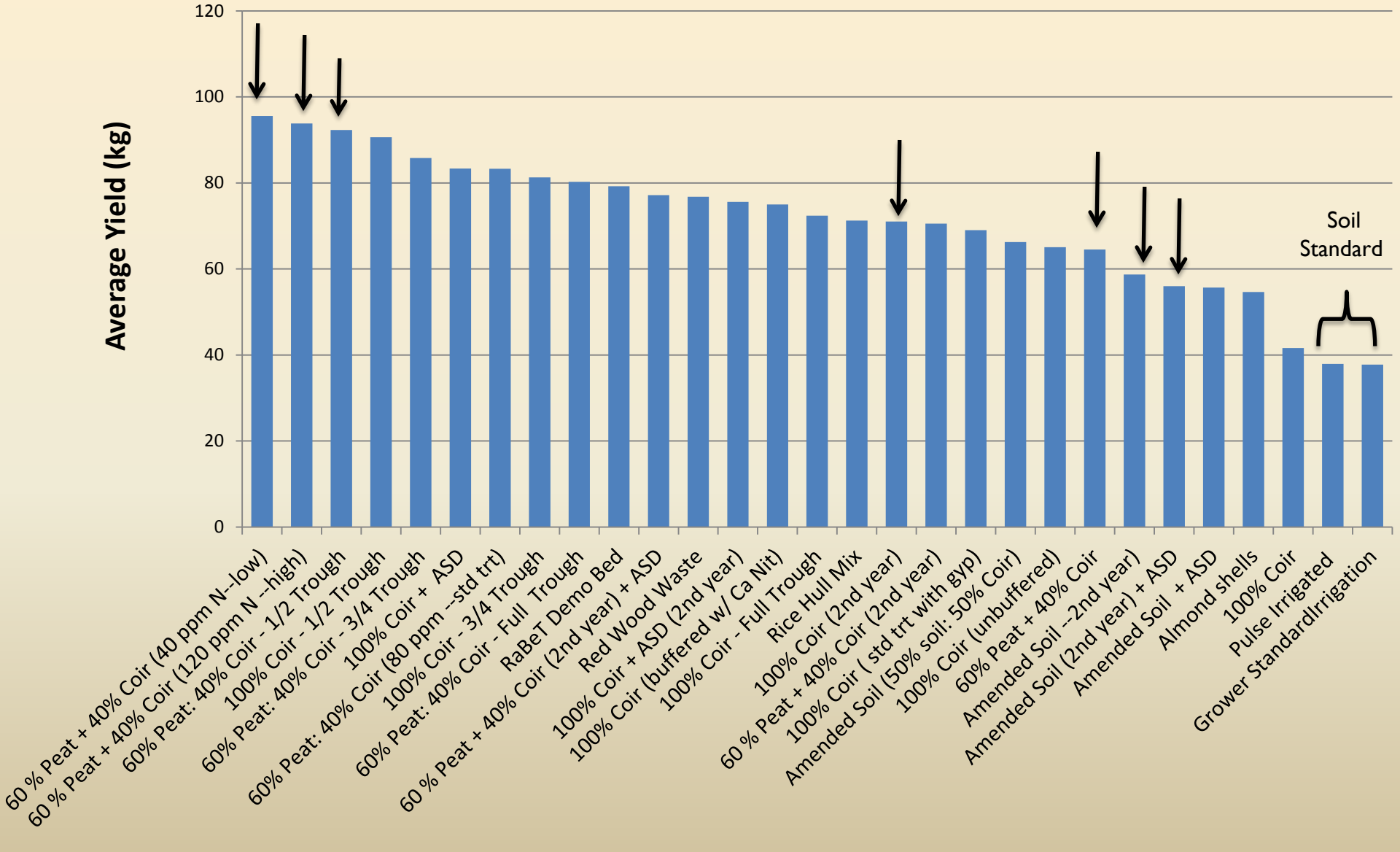
- Cost reduction:
  - Reduced Volume. 33% and ~50%
  - Reused substrate/second year production
  - Recirculation
  - Locally sourced materials

- Irrigation management and field monitoring

2012-13 MBA Experimental Trials

Famidan fertidan computer control system for fertilizer dosing

2013 MBA results



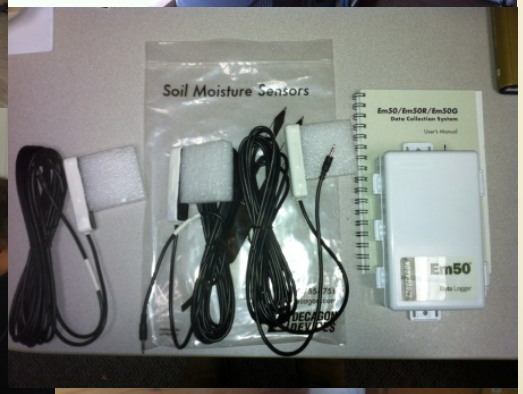
Fusarium Wilt at MBA

2012-13 Grower Demonstration Trials

- 2 Oxnard Trials
- 1 Santa Maria Trial
- 2 Watsonville Trials

Subplots:

- Reduced Area
- Reused Substrate
- Double Drip lines



Each site equipped with a fertilizer dosing system to improve fertigation management and in-field sensors

Good plant establishment at all sites

Oxnard early observations

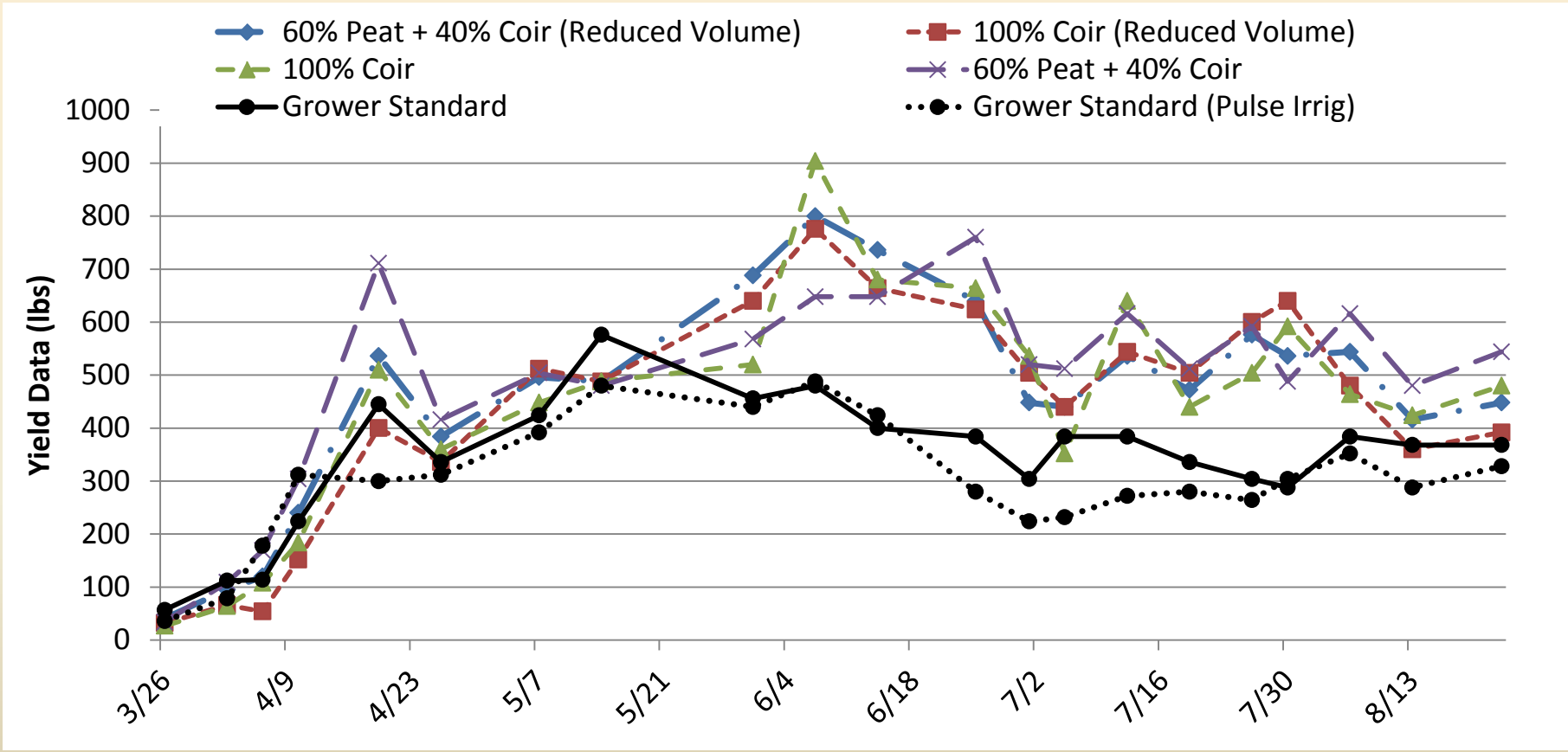
Wilt (reused substrates)

Oxnard plug plants

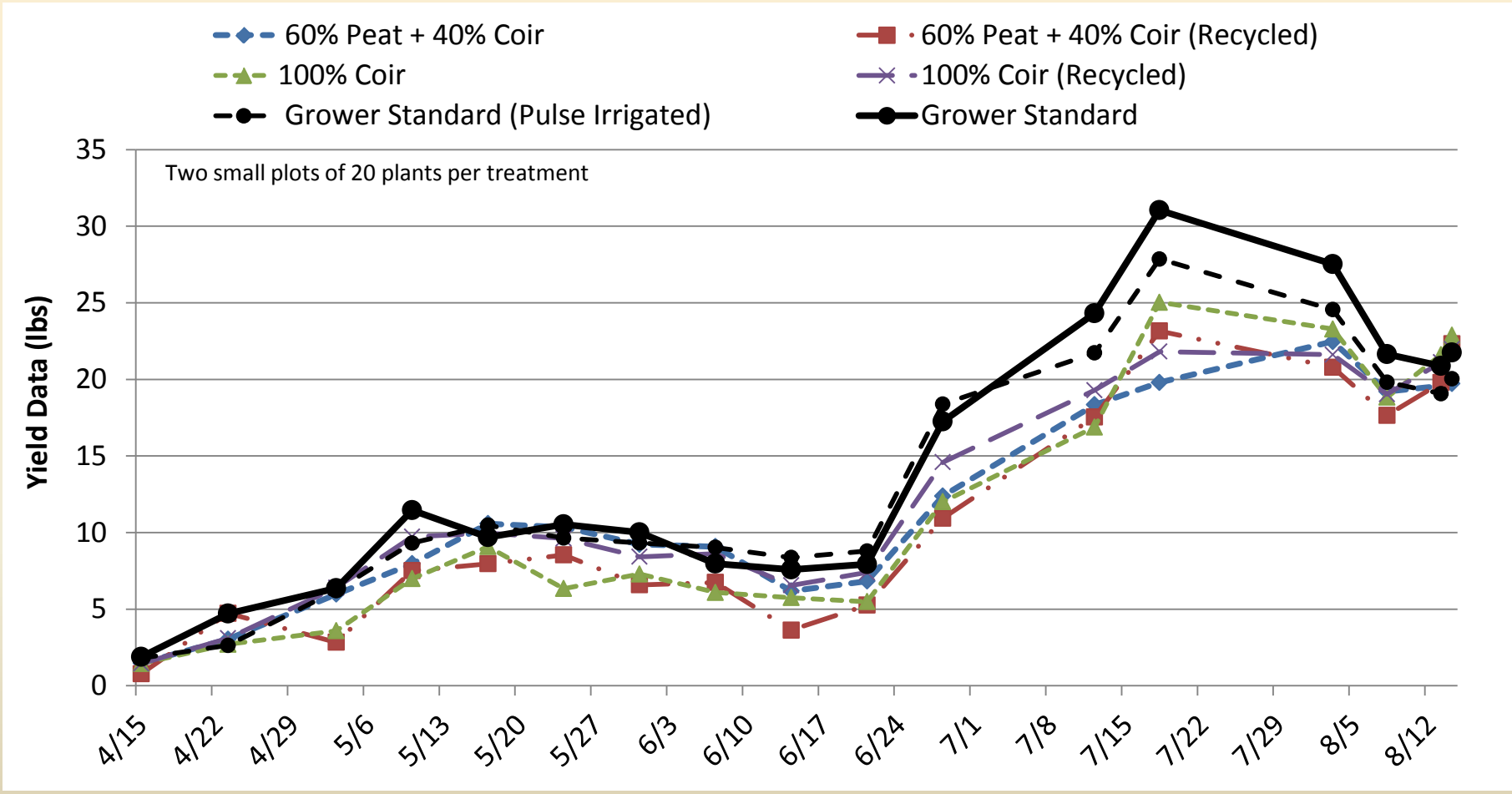
Peat-Coir

Fusarium Wilt in Oxnard

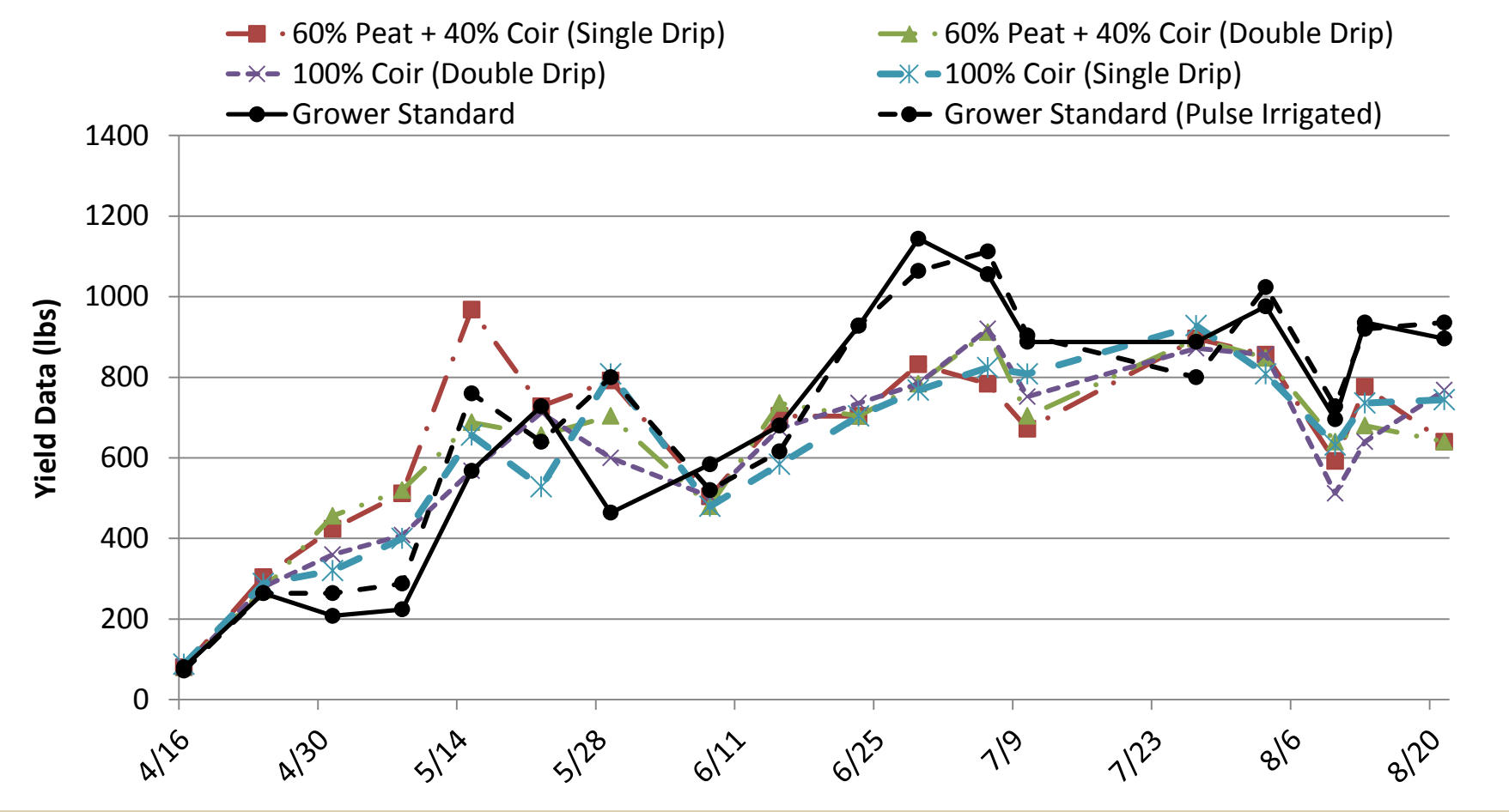
Santa Maria Grower Demonstration



Watsonville Grower Demo #1



Watsonville Grower Demo #2



Conclusions

- System costs can be lowered by reducing volume
- Single drip line is adequate for establishment
- Lower early season fertility was adequate→cost reduction
- Amended soil is not a viable approach
- Challenges of alternate substrates
- Automated data collection & technical skills essential to manage system
- Strawberry production is still reliant on fumigants

2014 Season Grower Demos

Peat-Coir blends in a reduced volume trough + Fert Program treatments

2014 Season – Monterey Bay Academy

New standard trough size (now 2/bed)

Reduced Reduced Trough Treatment
(76% of original trough size)

- Reduced volume
- Substrate Reuse (2nd & 3rd year)
- Variety x Spacing in substrate trial (Monterey, Albion, San Andreas)

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