Measuring Outcomes: Approach used for Fresno Co. Vegetable Crops Program

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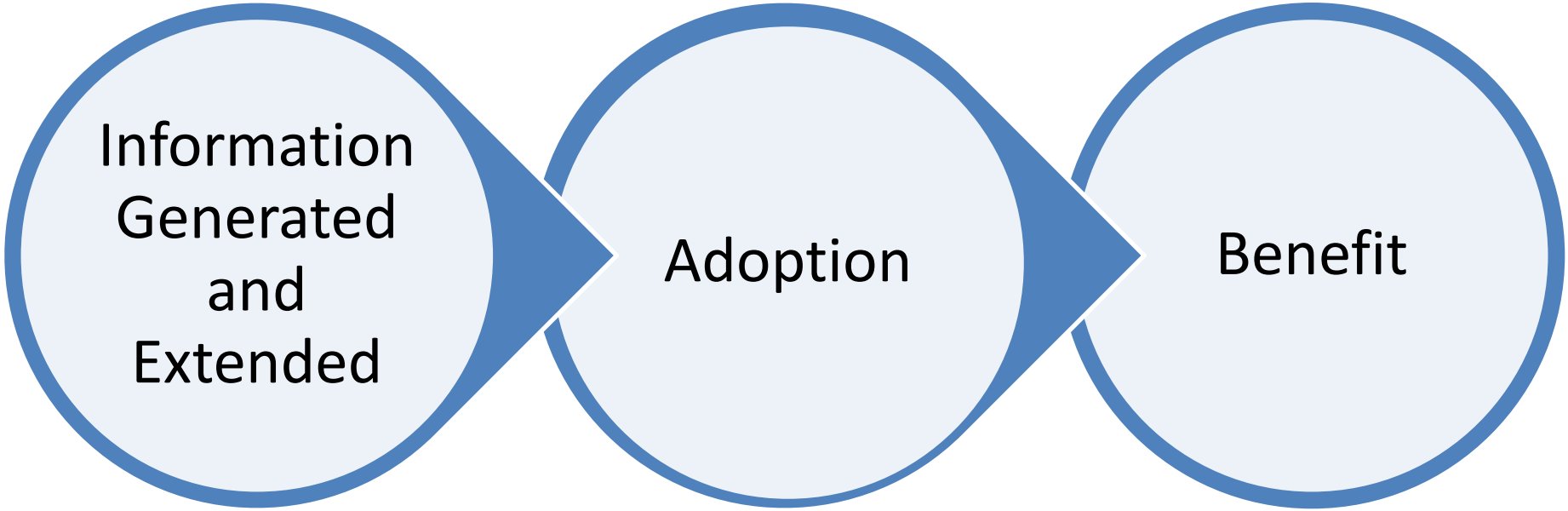
Quantification of the adoption and benefit



Clientele – Conversation and Observation

- Scale of operation – maps
- Degree of adoption – from conversation with grower and/or consultant and/or industry representative
- Outcome – What was the overall result of the adoption of the change

Example 1

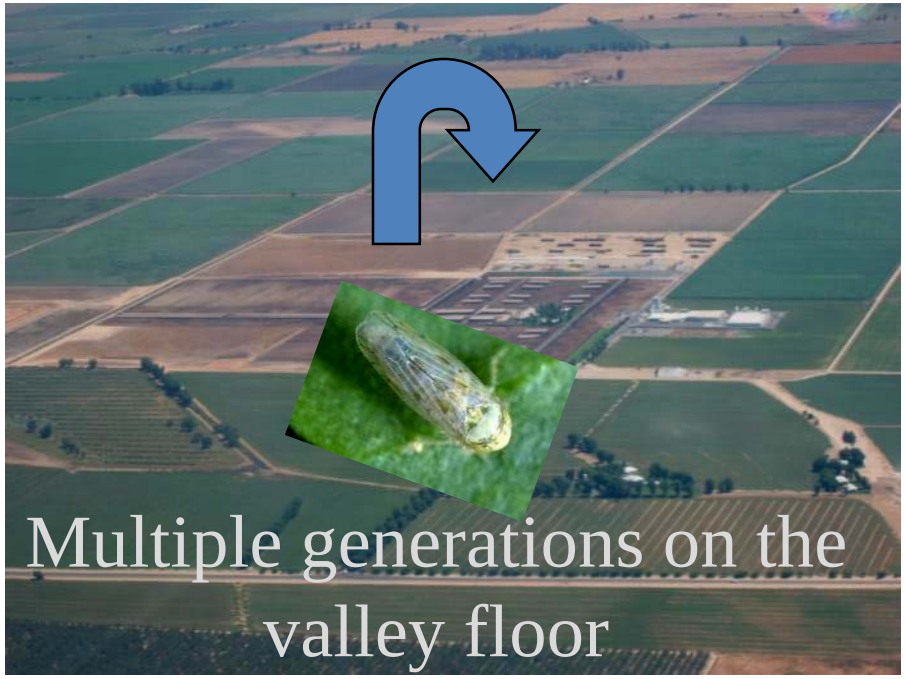
"Four very large tomato growers reduced the acreage treated with the pesticide Verimark, which is effective but costs more than $100 per acre. Due to low disease incidence present in 2018, this expense would have been unnecessarily applied to more than 20,000 acres, at a cost of more than $2 million."

Beet curly top virus in tomatoes

Curly Top Disease Cycle

Spring: adult leafhoppers migration

Fall: adult leafhoppers migrate for overwintering in the foothills



From Gilbertson Presentation 9 May 2013.

Demonstration of effective tool

Admire Pro 6.5 oz/A drip applied 22 Jun

Verimark 13.5 oz/A transplant drench

Admire Pro 10 oz/A tranplant water

Untreated

Estimation of threat of Beet curly top virus

- Initiated in 2013 after the major curly top outbreak
- Combines two factors:
  - -BLH populations measured by sweep netting performed by the CDFA CTVCP
  - -Level of BCTV in BLHs collected by the CDFA CTVCP
- Bad curly top years require high populations of BLHs (5-10/sweep) and >50% of BLH with high levels of BCTV in Feb/March/April
- Results

	Predicted	Observed
2014	Low	Low (<5%)
2015	Medium	Low-Medium (as high as 25%)
2016	Low-Medium	Low (<5%**)
2017	Low-Medium	Low (<5%)
2018	Low	Low (<1%)

Estimated Dollar Value

- **Operation size in tomatoes from conversations with growers and maps.**
- **Scale of change implemented from conversations with growers, consultants and allied industry.**
- **Cost of the treatment from the transplant house management.**

Example 2

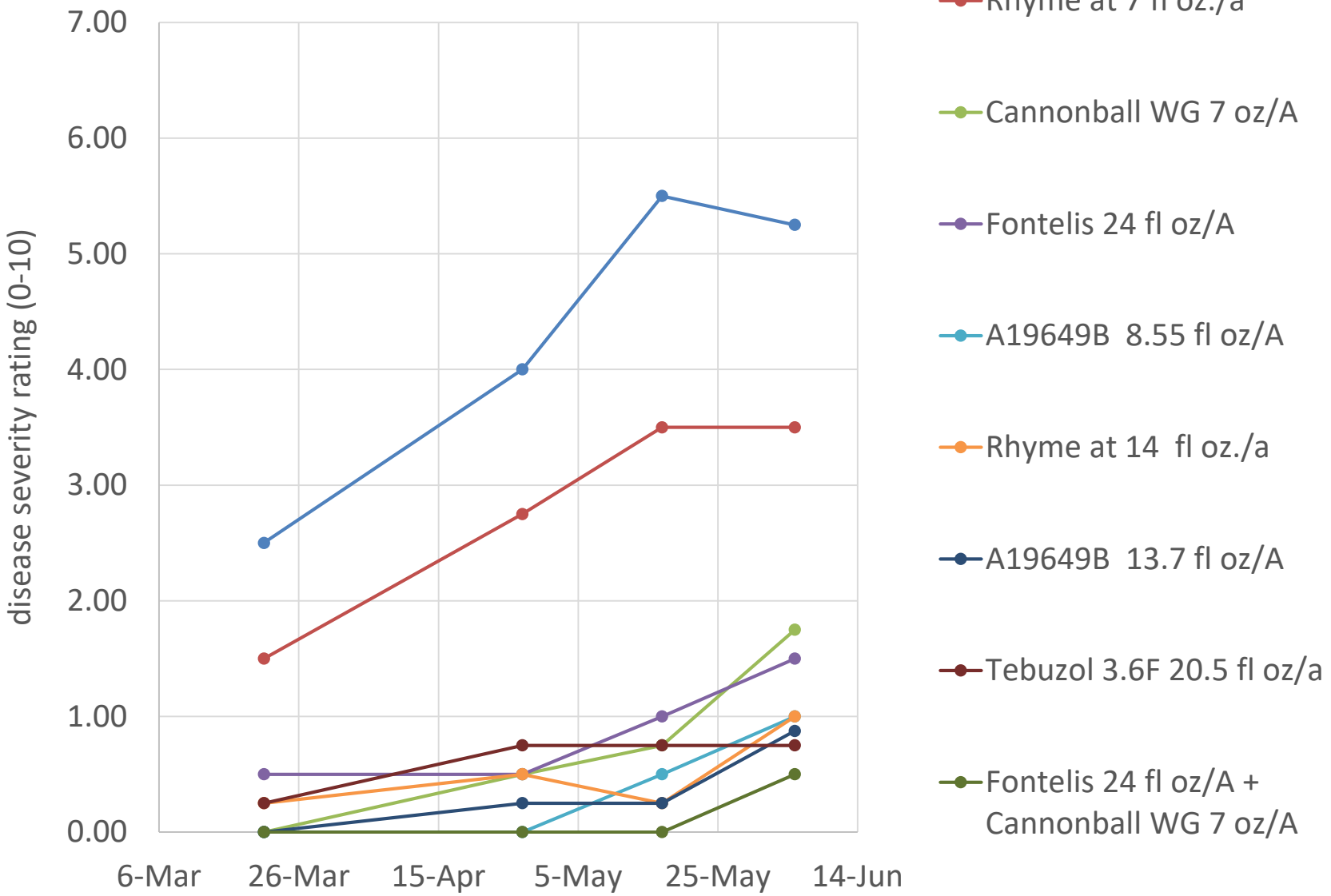
"One of the major processors of garlic is now treating fields at planting with fungicide, which is reducing risk of white rot and saving a substantial percentage of the crop. Damage in replicated studies has been reduced by as much as 68% with the use of a fungicide, making the savings to the garlic industry in Fresno County as high as $5 million per year in garlic."

White rot of onions and garlic

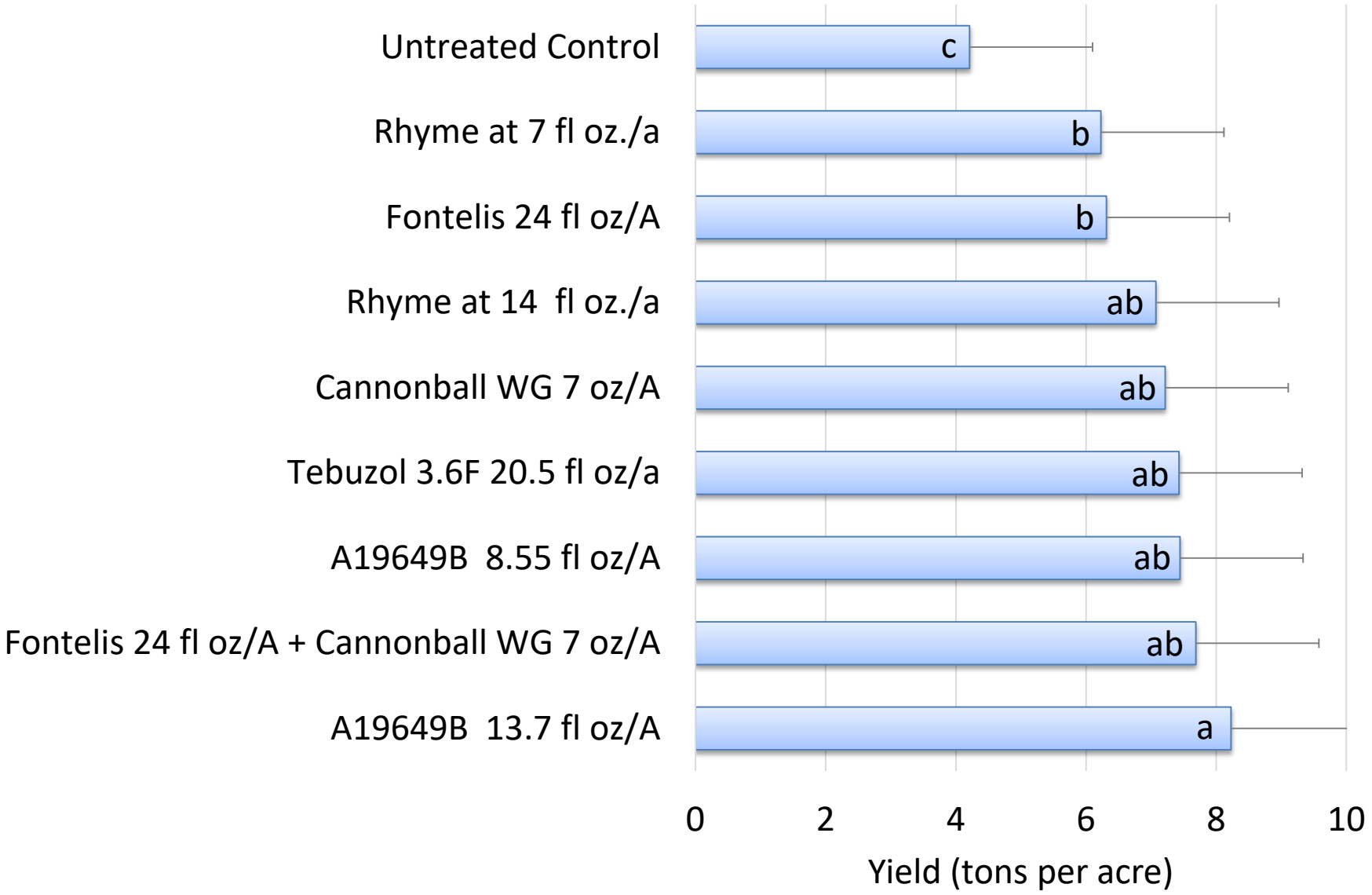
- Above ground and below ground symptoms
- Host range is limited to Alliums

Disease Severity –

above-ground ratings in 2016-17



Influence of Fungicides on Yields



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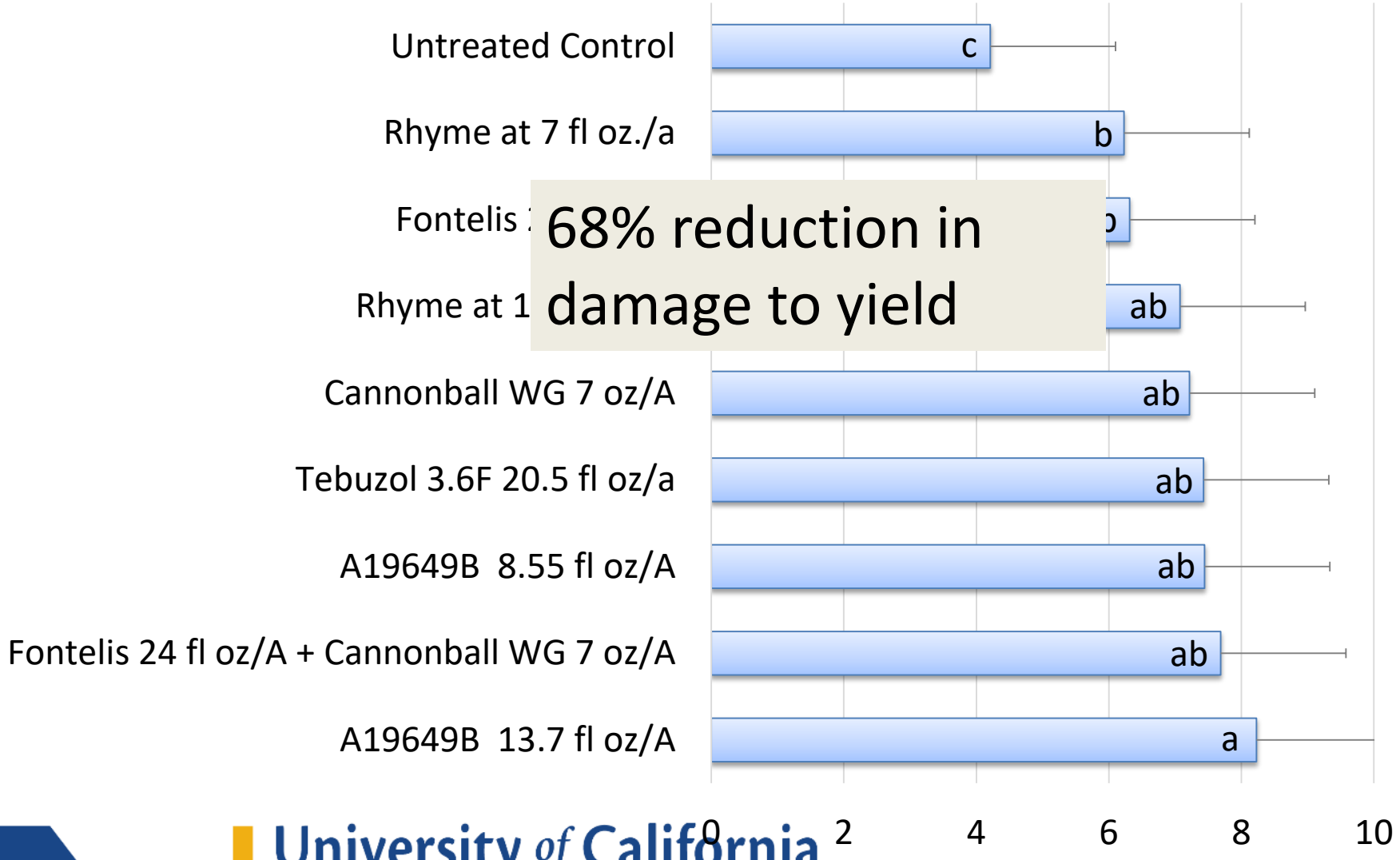

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Estimated Dollar Value

- **Transplant house management stated that each house had a value of $60,000**
- **There were approximately 20 houses with tomato transplants.**
- **Personal experience with late blight in wet conditions.**

Example 3

"Due to the rapid diagnosis of late blight in tomatoes, removal of the symptomatic plants, and treatment of all houses, growers have saved over $1.2 million."

Estimated Dollar Value

- **Acreage planted by processor that adopted.**
- **Acreage reported to be infested in California Garlic and Onion Research Advisory Board records.**
- **Value of crops that year from the Fresno County Agricultural Commissioner's reports.**

Questions

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