

FarMore[®] Technology Seed Treatment Platform

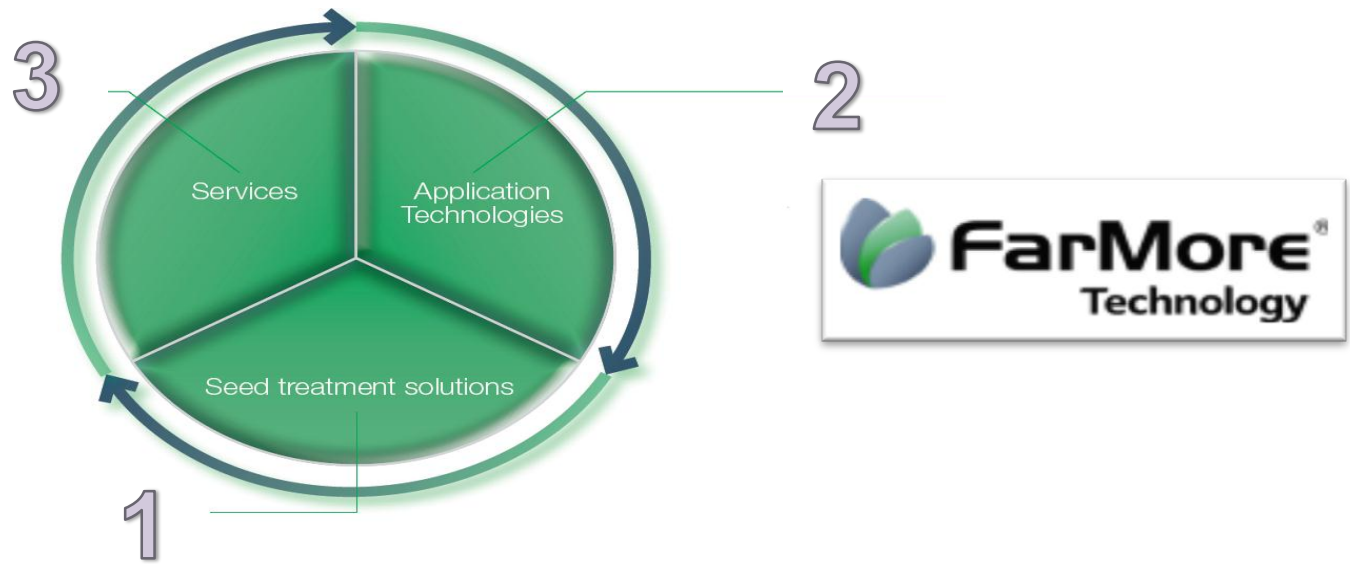
A Novel Approach to Vegetable Crop Protection



syngenta[®]

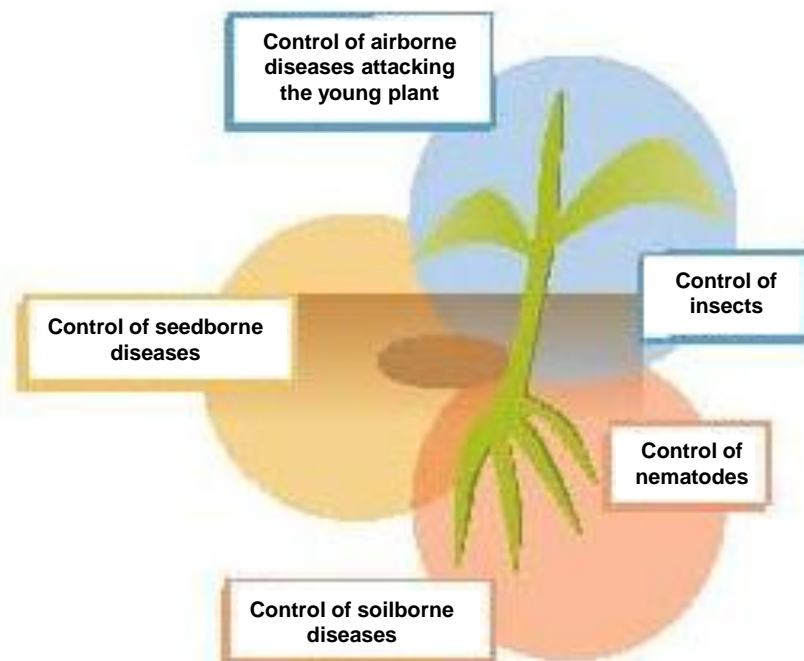
FarMore Technology – Commitment to the Vegetable Industry

- FarMore Technology is the first comprehensive combination of separately-registered seed protection products, proprietary application technologies and dedicated seed treatment services that maximize vegetable production value by enhancing performance and quality.



Benefits of Seed Treatment

- Improved seedling health
- Targeted and accurate application
- Protection for high-value seed
- Complements other crop protection methods
- Optimum stand establishment and plant vigor
- Improved seed germination and seedling emergence
- Grower convenience

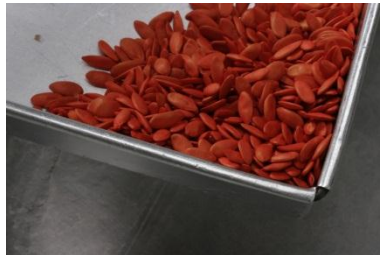


Key Features of FarMore Technology

- FarMore Technology is a portfolio of technology and product offerings including FarMore[®] F300, FarMore[®] FI400 Cucurbits, FarMore[®] FI400 Leafy and FarMore[®] FI500 Onion
- Provides precisely applied and delivered products directly on the vegetable seed
- Maintains the efficacy of seed provider or seed technology company processes such as disinfection, encrusting, pelleting, priming and film coating

Benefits of FarMore Technology

- Provides early-season protection against certain diseases and insects
- Eliminates or reduces the chance of viruses being transmitted by certain insects
- Improves yield and quality potential of small-seeded vegetable crops
- Excellent compatibility with existing insect protection strategies in crops
- Compatible with Integrated Pest Management (IPM) programs



Small-seeded Crop Availability*

- Brassica vegetables
- Bulb or root vegetables
- Cucurbit vegetables
- Fruiting vegetables
- Leafy vegetables

*Not all FarMore offers are available for all crops.



FarMore Technology Availability

- Available through licensed breeders/producers and technology providers
- Request FarMore Technology when you place your seed order
- Not all FarMore Technology brands are available for sale or use on all crops in all states

FarMore F300: Overview

- An advanced fungicide seed treatment technology that delivers protection for a variety of small-seeded vegetable crops against a broad spectrum of seed and seedling diseases
- Active ingredients:

Fungicides

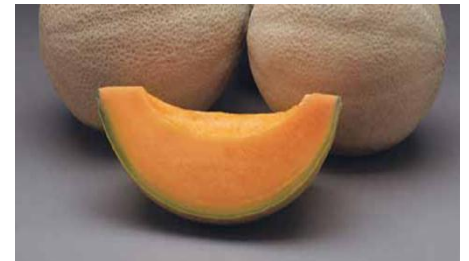
Mefenoxam (Apron XL[®])

Fludioxonil (Maxim[®] 4FS)

Azoxystrobin (Dynasty[®])

FarMore F300: Crop Groups

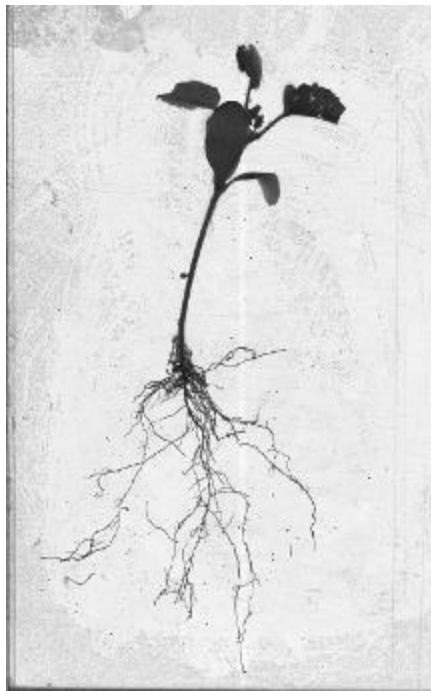
- Cucurbit vegetables
- Leafy vegetables
- Tomatoes
- Onions
- Peppers
- Carrots
- Brassica



FarMore F300: Disease Protection

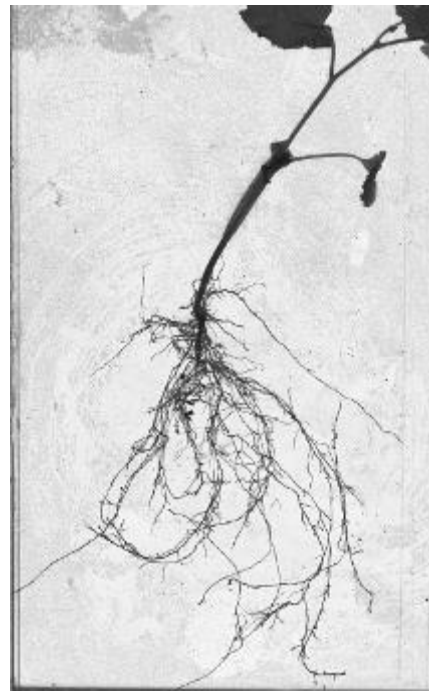
- *Pythium*
- *Fusarium*
- *Rhizoctonia*
- *Helminthosporium*
- *Alternaria*
- *Aspergillus*
- *Penicillium*
- Seedborne *Sclerotinia* in selected vegetables
- General damping-off and seedling blight

FarMore F300: Cucumber Fungicide Trials



Cucumber plants
28 Days
Variety: Armenian

Check, physical root
measurement – 196.22 cm



Treated with FarMore F300,
physical root measurement –
461.21 cm

Trials conducted at Syngenta Western Regional Technical Center, 2003-2005.

FarMore F300: Cabbage Fungicide Trials



Untreated

Cabbage Plants under *Pythium* pressure



FarMore F300

Trials conducted at Syngenta Western Regional Technical Center, 2003-2005.

FarMore F300: Carrots in a *Pythium*-infected Field

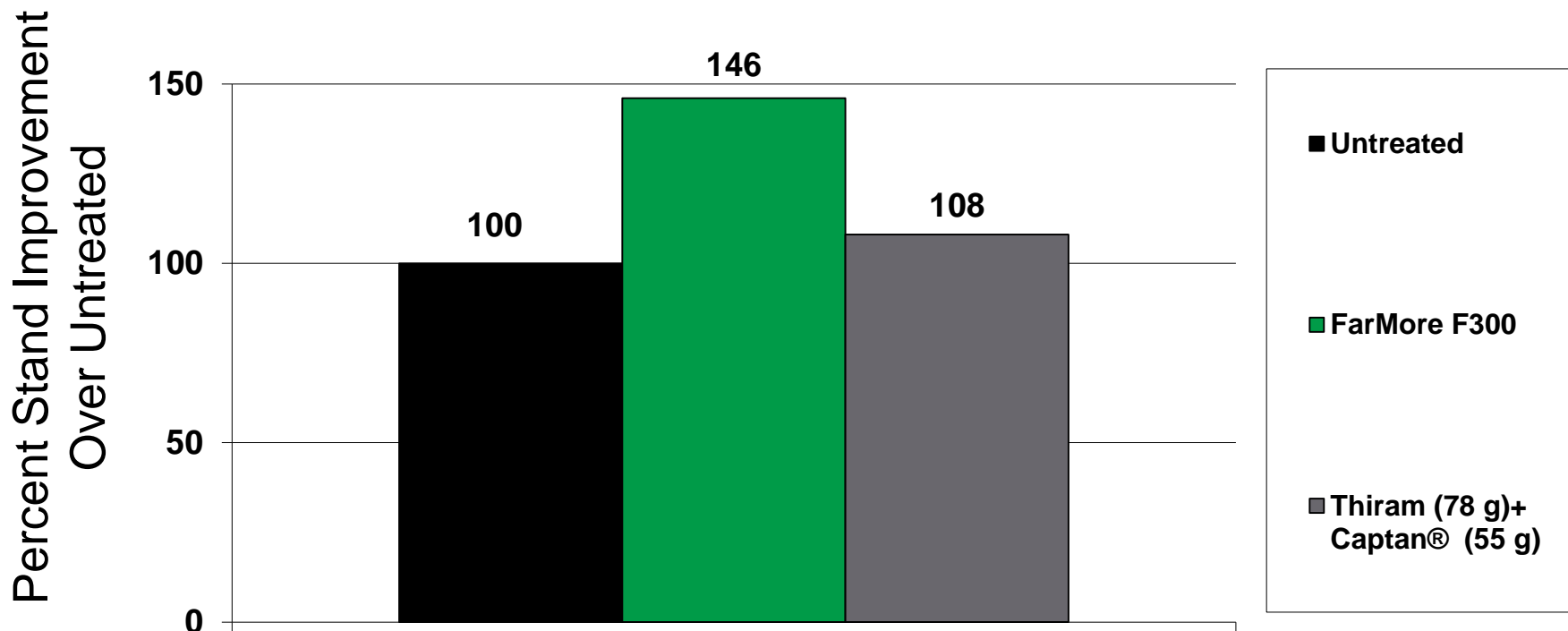


FarMore F300

Untreated

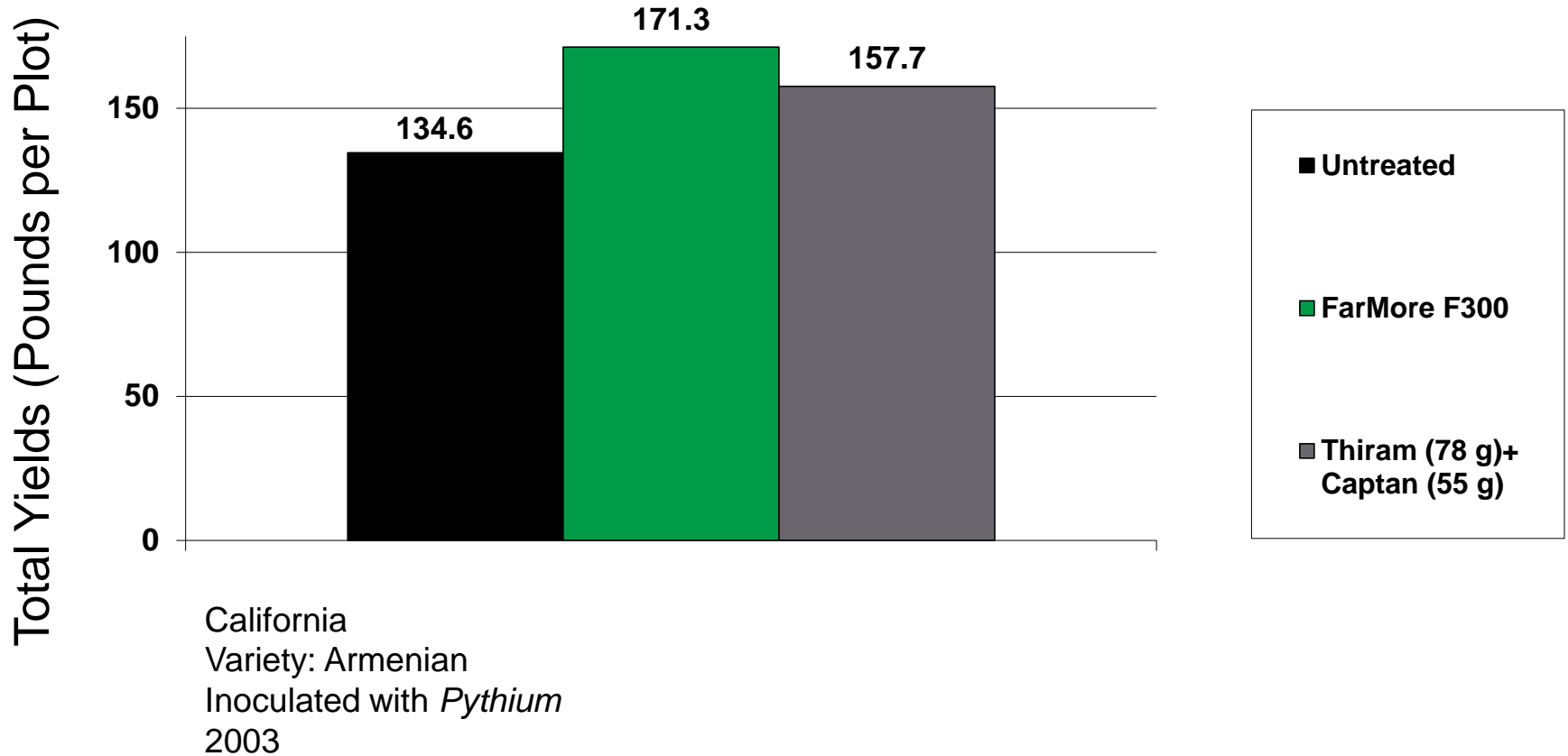
Trials conducted at Syngenta Western Regional Technical Center, 2003-2005.

FarMore F300: Cucumber Stand Improvement

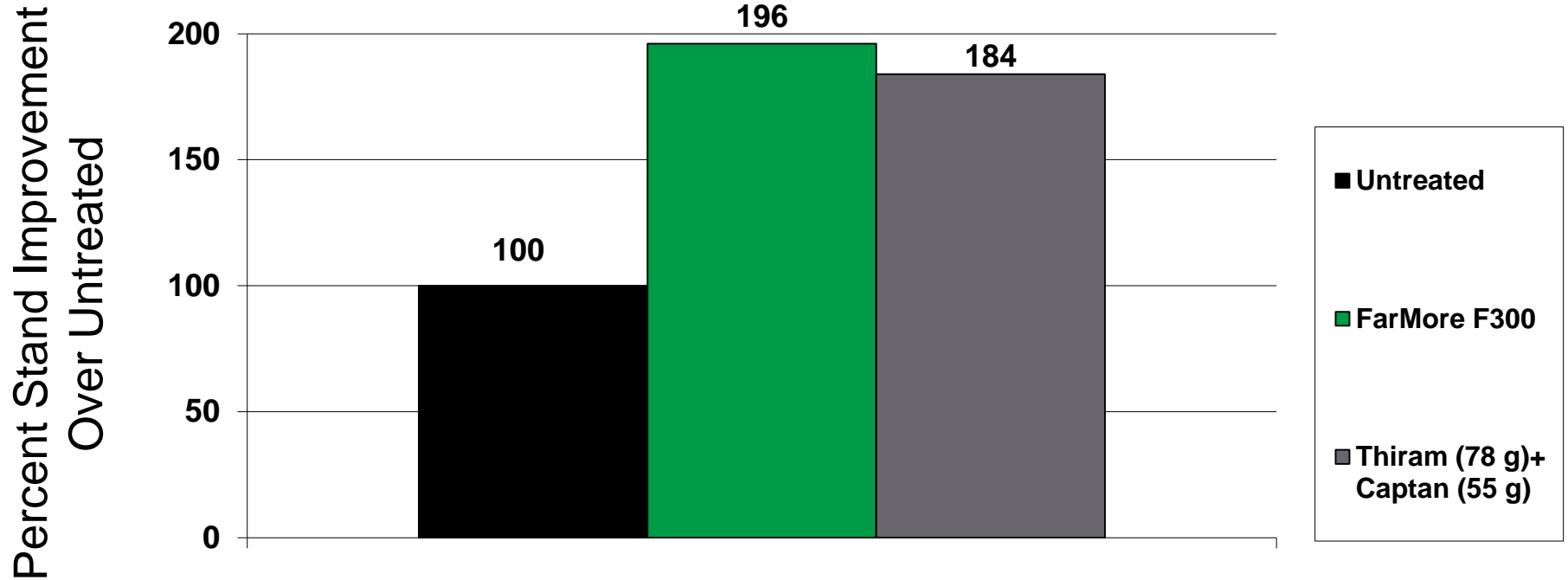


Mississippi, California and Texas
Average of three trials
Inoculated with *Rhizoctonia*

FarMore F300: Cucumber Yields Fungicide Trials

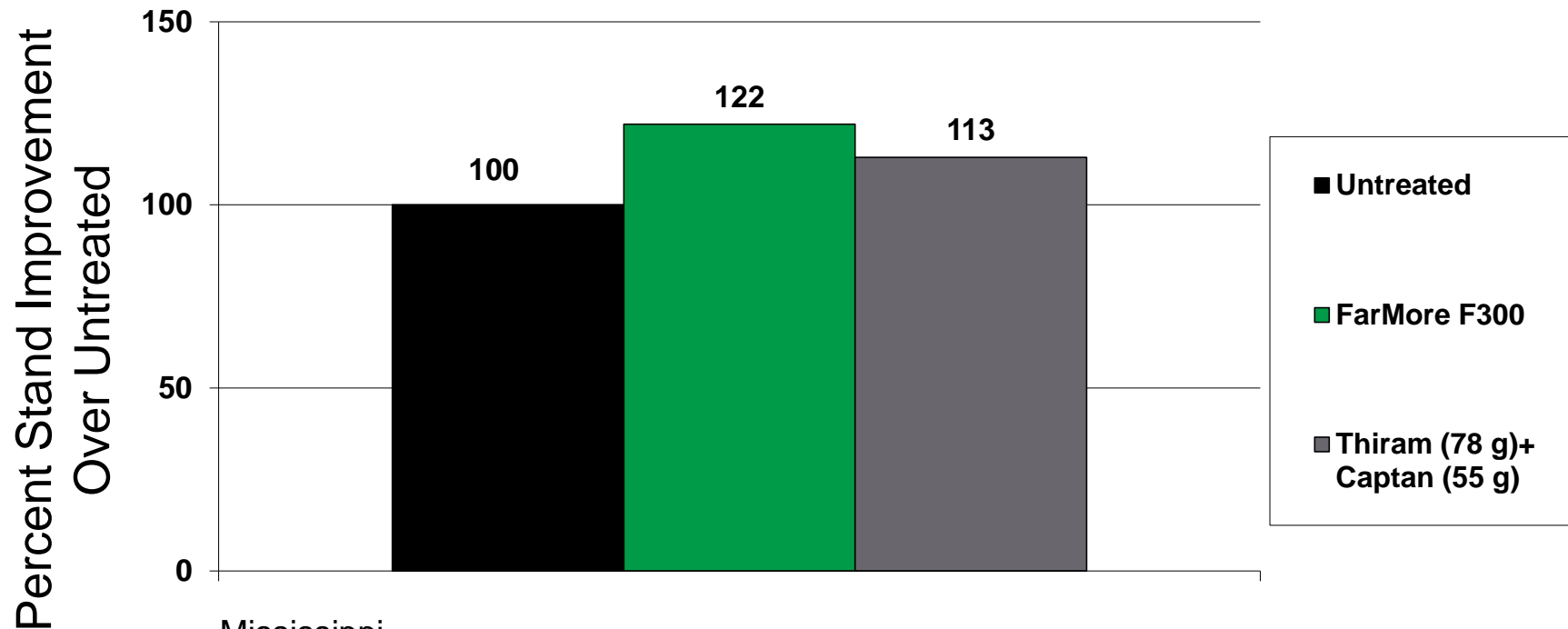


FarMore F300: Processing Tomato Stand Improvement



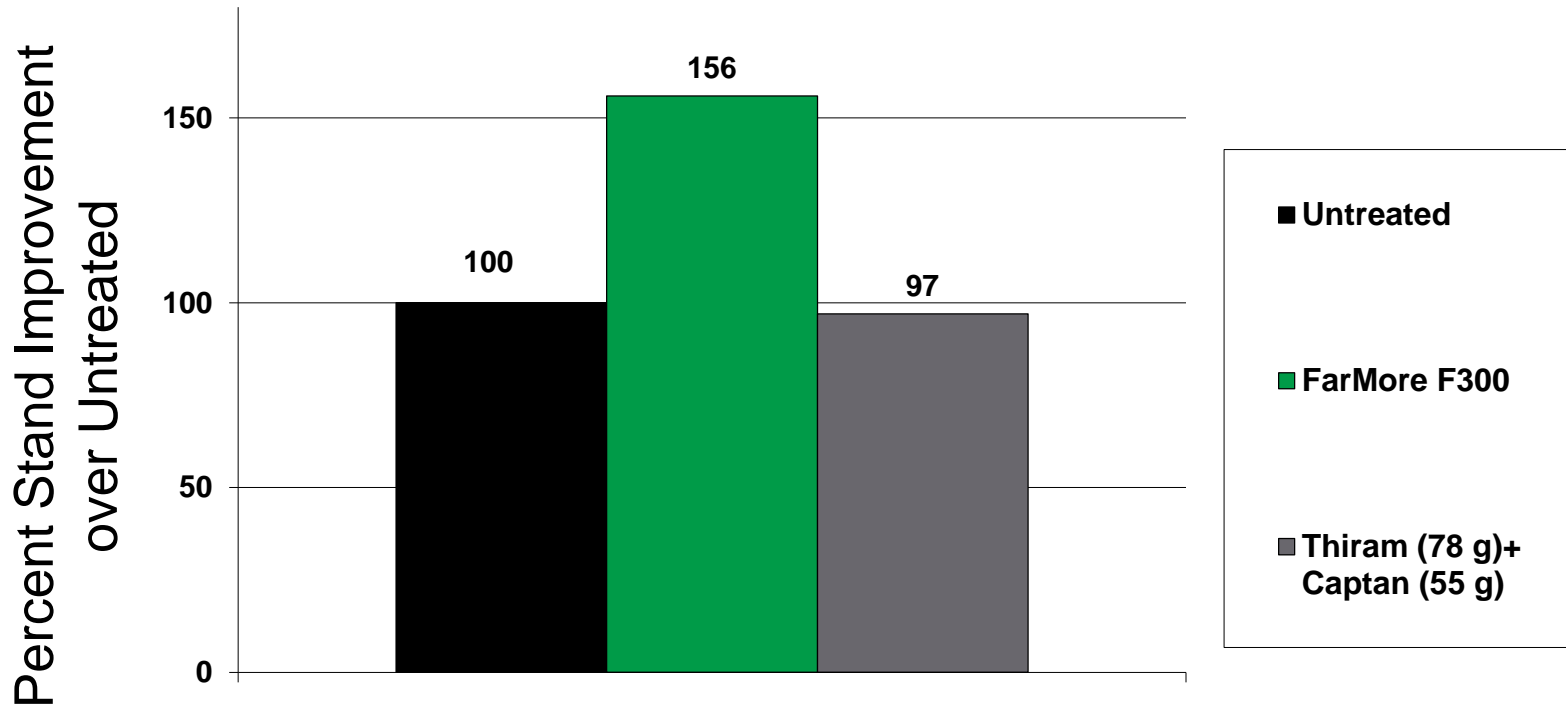
California
Inoculated with *Rhizoctonia*
Average of two trials
2003

FarMore F300: Carrot Stand Improvement



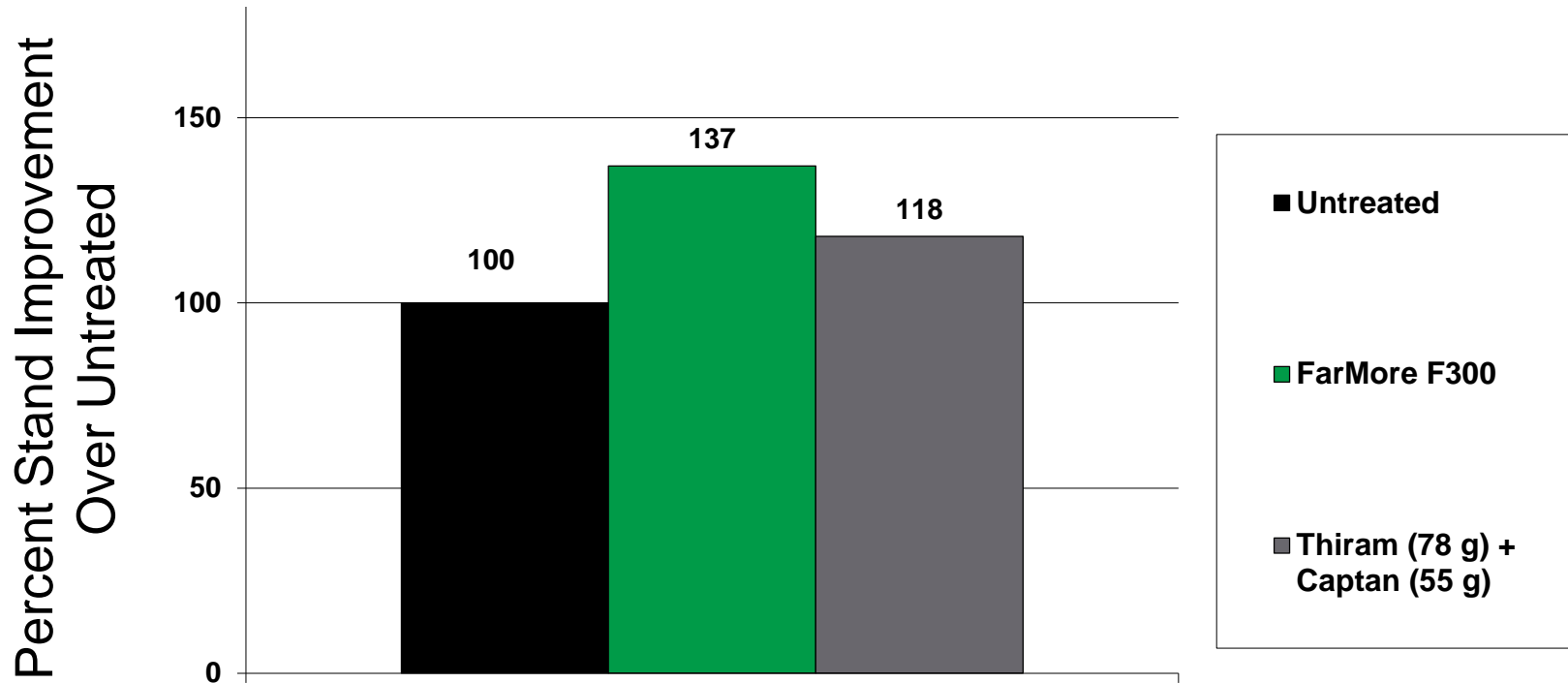
Mississippi
Variety: Royal Chantenay
Inoculated with *Rhizoctonia*
2003

FarMore F300: Onion Stand Improvement



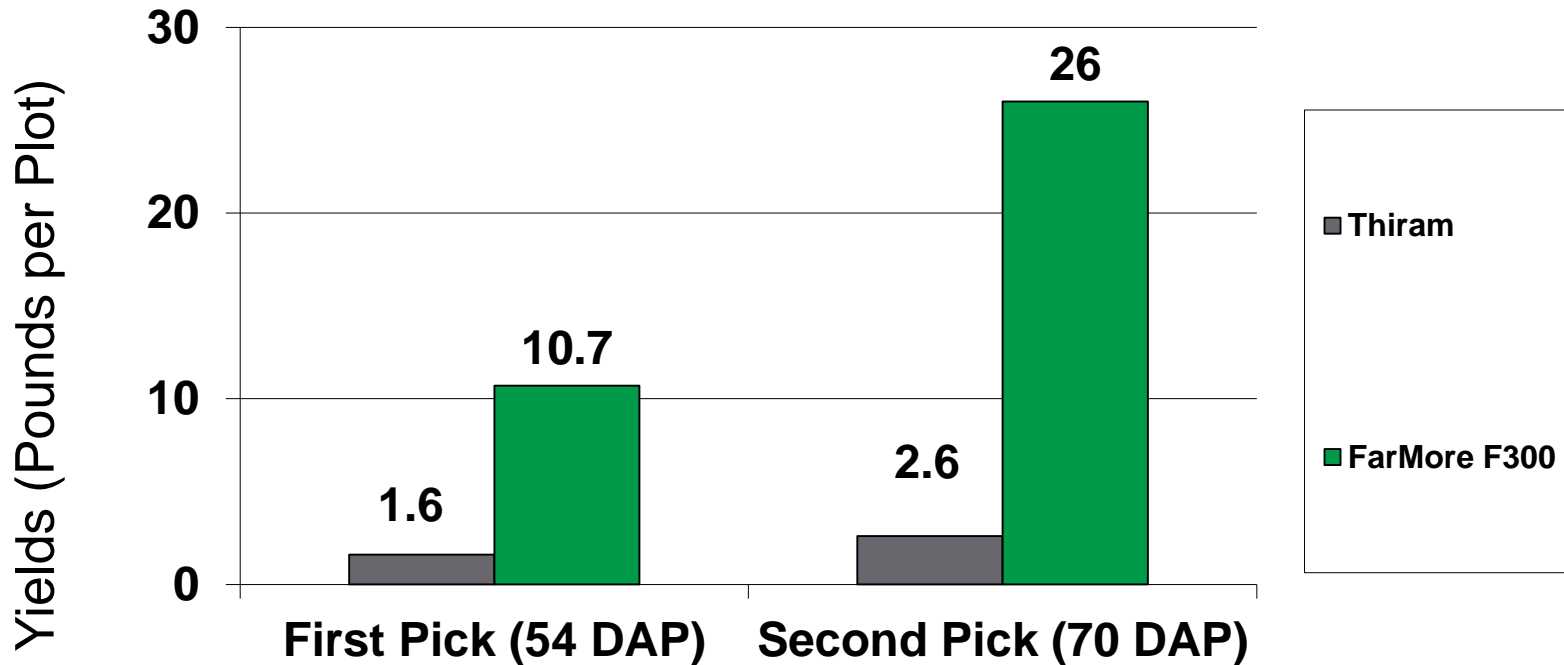
Mississippi
Variety: Granex 33
Inoculated with *Rhizoctonia*
2003

FarMore F300: Pepper Stand Improvement



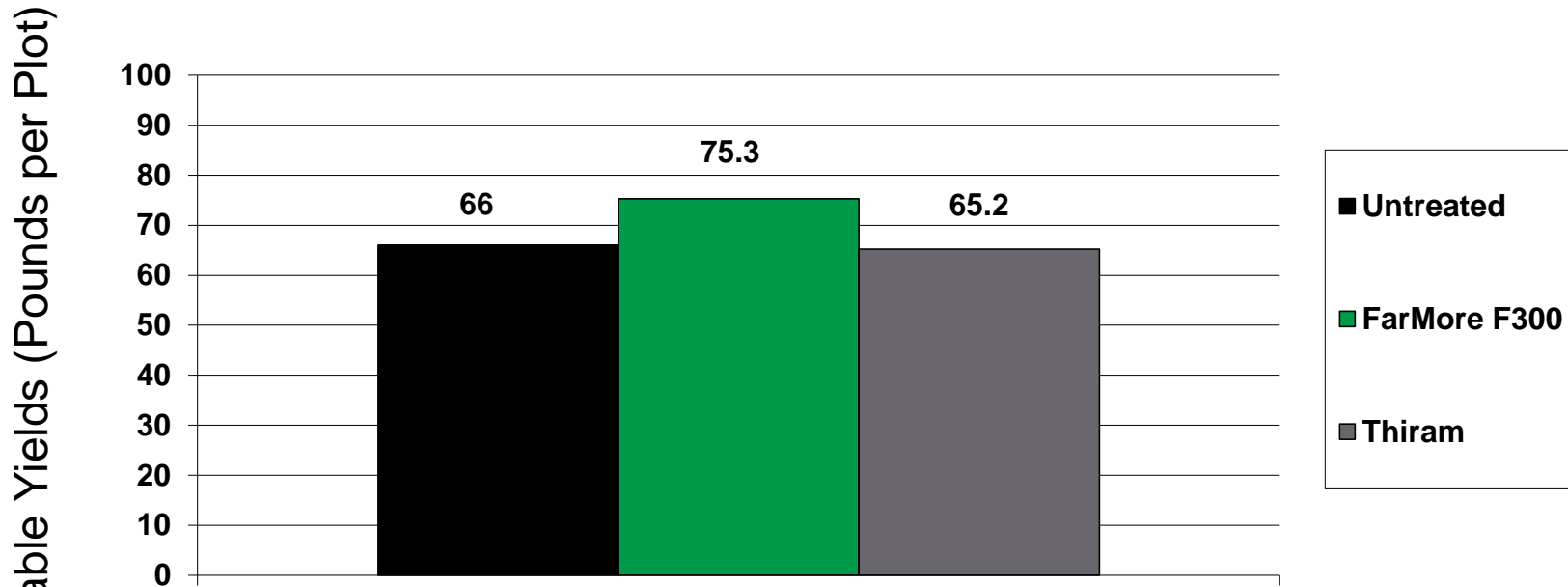
Mississippi
Variety: Pepper (Jalapeno M)
Inoculated with *Rhizoctonia*
2003

FarMore F300: Direct-seeded Cucumber Yields Under *Rhizoctonia* Pressure



Variety: Vlasic
Inoculated with *Rhizoctonia*
Thiram treated at 4.5 oz/100 lbs
DAP = Days After Planting
California, 2005

FarMore F300: Cantaloupe Plant Vigor and Yield Improvement



University of California, Davis
Variety: Oro Rico (Cantaloupe)
Thiram treated at 4.5 oz/100 lbs
2005

FarMore FI400: Overview

- Fungicide/insecticide seed treatment technology that helps maximize cucurbit and leafy vegetable production by enhancing performance and value
- Active ingredients:

Fungicides	Insecticides
Mefenoxam (Apron XL)	Thiamethoxam (Cruiser [®] 70WS – FarMore FI400 Leafy) (Cruiser 5FS – FarMore FI400 Cucurbits)
Fludioxonil (Maxim 4FS)	
Azoxystrobin (Dynasty)	

FarMore FI400: Pest Protection

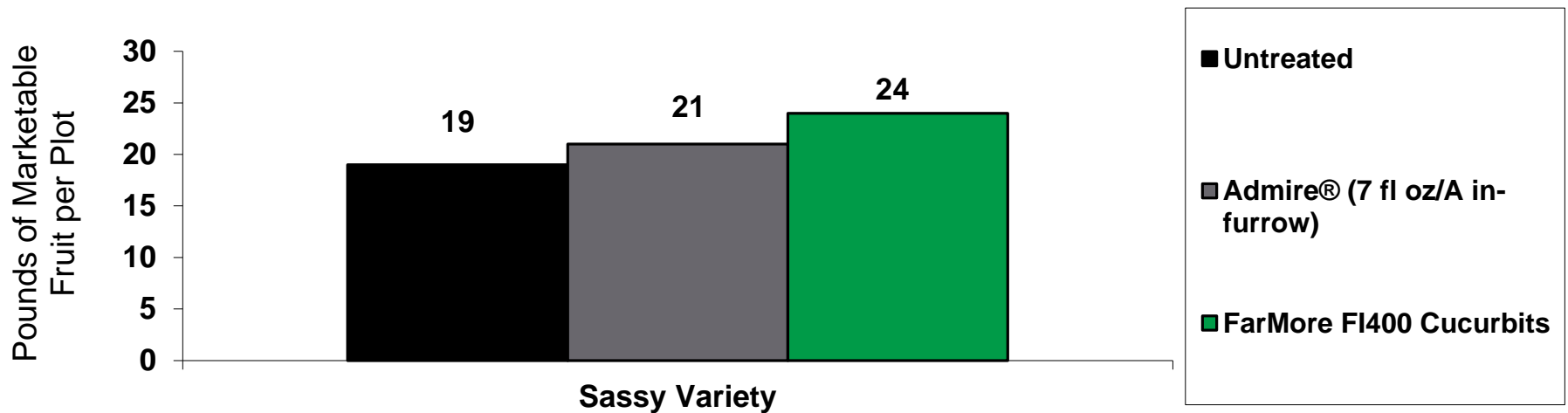
Crop	Diseases	Insects	
Cucurbits	<i>Rhizoctonia</i>	Aphids	Seedcorn maggot
	<i>Fusarium</i>	Cucumber beetles	Thrips
	<i>Pythium</i>	Flea beetles	Whiteflies
	General damping-off and seedling blight	Leafminers	Wireworms
Leafy	<i>Rhizoctonia</i>	Aphids	
	<i>Fusarium</i>	Leafminers	
	<i>Pythium</i>	Thrips*	
	General damping-off and seedling blight	Whiteflies	



*Provides reduced damage.

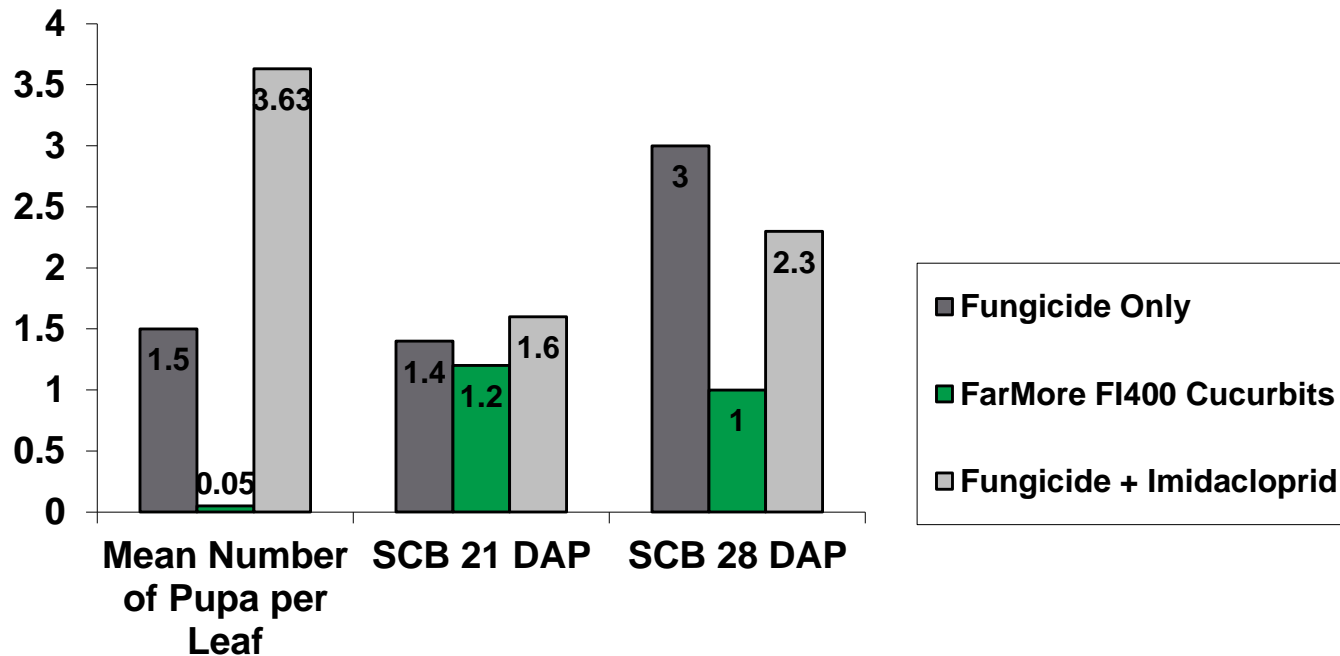
FarMore FI400 Cucurbits: Pickling Cucumber Yields

Insecticide Trials



Ohio, 2007

FarMore FI400 Cucurbits: Protection of Cantaloupe Against Cucumber Beetles

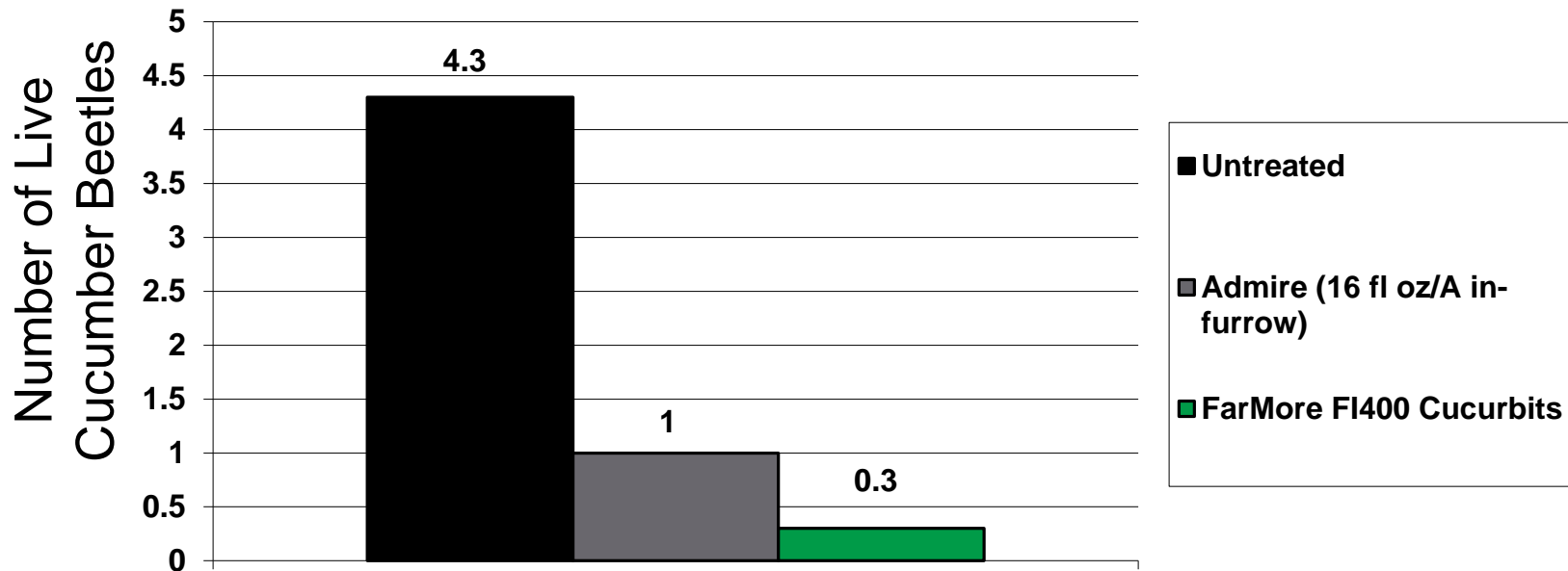


California, 2007

DAP = Days After Planting

SCB – Striped Cucumber Beetle

FarMore FI400 Cucurbits: Pumpkin Insect Protection



Ohio, 2005
Variety - Hybrid Pam

FarMore FI500 Onion: Overview

- A fungicide/insecticide seed treatment technology that offers onion growers the protection of three seed-delivered fungicides and two seed-delivered insecticides including increased protection against seedcorn maggots, onion maggots and onion thrips

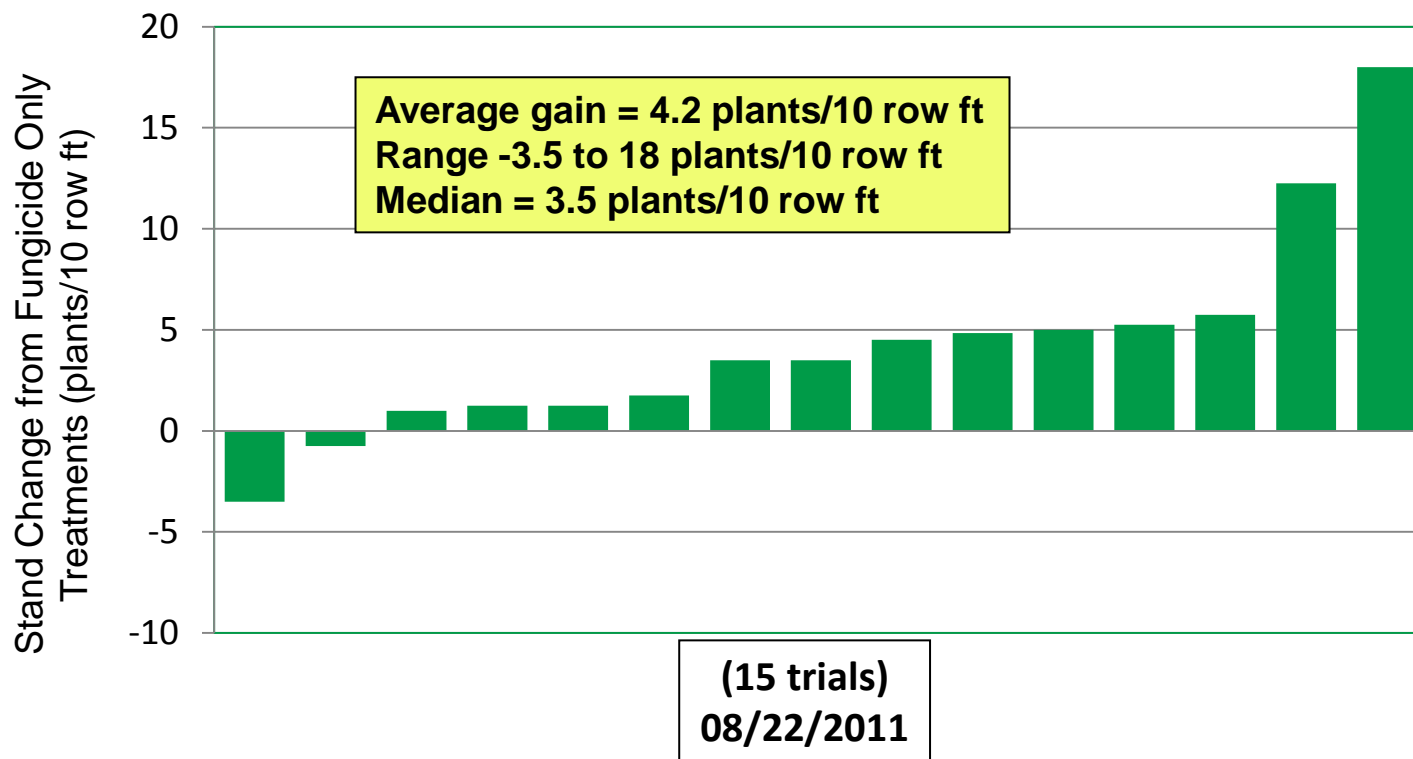
Fungicides	Insecticides
Mefenoxam (Apron XL)	Thiamethoxam (Cruiser 70WS)
Fludioxonil (Maxim 4FS)	Spinosad (Regard™)
Azoxystrobin (Dynasty)	

FarMore FI500 Onion: Pest Protection

Diseases	Insects
<i>Rhizoctonia</i>	Seedcorn maggots
<i>Fusarium</i>	Onion maggots
<i>Pythium</i>	Onion thrips*
General damping-off and seedling blight	

*Suppression only.

FarMore FI500 Onion Versus Fungicide Only



Trials were non-replicated large plot side by sides
Conducted by third party contractors and seed dealers

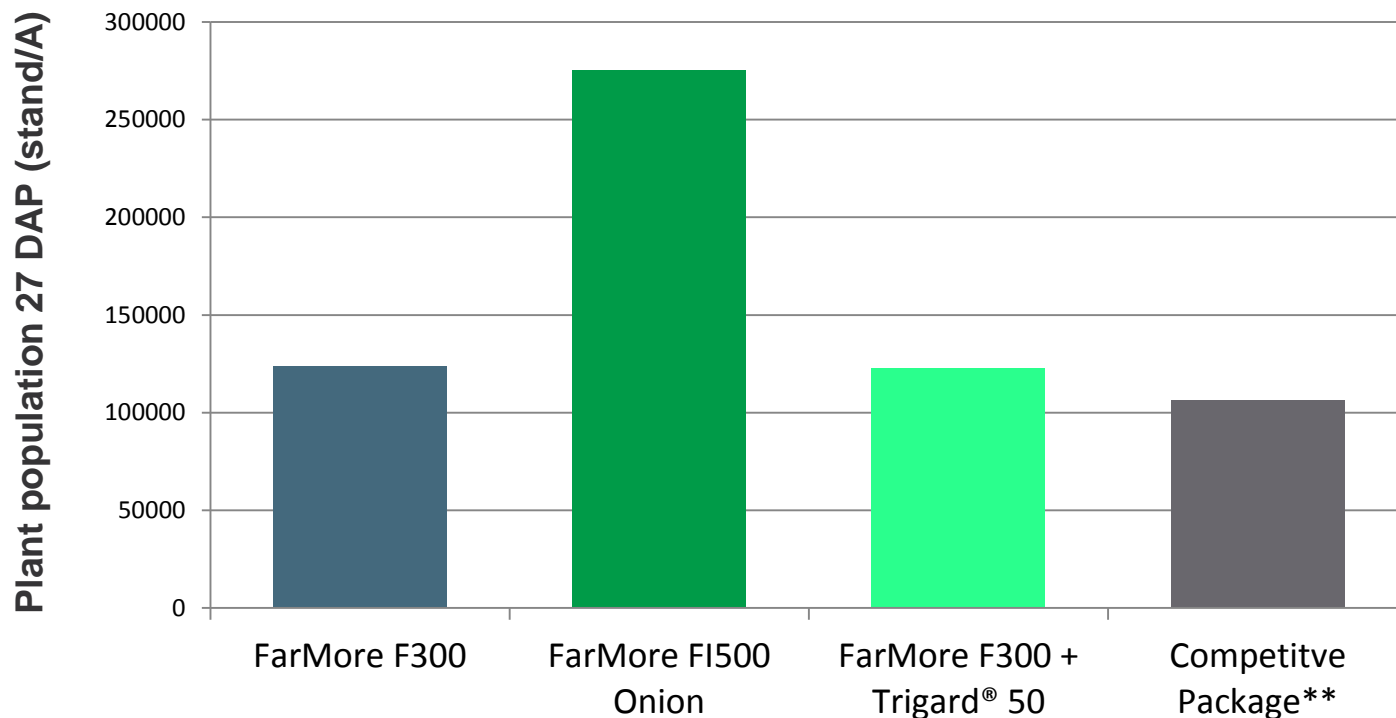
Trials from Idaho, New York, Oregon, Utah, Washington

Average Vigor Rating for FI500 treated plots = 3.3 (Visual Rating 1-4, 4 = Best) (Cruiser = 0.2 mg a.i./seed)

Average Vigor Rating for fungicide-only treated plots= 2.7 (Visual Rating 1-4, 4= Best)

FarMore FI500 Onion: Seedcorn Maggot, *Delia platura*

TBZ Included in Base Treatment (2011 trial)



USWF0U5822011: Hermiston, OR

*Base Treatment: Apron XL 7.5 + Maxim 2.5 +
Dynasty 2.5 + Mertect® 50 g a.i./100 kg seed

**Competitive Package: Thiram + Allegiance® + Coronet® + Sepresto

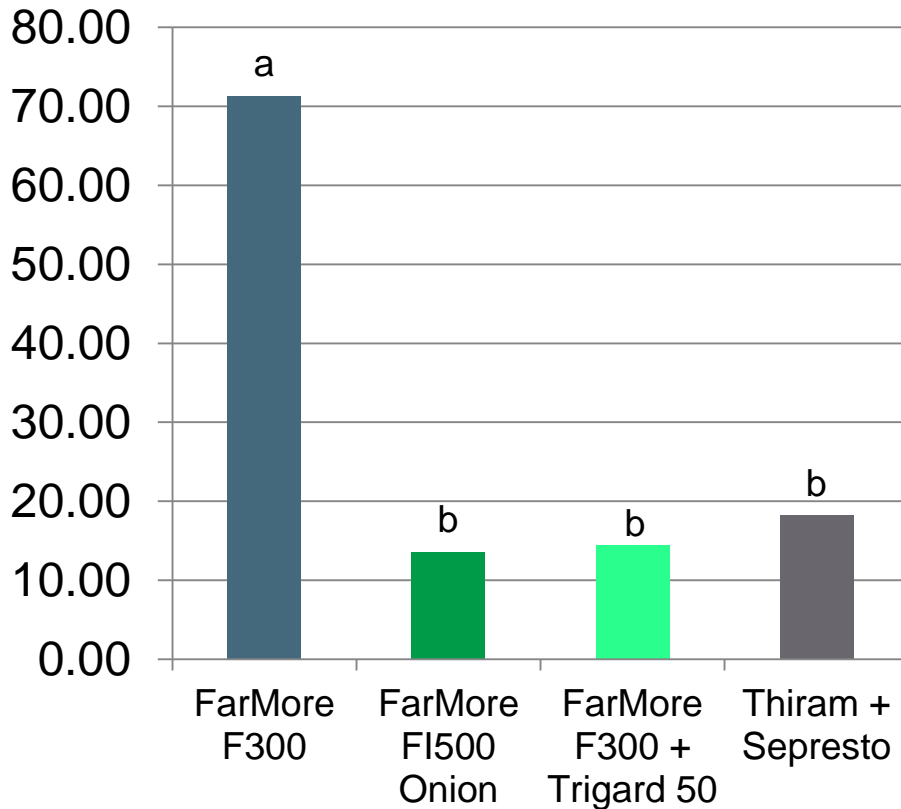
LSD = 43,703

Some treatments were removed for this presentation.

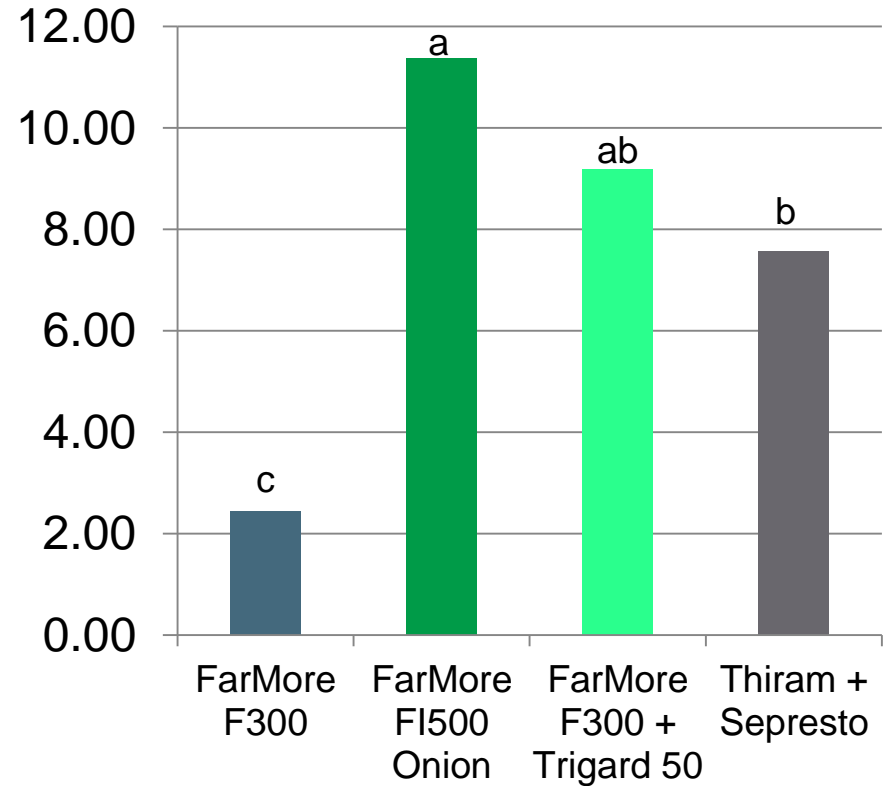
FarMore FI500 Onion: Onion Maggot, *Delia antiqua*

Percent Onion Maggot Damage and Marketable Yield

Onion Maggot Percent Damage



Marketable Yield (lb/20 row ft)



USEC0U0082010: Elba, NY

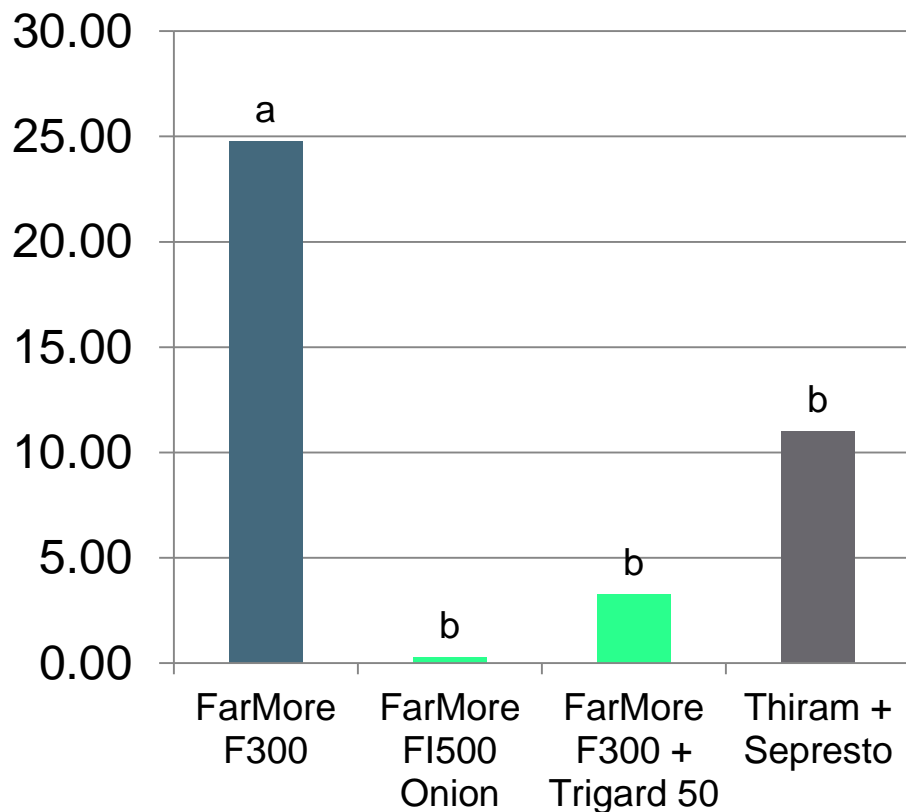
*Base Treatment: Apron XL 7.5 + Maxim 2.5 + Dynasty 2.5 g a.i./100 kg seed

Some treatments were removed for this presentation.

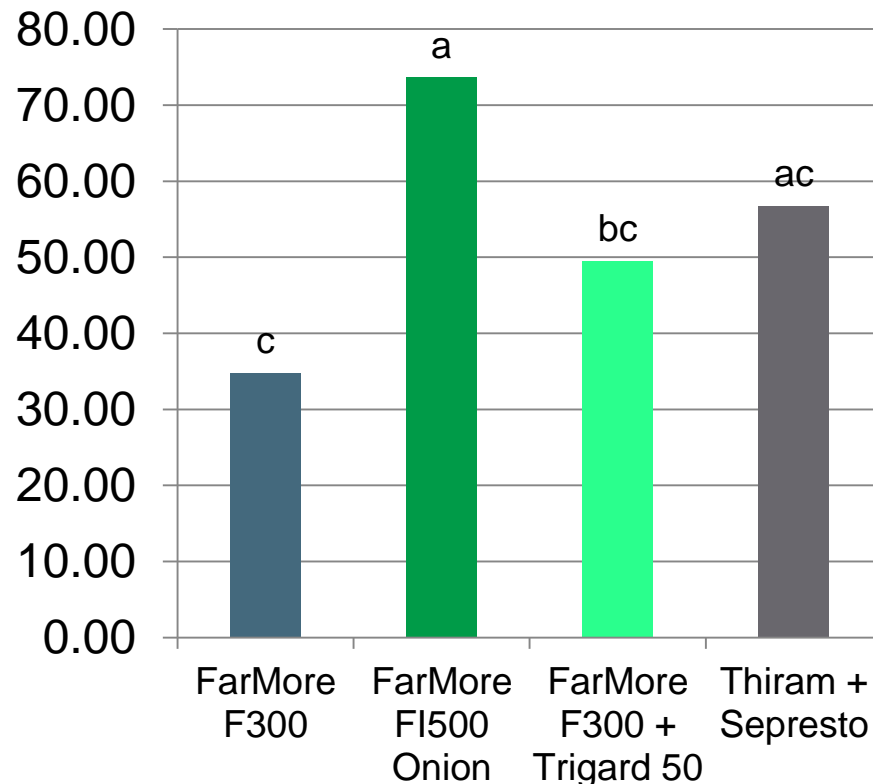
FarMore FI500 Onions: Onion Maggot, *Delia antiqua*

Onion Maggot Damage and Marketable Yield

Onion Maggot Feeding Site Counts



Total Yield (lb/45 row ft)



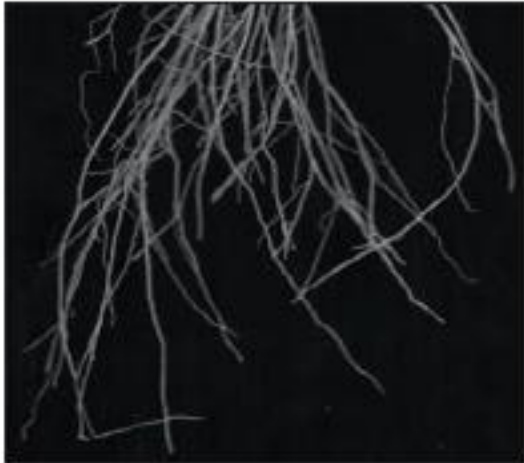
USWF0U4902010: Salem, OR

*Base Treatment: Apron XL 7.5 + Maxim 2.5 + Dynasty 2.5 g a.i./100 kg seed

Some treatments were removed for this presentation.

FarMore FI 500 Onion helps roots thrive

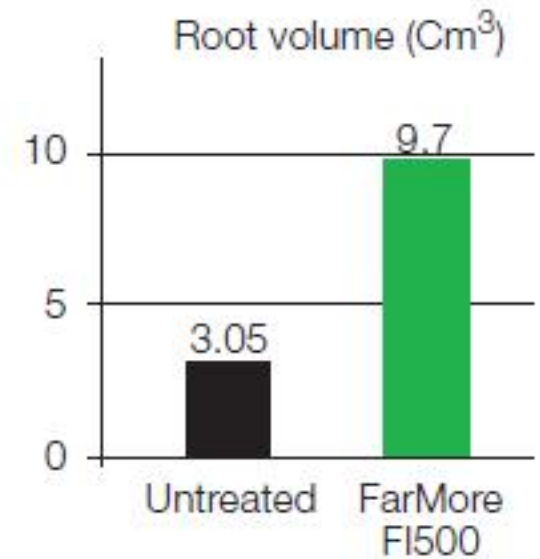
July 2012



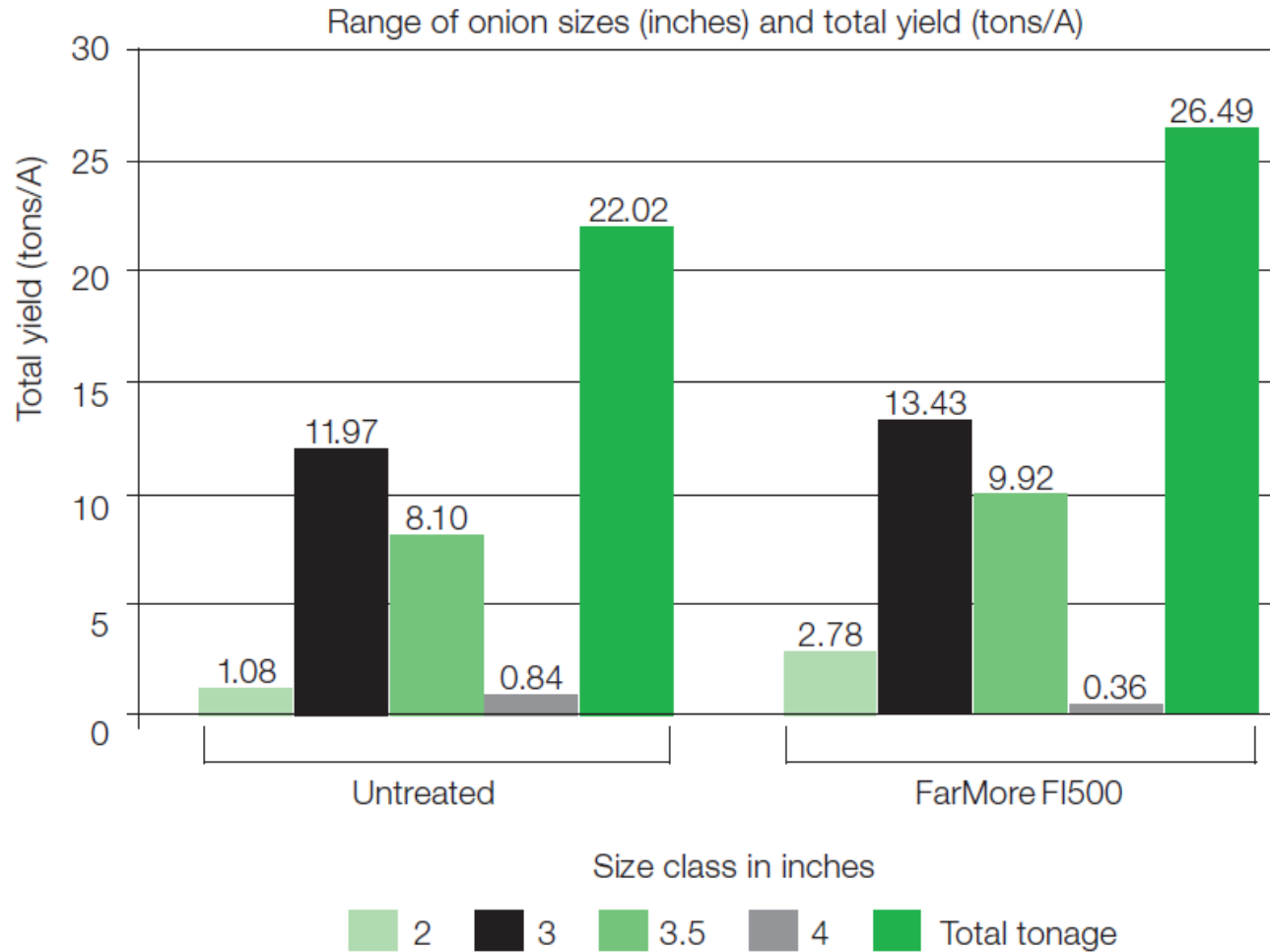
Untreated



Treated with
FarMore FI500 Onion



Protected onion seeds develop stronger stands that can produce higher yields



Why Should We Consider New Options in Vegetables?

- Thiram: The most widely used seed treatment in vegetables is carefully watched
- Currently with Thiram:
 - Request for removal of all residential uses of Thiram
 - Cancellation of uses in apples and strawberries
 - Cancellation of on-farm seed treatment uses in peanuts
 - Cancellation of all turf application for turf grown for sale
 - Cancellation of the aerial and hand/spoon application of granular formulations
 - New risk mitigation is required as described by RED
 - Updated worker protection standards

FarMore Technology Versus Competitive Brands

FarMore Technology

- A combination of technologies, including systemic and contact fungicides
- Low use rates per seed
- Spectrum:
 - *Fusarium*
 - *Rhizoctonia*
 - *Pythium*
 - General damping-off and seedling blight
 - Seedborne *Sclerotinia* in selected vegetables
- Effective on some post-emergence diseases
- A platform for increased performance potential

Thiram

- Non-systemic dithiocarbamate
- Use rate 55 g a.i./100 kg
- Spectrum:
 - *Fusarium*
 - *Rhizoctonia*
 - Limited activity on *Pythium*

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FarMore Technology is an on-seed application of separately registered seed protection products and proprietary application technologies. FarMore F300 contains three fungicides: Apron XL, Maxim 4FS and Dynasty. FarMore FI400 Cucurbits contains Cruiser 5FS insecticide and three fungicides: Apron XL, Maxim 4FS and Dynasty. FarMore FI400 Leafy contains Cruiser 70WS insecticide and three fungicides: Apron XL, Maxim 4FS and Dynasty. FarMore FI500 Onion contains three fungicides: Apron XL, Maxim 4FS and Dynasty, and two insecticides: Regard and Cruiser 70WS.

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