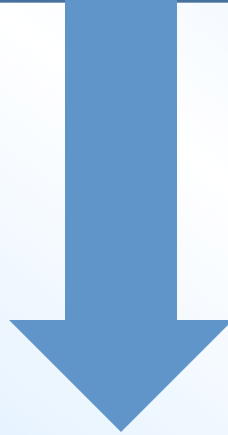


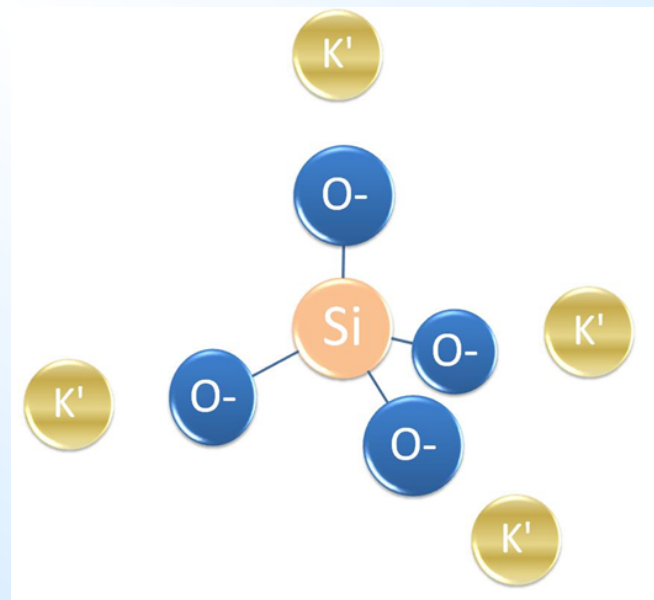
**CERTIS**



**Si-MATRIX™**

# Si-MATRIX™

## Potassium Silicate



- For control of Powdery Mildew and other fungal diseases
- For suppression of mites, whiteflies and other insects



## Presentation Outline

Product  
Characteristics

Mode of  
Action

Rate Range  
Use Info

Target Pests &  
Crops

Results

**Si-MATRIX™**

**Potassium Silicate**

**Si-MATRIX™**

**FUNGICIDE/MITICIDE/INSECTICIDE**

For use on vegetables, fruits, nuts, vine crops, field crops, ornamentals and turf for control of fungal diseases, and suppression of spider mites, aphids, whiteflies and other insects

**ACTIVE INGREDIENT:**

Potassium silicate.....	29%
<b>OTHER INGREDIENTS:.....</b>	<b>71%</b>
<b>Total</b>	<b>100%</b>

EPA Reg. No. 82100-1 EPA Est. No. 82100-PA-001

**Net Weight 565 lbs  
55 Gal**

## Product Characteristics

CERTIS

**Si-MATRIX**™

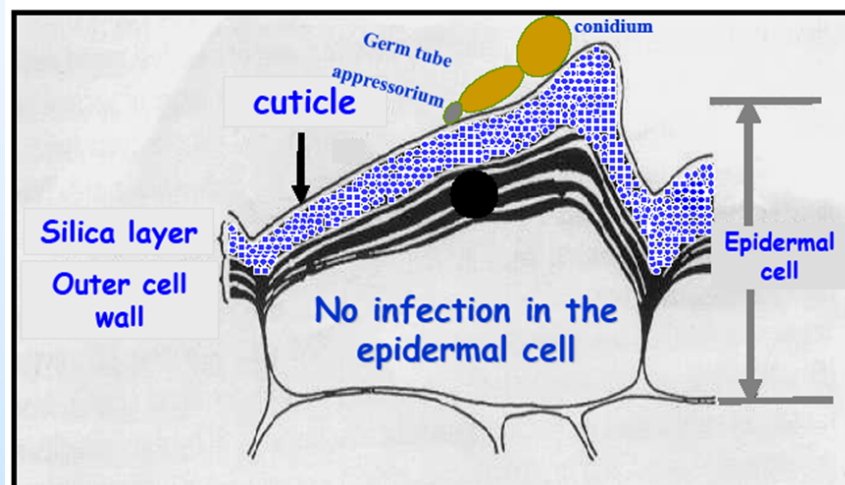
- Active Ingredient: Potassium Silicate 29%
- 8%  $K_2O$ , 21%  $SiO_2$
- Completely Soluble (Alkaline pH buffered to near neutral when diluted; aids in increasing pH of acid solutions.)
- Product stable under all conditions of use and storage
- Alkaline: pH 11.3
- Created by mixing Quartz sand ( $SiO_2$ ) and Potassium Carbonate ( $K_2CO_3$ ) and melting at 1200°C.
- Compatible with liquid sulfur products, horticultural oils, DMI and Strobilurin fungicides (Ask Sales Rep. regarding specific chemistries)

# Si-MATRIX™

- Amorphous silica deposits in the leaf apoplast
  - Prevents penetration of fungi, becomes less palatable to insects, silica acts as a desiccant (used commonly in packaging to reduce humidity).

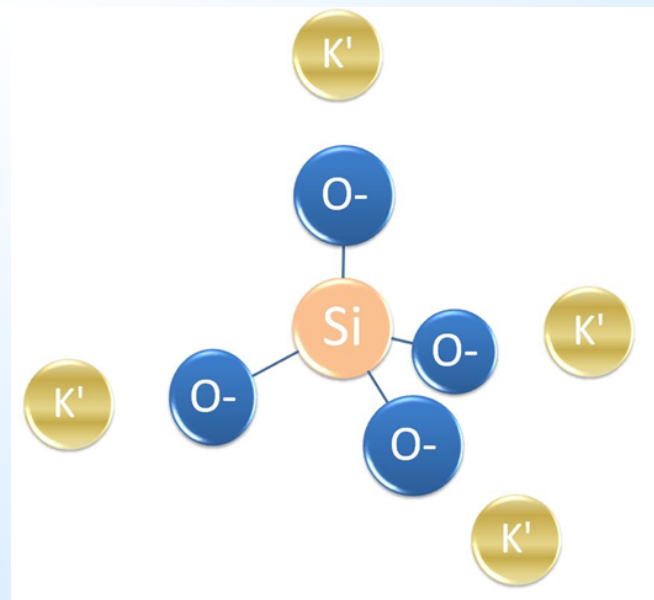
## The mechanical barrier hypothesis

Cuticle-silica double layer (Yoshida et al., 1962)



# Si-MATRIX™

- Potassium taken up in turf grass; increases plant turgidity.



- Potassium is in equilibrium with Sililcon-oxide and is available to plant as it is applied.



Rate Range  
Use Info

CERTIS



- 0.5 -1.0% spray (1300-2600ppm)
- Apply no sooner than every 7 days.
- Use non-ionic surfactant
- 20-250 gallons per acre (use adequate gallonage to ensure good coverage.
- PPE- Coveralls, Chemical-resistant gloves made of any waterproof material, shoes and socks, GOGGLES OR FACE SHIELD WHEN HANDLING UNDILUTED CONCENTRATE.
- REI: 4 hours
- PHI: 0 days; Do not make post harvest applications





- Application for NOP, OMRI and WSDA submitted and in process
- No to Low burn potential
- Compatible with oil and non-ionic surfactants
- Compatible with existing spray programs
- Relatively odorless
- Liquid formulation rather than dust
- Compatible with IPM programs (soft on beneficials)

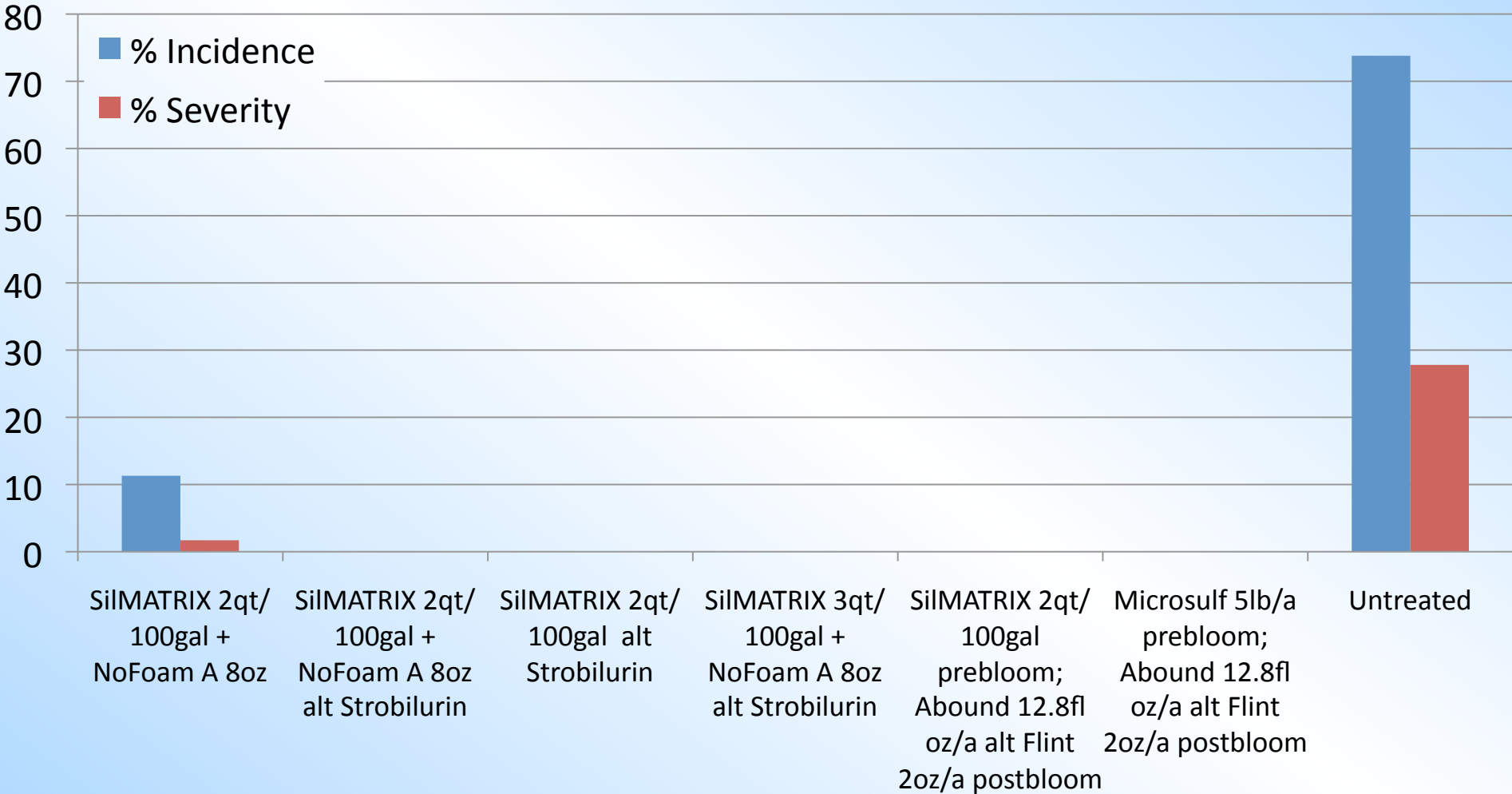


- Grape: PM & Mite (TSSM, ERM)
- Strawberry: Mite (TSSM)
  - PM, botrytis
- Apple: Mite (ERM, Rust)
- Almond: Mite (TSSM)
- Lettuce: Aphid
- Blueberry: Botrytis
- Cherry: PM
- Cucurbits: PM

Results



Grape Powdery Mildew-2004  
Walnut Grove, CA

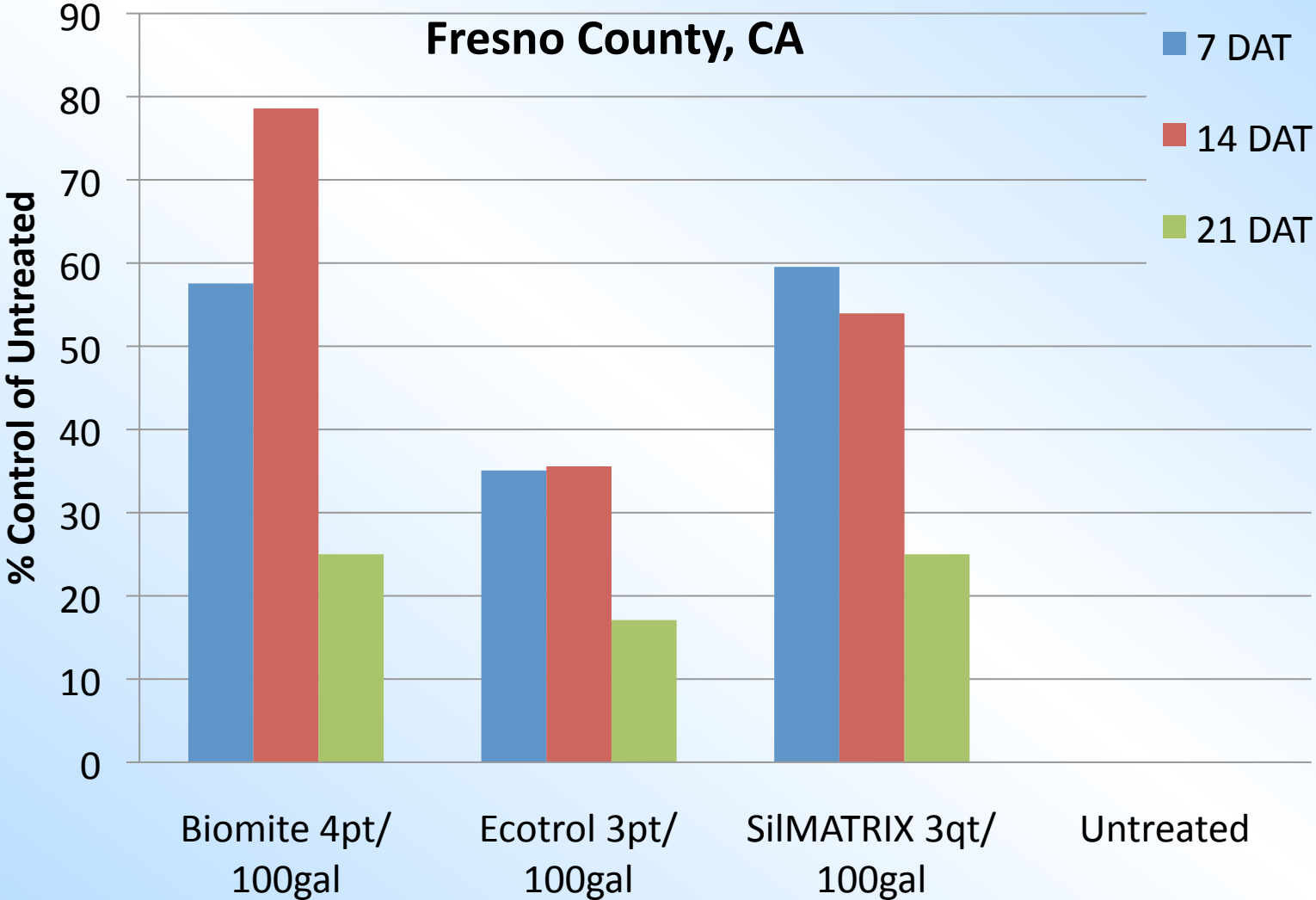


Results



Grape Two-Spotted Spider  
Mite-2006

Fresno County, CA

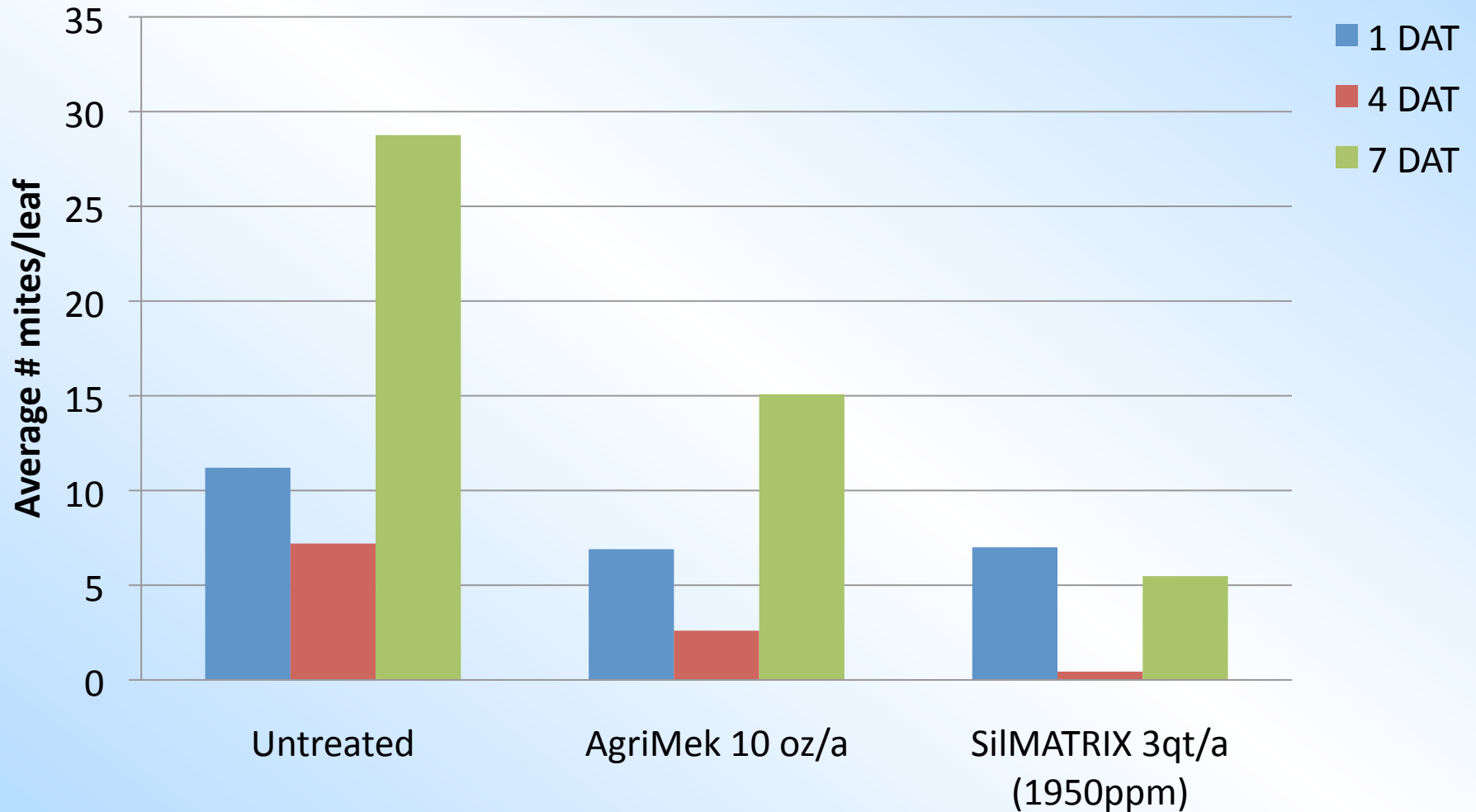


**Strawberry Powdery Mildew-2009**  
**Wimauma, FL**

Treatment	Yield (lb/A)	Diseased Fruit (%)	Foliar Severity*
Quintec 6fl oz/a + Captan 1.5lb/a; 14d	22,200	9.5	0.56
K-Phite 2qt/a; 14d	13,800	34.5	0.92
Pro cure 8fl oz/a + Captan 1.5lb/a; 14d	15,200	34.4	1.06
Pro cure 8fl oz/a alt SiMATRIX 4qt/a + Induce 1.5pt/a; 7d	20,000	17.5	1.13
Untreated	12,300	46.6	1.37

\* Disease severity index: Modified Horsfall-Barratt scale (0-6) numerically increasing in severity.

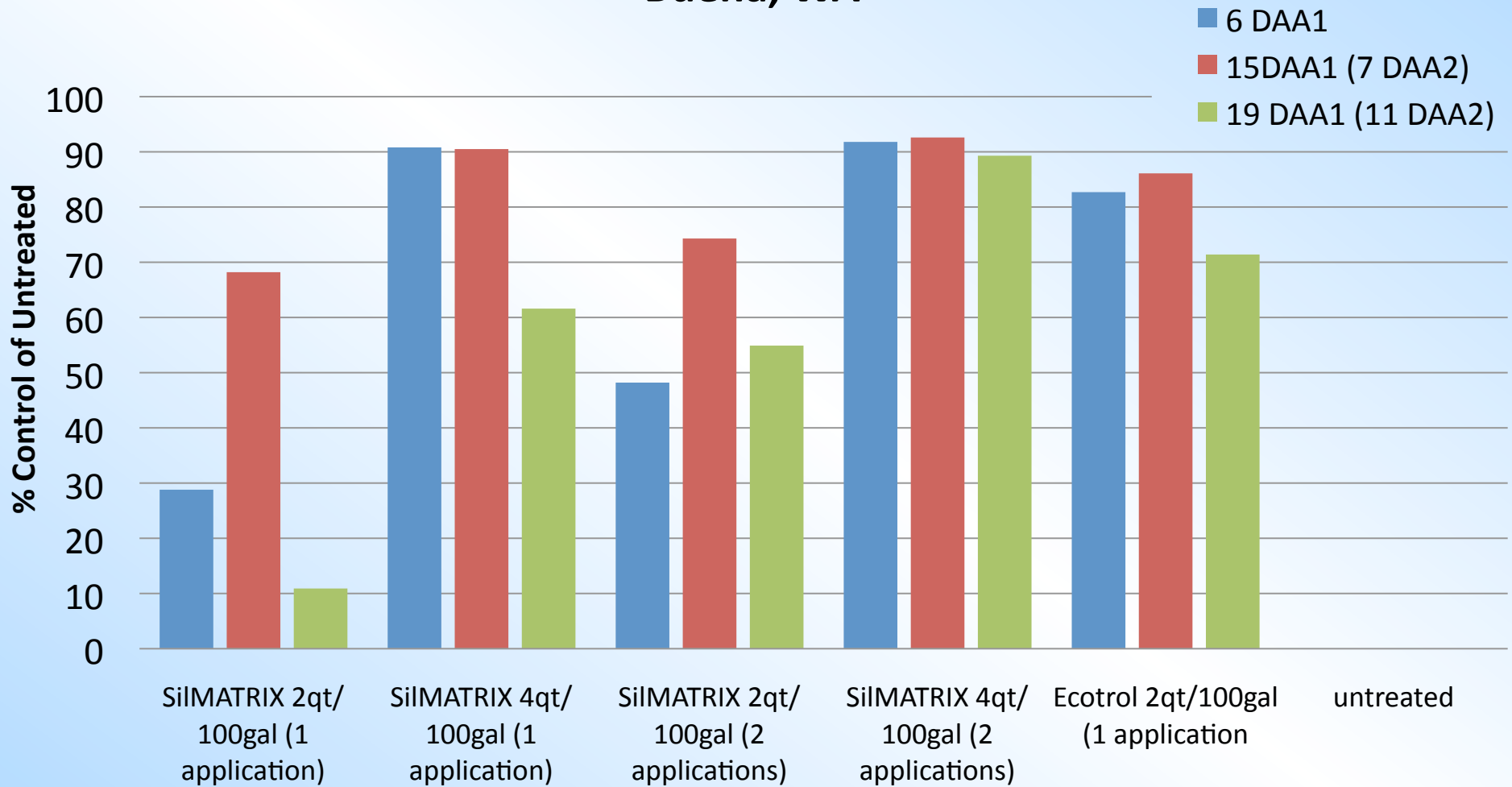
## Strawberry Two-Spotted Spider Mite-2004 Woodland, CA



Results



### Apple European Red Mite (ERM)-2006 Buena, WA



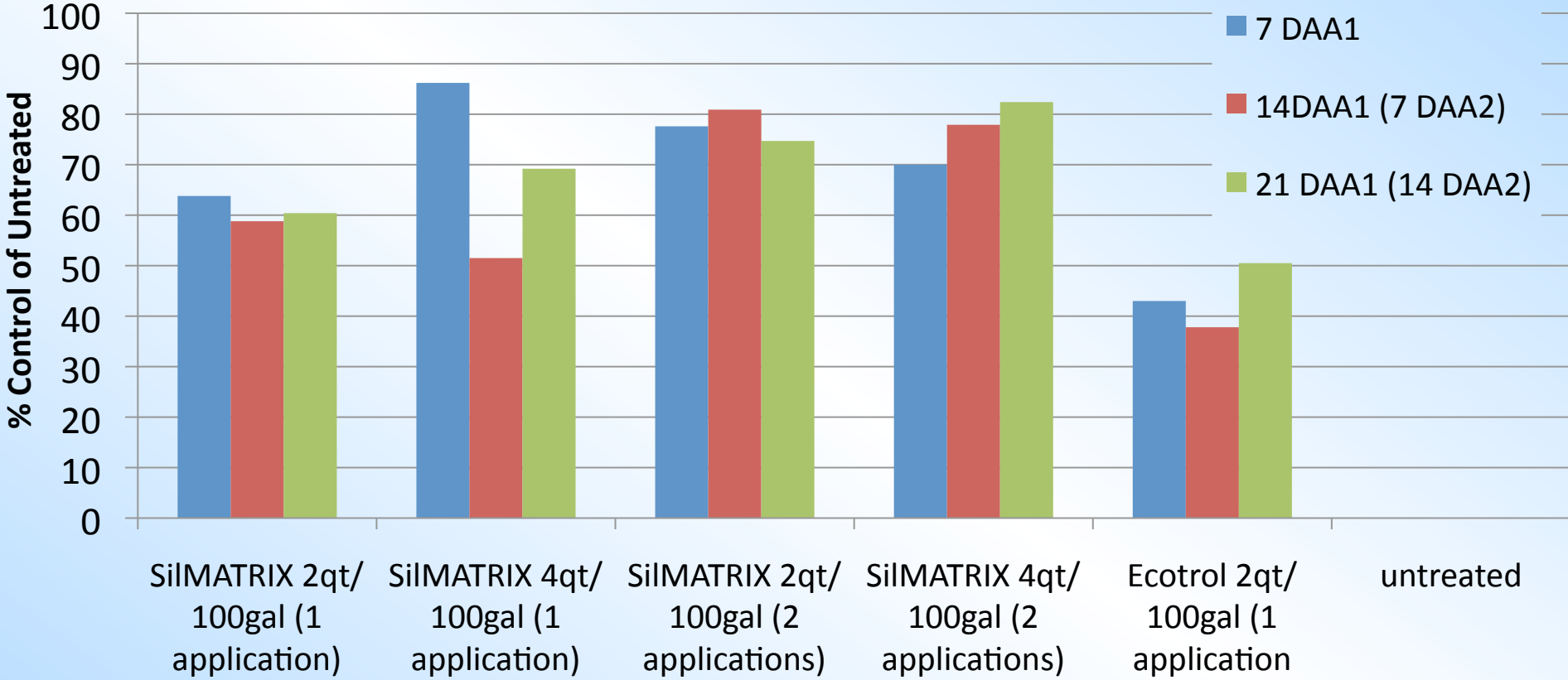
All treatments included Green Cypress Organic Spreader @ 8fl oz/100gal



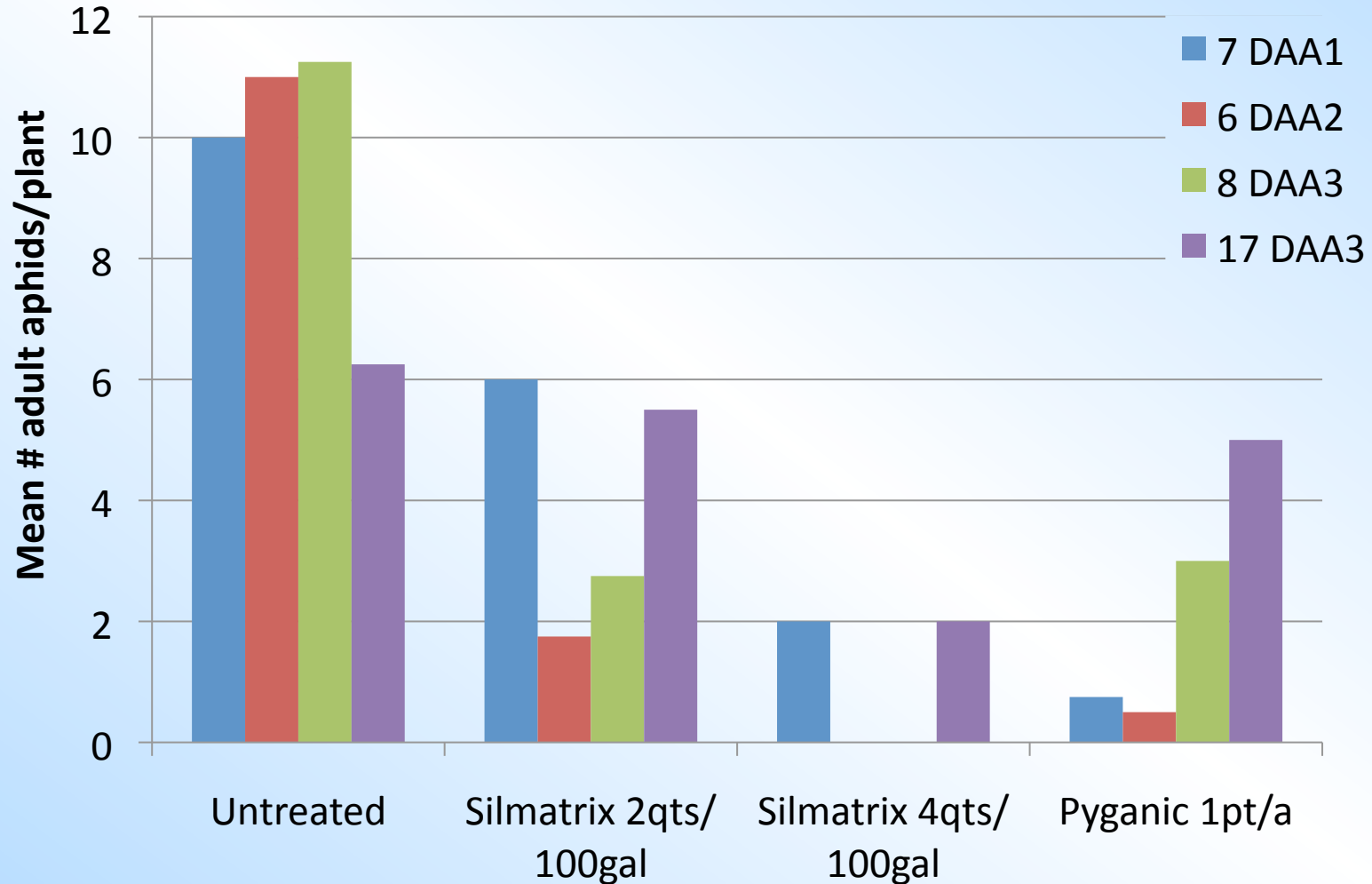
Results



### Almond Two-Spotted Spider Mite-2005 Visalia, CA



All treatments included Green Cypress Organic Spreader @ 8fl oz/100gal

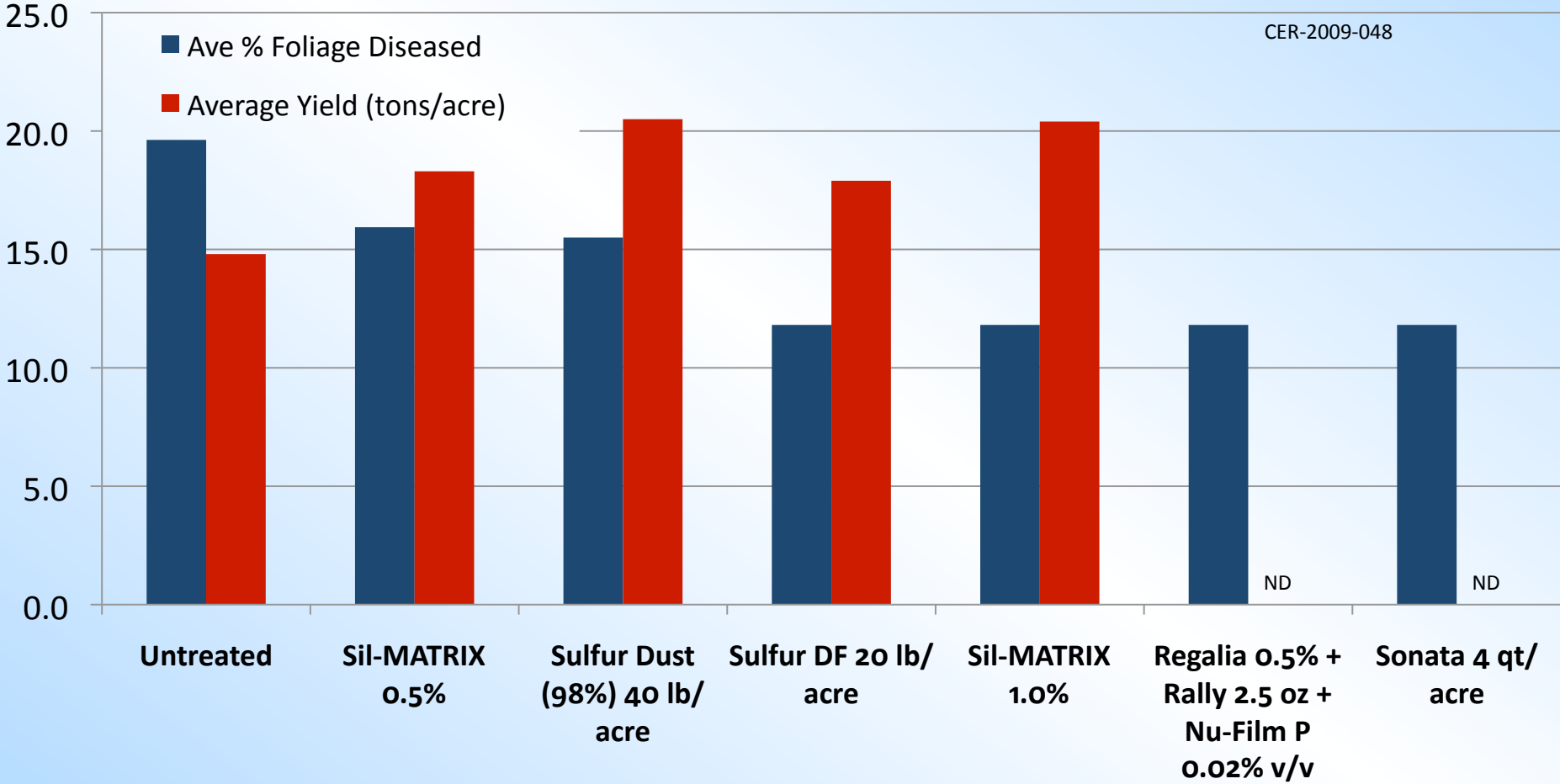
**Lettuce-Green Peach Aphid Adults-2006  
Santa Maria, CA**

SilMATRIX treatments included Green Cypress Organic Spreader @ 8fl oz/100gal

Results



### Tomato-Powdery Mildew-2009 San Joaquin County, CA



CER-2009-048

ND=No yield data taken on treatment