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# Update

INSIDE:

## 2016 Members and Projects List

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### 2016 Projects: Continued

#### Foliar Diseases

##### Detection of Azole and Strobilurin Fungicide Resistant Strains of Tomato Powdery Mildew in California

*Ioannis Stergiopoulos*

Powdery mildew continues to be problematic for both growers and researchers. Project continues a focus on the crop production issues of field resistance to fungicides. It is part of a larger suite of proposals to other agencies looking at more basic properties of the pathogen.

##### Evaluation of Chemical Control of Bacterial Speck

*Gene Miyao*

Continuation of the basic field evaluation of newer control products. This proposal focuses on extra-early plantings in replicated plots on the UC Davis campus.

##### Bacterial canker of tomato: examining strain relationships and testing PCR primer specificity

*Gitta Coaker*

This proposal seeks to validate markers developed in earlier projects with both known and new field strains from this 2016 growing season. Canker has been of small significance in recent dry years, but is still considered a major seed production concern. An effective canker identification program will help seed suppliers further reduce seed contamination risk.

#### WEED MANAGEMENT

##### Field Bindweed Management in Processing Tomatoes

*Lynn Sosnoskie*

A continuing proposal that looks beyond simple treatment rates and into an overall strategy of improving early crop vigor to better compete against field bindweed.

##### Automatic Vision Guided Weed Control System for Processing Tomatoes

*David Slaughter*

Third and completing year to address the increasingly important issue of excess herbicide residue on permanent beds.

(Photo F)



#### Special Note:

The 2015 Annual Research Project Report is available only at [www.tomatonet.org/2015](http://www.tomatonet.org/2015)



# Update

## California Processing Tomatoes

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## 2016 Projects

### AGRONOMIC RESEARCH

#### Investigation of Sustaining Tomato Plant Health and Yield with Composted Manure

*Gene Miyao*

An outgrowth of the previous work by Davis/Leveau on root health. Project is in the final year to optimize application rates of potassium and compost for maximum yield response.

#### Evaluating the Nitrogen Budget System in Drip Irrigated Processing Tomatoes

*Scott Stoddard*

Project is evaluating nitrogen budgeting systems being developed by water agencies to regulate nitrogen use. The project will be conducted at Merced College and is on track to provide useful information.

#### Potential for improved fertigation efficiency via field-based sensing devices

*Brenna Aegerter*

Explores the use of two field-based measurement devices to inform more precise management of water and nutrients in subsurface drip-irrigated processing tomatoes. The technologies to be evaluated are a Greenseeker handheld NDVI meter and a Tule Technologies surface renewal evapotranspiration station. Coordination with TerrAvion weekly aerial monitoring will explore development of remote sensing potential.

### GERMPLASM & VARIETY DEVELOPMENT

#### CM Rick Tomato Genetics Resource Center

*Roger Chetelat*

Annual support of the valuable germplasm bank. The Center serves as a warehouse for genetic materials used in many processing tomato research projects. To ensure this repository continues to serve our industry, CTRI recently contributed \$100,000 to the Rick Center Endowment Fund in addition to our annual support.

#### Discovering, identifying and testing wild tomato genes that contribute to water stress tolerance

*Dina St. Clair*

Two complimentary projects seeking to identify and test "wild" genetic materials with potential to improve the water use efficiency of commercial processing tomato varieties.

### INSECT MANAGEMENT

#### Evaluation of Tactics for Improvement of Stink Bug Control

*Tom Turini*

Third and final year of a requested proposal to focus on the increasing problem of stinkbugs in Fresno County. The project is successful in identifying early season movement, reviewing control options. Final year will attempt to detail strategies key to successful field management.



# 2016

# Members of the California Tomato Research Institute

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*Walnut Grove*  
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Bardin Bengard Farming  
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Burford Ranch  
*Helm*  
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*Five Points*  
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San Andreas Farms  
*Brentwood*  
Sano Farms, Inc.  
*Firebaugh*  
Santa Rita Farms, Inc.  
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Sun Pacific Farming Co.  
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Underwood Ranches  
*Camarillo*  
Wheeler Ridge Farming  
*Stratford*



# 2016 Processing Tomato Research Projects



## **DISEASE MANAGEMENT**

### **Evaluation of Fungicides, Bio-Pesticides and Soil Amendments for the Control of Southern Blight of Processing Tomatoes**

*Joe Nunez*

Continuation of intensive field trials with active stakeholder participation. This is the sixth year of continually refined trials in a Kern member field. Project will test more difficult to execute and aggressive crop protection treatments. (Photo B)

### **Nematode Management**

#### **Evaluation of Alternative Nematicides for the Control of Root-Knot Nematodes of Processing Tomatoes**

*Joe Nunez*

Proposal is for rotation experiments to develop resistance management practices with Nimitz® and to test new nematicide products at the Kern County Research Farm in Shafter.

#### **Characterization of resistance-breaking root-knot nematodes**

*Antoon Ploeg*

Same team that identified Nimitz®, now working on broader nematode resistance management. Continued support for processing tomato nematode research at UC Riverside to develop and expand nematology resources for processing tomato Farm Advisors. Current research on resistant strain characterization will contribute to developing resistant genetics, but that is not a current major goal.

### **Fusarium Diseases**

#### **Evaluation of Varieties with Fusarium wilt, Race 3 Resistance**

*Gene Miyao*

A focused version of statewide variety testing with emphasis on a fusarium wilt race 3 resistant varieties. The one-year project, should be helpful to growers and advisors in better understanding genetic resistance choices and tradeoffs. (Photo C)

#### **Seed Transmission and Seed Treatment of Fusarium oxysporum f. sp. lycopersici**

*Tom Gordon, Hung Doan*

Needed work to better understand and possibly slow the spread of Fusarium wilt. Tom Gordon is supervising Hung Doan, graduate student and lab manager for retired Extension Pathologist Mike Davis.

#### **Pathogen characterization of Two Fusarium Species**

*Tom Gordon, Hung Doan*

A major requested project to attempt molecular identification of fusarium race 3. Industry was hesitant to wait for Mike Davis' replacement. If successful, developed technique will enable most labs to quickly identify the race of wilt affected plants. This will be especially important as resistant varieties gain popularity and subsequent fields exhibit wilt-type symptoms. (Photo E)



### **Management of Fusarium wilt race 3 with Dip Treatments**

*Scott Stoddard*

A grower field trial to test the label claims of several fungicides in the control or suppression of Fusarium wilt race 3. Needed work even if no control is found, to help growers value the utility of at-planting treatments.

### **Curly Top Virus**

#### **Use of Beet Leafhopper Repellents to Manage Curly Top of Tomatoes**

*Joe Nuñez*

Large replicated field tests of kaolin clay sprays and other products from unrelated projects to screen for activity as visual repellants to beet leafhopper. High local grower interest and cooperation. (Photo D)

#### **Monitoring beetle leafhopper populations in vegetation on the floor of the northern San Joaquin Valley**

*Brenna Aegerter and Jhalendra Rijal*

Work is the third year of work and will include tests of the new nematicide Nimitz. This proposal builds on the overall strategy to develop a more robust processing tomato nematode management program at UC Riverside.

### **Detection and Management of Tomato Viruses**

*Bob Gilbertson*

Proposal seeks to develop new and novel approaches for detection of viruses, improving our understanding of virus biology and disease epidemiology and applying this information for new approaches for disease management. Target viruses are curly top, tomato spotted wilt and Tomato necrotic dwarf virus (ToNDV).

#### **Reducing insect virus vectors of Beet Curly Top Virus in processing tomatoes through soil health management**

*Amélie Gaudin*

Proposal seeks to assess the impact of soil health management practices (cover crops, compost and humic substances) on tomato susceptibility to insect virus vectors. Limited feasibility experiment for the first year.

#### **Developing New Management Techniques for Vector-Borne Diseases of Tomato**

*Clare Casteel*

A novel approach, testing the use of ethylene inhibitors for management of transplant susceptibility to reduce incidental leafhopper feeding and curly top transmission. A one-year feasibility study. The project is also a means to introduce this new department researcher to our crop and disease management interests.

(continued on back page)



**One Final Note:**  
**2016 Assessment Rate**  
to remain at seven cents  
per paid ton.