

Update

CALIFORNIA PROCESSING TOMATOES

NEWS AND INFORMATION FROM THE CALIFORNIA TOMATO RESEARCH INSTITUTE, INC. • 2011 • VOLUME 32

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Current Priority Research Targets

TOMATO LINES

Nematodes

For over twenty years CTRI has sponsored research aimed at discovering and developing new sources of genetic resistance to root-knot nematodes. While researchers have found several “new” genes in related tomato species, none have been able to conventionally transfer working resistance into the crop. Biotechnology is able to bridge this gap and insert functional resistance, but the approach is currently banned by processors due to the request of their customers. CTRI does not challenge this self-imposed GMO restriction, but instead is actively sponsoring research to find broader and more durable non-genetic alternatives such as next generation soil treatments. Trials are underway in Shafter, at the retired UC Cotton Station and at the UC South Coast Field Station. We are pleased to have three experienced researchers addressing the issue. Look this fall for results for the first of a series of field evaluations of several soil applied products, both organic and conventional.

Soil Health

As a result of limited rotation under drip irrigation culture, soil health and production sustainability can take a beating. In many areas growers see a negative effect of low rotation practices, but are economically bound to produce tomatoes on established beds from

the previous tomato crop. Financial returns after production costs are still above rotational crop returns. A deeper look and understanding of root health is the key to developing practices aimed at improving long term tomato production in drip irrigated fields.

Tomato Spotted Wilt Virus

With nearly \$400,000 invested in researching tomato spotted wilt virus since September 2005, the project continues on several fronts. Screening of control materials has provided a short list of primary thrips control materials and continues to seek more effective materials. The project has shown early thrips control delays virus spread significantly. We also know that few if any outbreaks have originated from greenhouse transplants and that weeds remain the primary suspect for disease carryover. The project continues to seek and confirm how the disease overwinters and to develop and distribute early infection detection maps. Together, targeted host eradication and mapping are intended to help growers identify high risk areas and either treat thrips to delay disease onset or use resistant varieties to limit disease losses. Resistant varieties are effective, but extensive use elsewhere has resulted in loss of effectiveness in as little as five years. To extend the use of resistance, we must use a variety of control practices.

(continues on next page)

Web Site Update!

Industry news and research information are easier to find than ever. Point your web site browser to the latest version of www.tomatonet.org

Join CTRI

By joining and supporting the California Tomato Research Institute you will be providing yourself with the results of valuable research and exclusive services—specifically for our industry. Call Chuck Rivara for a membership form at (209) 838-1594 or ask your processor prior to harvest about contributing.

Assessment rate for 2011 remains at 7¢ per paid ton.

(Tomato Lines, continued)

Policy Issues affecting of regular CTRI activities

Environmental regulation continues to be the single major unknown for the industry as we move forward. Most activity has shifted to regional water and air agencies with nitrogen being a major focus. Their sponsored research is pointing to drip irrigation being most environmentally attractive, but work is still underway. Commercial growers and UC researchers are participating, so the findings have good potential to be relevant and valid. The industry has a long way to go in this process with the state. Growers are most concerned with the practicality of regulations, conflicting jurisdictions and rules and the amount of effort required for a possibly marginal benefit.

Invasive species continues to be a serious issue. It will be interesting to see how UC and the California Department of Food and Ag deal with invasive species in light of proposed budget cuts. Commodity research groups met with UC Vice President Dooley in March to hear how they plan to achieve the new

governor's plan. UC Researchers and Extension are our main line of defense once invasive species become established. Recall the recent tremendous help of UC Advisors to control spotted wing drosophila in sweet cherry production.

Reduced government spending in research and extension are now beginning to hit home. Earlier estimations of increased spending on agricultural research are unlikely as budget deficits force even the federal government to trim back spending. Coupled with retirements, budget cuts across all agencies will place more reliance on the private sector to fund industry priority projects and staff. CTRI's job has always been to "help" identify the needs and then "help" organize and fund an effective and efficient solution. CTRI will need to shift from help to lead and one approach may be the pilot program proposed by UC to fund the initial terms of newly hired advisors or specialists. The approach would help UC identify key industry interests, advance hiring ahead of a critical retirement and smooth transitions as UC navigates this large wave of retirements.

2011 Member List

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Woodland
Barrios Farms Inc.
Yolo
Steve Barsoom
Walnut Grove
Dan Best Ranch, Inc.
Woodland
Bullseye Farms
Woodland
Button and Turkovich, LLC
Winters
Casa Lupe Farms, Inc.
Colusa

Chan Farms
Courtland
Dougherty Bros.
Robbins
E and H Farms
Dixon
E and J Farms, Inc.
Woodland
F & F Company
Walnut Grove
Fong Farms, Inc
Woodland
R.C. Gill and Son
Dixon
Harlan & Dumars, Inc.
Woodland

Hunn, Merwin and
Merwin, Inc.
Clarksburg
J.H. Meek and Sons
Woodland
Jim Borchard
Woodland
J & P Farms
Esparto
Joe Muller & Sons
Woodland
K.L.M. Ranches, Inc.
Elk Grove
Kidwell Farms
Davis
La Grande Farms Inc.
Williams

Mayflower Farms, Inc.
Arbuckle
Mumma Brothers
Arbuckle
Myers Seed
Colusa
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Clarksburg
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Williams
Payne Farms
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Roma Farms
Robbins

D.A. Rominger & Sons
Winters
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Winters
Ronald Timothy Farming
Dixon
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Williams
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Woodland
Scott Park Farming
Meridian
T & P Farms
Arbuckle
Tanaka Farms Inc.
Woodland
T.A. Hatanaka Farms
Woodland

TOMCO
Woodland
Triad Farms
Davis
Two M Enterprises
Dixon
Van Ruiten Bros.
Robbins
Vann Bros. Farms
Williams
Viguie Farming
Winters
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Woodland
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Matthew R Boulware
Crows Landing
Cerri and Son
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Cox and Perez
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Patterson
Delucchi Farms
Stockton
John Dondero Farm
Linden
Fantozzi Farms
Patterson
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Linden
Giovannoni Farms
Holt
Hal Robertson Farms
Tracy
Holdener Ranches
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J & A Solari
Linden
J. Lombardi Farms
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Westley
K and H Farms
Tracy

Lagorio Brothers
Linden
Michael Lara Farms
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Lassen Farms
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F A Maggiore & Sons
Brentwood
Simoni & Massoni Farms
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Mizuno Farms Inc.
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Patterson Westside Farms
Patterson
Pereira Farms
Tracy
Perez Farms
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George Perry & Sons, Inc.
Manteca
B & D Sanguinetti Farms
Ripon
R & J Sanguinetti Ranch
Linden
RDC Farms, Inc.
Stockton
Rich Marchini Farms
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Ronald Nunn Farms
Brentwood
T & M Farms
Westley
Toso Brothers
Stockton
Trinta Brothers
Patterson
Triple E Ranch Farms
Linden
Victoria Island Farms
Holt
Y and L Farms
Westley

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A-Bar Ag Enterprises
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Anderson Farms, LLC
Huron
Ausaymas Farms, Inc.
Hollister
B & T Farms
Gilroy
B and R Farms
Hollister
Beene Farms
Helm
Bob Filice Farms
Gilroy

Borba Farms, Inc.
Riverdale
Bowles Farming Company
Los Banos
Coburn Ranch
Dos Palos
Coelho East & South
Five Points
Crivelli Ranch
Dos Palos
D. & V. McCurdy Farms
Firebaugh
Dresick Farms, Inc.
Huron
Enrico Farms
Firebaugh
Errotabere Ranches
Riverdale
Ferguson Farming Company
Huron
Five Points Ranch, Inc.
Five Points
Five Star Ranch
Five Points
Fortune Farming Co.
Fresno
Frank Jr. Farms, LLC
Hollister
Fundus Farms
Mendota
Graham Farming
Kerman
Gary Hughes Farms
Kerman
Greenfields Turf, Inc.
Greenfield
H.O.G Farms
Spreckles
Hammonds Ranch
Firebaugh
Harris Farms Inc.
Coalinga
Houlding Farms Inc.
Fresno
J & J Farms
Firebaugh
J. Diedrich Farms
Firebaugh
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Firebaugh
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Dos Palos
John Tobias Farms
Hollister
Linda Vista Farms
Riverdale

Lucero Farms
Los Banos
M.L. Ledford & Son
Firebaugh
McKeen Farms, Inc.
Riverdale
Mick Oliveira Farms
Hanford
Mott Ranches, Inc.
San Joaquin
N.F. Davis
Firebaugh
Nickel Family LLC
Dos Palos
Obata Farms
Gilroy
OPC Farms, Inc.
San Joaquin
Pentagon Company
Los Banos
Perez Ranches
Firebaugh
Polder Bros. Farms
Lemoore
Pucheu Bros. Ranch
Tranquility
R.A. Sano Farms, Inc.
Firebaugh
Red Rock Ranch, Inc
Five Points
San Andreas Farms
Brentwood
San Felipe Farms, LP
Hollister
Sano Farms, Inc.
Firebaugh
SJR Farming
Los Banos
Steve Cantu Farms
Tranquility
Sun Pacific Farming Co.
Exeter
Teicheira Farms
Los Banos
Teixeira & Sons
Dos Palos
Terranova Ranch, Inc.
Helm
Valley Pride
Huron
Vaquero Farms
Stockton

W. C. Davis Farms
Firebaugh
Westridge Ranch
Five Points
Westside Harvesting
Cantua Creek
Will-Shar Farms
Merced
William Deidrich Farms
Firebaugh
Woolf Enterprises
Huron
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Bakersfield
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Buttonwillow
Jones Farms
Stratford
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Stratford
Opal Fry and Son
Bakersfield
Sheely Farms
Lemoore
Stone Land Co.
Stratford
Wegis Ranch
Buttonwillow
Westlake Farms
Stratford

2011 Approved Projects

Agronomic Research

Evaluating drip irrigated double-row tomatoes on 80-inch beds—Scott Stoddard, Tom Turini
Third year of a full enterprise evaluation of 80 inch cropping system, initiated in 2009.

Irrigation and Salinity Management for High Yielding Processing Tomato Systems—Tom Turini, Dan Munk

Continuation of work to improve grower application of established salinity management concepts with recent changes to transplants, drip, and newer varieties. Normally this type of work is done at the research station, but due to project scale and grower interest it is in a commercial field.

Use of Daikon Radish Cover Crop and Reduced Tillage to Alleviate Soil Compaction Effect and Nitrogen Retention in Processing Tomato—Guihua Chen

Support for work at the Russell Ranch Sustainable Ag Facility at UC Davis. The project has local interest and is applicable directly to higher rainfall areas, subject to nitrogen leaching.

Statewide Variety Trials—Scott Stoddard (All Farm Advisors)

A continuation of the widely used independent source of variety information for growers.

CM Rick Tomato Genetics Resource Center—Roger Chetelat

Annual support of the valuable germplasm bank. The Center serves as a warehouse for genetic materials and often a seed source for research projects.

Disease Management

Tomato Powdery Mildew Control—Brenna Aegerter

A continuation of a series of field trials in major growing areas by five Farm Advisors to evaluate spray programs for control of the evolving, more aggressive mildew strains

Tomato Spotted Wilt Virus (TSWV) Analysis and Management—Bob Gilbertson

Continuation support for a statewide effort to predict and manage the virus, serving problem areas such as Fresno, Merced and Colusa counties

Improved Resistance of Ripening Tomato Fruit to Pathogens—Ann Powell

Final year of coordination with a larger National Science Foundation project on Botrytis mold. CTRI funds were used to evaluate the gene effect on other California specific molds.

Development of a Virus IPM Strategy—Bill Wintermantel

Continuation of a site specific virus transmission study starting initially with curly top virus and encompassing other insect vectored viruses. Preliminary work to gain USDA support for development of a larger multi-crop, comprehensive vectored disease management program.

Field Evaluation of Grafted Tomatoes—Gene Miyao

Greenhouse tomato production, watermelon and a few other specialty crops have begun to utilize grafting to deal with disease problems. While currently cost prohibitive, the research will help lay the groundwork for possible use or at least evaluate the losses to various soil diseases.

Harvester / Equipment Movement of Fusarium Oxysporum—Gene Miyao

A small scale start on a CTRI research priority to define the transmission of soil disease by contaminated equipment.

Screening Promising Germplasm for Resistance to Bacterial Speck and Monitoring P. syringae Strains—Gitta Coaker

This past year saw a resurgence of speck related problems. The project seeks durable new resistance and closer monitoring of current disease strains.

Influence of Drip Irrigation on Tomato Root Health—Mike Davis & Johan Leveau

A requested proposal to address the decline over time in productivity of drip irrigated fields. The work will measure a wide range of root/soil components along with salinity and productivity.

(continues on back cover)

Election results

Expiring spring of 2013 as follows:

District 1: Mark Cooley, Scott Park reelected

District 2: Ray Perez, reelected

District 3: Daniel Burns, Cannon Michael reelected

At-Large Directors elected for a two year term expiring spring 2013:

Rick Blankenship, Huron; Bret Ferguson, Lemoore; Tony Turkovich, Winters

Officers elected for a one-year term expiring spring 2012 are:

Chair: Mark Cooley, Dixon

Vice Chair: Rick Blankenship, Huron

Secretary/Treasurer: Dino Del Carlo, Stockton.

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Send an email to chuck@tomatonet.org for the Tomato eCalendar.

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Fungicides Registered for Use on California Tomatoes*

Fungicide	Trade Names	FRAC Code	Efficacy	Resistance Potential	Mode of Action
AMPELOMYCES QUISQUALIS	AQ10	Microbial	Protectant		Parasitic
AZOXYSTROBIN	Amistar, Quadris	11	Protectant/Penetrant	High	Single-site
AZOXYSTROBIN + DIFENOCONIZOLE	Quadris Top	11 / 3	Protectant/Penetrant	Medium	Combination
BACILLUS PUMILIS	Sonata Bio	44	Protectant	Low	
BACILLUS SUBTILIS	Serenade	44	Protectant	Low	
BOSCALID	Endura	7	Protectant/Penetrant	Medium-High	Multi-site
CHLOROTHALONIL	Applause ,Bravo, Echo, Equus, Initiate	M5	Protectant	Low	Multi-site
COPPER	Kocide, Cuprix, Nordox	M1	Protectant	Low	Multi-site
CYAZOFAMID	Ranman Fungicide	21	Protectant/Penetrant	Medium-High	Single-site
CYPRODINIL + FLUDIOXONIL	Switch 62.5 WG	9 / 12	Protectant/Penetrant	Moderate	Combination
DICLORAN	Botran 75W	14	Protectant	Low-Medium	Multi-site
DIFENOCONIZOLE	Inspire	3	Protectant/Systemic/Curative	High	Single-site
FAMOXADONE & CYMOXANIL	Tanos	11 / 27	Protectant/Systemic/Curative	Low-Medium	Combination
DIMETHOMORPH	Acrobat 50W	40	Protectant/Systemic/Curative	Medium	Single-site
FENAMIDONE	Reason 500 SC	11	Protectant/Penetrant	High	Single-site
FLUOPICOLIDE	Presedio	43	Protectant/Penetrant/Curative	High	Single-site
FLUOXASTROBIN	Evito 480 SC	11	Protectant/Penetrant	High	Single-site
FOSETYL-AL	Aliette, Legion, Linebacker	33	Preventative / Systemic	Low	
GLIOCLADIUM VIRENS	SoilGard 12G	Microbial	Protectant		
HARPIN PROTEIN	Messenger	Natural Product	Protectant		
HYDROGEN DIOXIDE	OxiDate		Preventative	Low	Multi-site
MANCOZEB / MANEB	Cuprofix MZD, Dithane, ManexII, Manzate, Pencozeb	M3	Protectant	Low	Multi-site
MANDIPROPAMID—DIFENOCONAZOLE	Revus Top	40 / 3	Protectant/Penetrant		
MEFENOXAM	Ridomil Gold, Ultra Flourish	4	Protectant/Systemic/Curative	High	Single-site
MYCLOBUTANIL	Rally	3	Protectant/Penetrant	High	Single-site
NEEM OIL	Trilogy	Natural Product	Protectant	Low	
PCNB	Terraclor	14	Seed Treatment	Low-Medium	Single-site
PHOS-ACID-MP SALT	EksPunge/Nutrol	NC	Protectant		
POTASSIUM BICARBONATE	Armicarb 100	NC	Protectant	Low	Multi-site
POTASSIUM PHOSPHITE	Agri-Fos, Fungi-Phite, Pro Phyt, Resist 57	33	Protectant	Low	
POTASSIUM SILICATE	Sil-Matrix	NC	Protectant		
PROPAMOCARB HYDROCHLORIDE	Previcur Flex	28	Protectant/Penetrant	High	Single-site
PYRACLOSTROBIN	Cabrio EG	11	Protectant/Penetrant	High	Single-site
PYRIMETHANIL	Scala SC	9	Protectant/Penetrant	High	Single-site
REYNOUTRIA SACHALINENSIS	Regalia	Microbial	Protectant	Low	
SODIUM TETRABOROHYDRATE D.	Prev-Am Ultra	NC	Protectant	Low	Multi-site
SULFUR		M2	Protectant	Low	Multi-site
TRICHODERMA	Tenet WP	Microbial	Protectant	Low	
TRIFLOXYSTROBIN	Flint	11	Protectant/Penetrant	High	Single-site

*This chart is a summary of current California registrations and does not constitute a recommendation. Always consult the label prior to any pesticide use.

FRAC Code: Resistance management grouping—products having the same number have a common mode of action and potential for resistance development. Check labels for recommended alternates. Detailed FRAC information at: www.frac.info
 May 2011 by the California Tomato Research Institute, Inc. Updated versions can be found at www.tomatonet.org



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Evaluation of Fungicides, Bio-Pesticides and Soil Amendments for the Control of Southern Blight of Processing Tomatoes—Joe Nunez

Southern blight is an old disease, primarily from prior sugar beet rotations, but resurging under drip irrigation. The proposal is refinement and continuation of work started in 2010.

Host Range of *Fusarium oxysporum* f. sp. *vasinfectum* race 3 in cotton—Mike Davis

*Co-funding with the cotton industry this to better understand the evolving races of several *Fusarium* species.*

Weed Management

Field Bindweed Management in Processing Tomatoes—Tom Lanini

A continuing proposal refocused to bindweed control. Tom continues to be the only department researcher regularly working on tomato.

Bindweed continues as our most difficult to control weed. Especially problematic in regions where crop rotation does not provide an adequate opportunity to treat.

Within Row Weed Control System for Transplanted Processing Tomato

—David Slaughter

Weeds continue to be the grower's primary pest expense. Proposal tests the feasibility of a low cost system for within row weed control based on simple highway center line repainting technology.