

Terramera®
RANGO™

ONE PRODUCT, TRIPLE CONTROL



FUNGICIDE



INSECTICIDE



MITICIDE



**Proven broad-spectrum control
for major pests and diseases**

Try RANGO™ today.

See inside for field trials and more.

RANGO™: an effective and organic broad-spectrum biopesticide

What makes RANGO different from others?

- RANGO™ is a plant-derived broad-spectrum biopesticide for the control of insects and diseases in organic and conventional operations.
- RANGO is registered for use on a wide range of crops: berries, leafy greens, cole crops, apples, fruiting vegetables, cucurbits, tree nuts, citrus, stone fruit, potatoes and onions.
- RANGO is a high quality, 70% cold-pressed neem oil containing over 150 active limonoids including azadirachtin. Limonoids have activity on a variety of different organisms including insects, mites and diseases.
- The cold-pressed process in the formulation of RANGO uses no synthetic solvents and preserves the integrity of the active ingredient.
- RANGO is formulated in a synthetic pesticide-free facility in the USA.

Labelled Insects & Diseases

Diseases

- Anthracnose
- Botrytis
- Downy mildew
- Powdery mildew
- Molds
- Blight
- Leaf Spots
- Scab

Insects

- Aphids
- Thrips
- Spider mites
- Whiteflies
- Lepidoptera species (worms)
- Plant Bugs

Refer to product label for complete list of insects, mites, diseases and rate dilution tables for labeled crops.

Application Rates

Pest Type	Rate Range
Insects	0.625 to 1.8% v/v
Mites	0.625 to 1.8% v/v
Diseases	1.25 to 1.8% v/v

Scan to download
the product label



Key features of RANGO™

- Fungicide
- Insecticide
- Miticide



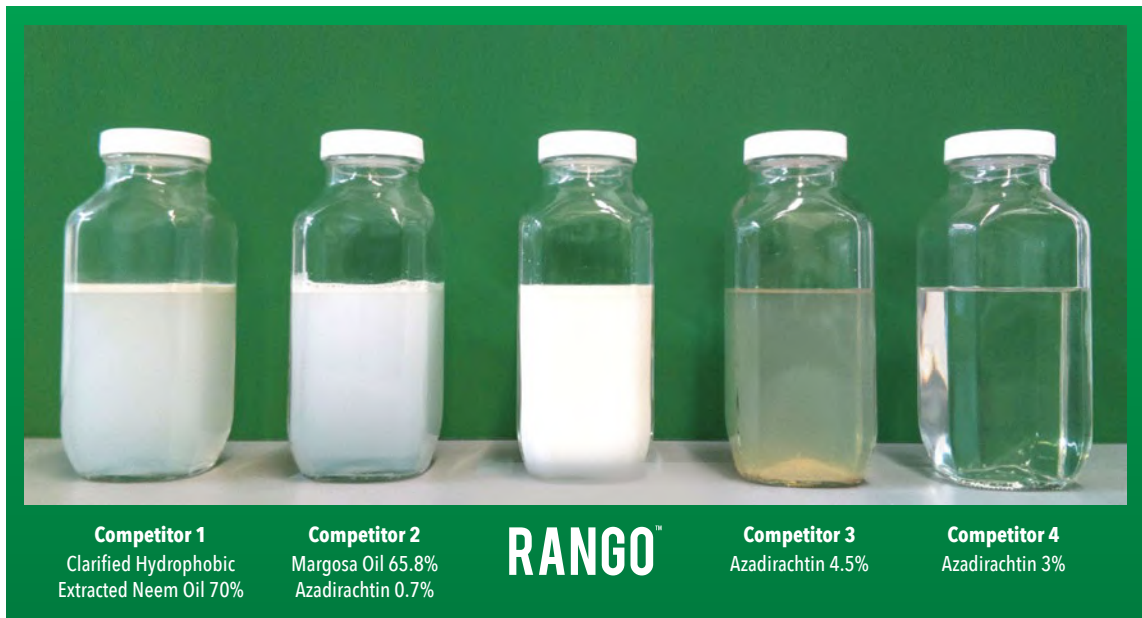
Multiple modes of action

RANGO™ controls target pests on contact or by ingestion. The modes of action on insects are repellence, anti-feedance and interference with the molting process. Diseases are controlled by inhibition of mycelial growth.



Superior stability

RANGO™ is a premium formulation of high quality cold-pressed Neem oil loaded into a proprietary inert chassis resulting in superior emulsion and in-tank stability. RANGO™ has the ability to stay in suspension with minimum agitation for more than 48 hours, a significant improvement compared to other Neem based products.



*Image taken after 48 hours of mixing (product label rates were followed)

Grower flexibility



RANGO™ also offers flexibility in application timing and method, and is exempt from maximum residue requirements. It may be applied to food and non-food crops up to and including the day of harvest. Worker re-entry interval (REI) is just four hours after application, minimizing interference with labor.

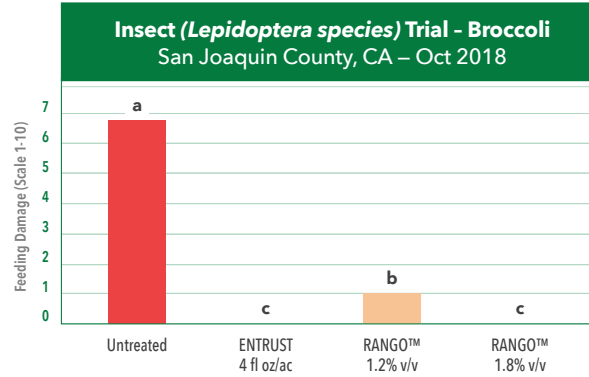
OMRI-Listed and no known resistance



RANGO™ is OMRI-Listed for use in organic agriculture. It is also classified as a "NC" FRAC Code – no known resistance and can be used as part of an integrated pest management program for organic and conventional farming.

RANGO™ provides effective control of insects on Leafy and Cole crops

RANGO™ significantly reduces feeding damage by worms



Application and Evaluation

- Sep 18, 25
- Oct 1, 9, 16
- Evaluation date Nov 9 (23DAFA)

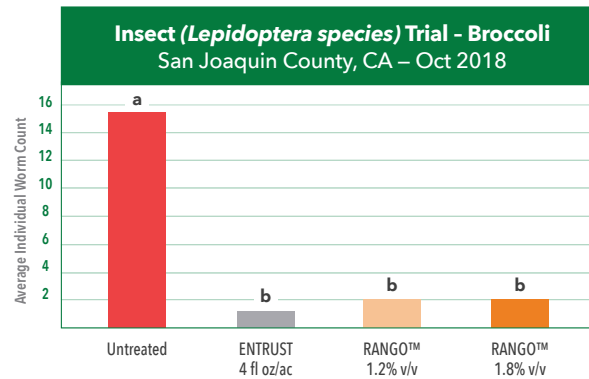
Trial Information

- CO₂-assisted sprayer, 3 nozzles, 40 GPA
- Pest spectrum: cabbage looper, beet armyworm, diamondback moth, imported cabbage worm

Statistical Analysis

- LSD alpha=0.05
- No phytotoxicity observed

RANGO™ can be used in rotation with Entrust® or other insecticides as part of IPM programs



Application and Evaluation

- Sep 18, 25
- Oct 1, 9, 16
- Evaluation date Nov 9 (23DAFA)

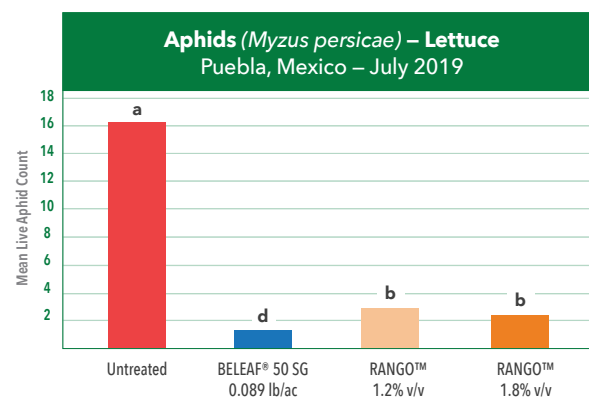
Trial Information

- CO₂-assisted sprayer, 3 nozzles, 40 GPA
- Pest spectrum: cabbage looper, beet armyworm, diamondback moth, imported cabbage worm

Statistical Analysis

- LSD alpha=0.05
- No phytotoxicity observed

RANGO™ delivers comparable efficacy to conventional products by reducing aphid pressure on lettuce by 85%



Application and Evaluation

- RANGO™
- 3 applications, 7 day intervals
- BELEAF
- 2 applications

- Evaluation 21 DAA

Trial Information

- 40 GPA

Statistical information

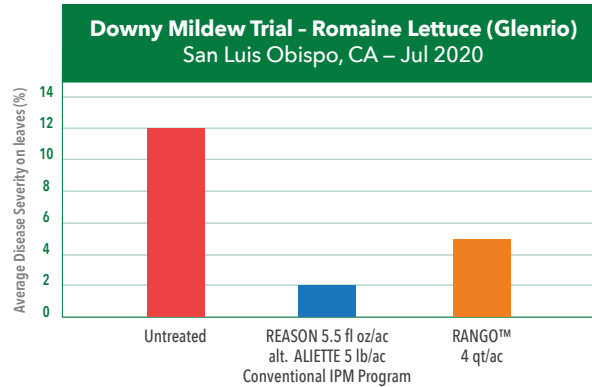
- Tukey alpha = 0.05

RANGO™ provides effective control of Downy mildew on Leafy crops

-  Fungicide
-  Insecticide
-  Miticide



RANGO™ is a new tool for conventional and organic Downy mildew programs



Application and Evaluation

- June 15, 22 and 29
- July 7
- Evaluation date Jul 10

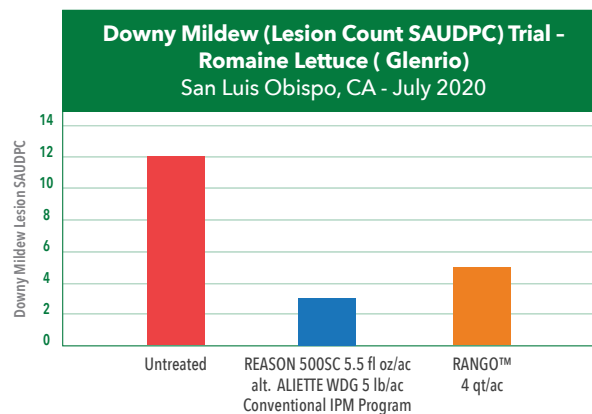
Trial Information

- Foliar spray, CO₂ sprayer, 6 nozzle spray boom, 55 GPA

Statistical Analysis

- LSD alpha=0.05
- No phytotoxicity observed

RANGO™ successfully reduces Downy mildew lesion counts over multiple evaluations



Application and Evaluation

- June 15, 22 and 29
- July 7

Evaluation dates:

- June 17 and 26
- July 1 and 10
- Standardized Area Under the Disease Progress Curve (SAUDPC)

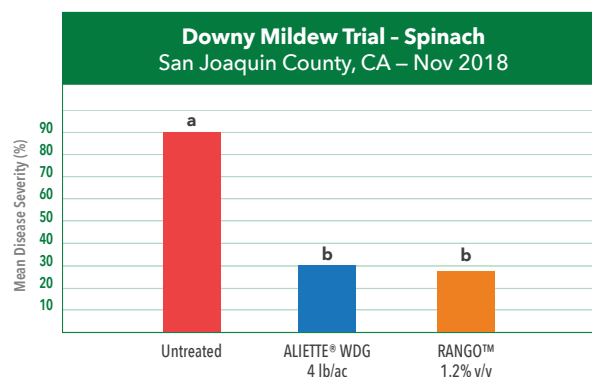
Trial Information

- Foliar spray, CO₂ sprayer, 6 nozzle spray boom, 55 GPA

Statistical Analysis

- LSD alpha=0.05
- No phytotoxicity observed

RANGO™ demonstrates comparable efficacy to conventional solutions reducing Downy mildew on spinach by more than 60%



Application and Evaluation

- Oct 15, 23, 30
- Nov 6
- Evaluation date Nov 16, 2018

Trial Information

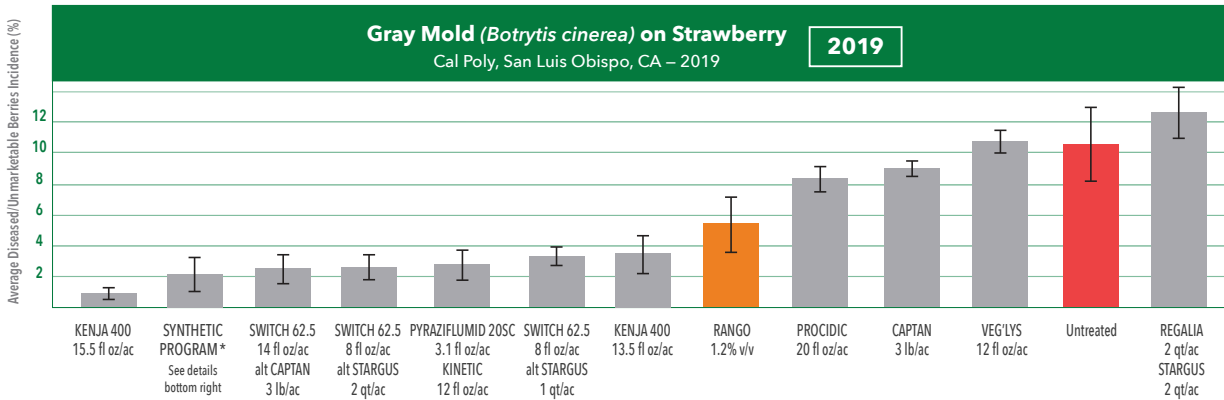
- CO₂- assisted sprayer, 3 nozzles, 38 GPA
- Spinach variety "Renegade"

Statistical Analysis

- LSD alpha=0.05
- No phytotoxicity observed

RANGO™: proven control of major diseases and insects in Strawberries

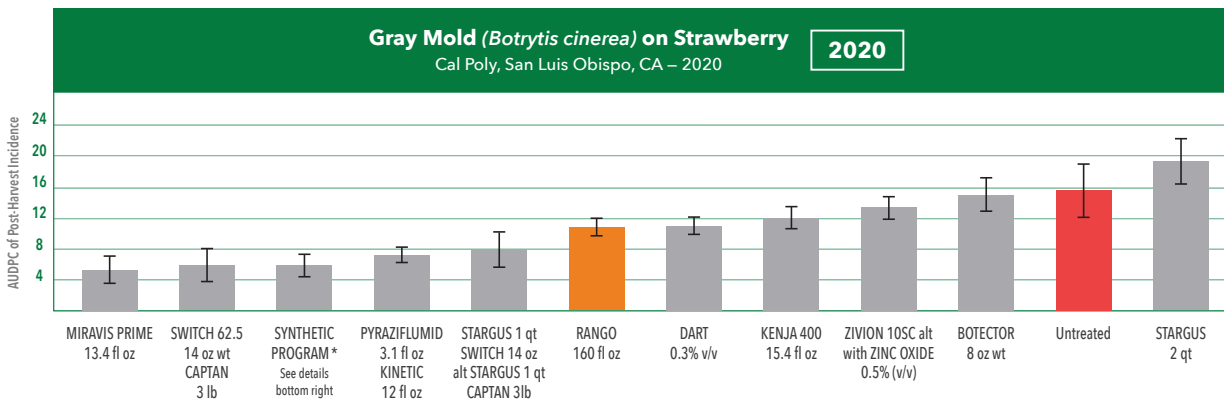
The most effective organic botrytis treatment 2 years in a row



- Application and Evaluation**
- March 12th, 19th and 26th
 - April 2nd and 11th
 - In Field: 12th April (1 DAFA)

- Trial Information**
- CO₂-assisted Boom Sprayer, 150GPA
 - Strawberry variety "Monterey"

- * Treatment contains:**
- ELEVATE 50WG 1.5 lb/ac
 - KENJA 400SC 15.5 fl oz/ac
 - SWITCH 62.5WG 14 fl oz/ac
 - MERIVON 42.5SC 11 fl oz/ac
 - CAPTAN 80WG 3 lb/ac

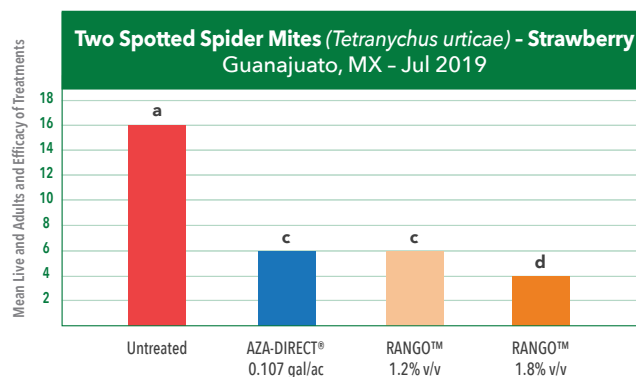


- Application and Evaluation**
- March 26th
 - April 2, 10, 17, and 24th
 - Post harvest: 4th May (7 DAH)

- Trial Information**
- CO₂-assisted Boom Sprayer, 150GPA
 - Strawberry variety "Monterey"

- * Treatment contains:**
- ELEVATE 50WG 1.5 lb/ac
 - KENJA 400SC 15.5 fl oz/ac
 - SWITCH 62.5WG 14 fl oz/ac
 - MERIVON 42.5SC 11 fl oz/ac
 - CAPTAN 80WG 3 lb/ac

RANGO™: proven performance against spider mites



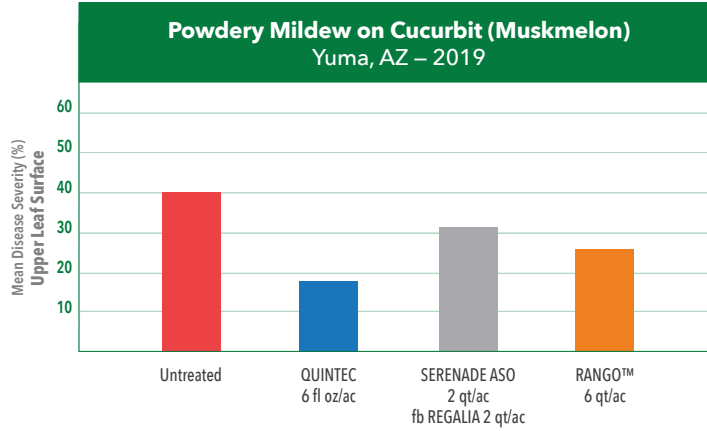
- Application and Evaluation**
- 3 Applications, 10 day intervals
 - Evaluation 30 DAA

- Trial Information**
- 100 GPA

- Statistical information**
- Tukey alpha = 0.05
 - No phytotoxicity observed.

RANGO™ is an effective solution controlling Powdery mildew in Cucurbits

-  Fungicide
-  Insecticide
-  Miticide



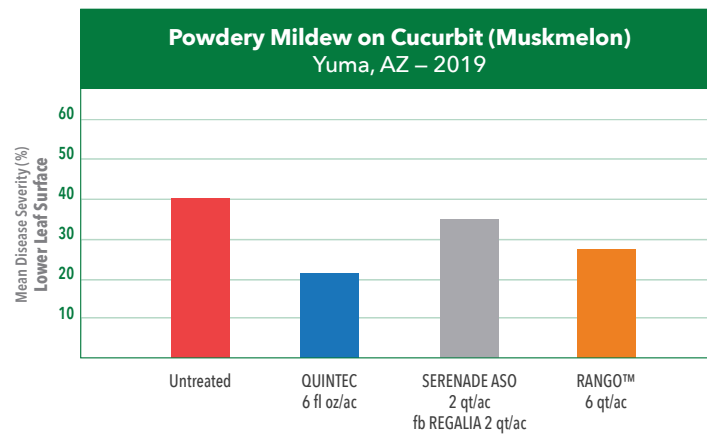
Application and Evaluation

4 Applications:

- May 18, 29
- Jun 11, 16
- Evaluation date Jun 17
- Evaluation 30 DAA

Trial Information

- Tractor-mounted boom sprayer at 40 GPA
- Muskmelon variety "Golden Beauty"



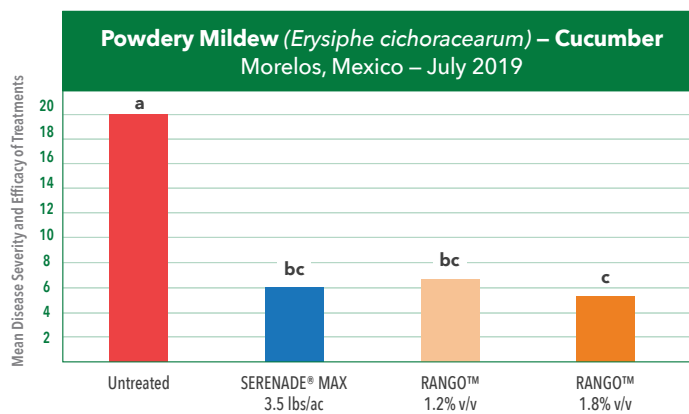
Application and Evaluation

4 Applications:

- May 18, 29
- Jun 11, 16
- Evaluation date Jun 17
- Evaluation 30 DAA

Trial Information

- Tractor-mounted boom sprayer at 40 GPA
- Muskmelon variety "Golden Beauty"



Application and Evaluation

- 3 Applications, 10 day intervals
- Evaluation 30 DAA

Trial Information

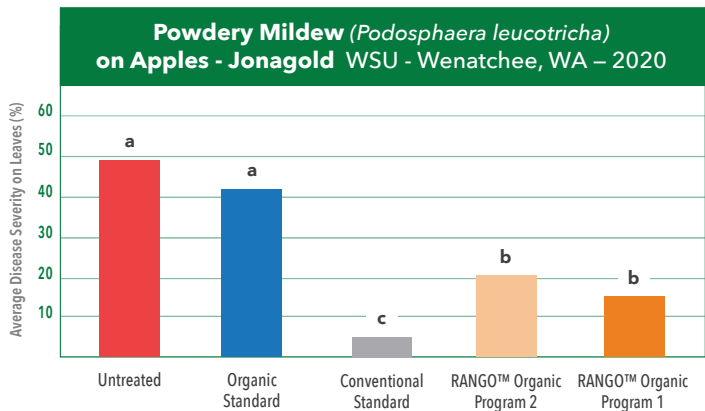
- 40 GPA

Statistical information

- Tukey alpha = 0.05
- No phytotoxicity observed

RANGO™: proven control of powdery mildew three consecutive years in Washington

Washington State University evaluation of RANGO™ efficacy for control of apple powdery mildew management in Wenatchee, WA 2020



Treatment Standard Organic	Green tip	Pink	Petal fall	1st cover	2nd cover	3rd cover
Lime sulfur 3 gal/ac	+					
OSO 6.5 fl oz + SB56 12fl oz		+				
Serenade OPTI 18 oz/ac			+			
Kaligreen 2.5 lb/ac				+		
Double Nickel 64 fl oz/ac					+	
Neemix Neem Oil 10.5 fl oz/ac						+

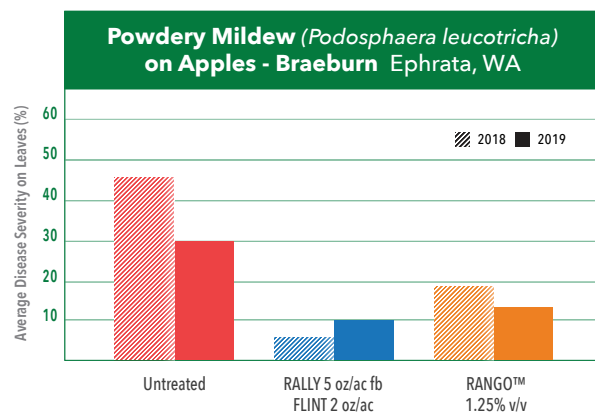
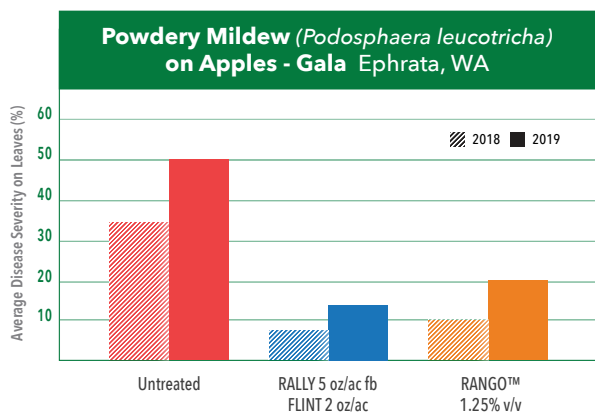
Treatment Standard Conventional	Green tip	Pink	Petal fall	1st cover	2nd cover	3rd cover
Lime sulfur 3 gal/ac	+					
Procuire 12 fl oz/ac		+				
Luna S 5fl oz/ac			+			
Inspire Super 12 fl oz/ac				+		
OSO 6.5 fl oz + SB56 12 fl oz					+	
Aprovia 6 fl oz/ac						+

Treatment RANGO Organic Program 2	Green tip	Pink	Petal fall	1st cover	2nd cover	3rd cover
Lime sulfur 3 gal/ac	+					
RANGO™ 160 fl oz		+				+
Serenade OPTI 18 oz/ac			+			
Kaligreen 2.5 lb/ac				+		
Double Nickel 64 fl oz/ac					+	

Treatment RANGO Organic Program 1	Green tip	Pink	Petal fall	1st cover	2nd cover	3rd cover
Lime sulfur 3 gal/ac	+					
OSO 6.5 fl oz + SB56 12 fl oz		+				
RANGO™ 160 fl oz			+		+	+
Kaligreen 2.5 lb/ac				+		

* Please request a Terramera Representative for full WSU Report.

Powdery mildew Trial Results in Ephrata, Washington (2018 & 2019)



Applications

- Green tip
- Tight cluster
- Pink
- Full bloom-petal fall
- 2 cover sprays

Evaluations

- 2018 - Jul 23 (60 DAFA)
- 2019 - Jul 31 (63 DAFA)

Equipment

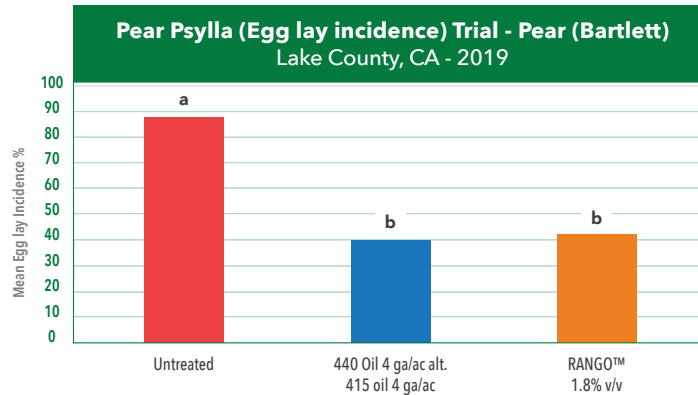
- Air Blast conventional sprayer 100 GPA

RANGO™ effective controls Pear Psylla throughout its life-cycle (egg to adult)

-  Fungicide
-  Insecticide
-  Miticide

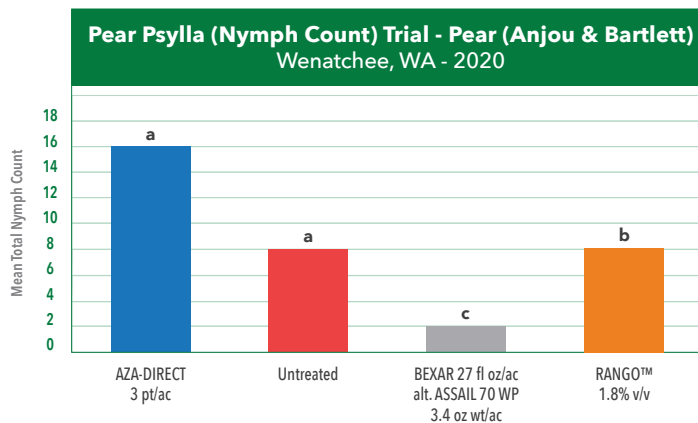


RANGO™ as early season management effectively deters egg laying by 50%



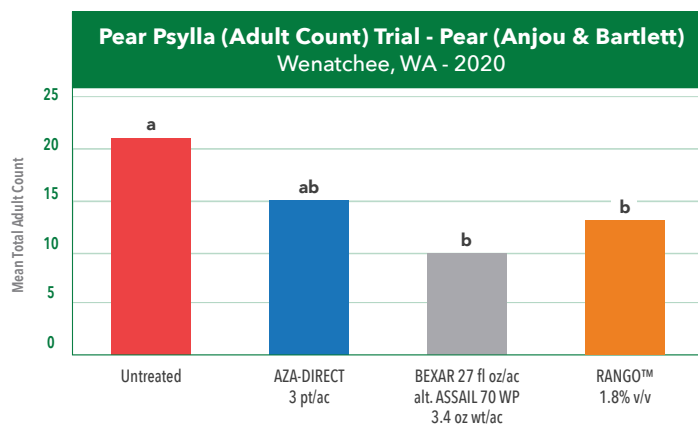
- Application and Evaluation**
- Mar 4th (Delayed Dormant)
 - Mar 24th (Beginning of Egg-laying)
 - Evaluation date Mar 21 and Apr 3
- Trial Information**
- 100 GPA
- Statistical Analysis**
- LSD alpha = 0.05

RANGO™ significantly lowers pear psylla nymph count vs untreated without harming natural enemies



- Applications**
- Apr 2 (delayed dormant)
 - Apr 8 (popcorn)
 - Apr 23 (petal fall)
 - Apr 27 (petal fall +5)
- Post-treatment evaluations:**
- Apr 16
 - May 2, 5th
 - Natural Enemies: RANGO had no negative effect
- Trial Information**
- Application A and B = 100GPA
 - Application C and D = 200GPA
- Statistical Analysis**
- LSD alpha = 0.1

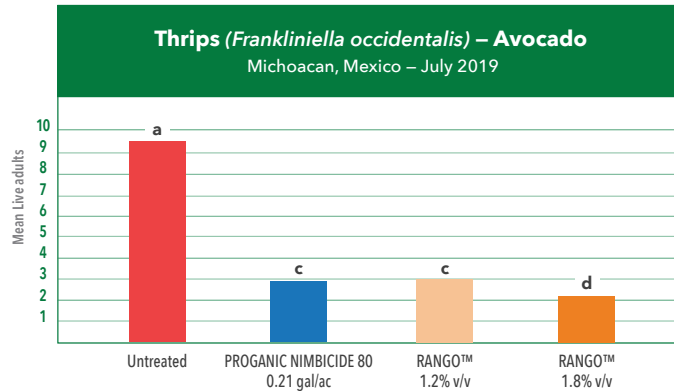
RANGO™ is comparable to conventional products in controlling adult pear psylla



- Applications**
- Apr 2 (delayed dormant)
 - Apr 8 (popcorn)
 - Apr 23 (petal fall)
 - Apr 27 (petal fall +5)
- Post-treatment evaluations:**
- Apr 16
 - May 2, 5th
 - Natural Enemies: RANGO had no negative effect
- Trial Information**
- Application A and B = 100GPA
 - Application C and D = 200GPA
- Statistical Analysis**
- LSD alpha = 0.1

RANGO™ controls insects such as thrips and whiteflies in avocados, onions, and tomatoes

RANGO™ reduces thrips pressure on avocado by more than 70%



Application and Evaluation

- 5 applications made at 7-day intervals
- Evaluation 21 DAA

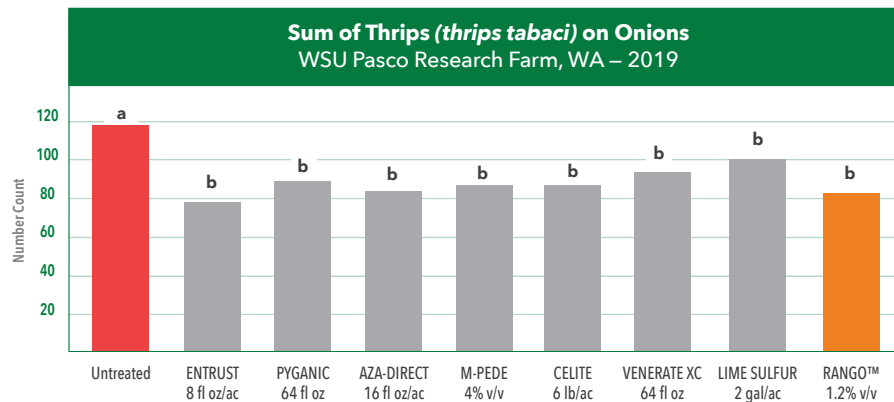
Trial Information

- 100GPA

Statistical Analysis

- Tukey alpha = 0.05
- No phytotoxicity observed

RANGO™: an effective choice for thrip control in onions



Application and Evaluation

- 8 applications
- Thrips count evaluations:
 - Jun 5, 10, 17, 24;
 - Jul 1, 8, 15, 22, 31

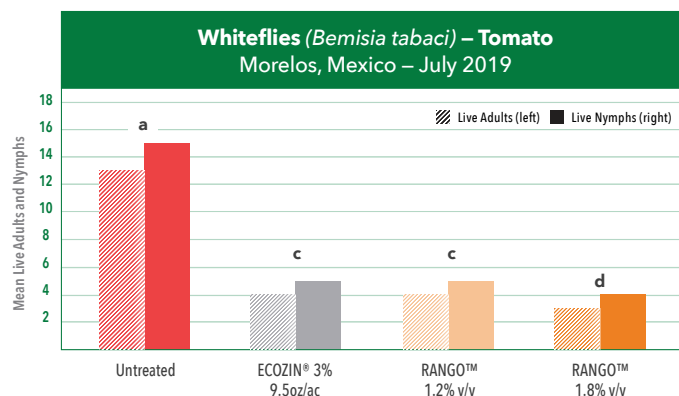
Trial Information

- Foliar applicator, spray volume = 30 GPA
- All products were applied with Brandt 719 at 1pt/100 gal

Statistical Analysis

- P=0.1 Student-Newman-Keuls test)
- No phytotoxicity observed

RANGO™ is efficacious against whiteflies in tomatoes



Application and Evaluation

- 3 Applications, 10 day intervals
- Evaluation 30 DAA

Trial Information

- 40 GPA

Statistical information

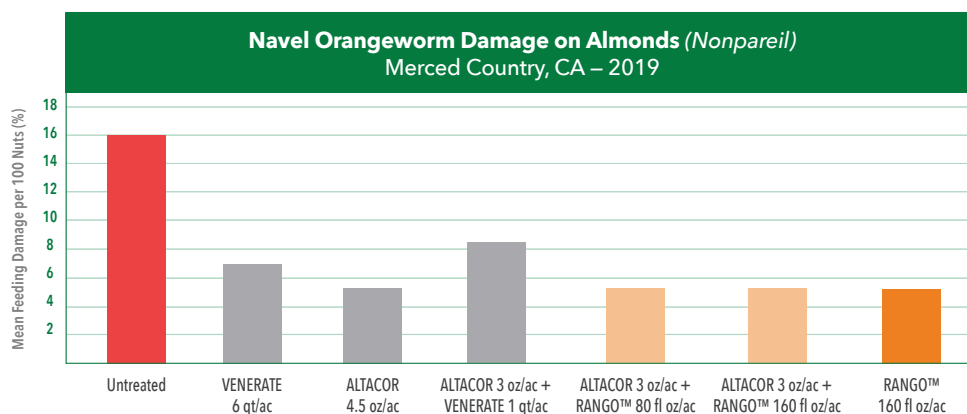
- Tukey alpha = 0.05
- No phytotoxicity observed.

RANGO™: a solution for insect control in tree nuts

-  Fungicide
-  Insecticide
-  Miticide



RANGO™ is comparable to industry standards in reducing N.O.W. pressure



Application and Evaluation

- Three applications begin at Hull Split
 - July 9
 - July 22
 - August 7
- Evaluation date: August 20

Trial Information

- Air-blast backpack sprayer
- 100 GPA
- All treatments were applied with Dyne-Amic @ 6.5 fl oz/ac

Statistical information

- No phytotoxicity observed

About Terramera

RANGO™ is the first of Terramera’s high-performance, plant-based pest control and crop protection products, providing farmers with sustainable solutions for the effective management of pests and diseases.

Terramera is a global AgTech leader fusing science, nature and artificial intelligence to transform how food is grown and the economics of agriculture. With its revolutionary Actigate™ targeted performance technology, Terramera is committed to reducing the global synthetic pesticide load 80% by 2030 to protect plant and human health and ensure an earth that thrives and provides for everyone. Actigate™ increases the performance and consistency of active ingredients by delivering them directly to the target cells, lowering costs across the system, improving farm productivity and profitability, and reducing waste and environmental impact.

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TRY NEW RANGO™ – ONE PRODUCT, TRIPLE CONTROL



FUNGICIDE



INSECTICIDE



MITICIDE



NEW



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Try RANGO™ today.

Visit tryrango.com for field trials and more.

CONTACT US: For more information call your territory manager at **805.788.8167 / 360.988.3850** or contact your local dealer!

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