

POZTM

INSECTICIDE



TECHNICAL BULLETIN

POZ™ is a new insecticide for control of piercing and sucking insect pests in many perennial and annual agronomic crops including those insects resistant to standard chemistries.

Product Introduction

POZ is effective on most developmental stages of target insects, including adults which is the stage where transmitting and spreading of plant viruses occur. The rapid cessation of feeding by treated insects, strong residual activity, and translaminar properties provided by POZ allows immediate and long-lasting protection against insect pests and the viruses they transmit. The high level of efficacy, selectivity to beneficial insects, and favorable environmental profile make POZ an excellent tool for Integrated Pest Management (IPM) programs, allowing growers to produce a high-quality crop with minimal environmental impact.

Mode of Action

Pyrifluquinazon, the active ingredient in POZ, has been classified as a Chordotonal Organ TRPV Channel Modulator within Subgroup 9B - Pyridine azomethine derivatives by the Insecticide Resistance Action Committee (IRAC). Group 9 insecticides bind to and disrupt the gating of the Nan-lav TRPV (Transient Receptor Potential Vanilloid) channel complexes in insect chordotonal stretch receptor organs. Chordotonal stretch receptor organs are critical for the senses of hearing, gravity, balance, acceleration, proprioception, and kinesthesia. POZ overstimulates the stretch receptors resulting in disruption of insect feeding, coordination, and flight impairment. Treated insects stop feeding rapidly and die from starvation and dehydration.

Formulation

POZ is a 20% suspension concentrate (SC) formulation. It is easy to use and integrate into a spray program with mixing compatibility with most fungicides, insecticides, micronutrients, and adjuvants. The pH of the spray solution should be kept between neutral to acidic (pH 5-7) as POZ is rapidly degraded under alkaline conditions. For maximum control and protection of the crop, use a penetrating and spreading surfactant to improve spray coverage and to enhance the translaminar properties of the product.

Effective Dose and Crop Safety

POZ is highly effective on most target insect pests at the use rate of 3.2 fl oz/acre. Citrus thrips require 6.4 fl oz/acre. No crop phytotoxicity has been observed, even after multiple consecutive applications of product at maximum rate.

Target Crop Groups

POZ will initially be registered for use on the following Crop Groups: Brassica Head and Stem Vegetables, Citrus Fruits, Cotton, Cucurbit Vegetables, Fruiting Vegetables, Grapes, Leaf Petiole Vegetables, Leafy Vegetables, Pome Fruits, Stone Fruits, Tree Nuts, and Tuberous and Corm Vegetables.

Pest Spectrum

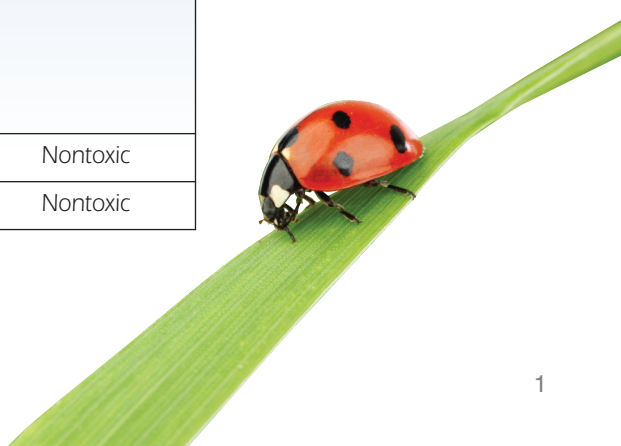
POZ provides excellent efficacy against aphids, citrus thrips, and whiteflies. While POZ is effective against most insect developmental stages, it is more effective against the adult and first instar of the target pests. POZ is not an ovicide.

Insect Order	Scientific Name	Common Name	Susceptible Stages
Aphididae	<i>Myzus persicae</i>	Green peach aphid	Nymphs and Adults
	<i>Brevicoryne brassicae</i>	Cabbage aphid	
	<i>Aphis gossypii</i>	Cotton aphid	
	<i>Macrosiphum euphorbiae</i>	Potato aphid	
	<i>Aulacorthum solani</i>	Foxglove aphid	
	<i>Dysaphis plantaginea</i>	Rosy apple aphid	
	<i>Acyrtosiphon lactucae</i>	<i>Acyrtosiphon</i> aphid	
Thripidae	<i>Scirtothrips citri</i>	Citrus thrips	1st -2nd Instars and Adults
	<i>Scirtothrips dorsalis</i>	Chilli thrips	
Aleyrodidae	<i>Bemisia tabaci</i>	Sweetpotato whitefly	Crawlers and Adults
	<i>Trialeurodes vaporariorum</i>	Greenhouse whitefly	
Pseudococcidae	<i>Planococcus ficus</i>	Vine mealybug	Nymphs and Adults
Cicadellidae	<i>Erythroneura</i> spp.	Leafhopper	Nymphs and Adults

Selectivity to Nontarget Arthropods

POZ will have an excellent fit in IPM programs. POZ has demonstrated minimal to no adverse effects when tested on a variety of beneficial insects.

Beneficial Species	Life Stage	Effect of POZ	
Ladybug	<i>Harmonia axyridis</i>	Adult	Nontoxic
Predatory bugs	<i>Orius isidiosus</i>	Adult	Nontoxic
	<i>Orius sauteri</i>	Adult	
	<i>Orius strigicollis</i>	Nymph	
Parasitic wasps	<i>Encarsia formosa</i>	Pupa	Slightly Toxic
	<i>Aphytis melinus</i>	Adult	Nontoxic
Aphid midge	<i>Aphidoletes aphidimyza</i>	Larva	Nontoxic
Predatory mites	<i>Hypoaspis miles</i>	Adult	Nontoxic
	<i>Amblyseius cucumeris</i>	Adult	
	<i>Amblyseius californicus</i>	Adult	
	<i>Amblyseius swirskii</i>	Adult	
	<i>Phytoseiulus oersimilis</i>	Adult	
	<i>Euseius tularensis</i>	Adult	
Wolf spider	<i>Pardosa pseudoannulata</i>	Adult	Nontoxic
Silkworm	<i>Bombyx mori</i>	Larva	Nontoxic



Translaminar Movement

POZ exhibits translaminar movement within the treated leaves but does not move systemically within the plant. Translaminar activity provides control of insects that feed on the underside of the leaf.

Translaminar Efficacy of POZ to Aphids in Cabbage, Cucumber, and Eggplant							
	Concentration (PPM)	Total Number of Insects on Underside of Leaf					
		Cabbage		Cucumber		Eggplant	
		0 DAT*	7 DAT	0 DAT	7 DAT	0 DAT	7 DAT
POZ	50	28	0	24	0	32	0
Untreated	–	21	136	14	98	19	68

*Days After Treatment

Test method: Insecticide was applied on upper leaf surface while insects were inoculated on underside of leaf.

Aphids: Cabbage (*Brevicoryne brassicae*), Cucumber (*Aphis gossypii*), Eggplant (*Myzus persicae*)

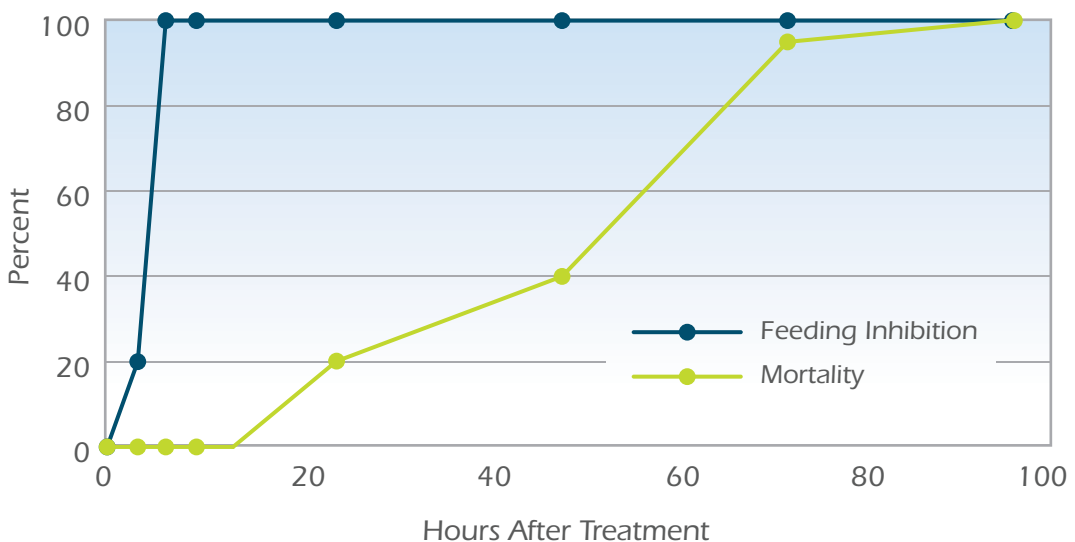
Uptake Routes

POZ effectively controls insects by direct contact with spray droplets, contact with residues on the surface of the treated plant, and/or by ingestion as the insect feeds on the treated foliage or fruit.

Speed of Activity

Speed of activity varies by insect; however, symptoms can be observed within minutes to a few hours after exposure. In insects which have high turgidity (stored fluids and fats), while feeding cessation will be rapid, these insects may be observed moving around disoriented on the plant, but mortality will occur due to feeding inhibition and starvation.

Speed of Feeding Inhibition and Mortality on Aphid with POZ



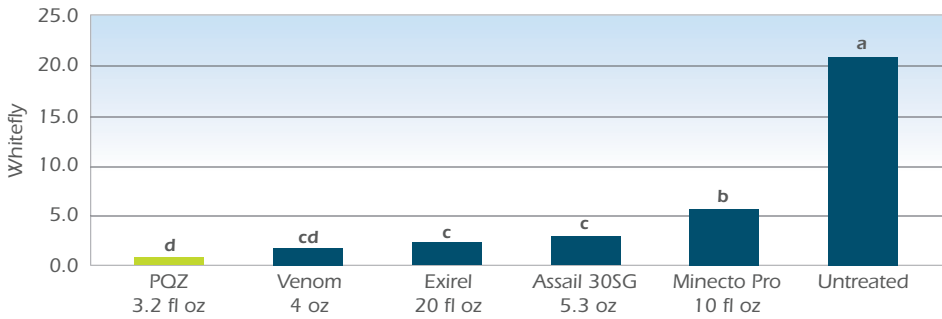
Green peach aphid were released on cabbage discs in agar plates; aphids were sprayed topically and feeding inhibition and mortality were assessed over time.

Virus Transmission Prevention

POZ causes rapid feeding cessation resulting in the reduction or prevention of the transmission of primary and secondary viruses vectored by whitefly. These viruses include Cucurbit Yellow Stunting Disorder Virus (CYSDV) in cantaloupes and Tomato Yellow Leaf Curl Virus (TYLC) in tomatoes. In both laboratory and field studies, POZ has shown superior reduction of adult whitefly populations in plots and a significant reduction in symptomatic plants.

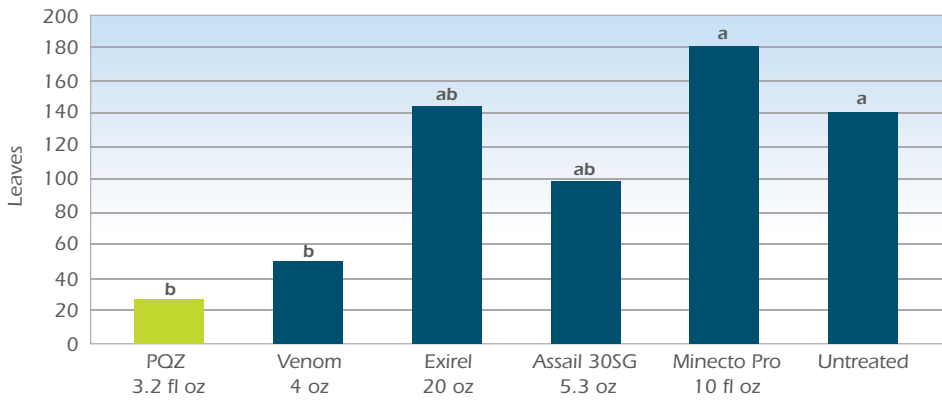
Efficacy of POZ on Whitefly in Cantaloupe and CYSDV Virus Transmission Inhibition in Cantaloupe

Post Treatment Average Adult Whitefly / 3 Second Vacuum Sample



Three applications at 7-12 day interval. P > 0.05

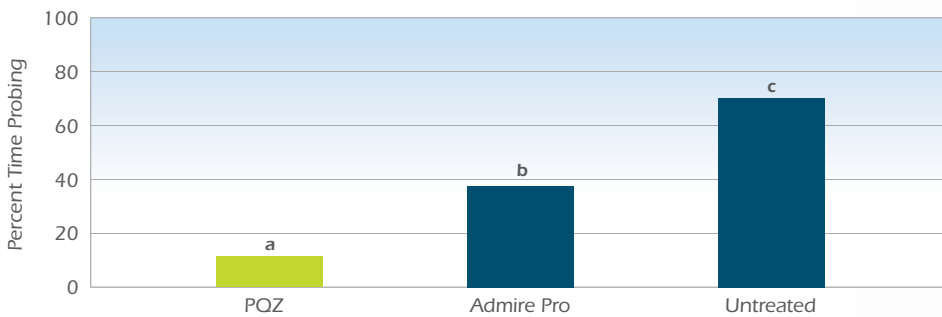
Mean CYSDV Symptomatic Leaves / 40 ft Row



Evaluation: 17 days after last application. P > 0.05

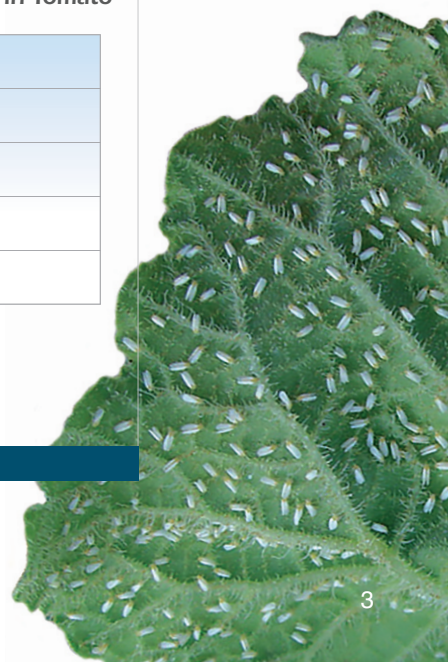
Dr. John Palumbo, UA, Yuma, AZ, 2017

Efficacy of POZ on Whitefly (*Bemisia Tabaci*) Feeding and Virus Transmission in Tomato



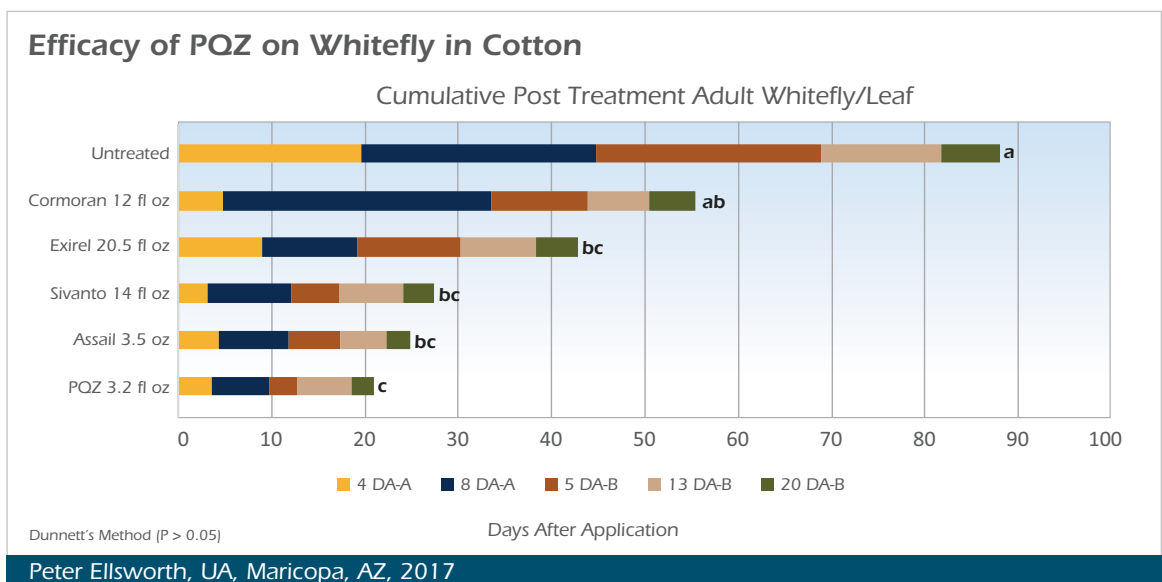
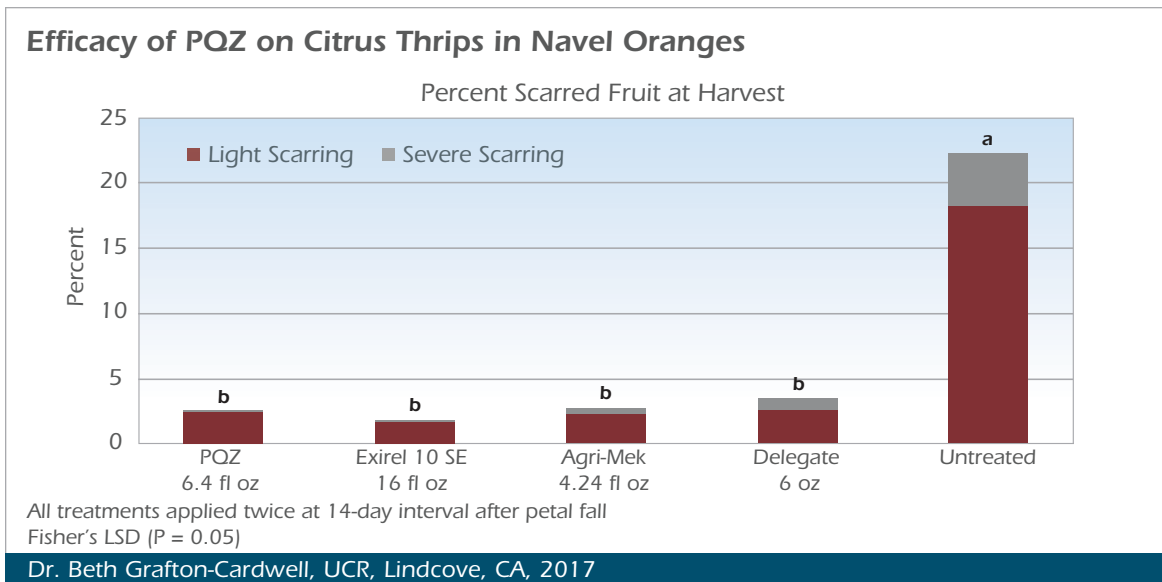
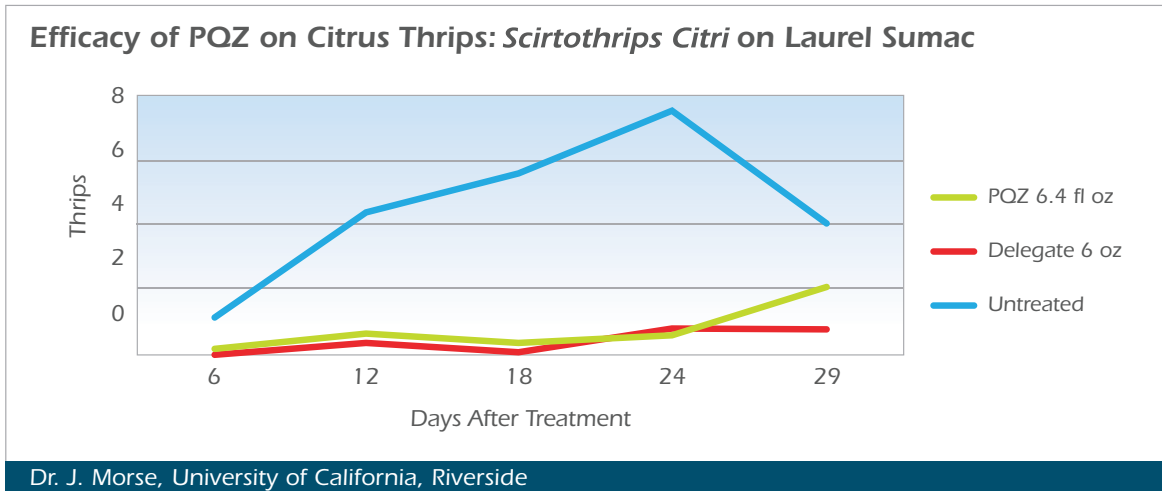
Rate for each product was 1/100th the recommended foliar field rate of 3.2 fl oz/A (POZ) and 2.2 fl oz/A (Admire Pro)
 Significant differences were observed between all treatments of percent time probing (df=2; F=129.89; P < 0.0001)

Dr. Rajagopalbabu Srinivasan, UGA, Tifton, GA

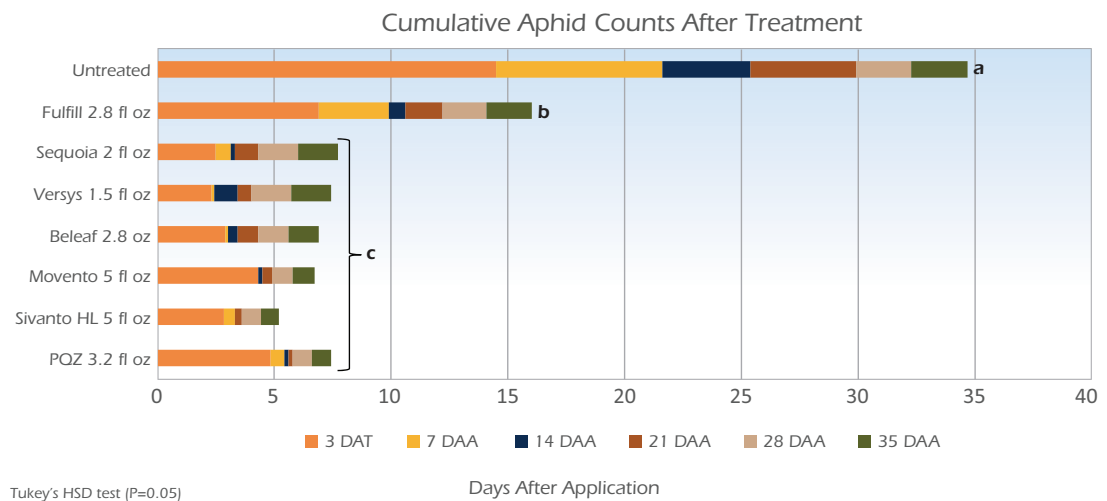


Residual Efficacy

POZ has demonstrated residual activity against target pests in both laboratory and field efficacy studies. Its high insecticidal potency, translaminar movement into the leaves, short rainfastness period, and chemical stability contribute to prolonged residual efficacy of the product. Residual activity may vary depending on field conditions, pest pressure, spray coverage, and other factors.

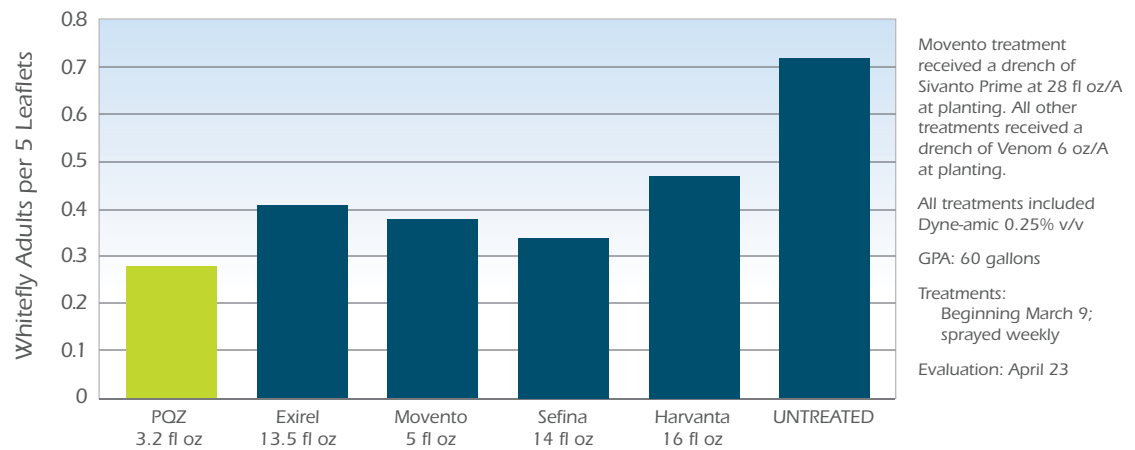


Efficacy of POZ on Green Peach Aphid in Lettuce



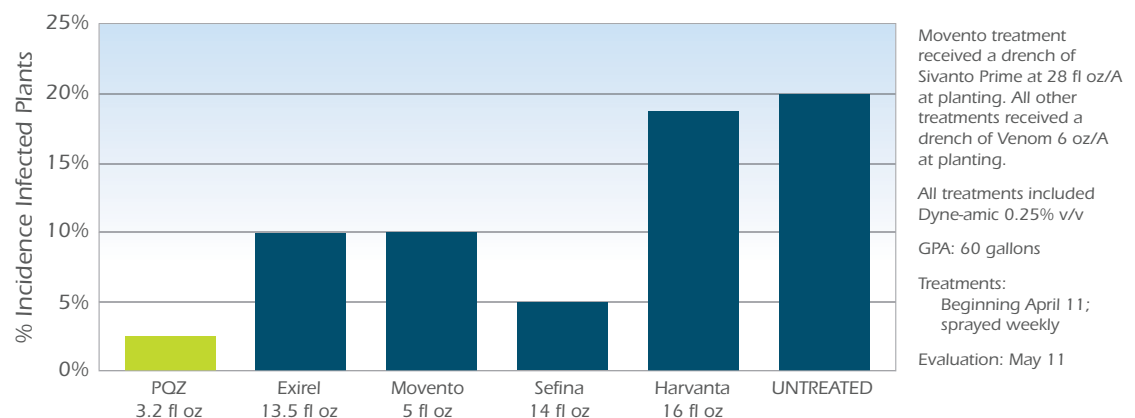
John Palumbo, UA, Yuma, AZ, 2018

Efficacy of POZ Insecticide on Silverleaf Whitefly Adults in Tomato



Dr. Phil Stansly, UF, Immokalee, FL, 2018

Efficacy of POZ on Reduction of Adult Whitefly Population and Transmision of TYLCV in Tomato



Dr. Phil Stansly, UF, Immokalee, FL, 2018

The logo for POZ Insecticide features the letters 'P', 'Q', and 'Z' in a bold, black, sans-serif font. The letter 'Q' is stylized with a blue, brush-stroke-like texture. To the right of the 'Z' is a small 'TM' trademark symbol. Below the 'Q' and 'Z' is the word 'INSECTICIDE' in a smaller, blue, sans-serif font. The background of the entire page is white with a large, light blue, abstract brushstroke graphic that curves across the top and right sides.

POZTM
INSECTICIDE

Consult state regulatory agency for information on product registration in a specific state. Refer to global MRL database for current established tolerances www.globalmrl.com/db#query.

NICHINO
AMERICA[®]

©2018 Nichino America, Inc. All rights reserved. POZ is a trademark and Nichino America logo is a registered trademark of Nichino America, Inc. Admire, Movento, and Sivanto are registered trademarks of Bayer. Agri-Mek, Fulfill, and Minecto are registered trademarks of a Syngenta Group Company. Assail is a registered trademark of Nippon Soda Co., Ltd. Beleaf and Harvanta are registered trademarks of Ishihara Sangyo Kaisha, Ltd. Cormoran is a registered trademark of an ADAMA Group Company. Delegate and Sequoia are registered trademarks of the Dow Chemical Company. Exirel is a registered trademark of E.I. duPont de Nemours and Company. Sefina and Versys are registered trademarks of BASF. Venom is a registered trademark of Valent U.S.A. LLC. Always read and follow all label directions. | 1-888-740-7700 | www.nichino.net