



MGK Crop Protection

2013 IR-4 Food Use Workshop

Albuquerque, NM

September 18, 2013

Agenda Topics

VeratranD[™] 

- Sabadilla background information
- Development of active ingredient
- Efficacy studies
- Short-term new crop opportunities



Pyrethrins + PBO

- Additional crop opportunities



Veratran D™



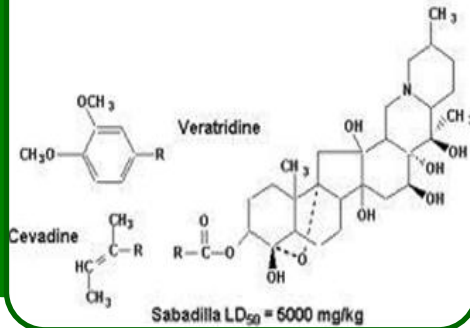
- Only product registered with EPA using *sabadilla* as primary active ingredient



- MGK acquired assets from Dunhill Chemical in late 2012

What is sabadilla?

Veratrum Alkaloids, Figure 3



- A natural, botanical insecticide
- Contains 2 primary alkaloids: Veratridine & Cevadine



- Broad-spectrum insect control
- Primarily contact activity (Nerve poison similar to pyrethrum)



- Short half-life
- Very low mammalian toxicity (LD₅₀ = 4000)

Sabadilla - Historical Use



- Ancient use in Meso and South America, primarily for louse and bed bug control



- Popularized in late 19th century for control of agricultural pests
- Also used as homeopathic respiratory aid



- Volume declined in 1950's-1970's due to lower-cost synthetics & significant reduction in sales/marketing support



Organic Resurgence

Sabadilla Pest Control

Sabadilla Pest Control

Directions for Use: It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Sabadilla is a natural powder that can be dusted on plants and soil. It is effective against a wide range of insects including the voracious chewing beetles that are the most common pest of many crops. It is also effective against aphids, thrips, and other insects that feed on plant sap. Sabadilla will easily control these pests on all plants.

CROP	INSECT
Asparagus	Colorado Potato Beetle
Beans	Colorado Potato Beetle
Beets	Colorado Potato Beetle
Broccoli	Colorado Potato Beetle
Brussels Sprouts	Colorado Potato Beetle
Cabbage	Colorado Potato Beetle
Cauliflower	Colorado Potato Beetle
Corn	Colorado Potato Beetle
Cucumbers	Colorado Potato Beetle
Eggplant	Colorado Potato Beetle
Kale	Colorado Potato Beetle
Karri	Colorado Potato Beetle
Leeks	Colorado Potato Beetle
Lettuces	Colorado Potato Beetle
Onions	Colorado Potato Beetle
Peas	Colorado Potato Beetle
Potatoes	Colorado Potato Beetle
Spinach	Colorado Potato Beetle
Squash	Colorado Potato Beetle
Strawberries	Colorado Potato Beetle
Tomatoes	Colorado Potato Beetle
Turnips	Colorado Potato Beetle
Watercress	Colorado Potato Beetle

KEEP OUT OF REACH OF CHILDREN
CAUTION
See Back Panel For Additional Precautionary Statements.

Necessary Organics
"From the Earth—for the Earth™"

- Sabadilla dust “re-discovered” in 1980’s as low-impact control option on tough garden pests (beetles, true bugs, aphids, thrips, lepidoptera, etc)



- Sabadilla’s *botanical* properties offer a new tool for insect control & resistance management using softer chemistry

Sabadilla – A New Future



Veratran D formulation:

- Will have OMRI listing by end of 2013
- Currently produced as a wettable powder (using ground sabadilla seeds)



- Major R&D efforts underway to **evaluate & standardize** sabadilla formulation (similar to what MGK has achieved with pyrethrum)



- Sabadilla “next generation” products will offer new botanical insect control options for both conventional and organic growers



Veratran D™ 

Current Label

- Active ingredient: **0.2% sabadilla alkaloids**
- Use limited to thrips on citrus & avocados



Field-Friendly, Thrip-Deadly.

Meet Veratran D™, MGK's newest hero in botanical pest control.

Veratran D™ 

Effective botanical control of thrips for citrus and avocados

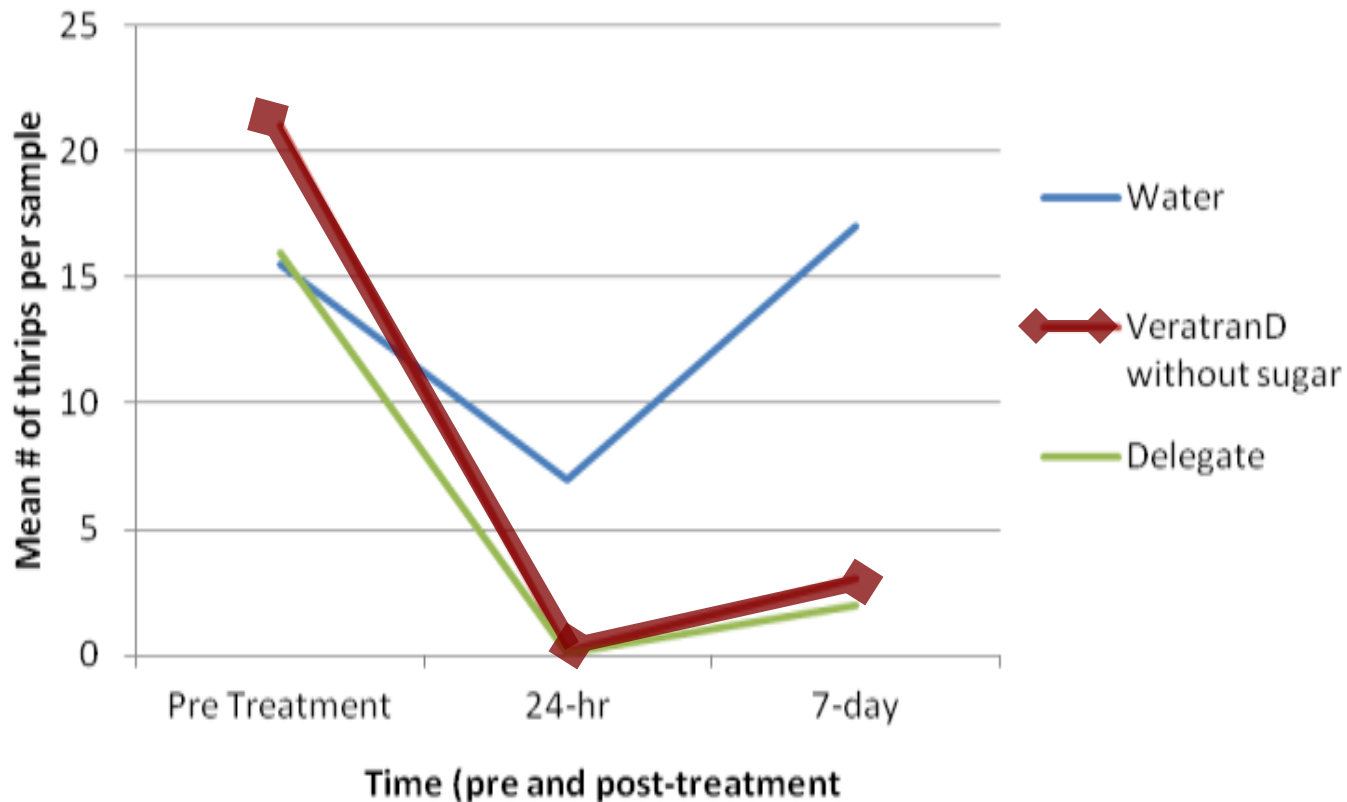
- Only registered U.S. insecticide containing *Sabadilla*
- Short 12-hour field re-entry
- Wettable powder formulation
- Can be applied via ground or air



www.MGK.com

 @mgkcropprotec

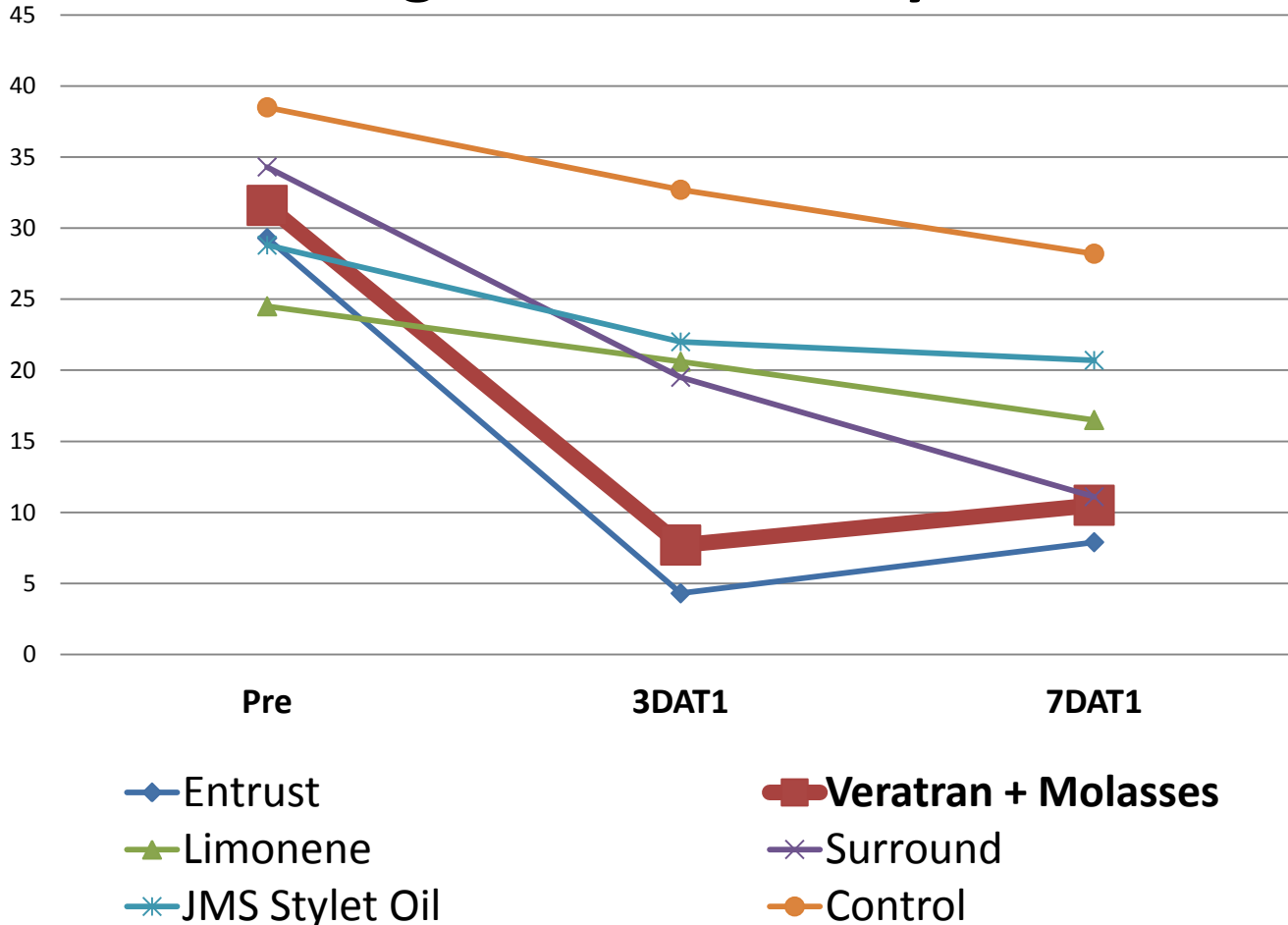
Field Efficacy of Veratran in Controlling Citrus Thrips in Tango Oranges, CA, 2013



Citrus

- Veratran D provided similar control to the leading conventional insecticide for Citrus Thrips

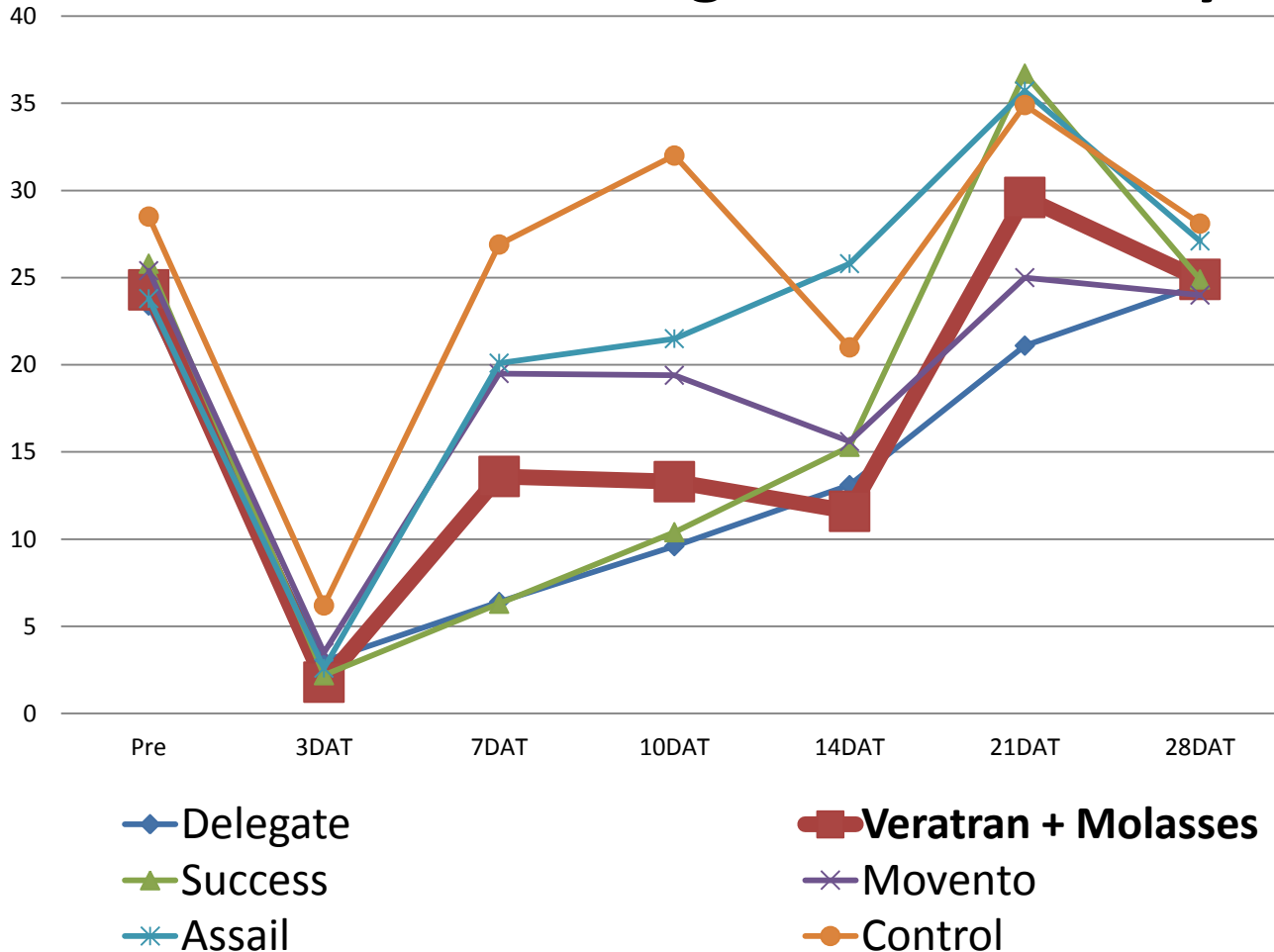
Citrus Thrips control on Organic highbush blueberry



Organic Blueberry

- Veratran D provided better control than all but one Organic insecticide for Citrus Thrips on highbush blueberry

Citrus Thrips control on Conventional highbush blueberry



Conventional Blueberry

- Veratran D provided similar control to the leading conventional insecticides for Citrus Thrips

Label expansion opportunities (by priority)



- Crop Group 13 (Strawberries)



-Crop Group 13 (All Other Berries)



-Crop Group 9 (Cucurbit Vegetables)



- Crop Group 8 (Fruiting Vegetables)



- Crop Groups 1 & 3 (Bulb, Root & Tuber Vegetables)

Pyrethrins + PBO

Label expansion opportunities (by priority)



Avocado (Subtropical)

- Ranks #7 rank among all non-citrus fruits in \$ value produced and #8 in acreage
- Acreage increased 51% from 2010 to 2011



Edible fungi (Crop Group 21)

- American Mushroom Institute's site lists only 15 insecticides as labeled for use on mushrooms
- 5 of the 15 include either Pyrethrins or PBO
- Without support, mushrooms will need to be removed from Py / PBO product labels



**Thank you for
your support!**

**MGK Crop Protection
2013 IR-4 Food Use Workshop**

Albuquerque, NM
September 18, 2013