New Biopesticide
Code name: OAT-1401EC
Brand name: Editol
(formerly RM-1963K)
Edible oil

OAT Agrio Co., Ltd.
—Tokyo, Japan—

2025 IR-4 Technology Session

Technical Information

- Product name
  OAT-1401EC (Code name)
  Editol (Brand name)

- Active Ingredient
  Edible oil

- Type
  Insecticide, Miticide & Fungicide

- Human-Friendly
  1. Naturally occurring product
  2. ADI/MRL: Exempted
  3. PHI: 0 day

- Environmentally Friendly
  Low impact on beneficial insects, predatory mites and bees

- Countries under development
  EU, US, Canada, Mexico

Spectrum

ORDER	Common Name	Scientific Name	Adults	Eggs	Larvae
ACARI	Two-spotted spider mite	*Tetranychus urticae*	◯	◯	◯
	Citrus red mite	*Panonychus citri*	◯	◯	◯
	Broad mite	*Polyphagotarsonemus latus*	◯	◯	◯
	Rust mite	*Aceria tulipae*	◯	◯	◯
HEMIPTERA	White fly	*Bemisia tabaci*	◯	◯	◯
	Japanese mealybug	*Planococcus kuraunhiae*	n.d.	n.d.	◯
	Asian citrus psyllid	*Diaphorina citri*	◯	n.d.	n.d.
	Cotton aphid	*Aphis gossypii*	◯	-	◯
	Green peach aphid	*Myzus persicae*	◯	-	◯
	Foxglove aphid	*Aulacorthum solani*	◯	-	◯
Fungi	Powderly mildew	*Erysiphe, Podosphaera, Oidium…*		◯	
	Rust			expected	

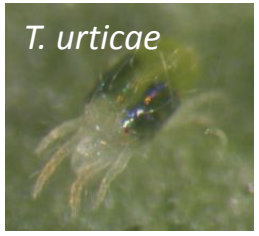
◯ Good, ◯ Fair

Only trial results in small plot have been conducted

So far, efficacy on specific stage have been confirmed

Asian citrus psyllid

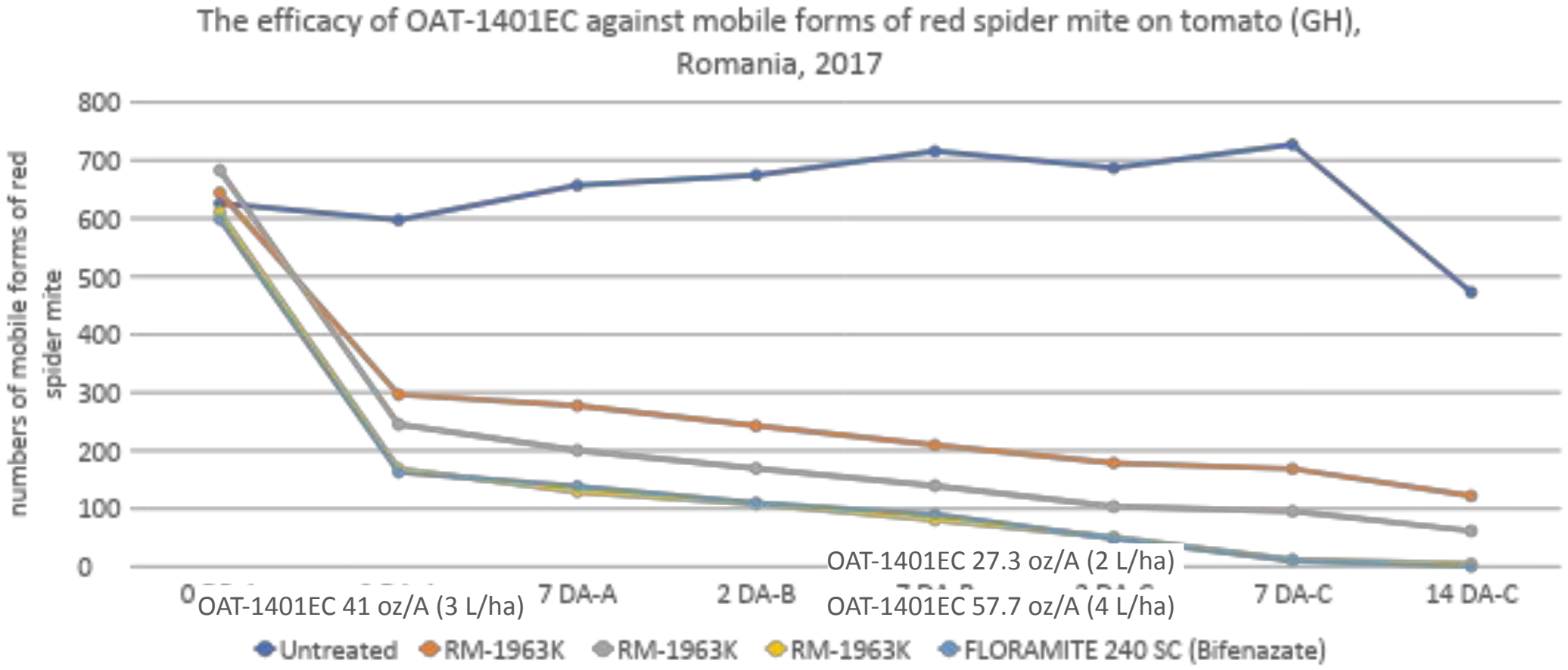
Reference:
Animal and Plant Health Inspection Service, U.S. DEPARTMENT OF AGRICULTURE
https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/the-threat/asian-citrus-psyllid/asian-citrus-psyllid



Characteristics

- Efficacy
  1. No systemic activity, translaminar effect or vapor action
  2. Rapid reduction of pest population
  3. Active to all growth stage, eggs, larvae, nymphs, and adults
  4. Residual effects (up to 7 days) on *T. urticae*
- Mode of Action
  1. Consider to be suffocation by blocking the spiracle
  2. Inhibit the behavior and egg laying in mites
  3. Inhibit the orientation and the courtship behavior in white flies

Trial results: Mobile forms of Red spider mite to tomato (GH)

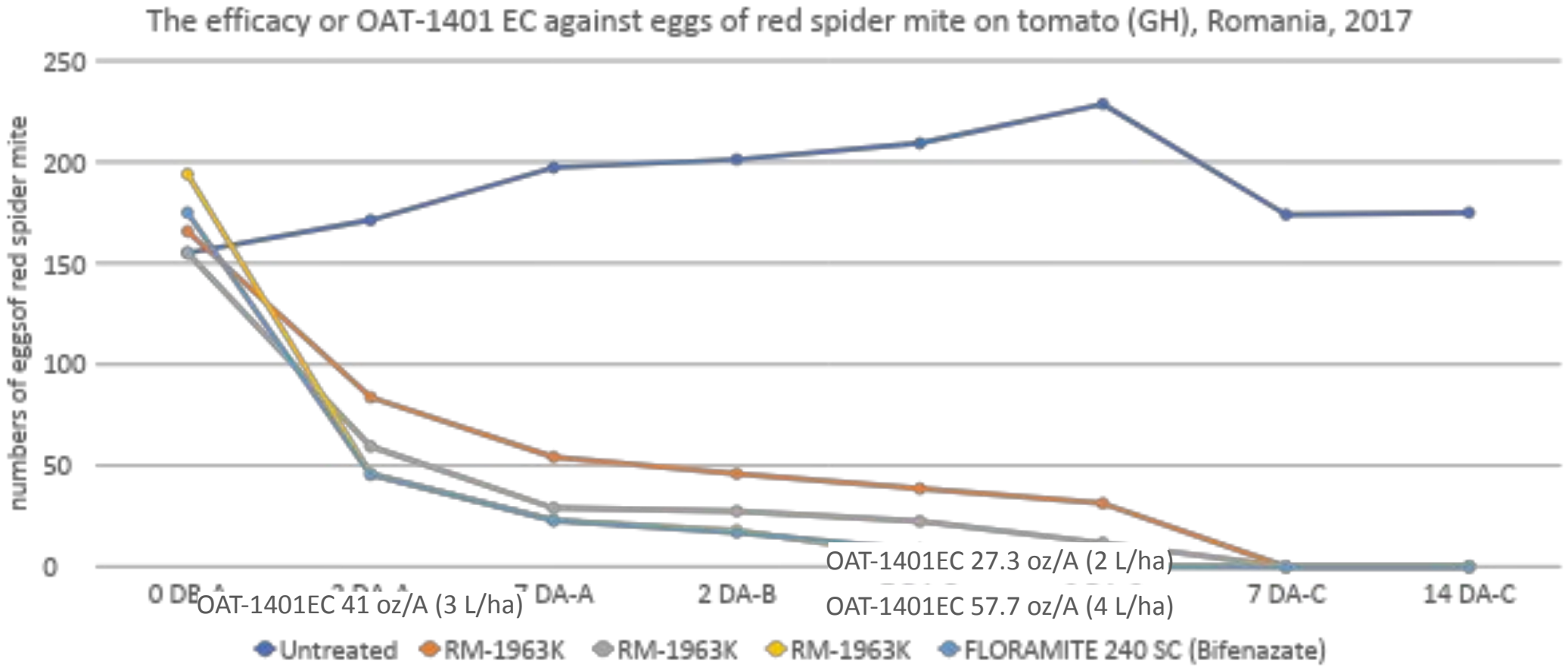


Region/county/state/Country: COMLOSUL MIC, Romania
Crop: Tomato (cv. CINDEL)
Target pest: Red spider mite (*Tetranychus urticae*)
Number of application: 3
Application interval: 7 day

Application volume: 264 GAL

DAA: days after 1st application, DAB: days after 2nd application
DAC: days after 3rd application

Trial results: Eggs of Red spider mite to tomato (GH)

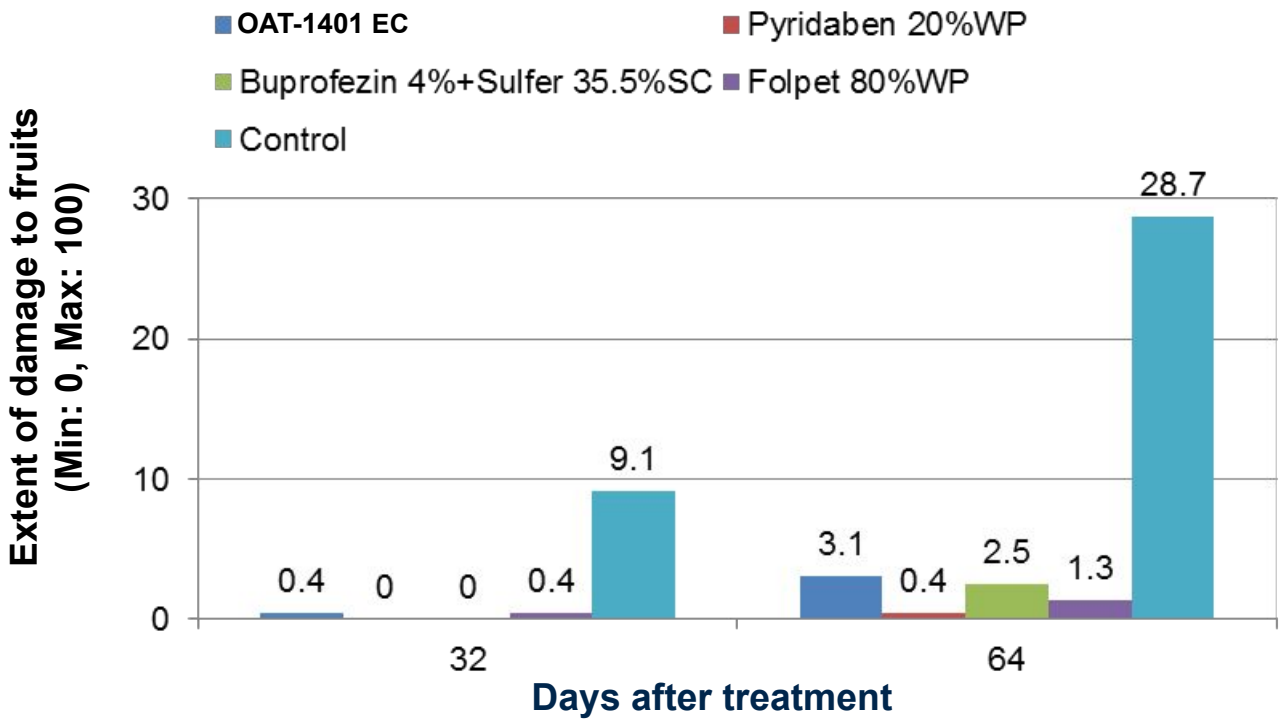


Region/county/state/Country: COMLOSUL MIC, Romania
Crop: Tomato (cv. CINDEL)
Target pest: Red spider mite (*Tetranychus urticae*)
Number of application: 3
Application interval: 7 day

Application volume: 264 GAL

DAA: days after 1st application, DAB: days after 2nd application
DAC: days after 3rd application

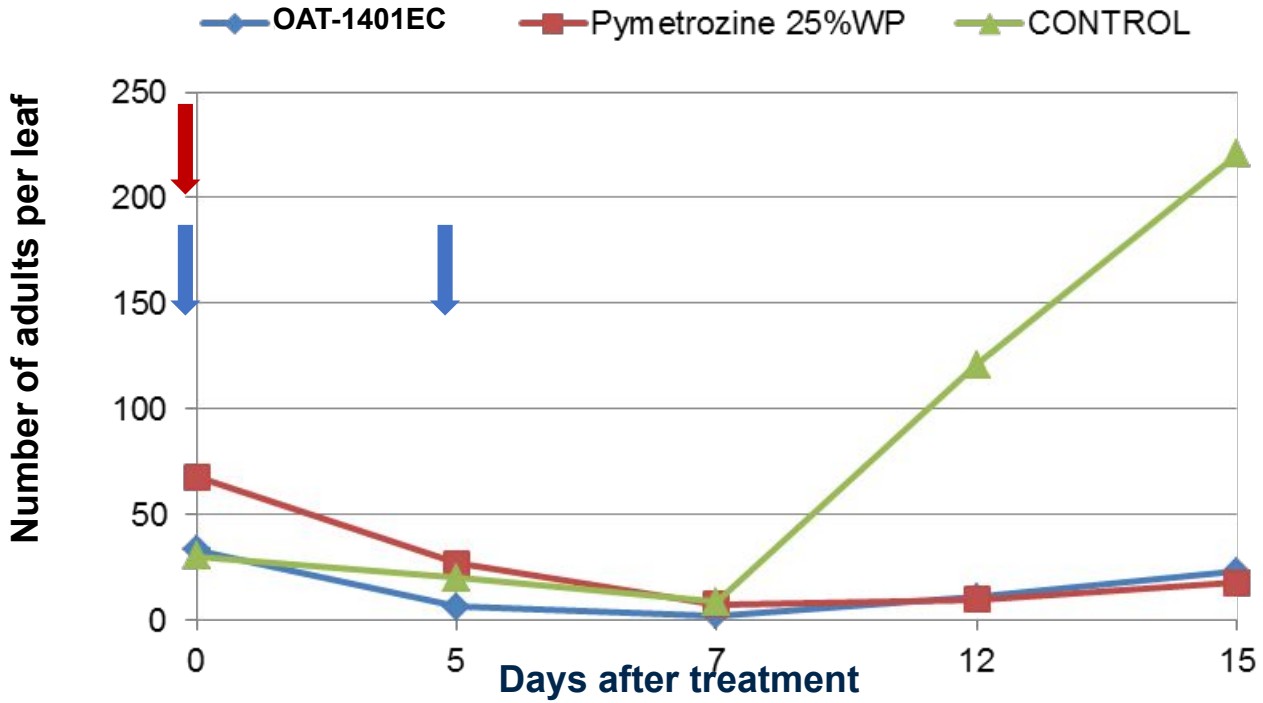
Trial Results: Citrus rust mite on Mandarin Orange (Japan)



- Year : 2010
- Plot size : 1 tree
- Replication : 4

- Dilution rate : OAT-1401 EC 300-fold
- Spray volume : 1.8 Gal/ tree
- Application Date : Jul. 8 (OAT 1401EC & The others), Jul. 15 (OAT 1401EC)

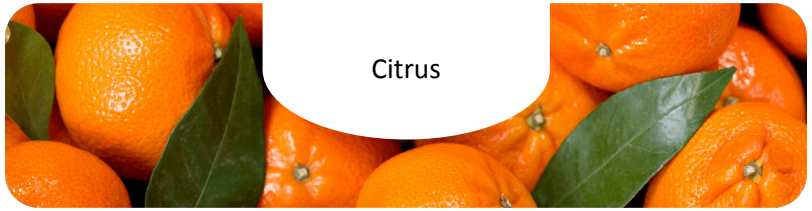
Trial Results: Whitefly (*Bemisia tabaci*) on Eggplant (Japan)



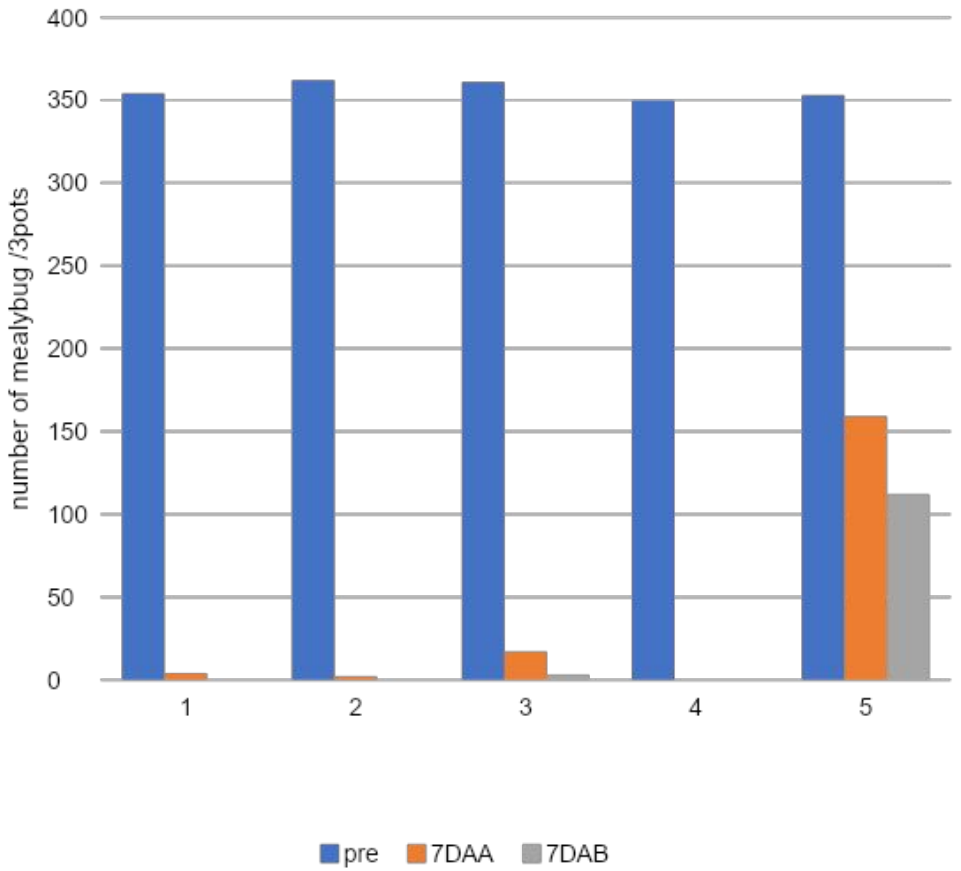
- Year : 2007
- Plot size : 10 plants
- Replication : 2

- Dilution rate : OAT-1401EC 300-fold
- Spray volume : 214 Gal/Acre
- Application Date : Jun. 6 (OAT -1401EC & Std), Jun. 11 (OAT 1401EC)

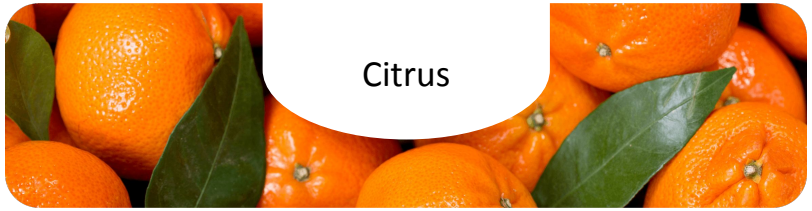
Trial Result: Mealybug (*Planococcus kuraunhiae*)



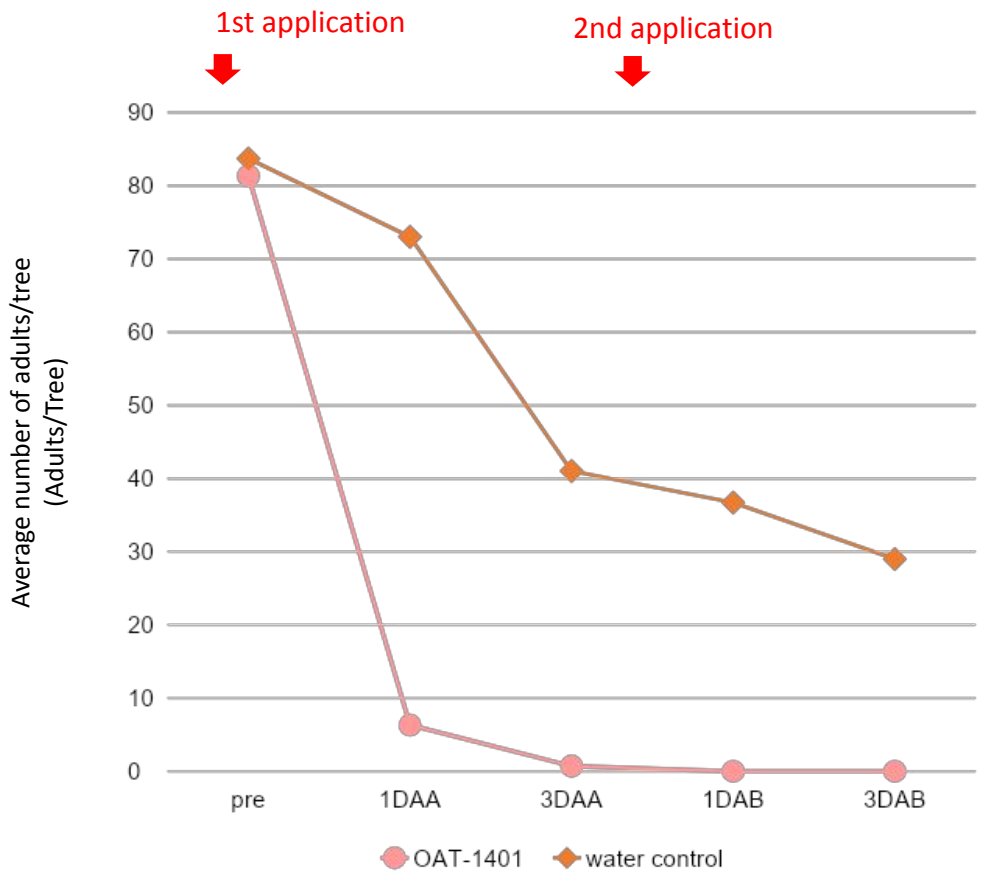
- Target: Japanese mealybug (*Planococcus kuraunhiae*)
- Stage: Larvae
  (release larvae and egg mass 3 and 4 days before treatment,
- just before treatment remove egg mass and adults)
- Location: Japan
- Treatment: Dec 11 and 18, 2020
- Assessment: Dec 11, 18 and 25, 2020
- Water volume: 200mL / 3pots



Trial Result: Asian Citrus Psyllids (*Diaphorina citri*)

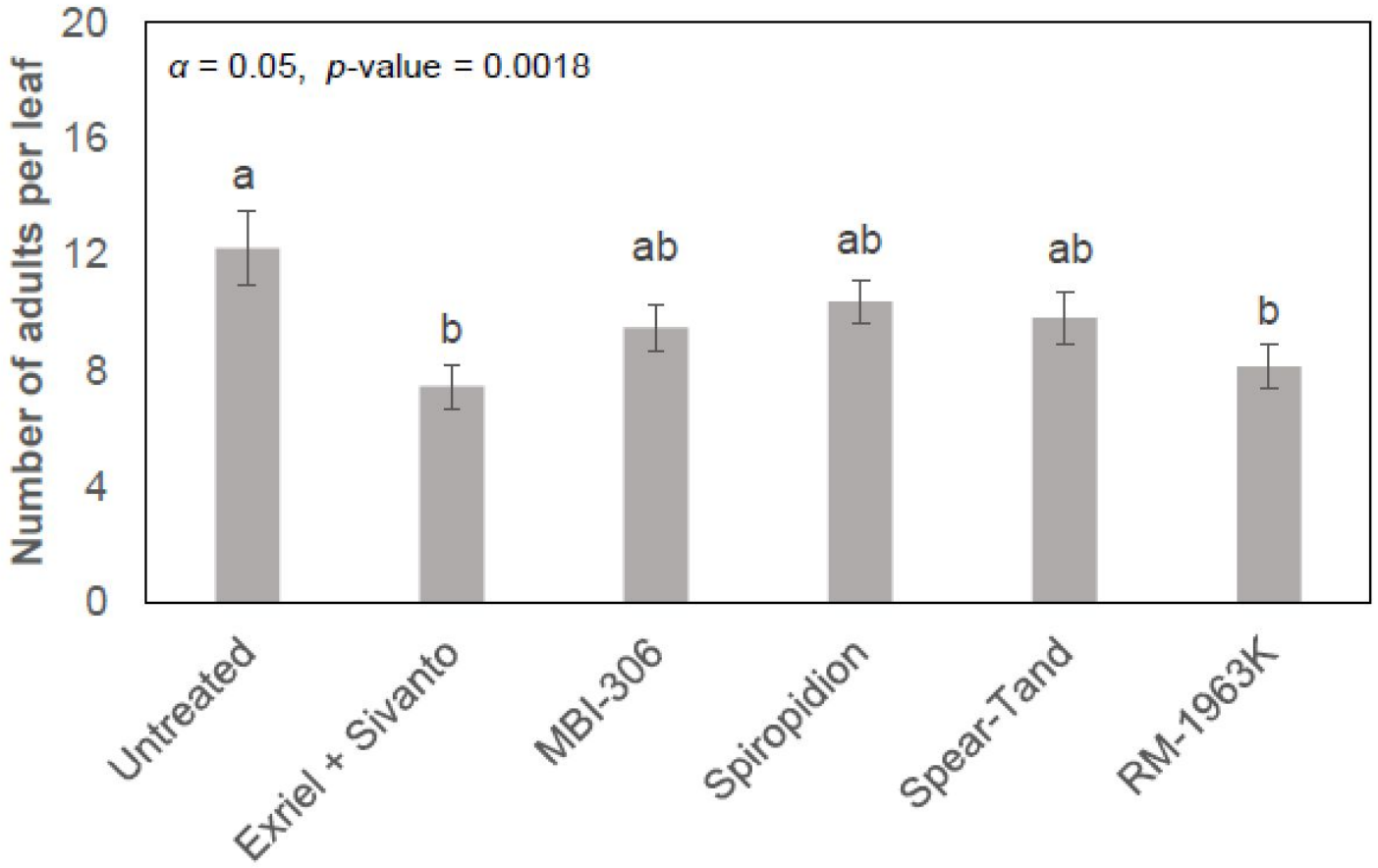


- Target: Asian Citrus Psyllids (*Diaphorina citri*)
- Stage: Larvae and Adults
  (release 50 larvae 2 days before treatment
  and 10 adults just before each treatment)
- Location: Japan
- Treatment: Mar 13 and 16, 2009
- Assessment: March 13, 16, 19 and 26, 2009
- Tree age: 5 years
- Variety: Flat lemon
- Water volume: 1,800L/ha



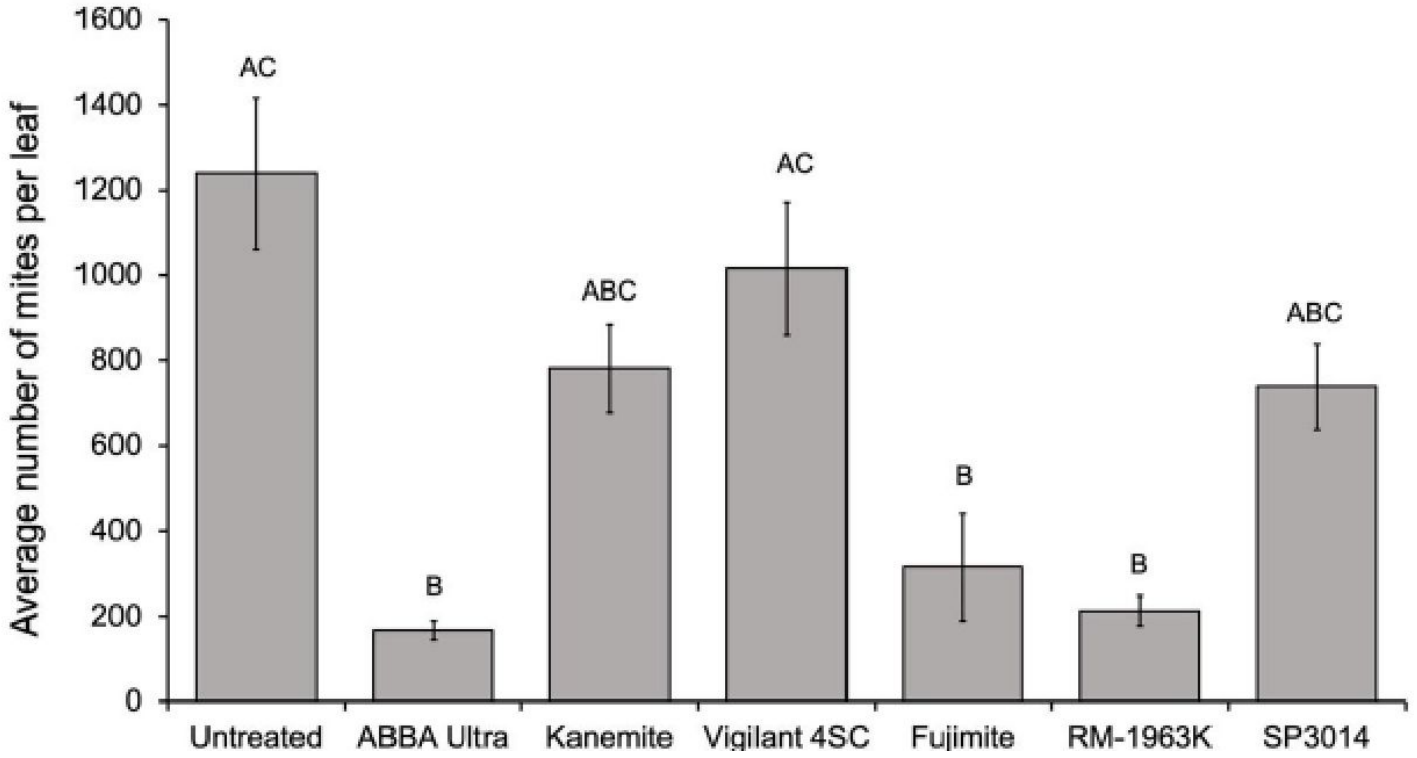
Reference:
Animal and Plant Health Inspection Service, U.S. DEPARTMENT OF AGRICULTURE
https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/the-threat/asian-citrus-psyllid/asian-citrus-psyllid

IR-4 Project #: IS00409 Project Title: Control of Sweet Potato Whiteflies in Yellow Squash



The effect of the treatments on the whitefly population on yellow squash in Alabama 2023. The rotation between Exriel and Sivanto Prime and OAT 1401EC (shown as RM-1963K) could significantly reduce both adults and nymphs compared to other treatments.

IR-4 Project #: IS00382-22-CO01
Project Title: Suppression of hemp russet mites in the greenhouse



Abba Ultra, Fujimite, and OAT 1401 EC (shown as RM-1963K) have excellent suppressive effects on densities of hemp russet mites in the greenhouse.

IR-4 Project #: IS00382-22-CO01
Project Title: Suppression of hemp russet mites in the greenhouse

- A conclusion made from the hemp study was that OAT 1401 EC, an edible oil applied multiple times in 7-d intervals was also effective against hemp russet mites. Given likely low non-effects of this product, it may prove especially important in integrative pest management approaches that conserve natural enemies.

FLUTIANIL

Fungicide

Product name: GATTEN®

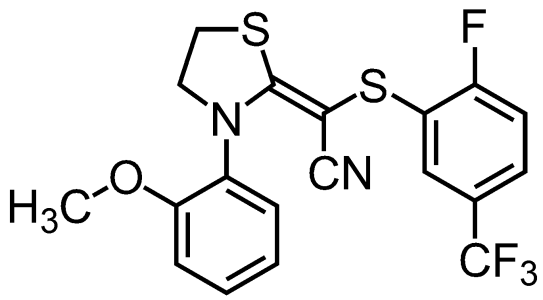
OAT Agrio Co., Ltd.

—Tokyo, Japan—

2025 IR-4 Technology Session

Flutianil, Characteristics

- New chemical group: cyano-methylene thiazolidine



- Effective in controlling powdery mildew
- **Novel Mode of Action against powdery mildew (FRAC Code U13)**

  The MOA of flutianil as "functional inhibition of the haustorium"*

  No Cross-Resistance with other chemical classes

*Reference: J Pestic Sci 45(4), 206-2015 (2020)
J Pestic Sci 26(2), 206-2013 (2021)

Regulatory Information

US

- Reduced risk status granted for all of the registered crops
  - Registered crops: Apples, Cherry Subgroup 12-12A, Berry, low growing subgroup 13-07G, Melon subgroup 9A and Squash/cucumber subgroup 9B, Small fruit, vine climbing, except fuzzy kiwifruit, subgroup 13-07F, Berry, low growing, subgroup 13-07G, and Hops.

Canada

- Registered on Cucurbits Crop Group 9, Cherry Subgroup 12-09A and Grape. Apples and strawberries were approved as an import tolerance and then approved for use in Canada with an URMULE.

Japan

- Registered on Eggplant, Cucumber, Pumpkin and Squash, Watermelon, Melons, Strawberry, Zucchini, Tomato, Peas, Flowers and Ornamental plants, and Trees and Shrubs.

Korea

- Registered on Green & Red pepper (Fresh), Strawberry, Watermelon, Cucumber, Korean melon, and Sweet pepper

EU

- Approval: Annex I granted April 2019
  - Approved crops: Grapes and Flowers and Ornamental plants

US Label

- **Type:** Fungicide
- **Product Name:** GATTEN®
- **Active ingredient:** Flutianil
- **Formulation:** 5% EC
- **Use rate:** 0.04 lb ai/acre (0.01-0.05 lb ai/acre global)
  - **Note: 0.01 – 0.02 lb ai/A is new targeted use rate**
- **Application:** 3-5 times per season, 7-day interval
- **PHI:** 0-14 days
- **Crops:** Apples, Cherry Subgroup 12-12A, Melon subgroup 9A and Squash/cucumber subgroup 9B, Small fruit, vine climbing, except fuzzy kiwifruit, subgroup 13-07F, Berry, low growing, subgroup 13-07G, and Hops.
  - All granted reduced risk status

US Label Expansion – IR-4

- Label Expansion with the EPA (submitted by IR-4 2024)
  - Lettuce (Head and Leaf including greenhouse)
  - Peach
  - Mustard Green
  - Cucumber (Greenhouse)
  - Eggplant (Greenhouse)
  - Tomato (Greenhouse)
  - Pepper (Greenhouse)

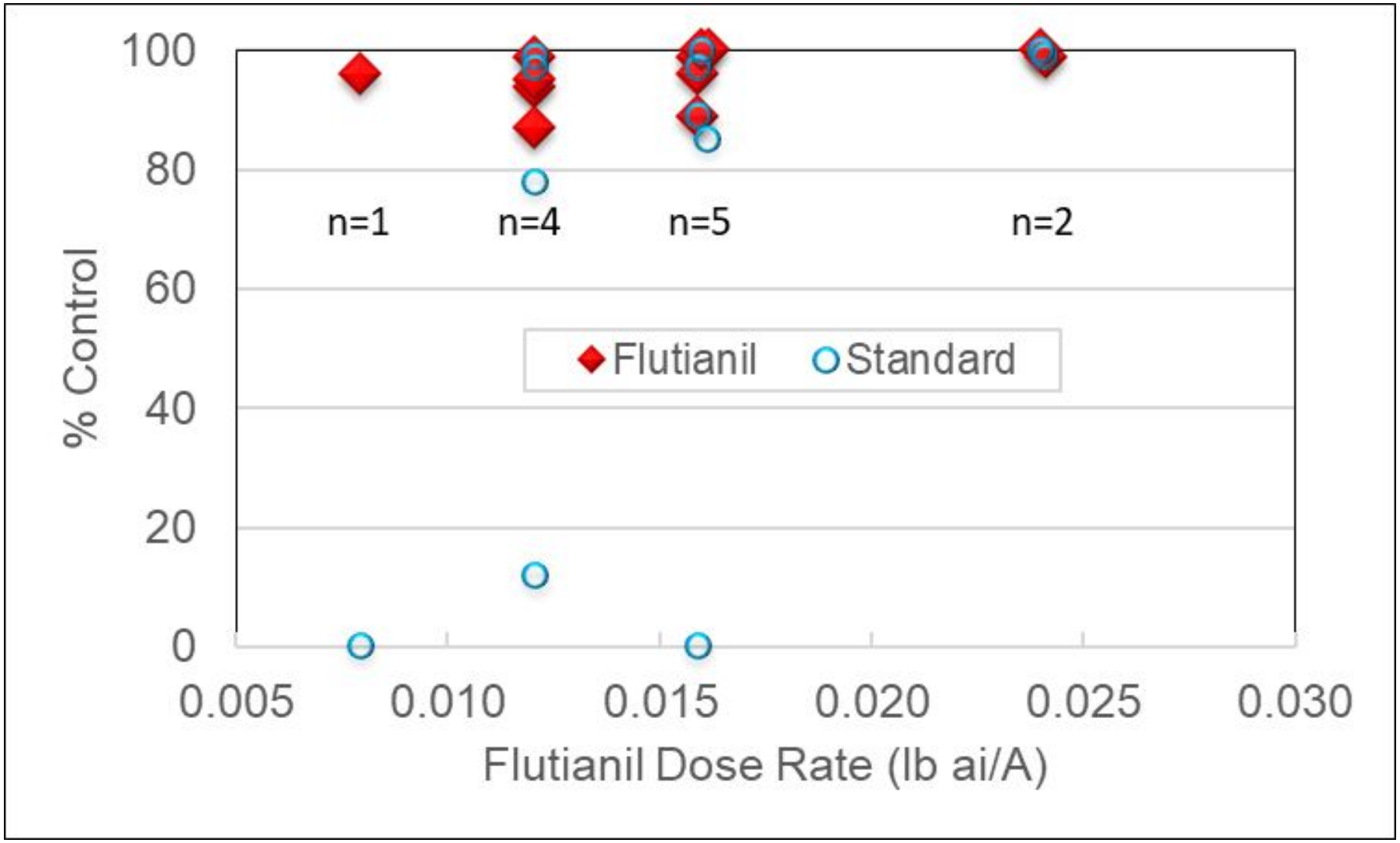
US Label Expansion – STUDIES

- Label Expansion with the EPA
- Strawberry greenhouse
  - ✔ Submission to PMRA by PMC and to EPA by IR-4 – Studies on-going PMC (submission expected 2026, joint submission with PMC)
  - Herb Group 25. Rosemary and Sage Efficacy and Crop Safety studies done. Basil residue study in progress, mint residue study planned (submission date 2025)
  - Hemp Study (2025)

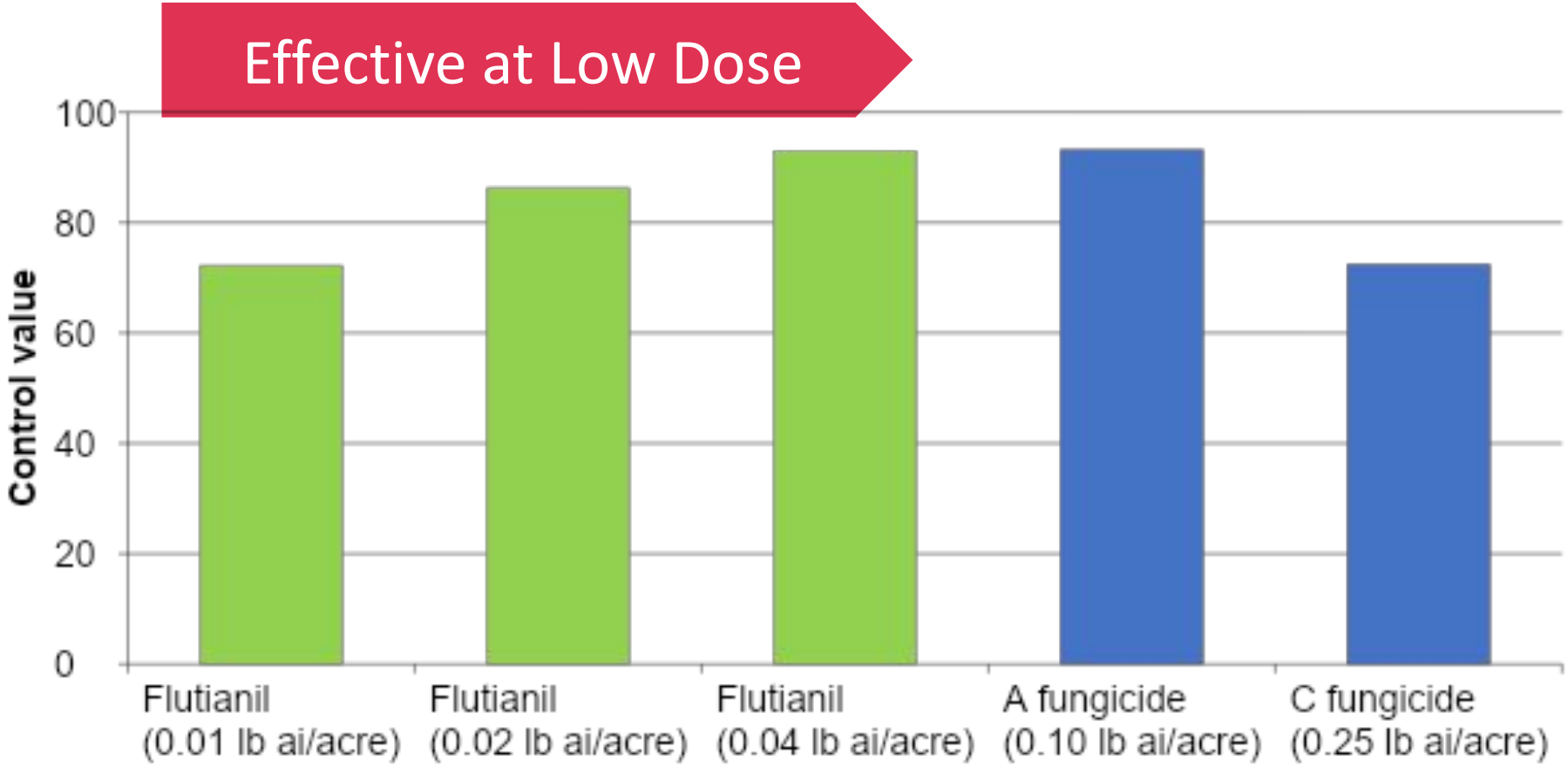
Canada Label Expansion

- Current PMC Studies
  - Pepper (GH) – 2024 submission
    - ✔ Joint with IR-4, PMC leading
  - Cucumber (GH part of GMUS) -2024 submission
    - ✔ Joint with IR-4; IR-4 leading, PMC doing efficacy and some residue trials
  - Hops – 2024 submission to PMRA and JMPR
    - ✔
  - Ornamental Crops Safety and Efficacy – 2024 submission (greenhouse)
    - ✔ PMC project with crop safety also being done by IR-4
  - Apple, Peach and Field Strawberry – 2024 submission (peach will be 2025 since IR-4 needs to submit the study first this year, apple and field strawberry already submitted and approved in an URMULE).
    - ✔ URMULE submitted with existing IR-4 data
  - Tomato (GH) – 2024 submission
    - ✔ Joint with IR-4; IR-4 leading, PMC doing efficacy
  - Strawberry (GH) – study ongoing at PMC – 2026 submission
  - Haskap – study ongoing at PMC – 2027 submission
- PMC on-going studies to be submitted when complete. Target 2024 except for haskap (2027) and greenhouse strawberry (2026) which are on-going and peach which will be submitted as an URMULE after IR-4 submits.

Field Performance on Grape (US)



Podosphaera xanthii on Leaves of Yellow Squash

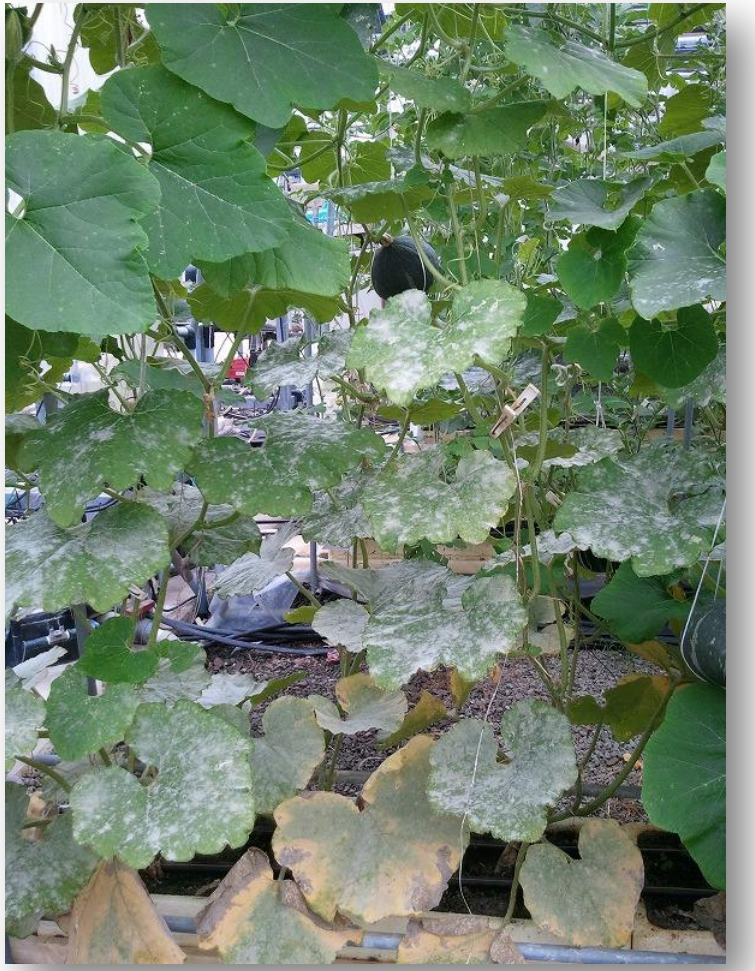


- Location: Raleigh, NC
- Five applications targeted at 7 days intervals
- Assessment was determined at 7 days after the last application

Sphaerotheca fuliginea on Squash

0.03 lb ai/acre Flutianil

untreated



- Location: Tokushima, Japan, OAT AGRIO
- One application targeted, Assessment was determined at 25 days after application

Thank you

OAT Agrio Co., Ltd.

—Tokyo, Japan—

For additional information: Dennis Hattermann
Email: dhattermann@landisintl.com
M – 229-548-2804