



GARGOIL[®]

Insect, Mite
& Disease Control

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GARGOIL® Insect, Mite, & Disease Control



Guarding your field all season long

- **Broad spectrum** contact insecticide, miticide, and fungicide
- **AI:** Cinnamon Oil.....15.0%
Garlic.....20.0%
- **MOA:** Repelling, cuticle damage, nervous system disruption, cell wall/membrane permeability
- **For use on ALL CROPS**
- **EPA Signal Word:** Warning, 25(b)
- **IRAC code:** UNE – Unknown essences
- **FRAC code:** group 46 & group P01



Active Compounds of GARGOIL®

Cinnamon oil

- Euganol – Increases membrane permeability in fungi, contact insecticide
- Cinnamaldehyde – Cell wall disruption, contact insecticide, repellent

Garlic extract

- Organosulfur compounds - Contact and fumigant activity, induces plant defenses



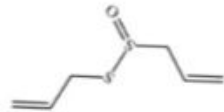
Diallyl sulfide (DAS)



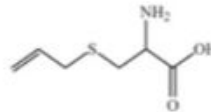
Diallyl disulfide (DADS)



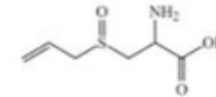
Diallyl trisulfide (DATS)



Allicin



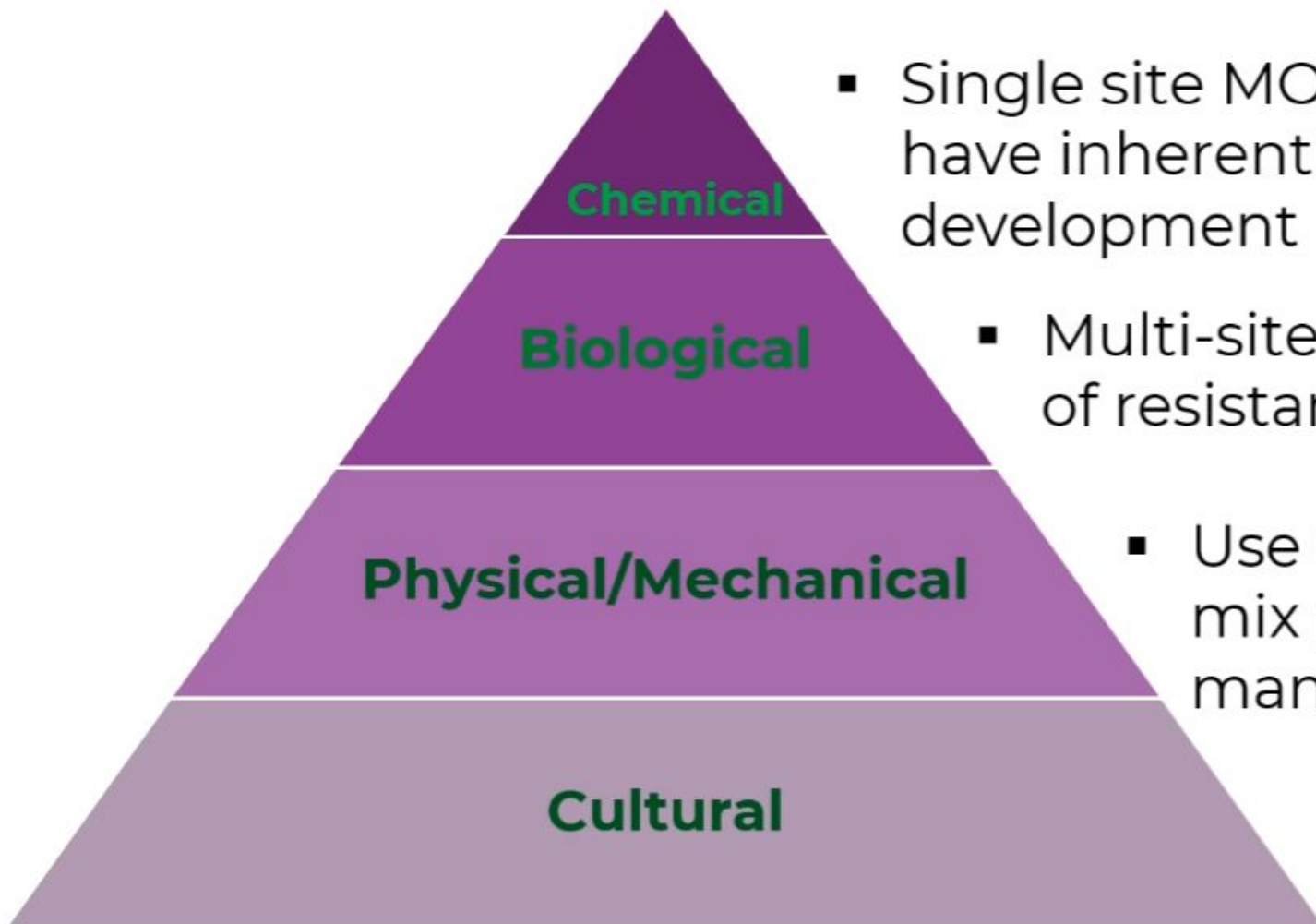
S-allyl-cysteine



Alliin

GARGOIL® and IPM

Resistance management



- Single site MOA insecticides and fungicides have inherently high risk for resistance development
- Multi-site MOA of GARGOIL: reduced risk of resistance development
- Use GARGOIL as a rotational or tank mix partner for IPM and resistance management

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Targets

Pest category	Target
Soft-bodied insects	Aphids, Leafhopper (nymphs), Mealybugs, Psyllids, Scale, Thrips (citrus)
Lepidopteran	Diamondback moth, Coddling moth, Navel orange worm
Coleopteran	Japanese beetle
Mites	Two-spotted spider, eriophyid
Fungi	Anthracnose, Botrytis, Powdery mildew, Downy mildew

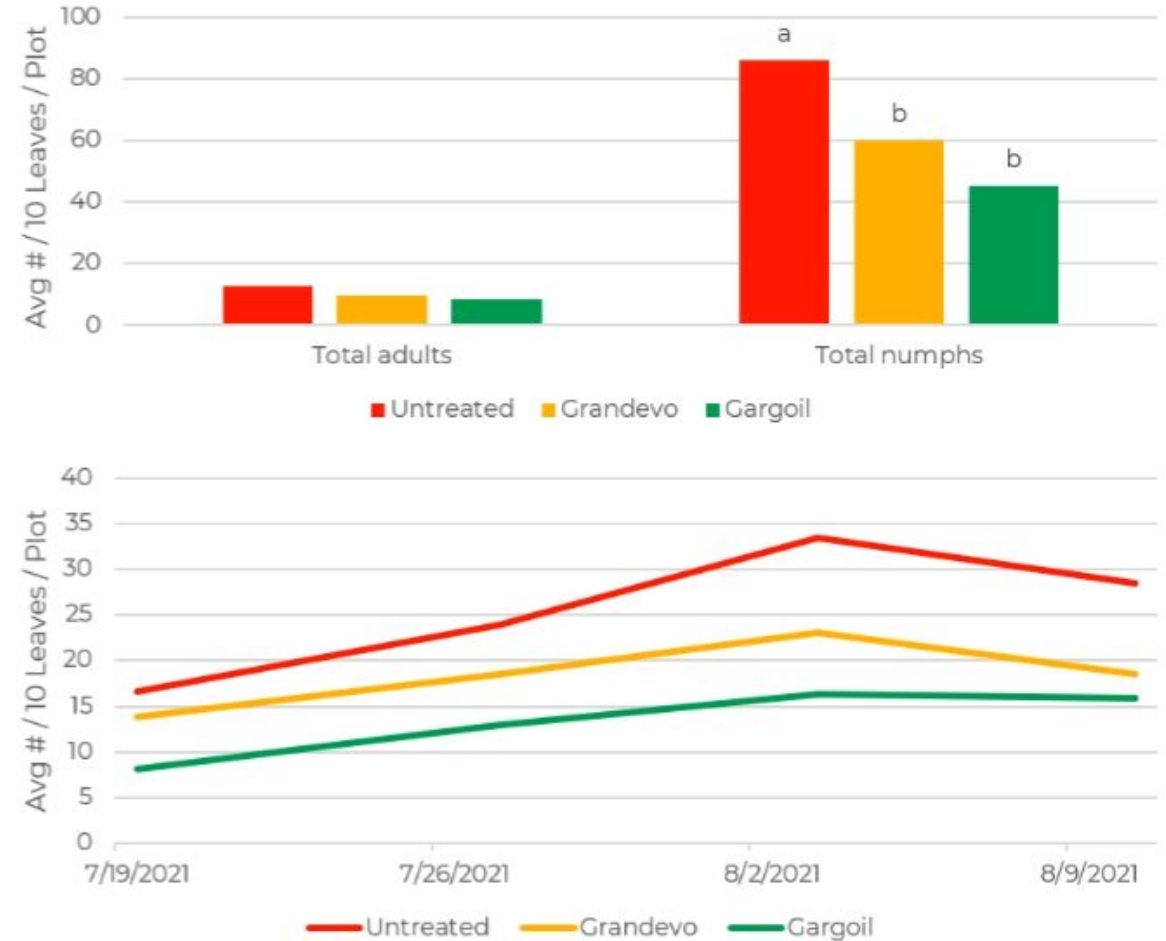
Grape Leafhopper on Merlot Grapes

Franklin County, Washington 2021

- 4 replicated plots per treatment, 5 vines per plot
- 3 applications at 7-day intervals: 7/20, 7/27, 8/3
- Observations on 2 leaves per plant across 5 plants per plot (10 total leaves per plot): 7/19, 7/27, 8/3, 8/10
- Natural grape leafhopper pressure was very high during this trial
- **Gargoil significantly reduced the number of leafhopper nymphs throughout the season compared to the UTC**



Grape Leafhopper on Merlot Grapes
Washington 2021

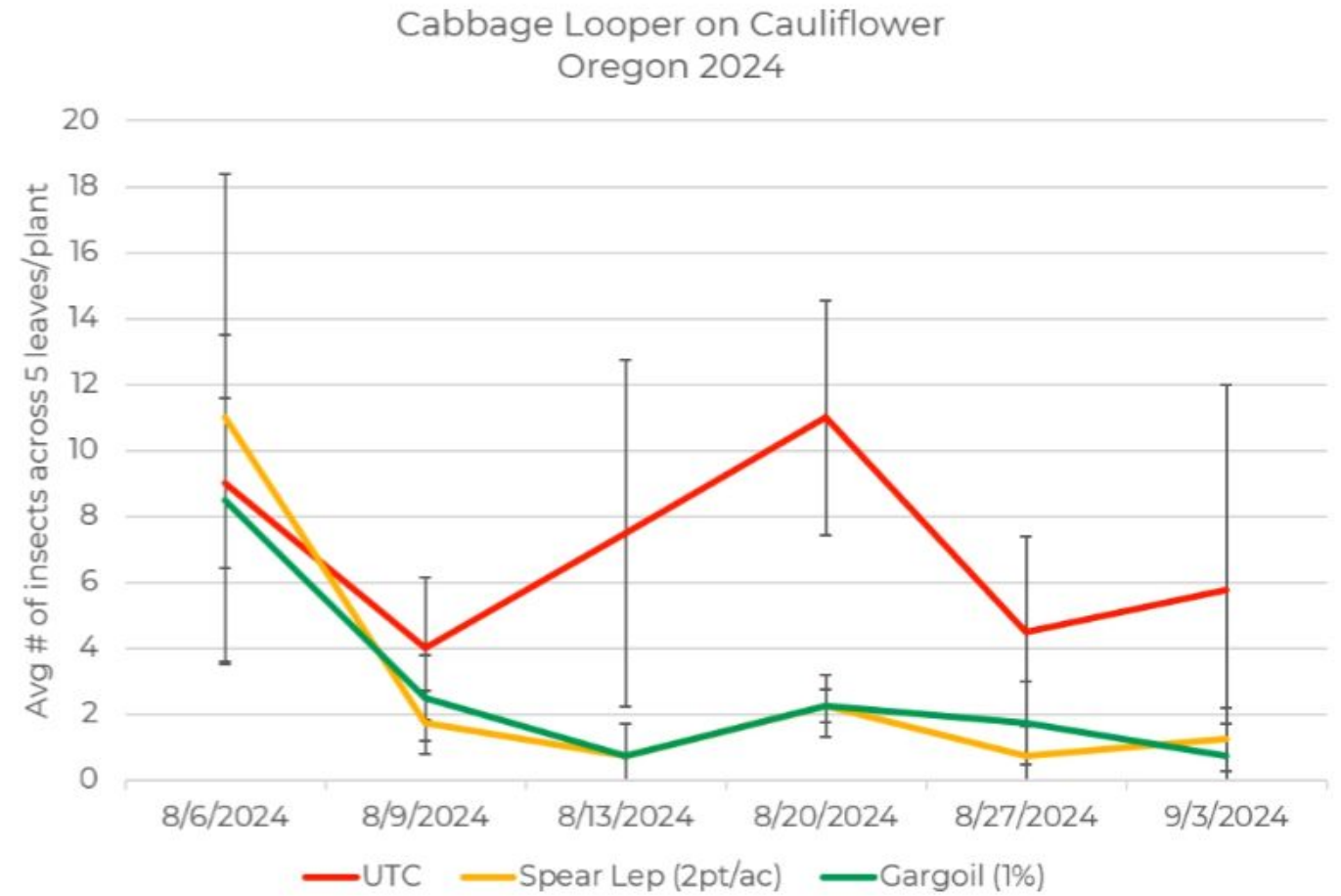


Cabbage Looper on Cauliflower

Clackamas County, Oregon 2024



- 500 4th instar larvae artificially infested per plot on 8/5
- 2 applications per treatment on 8/7 and 8/14
- Assessments: visually counting the total number of visible larvae across 5 random leaves of a single plant per plot
- **Gargoil significantly reduced the number of Cabbage loopers across all observation dates compared to UTC**
- **Gargoil provided similar activity to SPEAR Lep bioinsecticide**



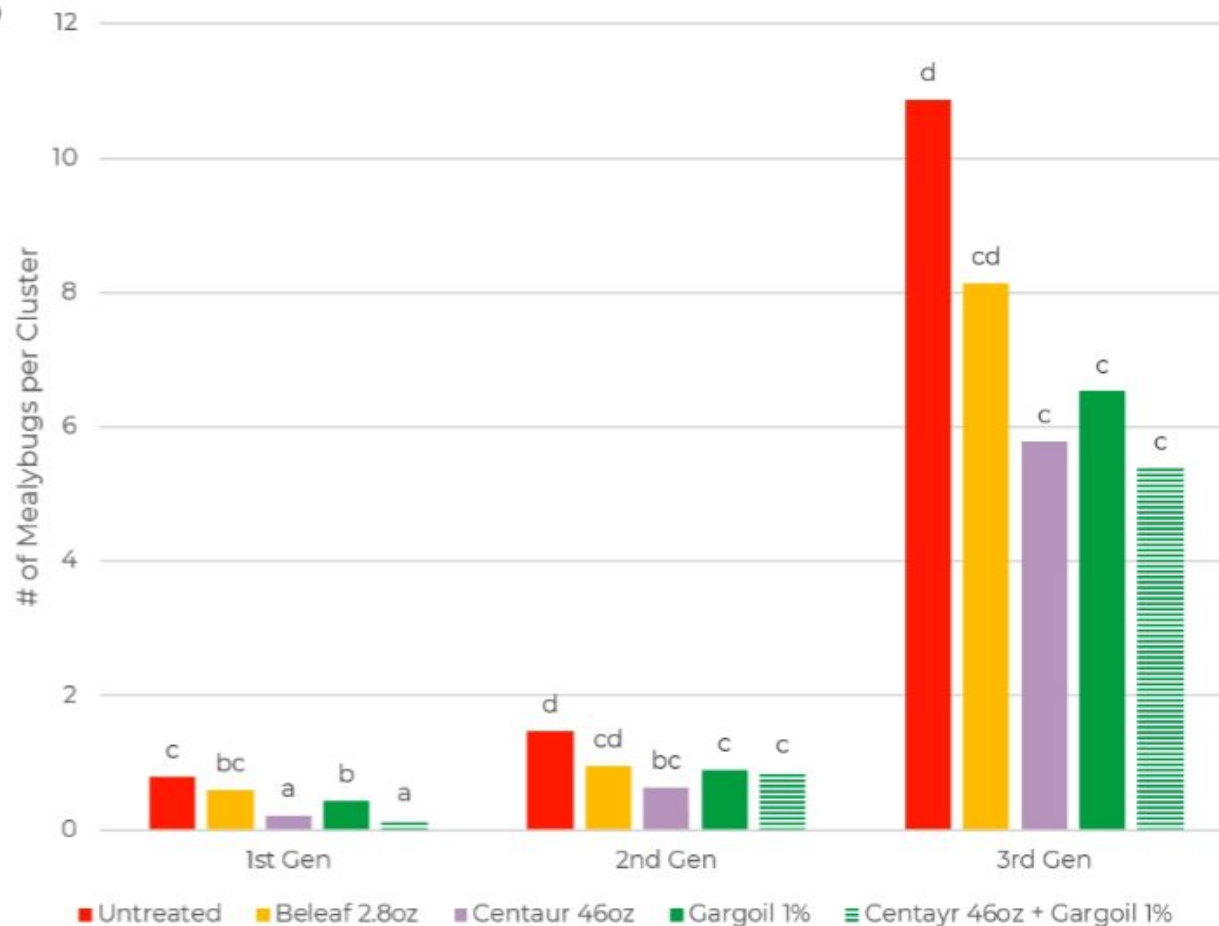
Early-Season Treatments Gill's Mealybug on Pistachio

Kings County, California 2024



- Treatments 4/3 and 5/29, observations April to August (3 generations)
- **GARGOIL® significantly reduced the number of mealybugs observed in each generation compared to the untreated**
- **GARGOIL® was as effective as chemical standards Beleaf and Centaur at reducing mealybug populations**
- **GARGOIL® + Centaur (buprofezin) is an effective combination, allowing for improved activity and resistance management**
- **2 applications provided ~50% control at the end of the season**

Gill's Mealybug on Pistachio
Kings County, CA 2024



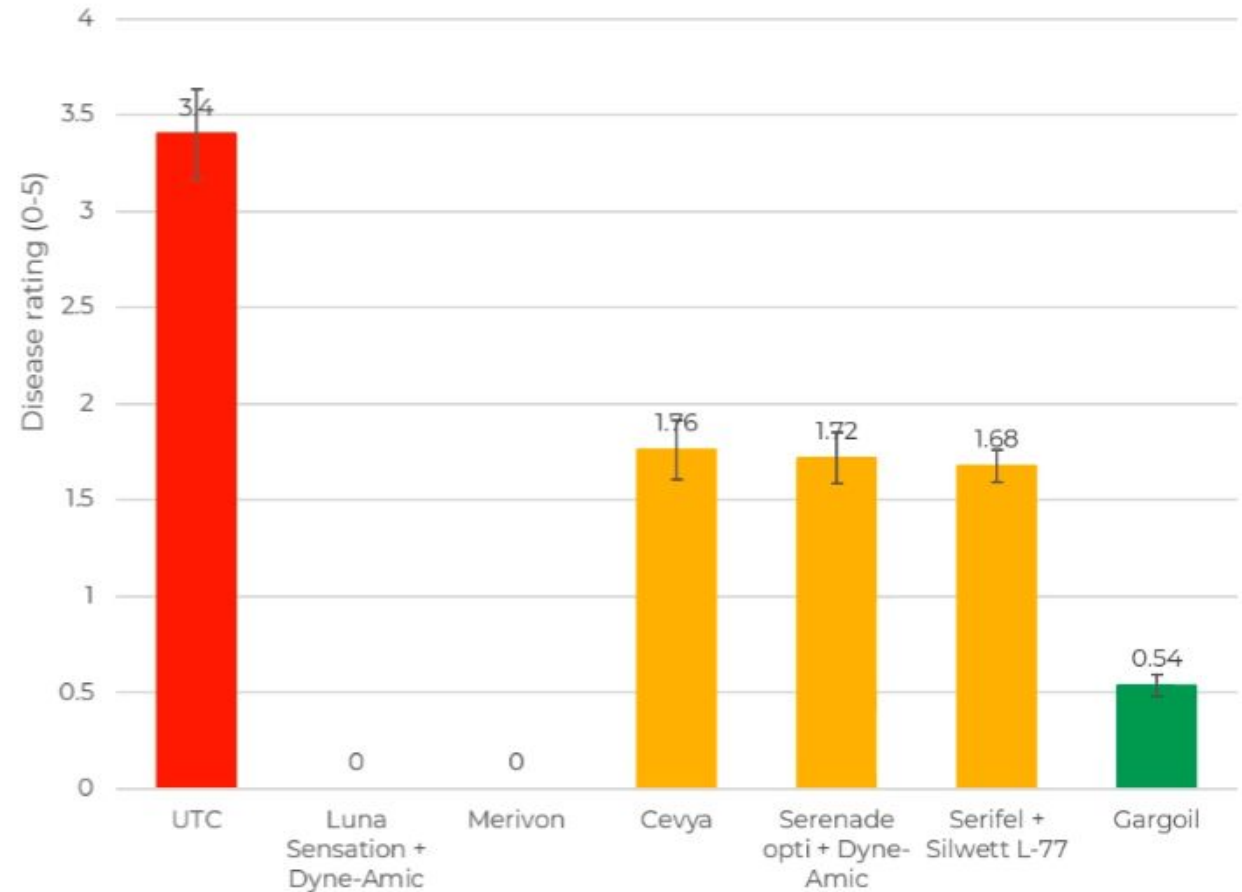
Powdery Mildew on Cantaloupe

Yuma County, Arizona 2024



- 5 replicated plots per treatment, 25ft beds per plot
- Treatments applied 5/21, 5/31, 6/7, 6/17. Powdery mildew was first observed in the field on 6/5
- Disease severity rating (0-5 scale) for 10 plants per plot on 6/17
- **Gargoil® provided significant disease control compared to the UTC**
- **Gargoil® is an effective stand-alone fungicide or may be incorporated into numerous tank mix and rotational programs**

Powderey Mildew on Melon
Yuma, Arizona 2024

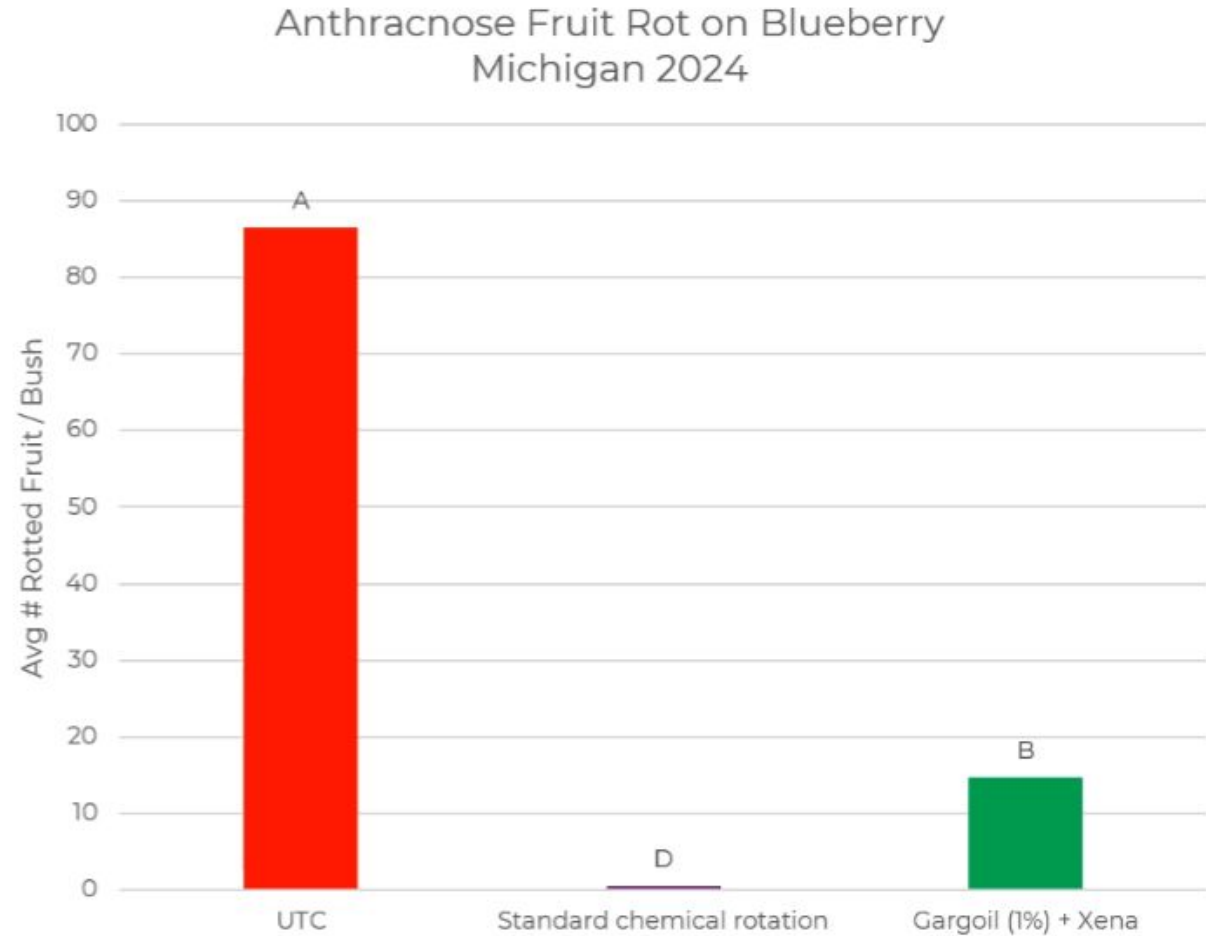


Anthracnose Fruit Rot on Blueberry

Berrien County, Michigan 2024



- 4 replicated plots per treatment, each plot consisted of 3 bushes, bush spacing at 5ft x 10ft
- Bushes inoculated w/ conidia of *Colletotrichum fioriniae* on 5/10, 5/16, 6/10, 6/28, and 7/2 → high disease pressure
- 10 treatment sprays, ~ every 7 days
- Standard chemical rotation provided 99% control compared to UTC.
Indar, Echo, Omega + Elevate, Switch, Pristine
- **Gargoil® significantly reduced the number of rotted fruit compared to the UTC, ~80-89% control**
- **Xena® Spreader-Sticker can help improve coverage and overall activity**



Advantages with Gargoil® Insect, Mite, & Disease Control



- Can be used on all food and non-food crops, including fruits, vegetables, vines, trees, ornamentals, flowers, and turf grasses
- Combined insecticide & fungicide activity reduces need for multiple products
- Excellent IPM and resistance management partner for both organic and conventional programs
- Tank mix compatible with multiple organic and conventional products
- No toxicity to bees (some repelling effects)
- Can apply every 7-14 days
- MRL exempt
- 4-hour REI, after dry
- 0-Day PHI
- OMRI listed

Reach Out to Learn More



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AGROW



Solutions for sustainable crop protection