



Nature driven,
designed for performance



Preventive contact biofungicide
to control botrytis and powdery
mildew for fruits and vegetables



EVOCA™, a new and unique mode of action

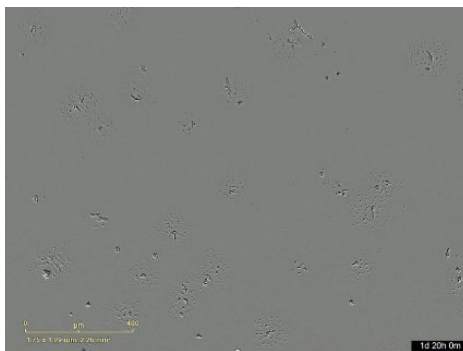
EVOCA™'s mode of action is preventative by contact **to control efficiently botrytis and powdery mildew diseases**. EVOCA™ **interacts with multiple lipids in the cell membrane, disrupting the integrity of cell membrane structures of plant pathogens**, interfering with spore germination and

hyphae growth, and resulting in cell death. The active substance is a polypeptide, produced by bio-fermentation. The Fungicide Resistance Action Committee (FRAC) has assigned **a new class F10 for the active substance of EVOCA™**.

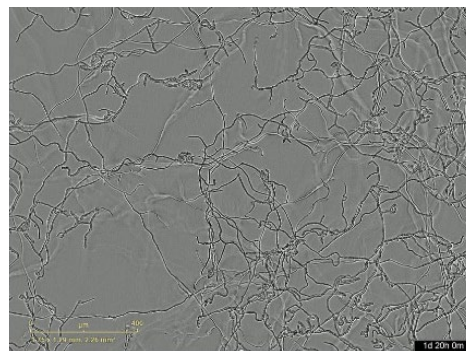
Treatment with EVOCA™ leads to cell rupture

The effect of EVOCA™ on *Botrytis cinerea* spores is seen at the very early stages in spore germination, **leading to lysis of the spores** as witnessed by a sudden loss of structural integrity during microscopic time-lapse imaging on the IncuCyte Zoom live cell imaging system.

Botrytis cinerea spores - EVOCA™-treated



Botrytis cinerea spores - non-treated



EVOCA™'s advantages



* IPM = integrated pest management
 ** Biotals data



(UC Davis Cooperative Extension - Dr. Akif Eskalen)

FFRUSV
FFRUSV

2021
8 trials

2022
18 trials

Harvest assessments
of botrytis bunch rot 2021-22

19 of 26 trials show numerical improvement

H

*

% control of bunch severity

Synthetic fungicide rotation Evoca 3 lbs/A + adjuvant (flowering substitution)

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Meta-analysis *p*-value : 0.0019

Percent control of harvest bunch severity, relative to untreated controls. Asterisk (*) indicates a statistically significant difference between treatment programs. Trials conducted in California, New York and Oregon across diverse climates. Vineyards represent a range of value, premium, and ultra premium grapes. All trials were randomized complete block design small plot trials, with 6 replicates each.

Synthetic fungicide rotation Evoca 3 lbs/A + adjuvant (flowering substitution)

Treatment

Protocol and FRAC Codes

	A	B	C
Synthetic fungicide rotation	9+12	7+11	17
Evoca™ 3 lbs/A + adjuvant (flowering substitution)	F10	7+11	17

Timing	Active Ingredient(s)	FRAC
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Botrytis application timings in grapevine : (A) flowering, (B) bunch closure, (C) veraison. A few trials included an optional (D) pre-harvest spray with cyprodinil + difenoconazole (3+9). Boxes show FRAC codes of the reference synthetic fungicides used in all trials. FRAC codes were rotated per best practices for resistance management. The synthetic references used are all rated 5/5 (excellent and consistent) by UC Davis for control of botrytis in grapevine.



Efficacy on Strawberries

Ranked #1 as a fungicidal partner in both early and peak season strawberry Botrytis Fruit Rot evaluations. *











Consistent efficacy as a fungicidal partner 3 years in a row (2020-2022) against Botrytis Fruit Rot in strawberries. *

TOP 6 : EVOCA™ ranked in the top 6 out of 19 Botrytis Fruit Rot treatments in strawberries 3 years in a row (2020-2022) in both field evaluations one day after application as well as in post-harvest evaluations six days after harvest. *

* (Blauer KA. Complete Field Day Handout Booklet. Strawberry Fungicide Efficacy Against Botrytis Fruit Rot) *Note: EVOCA™ is entered as EXP14 in studies.



EVOCA™ brings a higher return of investment for growers

	 Full Chemical IPM	 Evoca™ IPM	 Organic*
Efficacy and yield increase	●		
Quality and food safety	●		
Resistance management			●
Tox and ecotox profile	●		●
		*Evoca™ is not yet registered for organic uses.	
Yield (Trays/ha)	17,000	17,000	10,500
Wholesale reward/Tray	10 \$	11 \$	15 \$
Growers sales	170,000 \$	187,000 \$	157,500 \$

EVOCA™'s features and uses (US label pending EPA approval)

- ☛ Active substance : ASFBIOF01-02: 15% (Polypeptide)
- ☛ Formulation : WSG
- ☛ Packaging size : 15 pound container

Crops	Diseases*	Application Rate pounds per acre (lbs/A)
STRAWBERRIES	Botrytis Fruit Rot - Powdery Mildew	3.00-4.45
GRAPES	Botrytis Bunch Rot - Powdery Mildew	3.00-4.45
HEMP	Botrytis- Powdery Mildew	3.00-4.45
BERRIES	Botrytis - Powdery Mildew	3.00-4.45
BRASSICA LEAFY VEGETABLES	Gray Mold - Powdery Mildew	3.00-4.45
CUCURBIT VEGETABLES	Gray Mold - Powdery Mildew	3.00-4.45
FRUITING VEGETABLES	Gray Mold - Powdery Mildew	3.00-4.45
LEAFY VEGETABLES	Botrytis - Powdery Mildew	3.00-4.45
TOBACCO	Gray Mold - Powdery Mildew	3.00-4.45
ORNAMENTALS	Powdery Mildew -Gray Mold and Blight	3.00-4.45
HERBS AND SPICES	Botrytis - Powdery Mildew	3.00-4.45

Crops in green shaded boxes will not be registered for immediate use in California.

* Diseases listed cultivate from the following organism genus: Botrytis, Gray Mold, Blight (*Botrytis cinerea*); Powdery mildew: *Microsphaera alni*, *Sphaerotheca macularis*, *Uncinula necator*, *Erysiphe spp.*, *Erysiphe cichoracearum*, *Erysiphe polygoni*, *Erysiphe necator*, *Podosphaera aphanis*, *Sphaerotheca fuliginea*, *Leveillula taurica*, *Oidopsis taurica*, *Erysiphe cruciferarum* *Podosphaera macularis* *Sphaerotheca humuli*, *Sphaerotheca spp.*, *Uncinula spp.*, *Microsphaera spp.*, *Oidium spp.*, *Phyllactinia spp.*, *Podosphaera spp.*, *Sphaerotheca spp.*

Product positioning

- ☛ Preventative contact biofungicide.
- ☛ Apply only a **maximum of 2 consecutive** Evoca™ applications followed by at least **two consecutive applications** with specific labelled fungicides with different mode of actions in the spray schedule.
- ☛ On grapes, apply up to 2 (labeled for 5) times a season at 3.0 lbs/A at flowering as the foundation of an IPM program for botrytis control to lend comparable to or better than conventional standards results.
- ☛ On strawberries, Evoca™ controls botrytis and powdery mildew at low to moderate disease pressure, comparable to or better than biological standards. Apply preventatively when conditions are suitable for infection, well before mycelia are visible to the naked eye, for powdery mildew control. **Applied up to 5 times a season at 3.0-4.45 lbs/A on strawberries** and position EVOCA™ in an IPM program.
- ☛ Use anytime field worker **REI is an issue and/or to increase grower flexibility.**
- ☛ Suitable for certification programs or “agrotourism”.

Evoca™ is pending registration. This product is not currently registered for sale or use in the United States, the EU or elsewhere, and is not being offered for sale.



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