

# AVIV<sup>®</sup>

ADVANCED MICROBIAL FUNGICIDE



## A potent strain of beneficial bacteria in an award-winning formulation

AVIV is a microbial fungicide based on a patented strain of *Bacillus subtilis* delivering broad spectrum disease control both in soil and on plant surfaces.

### Overview

AVIV is offered as a suspension concentrate (SC) produced using a patented process that creates a very efficient formulation, using about 40% less product than leading competitors. AVIV's biological nature makes it the ideal complement to both organic and conventional production programs. With no MRL and short Pre-Harvest and Restricted Entry Intervals, AVIV can easily be integrated into production programs to improve yields and disease control results.

### Powerful Strain

The active ingredient in AVIV is a powerful strain of *Bacillus subtilis*, IAB/BS03. The strain in AVIV is especially prolific, meaning far smaller amounts of AVIV's active ingredient are needed per acre than similar microbial fungicides. The unique manufacturing process of AVIV results in an endospore that is resistant to unfavorable environmental conditions such as drought, salinity, extreme pH, radiation, and solvents. AVIV can be tank-mixed with a wide variety of other crop protection products, including bactericides like copper.

### Advanced Formulation

AVIV uses a patented manufacturing process to optimize the bioavailability of the product's active ingredient. This advanced process means AVIV solubilizes completely in the spray tank, minimizing the risk of clogged application equipment and eliminating deposit on treated crops. AVIV is colorless and odorless. Most importantly, increased bioavailability of the active ingredient means AVIV use rates are much lower than those of other *Bacillus*-based fungicides.

### Diseases Controlled

- Rot diseases like *Botrytis*, *Sclerotinia* and *Monilinia*
- Powdery Mildews
- Downy Mildews
- Apple scab (*Venturia inaequalis*)
- Bacterial diseases like *Xanthomonas*, *Pseudomonas*, *Clavibacter* and *Erwinia*
- Late blight (*Phytophthora infestans*)
- Anthracnose
- Alternaria
- Soil diseases like *Rhizoctonia*, *Pythium*, *Phytophthora* and *Verticillium*

AVIV should be applied preventively, when climatic conditions favor the development of disease. See label for a complete list of registered crops and diseases controlled.

### Benefits of AVIV

- Effective against a broad spectrum of both fungal and bacterial diseases
- Controls both soil-borne and foliar diseases
- No MRL, exempt from residue tolerance
- Very low use rate
- Approved for greenhouse and aerial use
- Restricted-entry interval (REI) of 4 hours
- Pre-harvest interval (PHI) of 0 days
- For use in conventional, sustainable and organic production models

GROUP BM02 FUNGICIDE



# Three-Way Control

## BIO-ACTIVE MOLECULES

1

### Direct Effect

Multiple classes of natural chemistry are produced by AVIV both during the manufacturing process and on the treated crop. These molecules work synergistically to degrade pathogen membranes.

## PLANT DEFENSE

2

### Induced Effect

Crops treated with AVIV are primed to defend themselves against pathogens. Molecules in AVIV trigger plant metabolic processes which result in reduced infection

## BIO-ARMOR

3

### Direct Effect

AVIV is based on a beneficial bacterium that quickly colonizes treated plant parts and builds a defensive film, preventing pathogens from gaining access to the crop.

## Uses

>> Applied in preventative programs by foliar application, soil drench, soil injection or in-furrow spray, AVIV protects against fungal, bacterial and soilborne diseases and improves crop health.

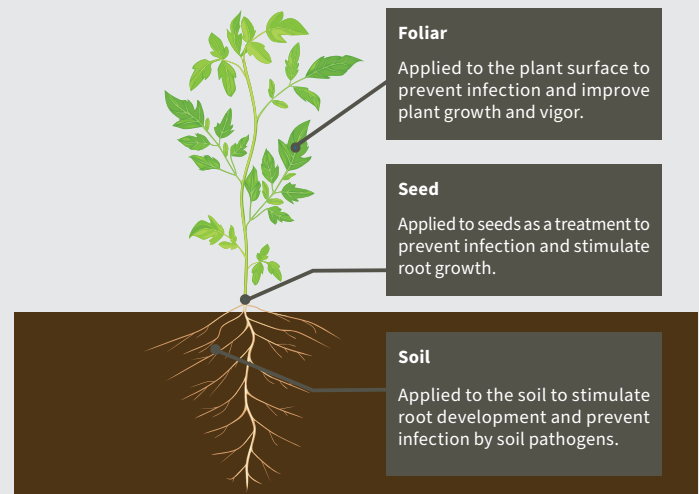
>> Within integrated pest management programs, AVIV can be used to replace other fungicides, reducing overall chemical load and residue.

>> AVIV is part of FRAC Group BM02 (membrane disruption) and can help prevent the development of resistance to chemical fungicides.

>> Applications of AVIV 1-2 weeks prior to harvest reduce the pathogen load on harvested fruit, extending shelf life and suppressing storage diseases.

## Growth Promotion

The active ingredient in AVIV is a Plant Growth Promoting Rhizobacterium (PGPR). PGPRs live in soil and along the surfaces of roots and promote plant growth directly by increasing levels of important nutrients like nitrogen, phosphorus, potassium and essential minerals. PGPRs also modulate levels of plant hormones like auxins, cytokinins, gibberellins and others. These hormones directly influence plant growth processes.



## Safety Profile

AVIV offers a high degree of safety to growers, treated crops, the environment, pollinators and neighbors. The active ingredient in AVIV, *Bacillus subtilis*, is rated generally regarded as safe (GRAS) by US-FDA and is presumed safe by the European Commission. *Bacillus subtilis* strains are used as probiotics in human and animal health.



AVIV can be used for organic production.

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