

***Metarhizium anisopliae* strain F52 (029056)**

Biopesticide Fact Sheet

Summary

Metarhizium anisopliae strain F52 is a fungus that infects insects, primarily beetle larvae. It has been approved as a microbial pesticide active ingredient for non-food use in greenhouses and nurseries, and at limited outdoor sites not near bodies of water. Many strains of *Metarhizium anisopliae* have been isolated worldwide from insects, nematodes, soil, river sediments, and decomposing organic material. No harm is expected to humans or the environment when pesticide products containing *Metarhizium anisopliae* strain F52 are used according to label instructions.

I. Description of the Active Ingredient

The fungus *Metarhizium anisopliae* strain F52 infects insects that come in contact with it. Once the fungus spores attach to the outer surface of the insect, they germinate and begin to grow. After penetrating the outside skeleton of the insect, they grow rapidly inside the insect, causing the insect to die. Insects that come in contact with infected insects also become infected. *Metarhizium anisopliae* strain F52 can infect larvae and adults of many insects, but can infect only beetle larvae because the adults have a strong outer skeleton.

II. Use Sites, Target Pests, and Application Methods

- **Use Sites:** Terrestrial non-food sites, including ornamentals in greenhouses; nurseries, residential and institutional lawns; landscape perimeters. Not for use where water might become contaminated.
- **Target Pests:** Various ticks and beetles; root weevils, flies, gnats, thrips.
- **Application Methods:** Spray; incorporate in growth media

III. Assessing Risks to Human Health

No harm is expected to humans from exposure to *Metarhizium anisopliae* strain F52 by ingesting, inhaling, or touching products containing this active ingredient. No toxicity or adverse effects were seen when the active ingredient was tested in laboratory animals.

IV. Assessing Risks to the Environment

The Agency has performed an environmental risk assessment and determined that the proposed uses of *Metarhizium anisopliae* strain F52 as an insecticide will have no adverse effects on birds, mammals, or terrestrial and aquatic plant species. In light of laboratory studies reporting toxicity and pathogenicity to immature aquatic vertebrate and invertebrate species, additional studies would be needed before EPA would approve

aquatic applications. No harm is expected to freshwater and estuarine/marine fish, invertebrates or aquatic insects from the small quantities of *Metarhizium anisopliae* Strain F52 that might enter the aquatic environment from incidental drift and runoff from approved terrestrial uses.

Submitted studies show that *Metarhizium anisopliae* strain F52 is not harmful to earthworms or to such beneficial insects as lady beetles, green lacewings, parasitic wasps, honey bee larvae, and honey bee adults. Because *M. anisopliae* F52 use sites are limited to outdoor residential premises, nurseries, greenhouses, and institutional lawns, no endangered/threatened species listed by the U.S. Fish and Wildlife Service are expected to be affected.

V. Regulatory Information

Earth BioSciences of New Haven, CT (formally Taensa Company) submitted an application on May 28, 1999 for registration of a product containing *Metarhizium anisopliae* strain F52 as the active ingredient. The product was for non-food outdoor and greenhouse use. On June 14, 2002 the registrant submitted an application for a second product for treating additional sites and pests.

On June 6, 2003, the following three end products were registered for a period of two years: Taenure Granular Bioinsecticide; Tick-EX G; Tick-EX EC. The registrant has one year from the registration date to satisfy certain conditions, including providing evidence that the products are effective against specific ticks. After reviewing the required data, EPA will decide whether to change the conditional registration to a full registration.

VI. Products Directed Against Public Health Pests

EPA has created a list of pests of significant public health importance.* The list consists of pest species that can cause or transmit human disease, or can cause human discomfort or injury. Cockroaches, rats, ticks, and various microbes are on the list. To help protect the public's health, EPA requires pesticide products directed against listed pests to meet specific standards for effectiveness as well as for safety. Therefore, products containing *Metarhizium anisopliae* strain F52 must demonstrate effectiveness against ticks before EPA will grant a full registration that includes ticks as a target pest.

[* Microbes in or on living humans or other living animals are specifically excluded from this EPA list. These excluded microbes are regulated by FDA and not by EPA.]

VII. Registrant Information

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VIII. Additional Contact Information

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