

Met52 Bio-insecticide

Metarhizium anisopliae Strain F52

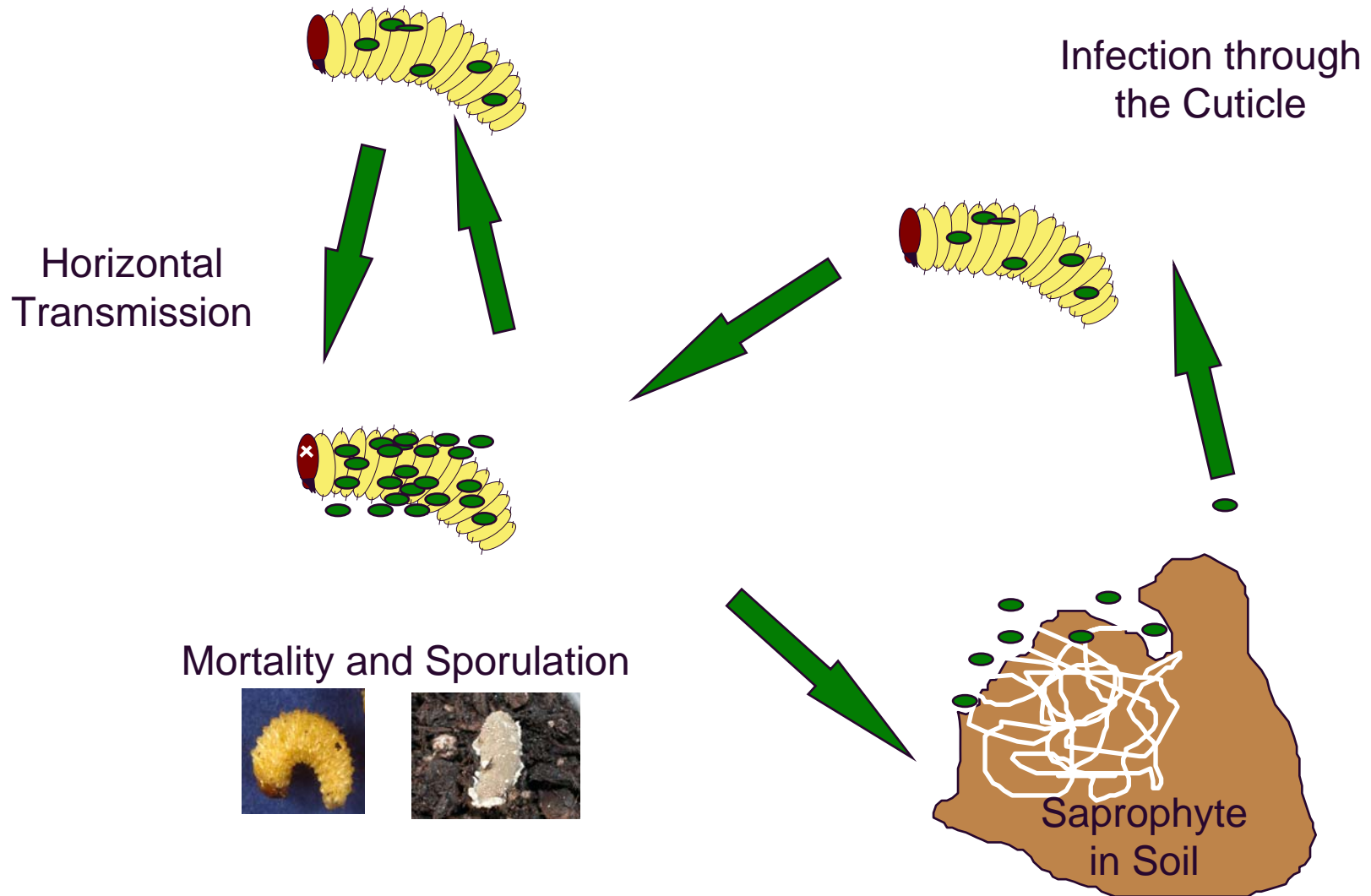
Thierry Pradier
Novozymes Biologicals

22/10/2008

Overview

- Brief *M. anisopliae* Cycle
 - Product Description
 - Efficacy and Related Data
 - Major targets
 - Secondary targets
 - Summary
- 

Simplified Life Cycle of *Metarhizium anisopliae*

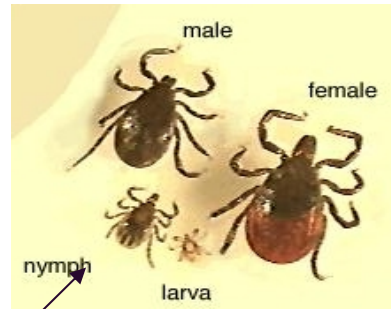


Product Description

- 2 formulations
 - Granular Formulation on rice for soil applications
 - EC Formulation for spray



Met52tm Bioinsecticide : Spectrum of activity



Metarhizium has demonstrated some control on:

- Black Vine Weevil
- Blacklegged Ticks
- Greenhouse Whitefly
- Green Peach Aphid
- Two Spotted Spider Mite
- Western Flower Thrip
- Root Maggots (cabbage, sugarbeet)
- Cotton Aphid
- Japanese Beetle

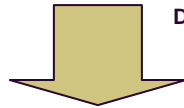


1st Major Targets

Black Vine Weevil

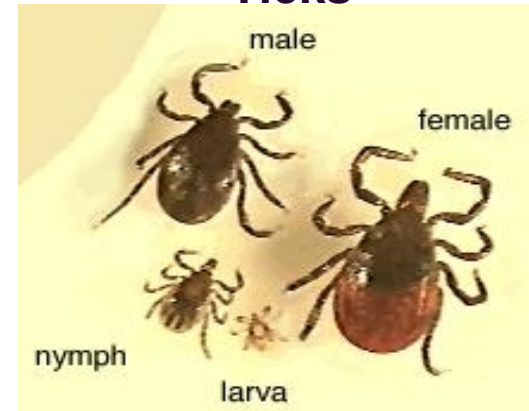


Denny Bruck, USDA-ARS

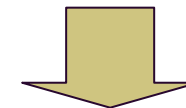


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Ticks



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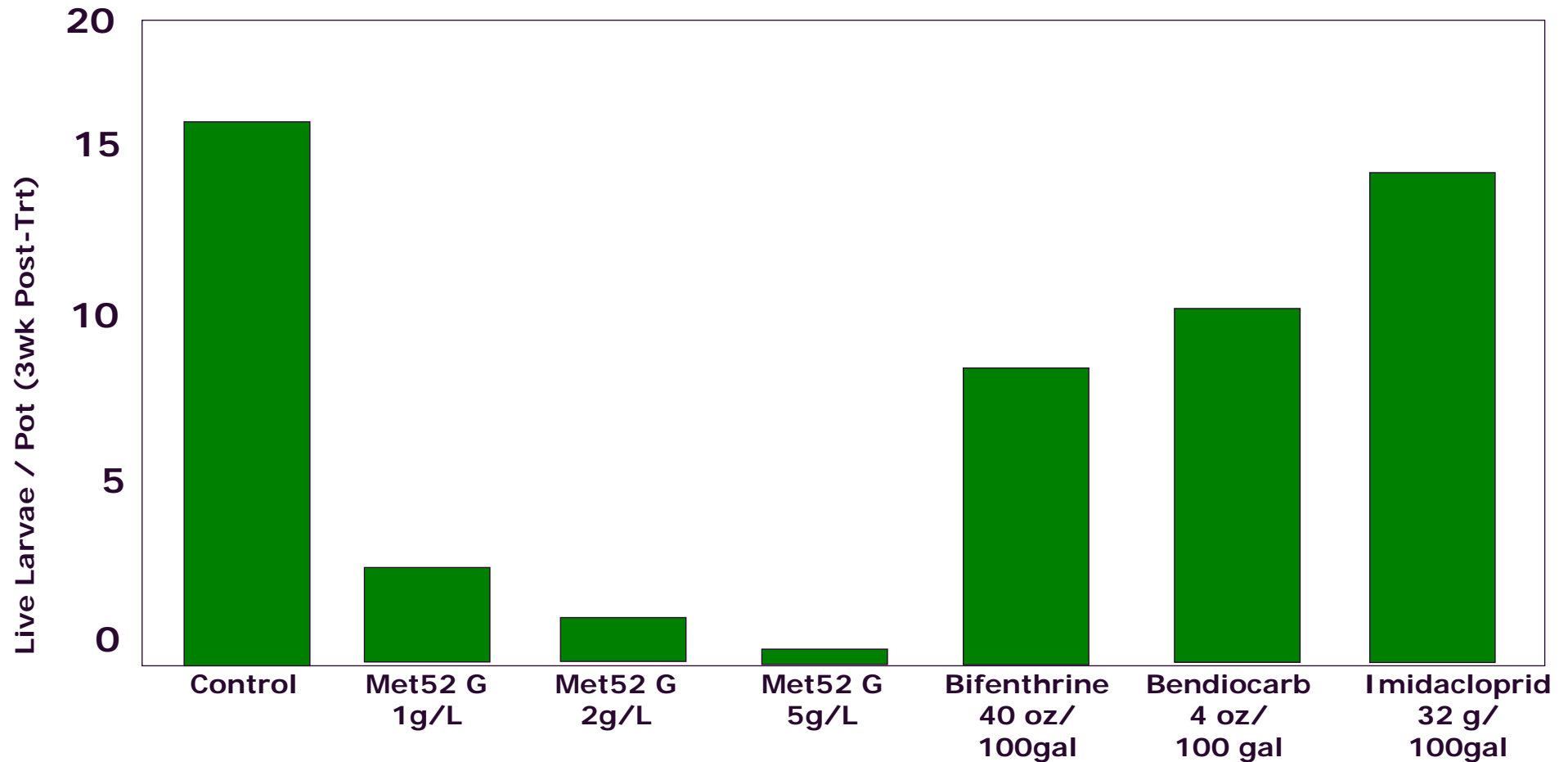
Kirby Stafford, CT Ag. Expt. Station

Worldwide Distribution of Black Vine Weevil

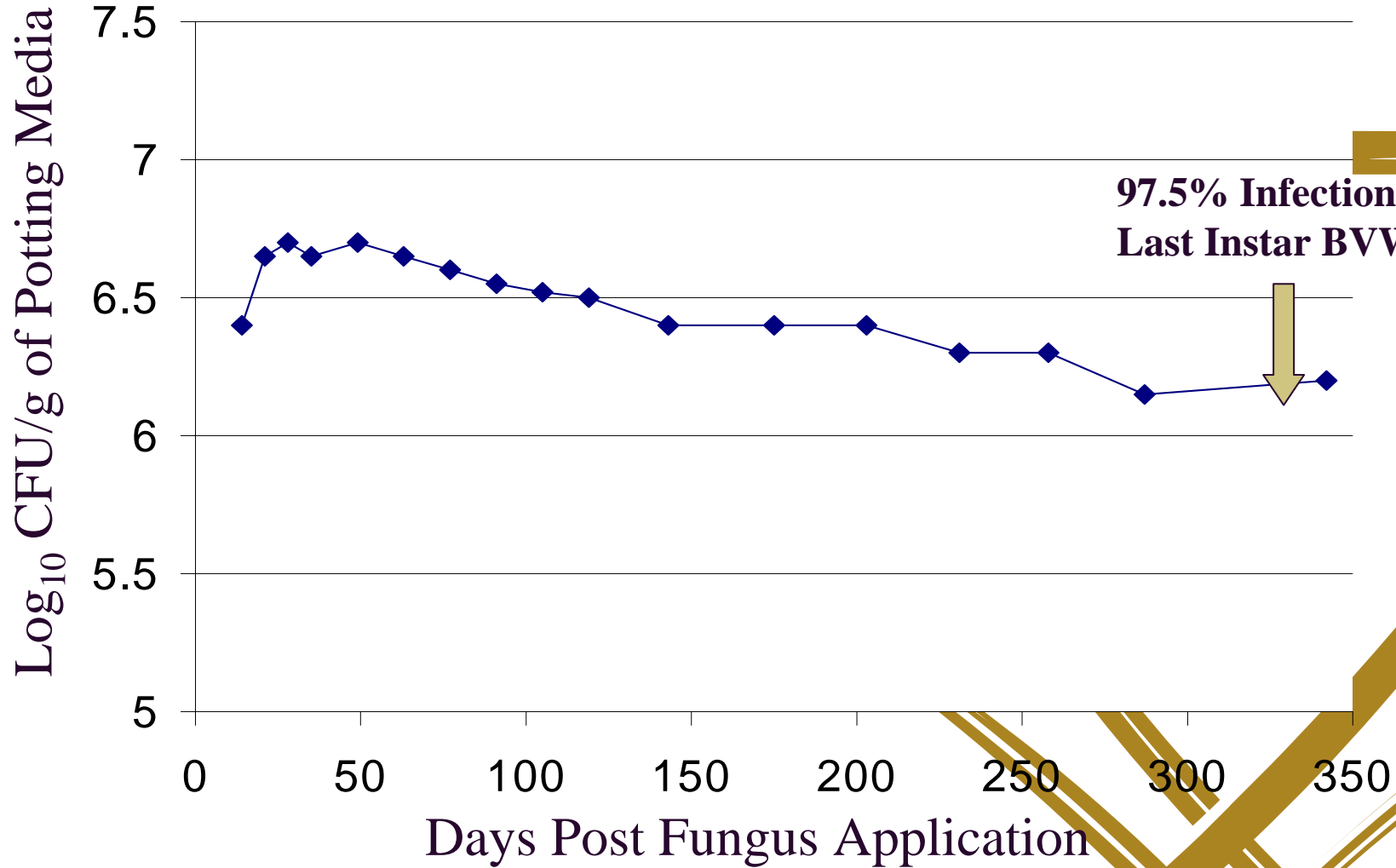


150+ Host Plant Species

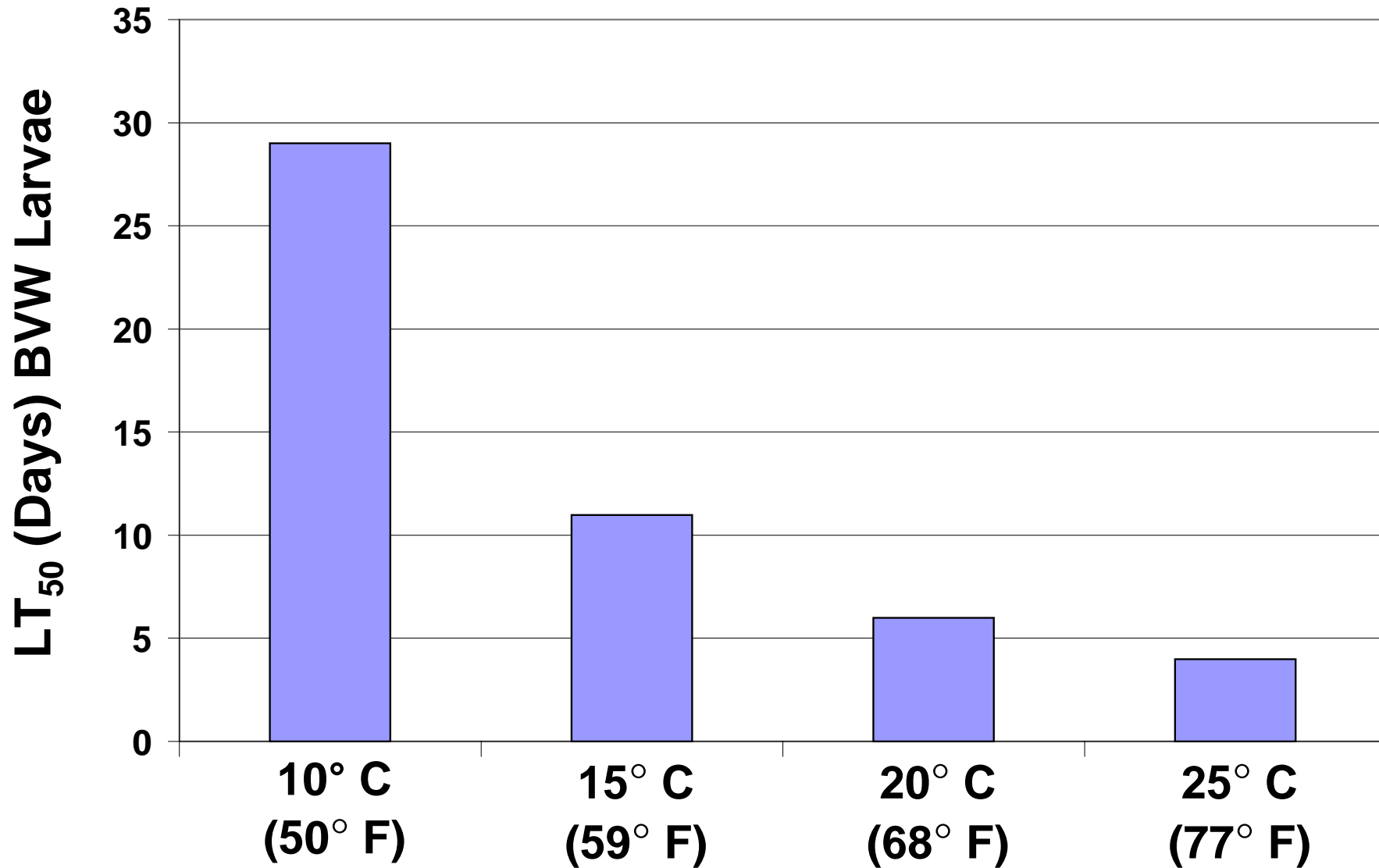
Competitive Efficacy with Chemical Standards (Black Vine Weevil)



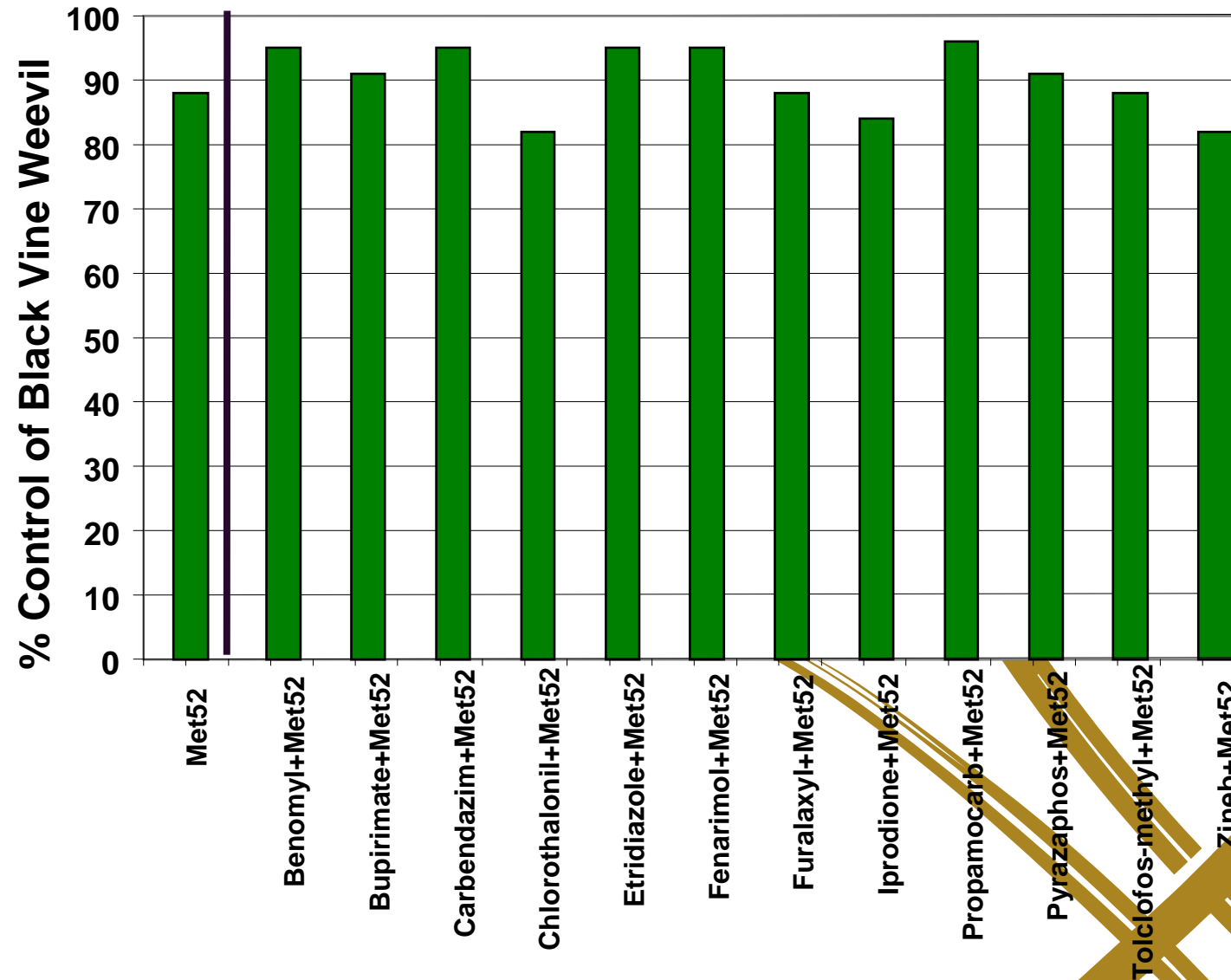
Persistent Control of Black Vine Weevil in Potting Media



Temperature Optima of *M. anisopliae* F52



Fungicide Compatibility of *M. anisopliae* F52

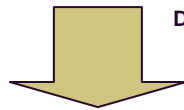


1st Major Targets

Black Vine Weevil



Denny Bruck, USDA-ARS



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Ticks

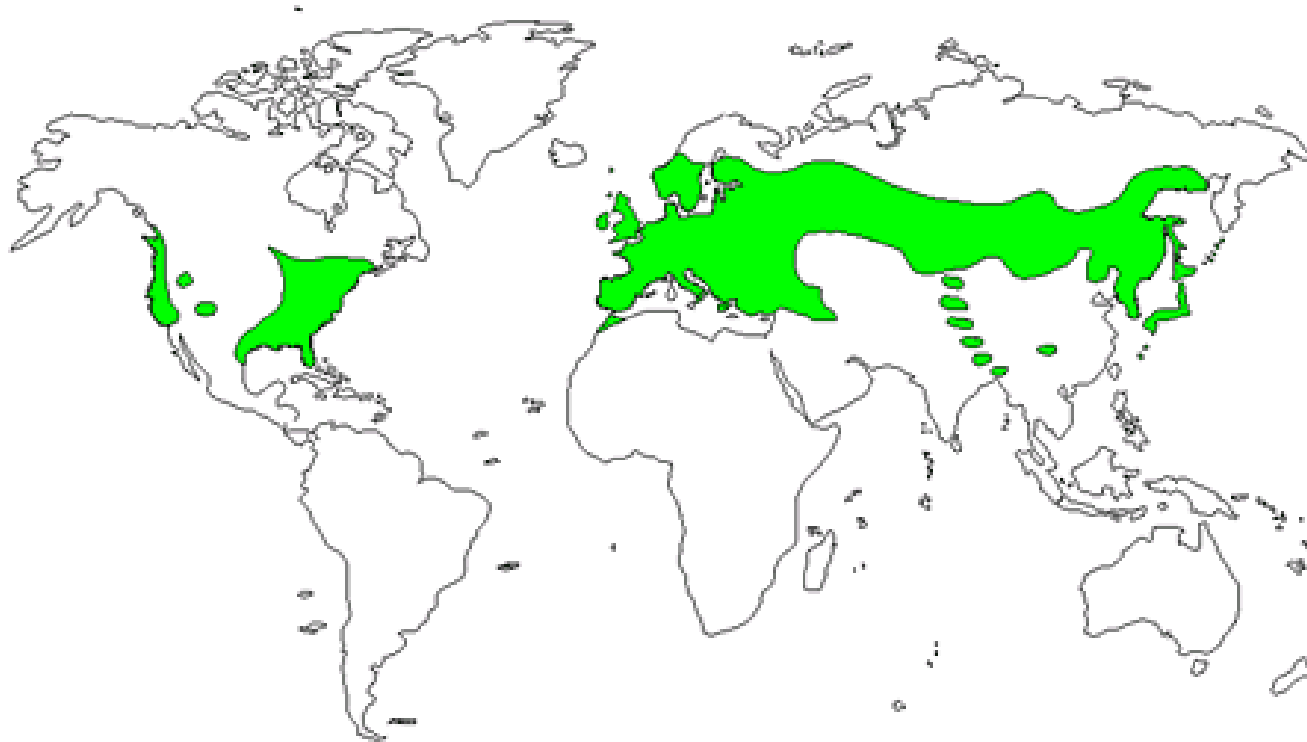


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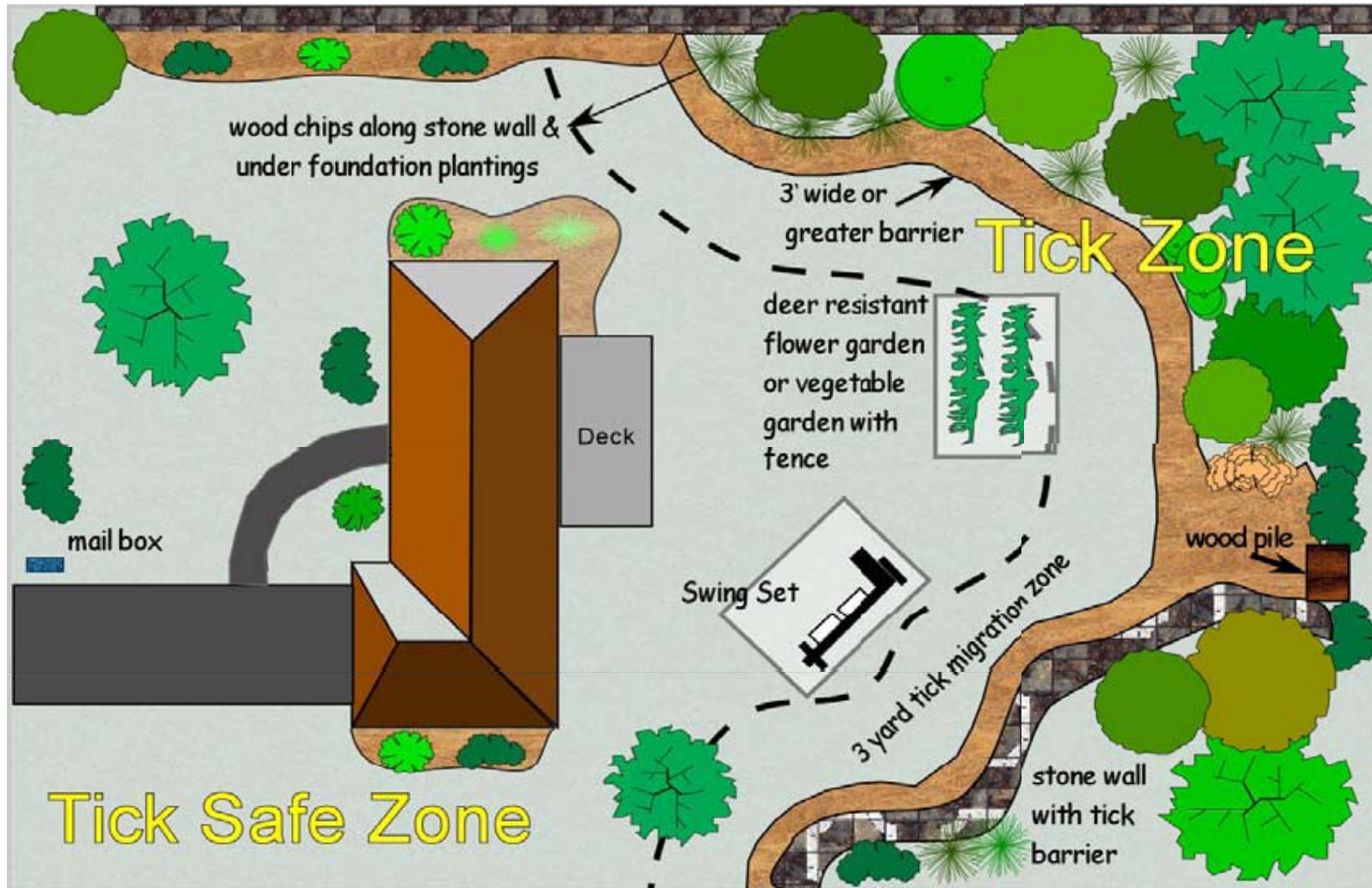


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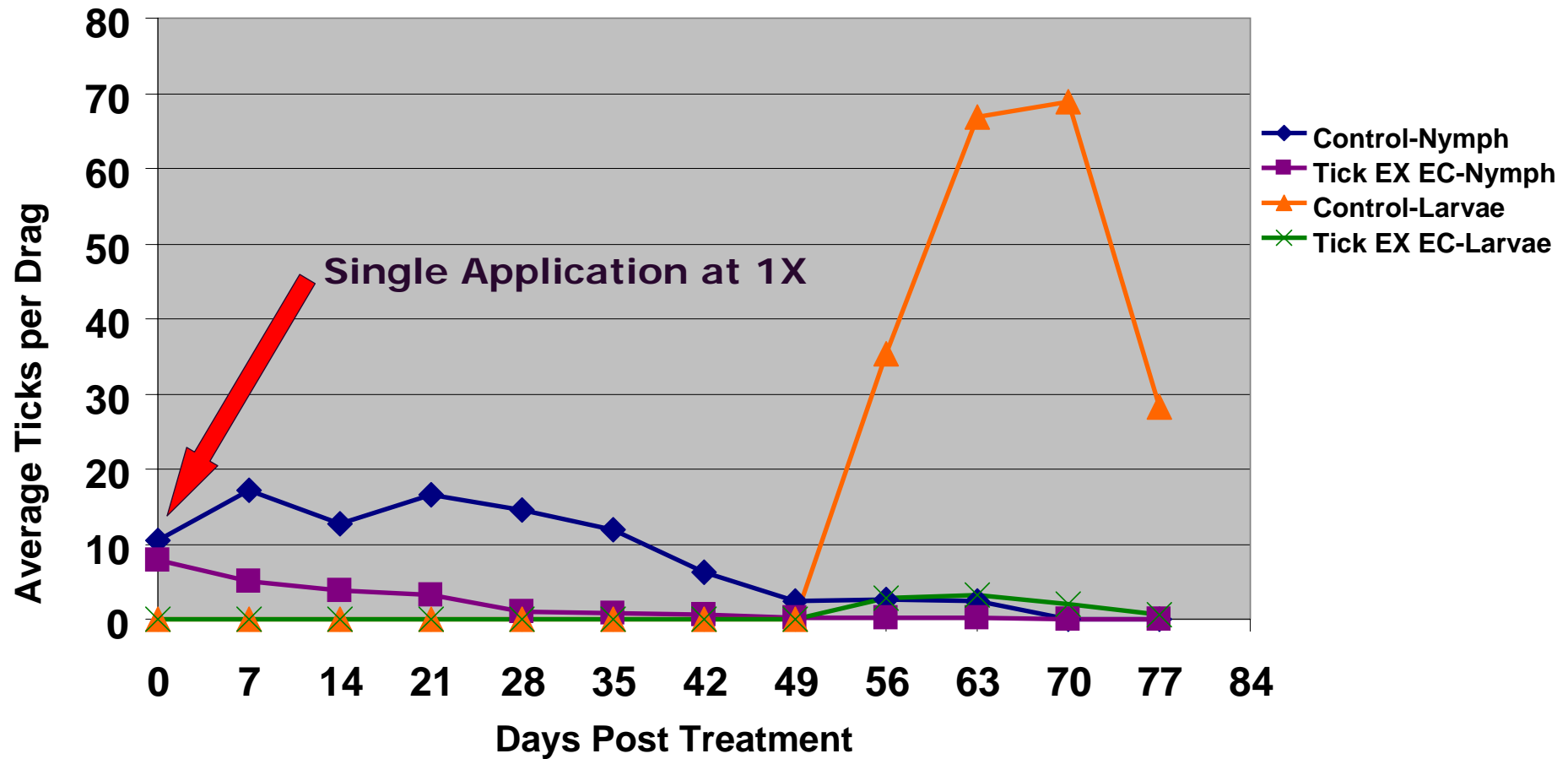
Worldwide Distribution of Lyme Disease



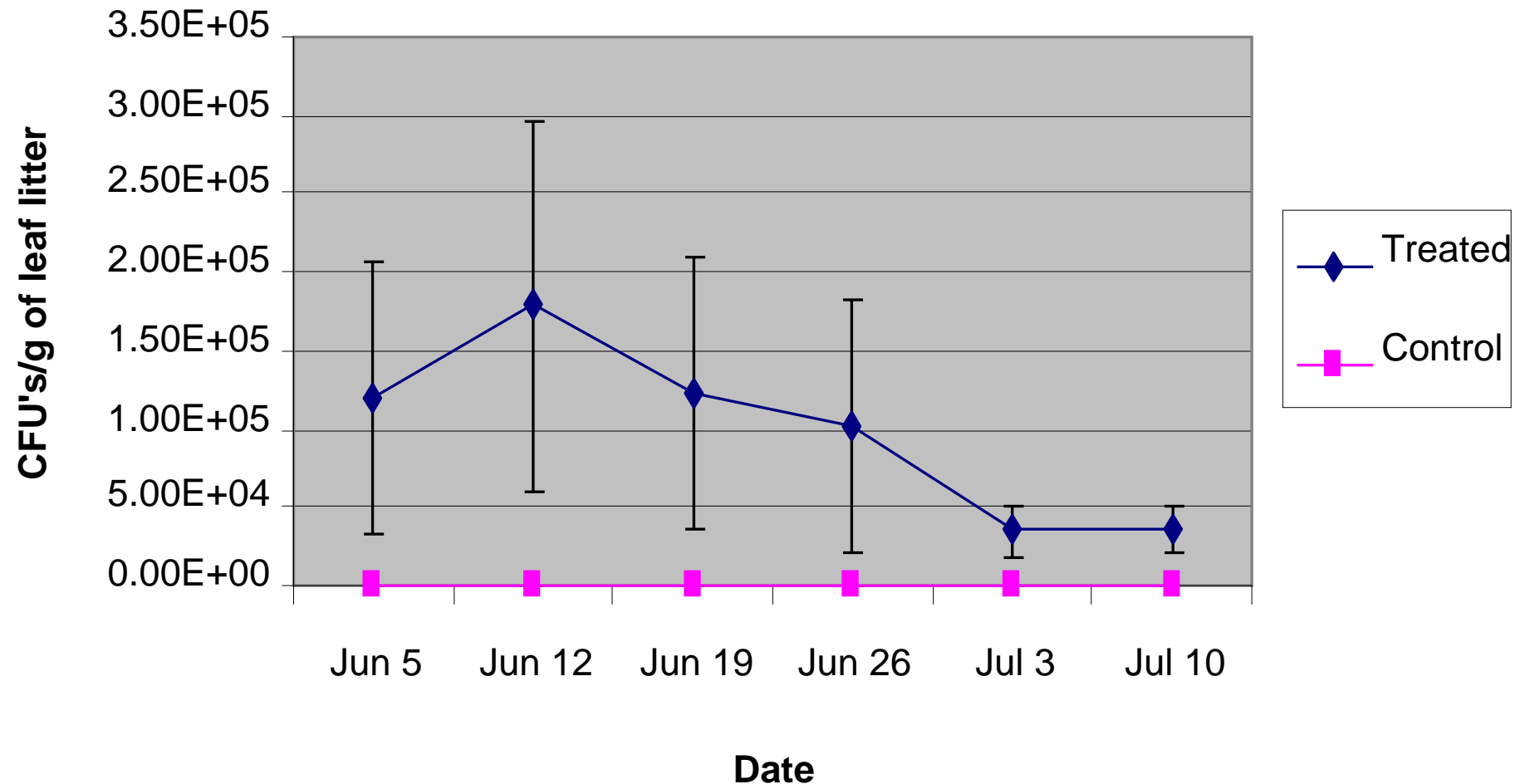
Integration of *M. anisopliae* into Tick IPM



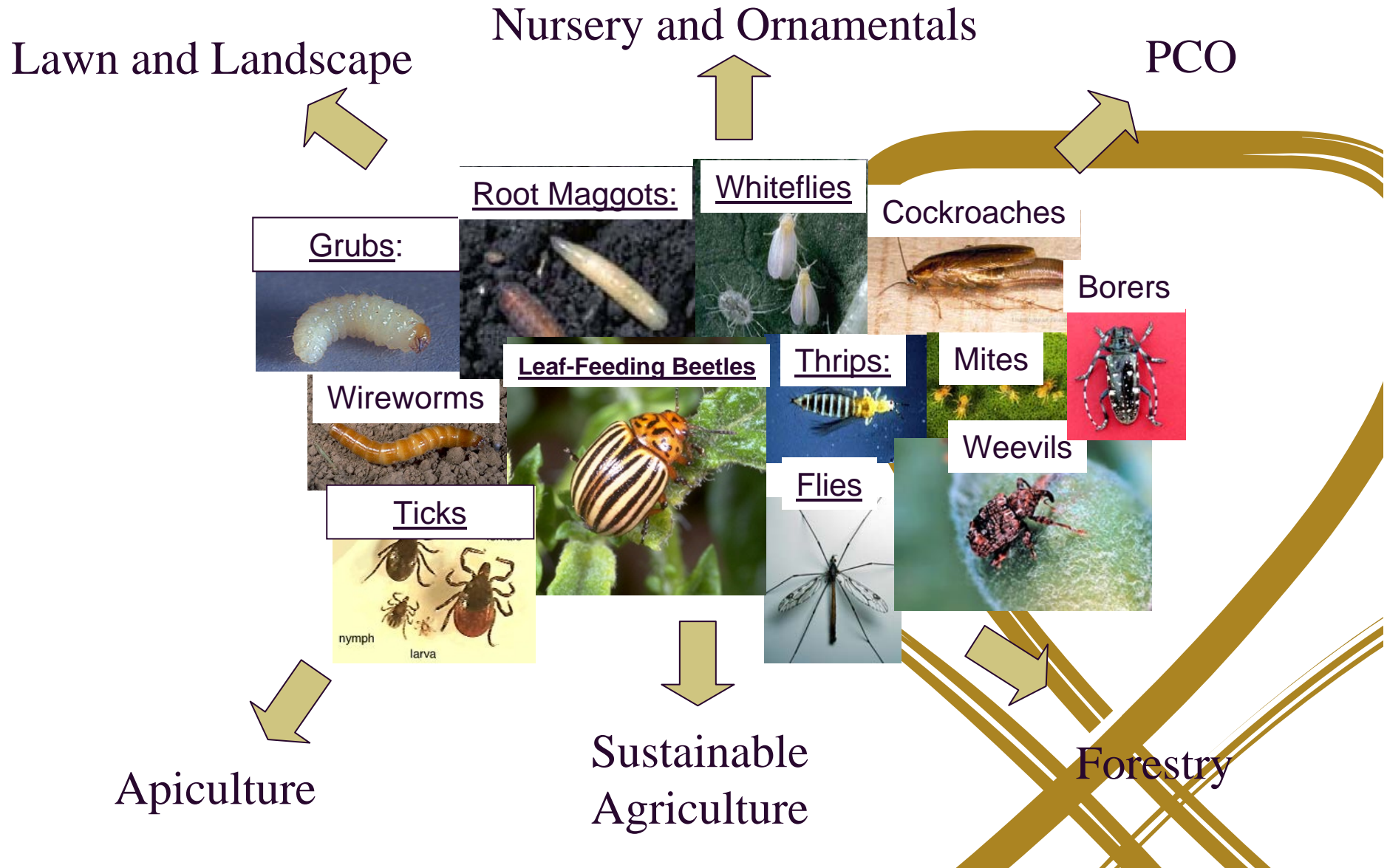
Control of Black Legged Ticks with Tick-EX EC New Jersey Field Trial



M. anisopliae F52 Persistence in Tick Environments New Jersey Field Trial



Greenhouse and Field Trials



Greenhouse and Field Trials

Nursery and Ornamentals

- Black vine weevil, Japanese Beetle, Oriental Beetle
- Whiteflies, thrips, mites, aphids
- Leaf-feeding beetles
- Scale, mealybugs

Lawn and Landscape

- Ticks
- Turf Grubs
- Crane flies
- Chinch bugs
- Billbugs

- 90 Field Trials
- 40 Insect Targets

PCO

- Cockroaches
- Ants

Apiculture

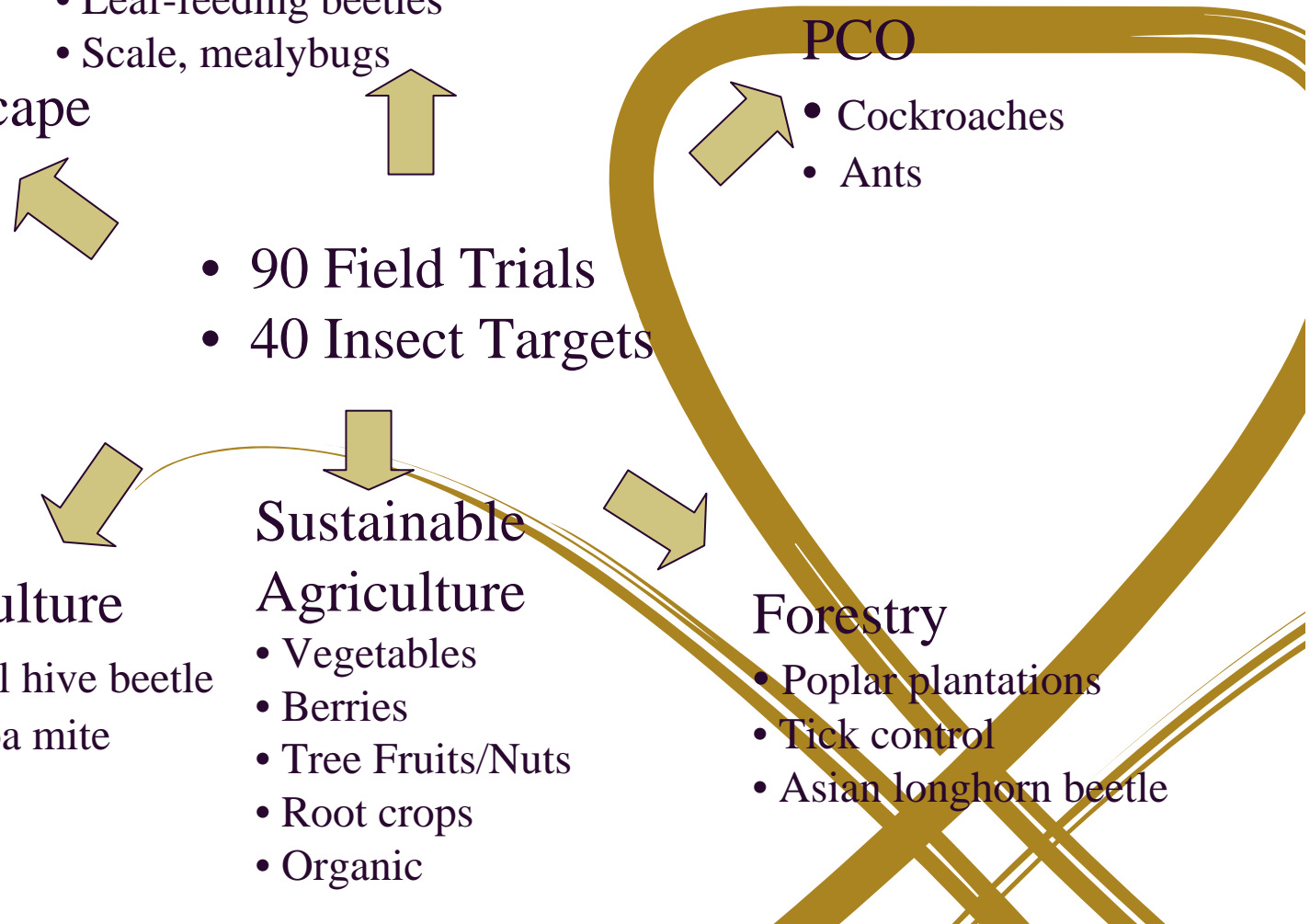
- Small hive beetle
- Varroa mite

Sustainable Agriculture

- Vegetables
- Berries
- Tree Fruits/Nuts
- Root crops
- Organic

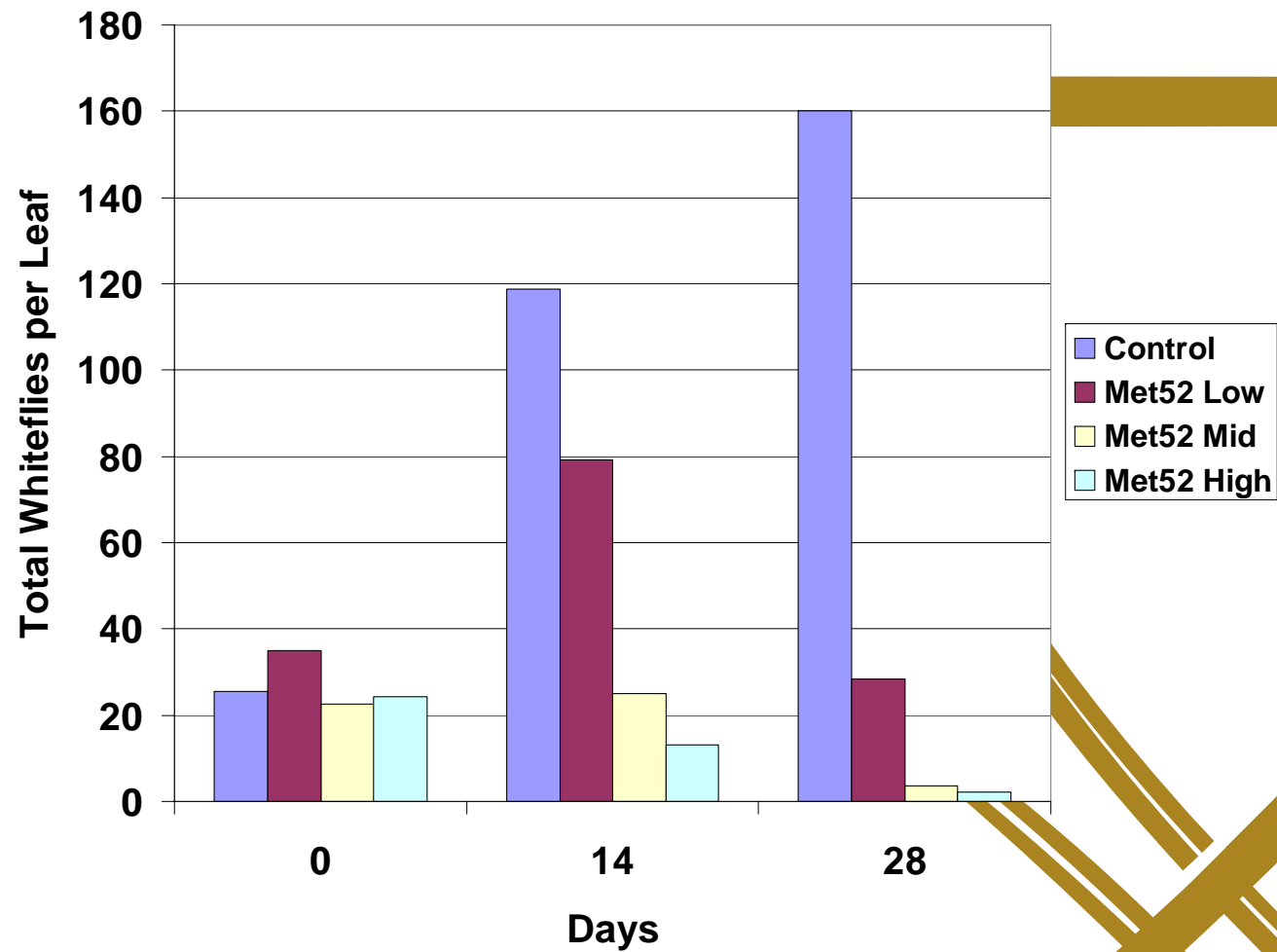
Forestry

- Poplar plantations
- Tick control
- Asian longhorn beetle

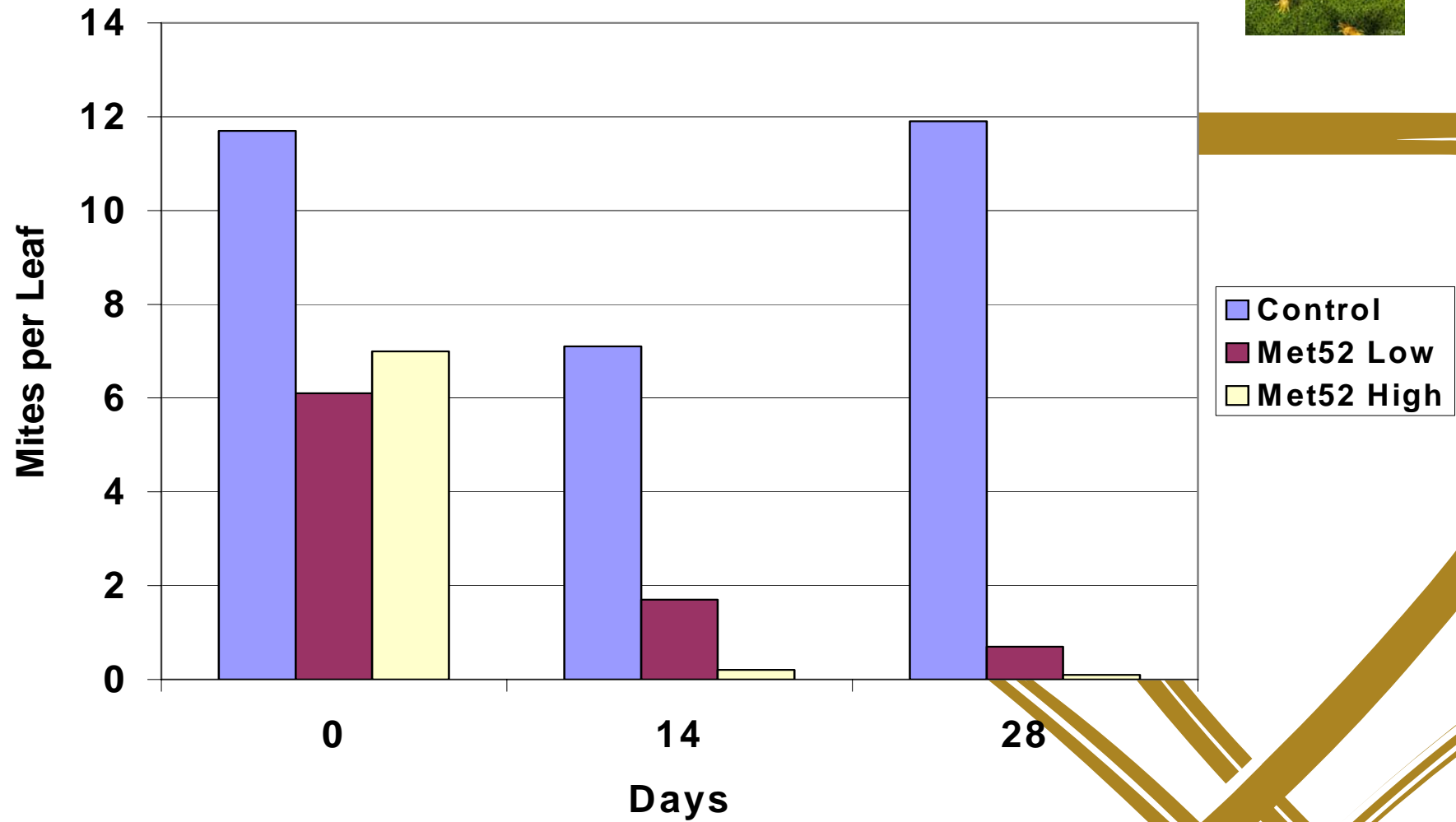




Whitefly Control with Met52 EC

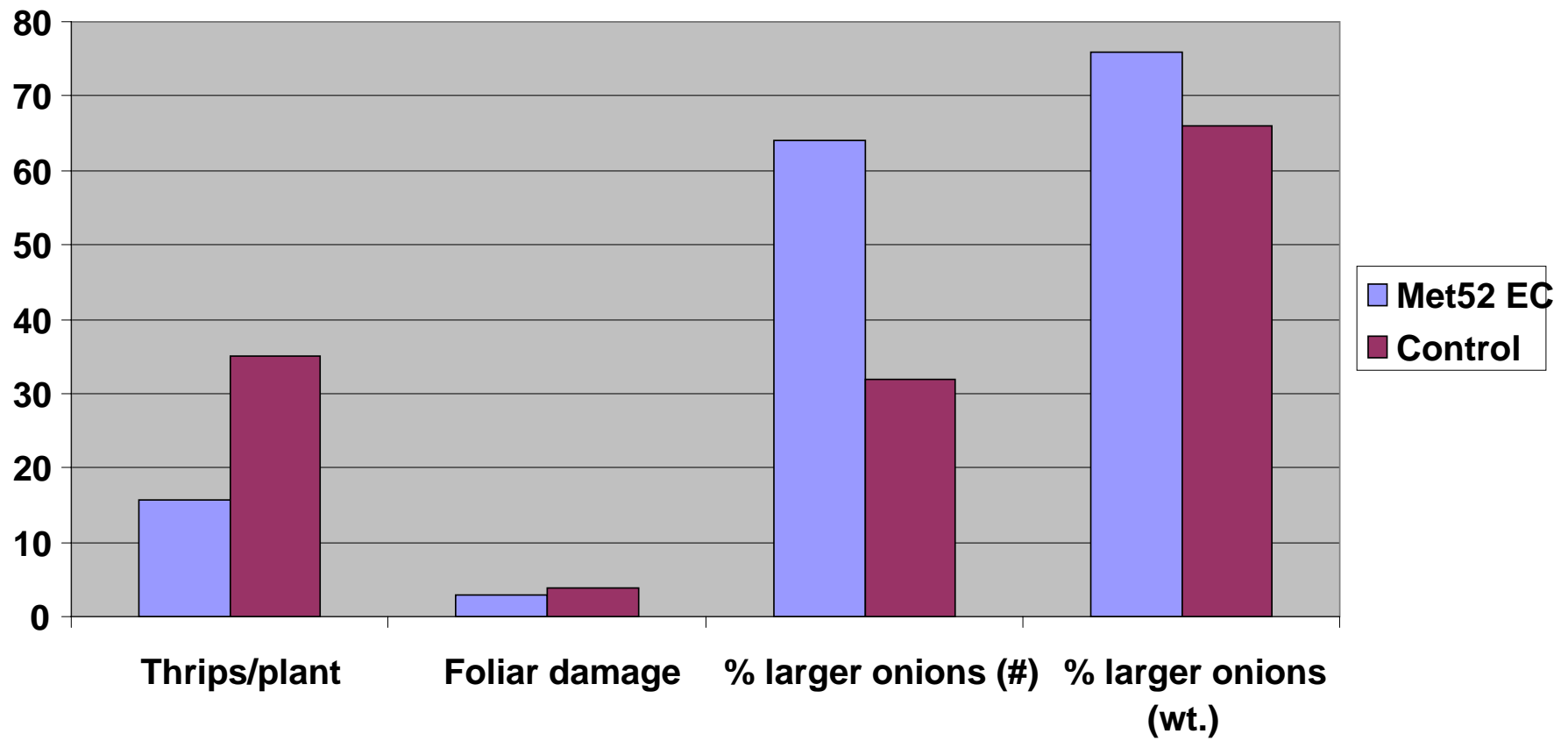


Two-Spotted Spider Mite Control with Met52 EC





Thrip Control and Onion Yield from Met52 EC

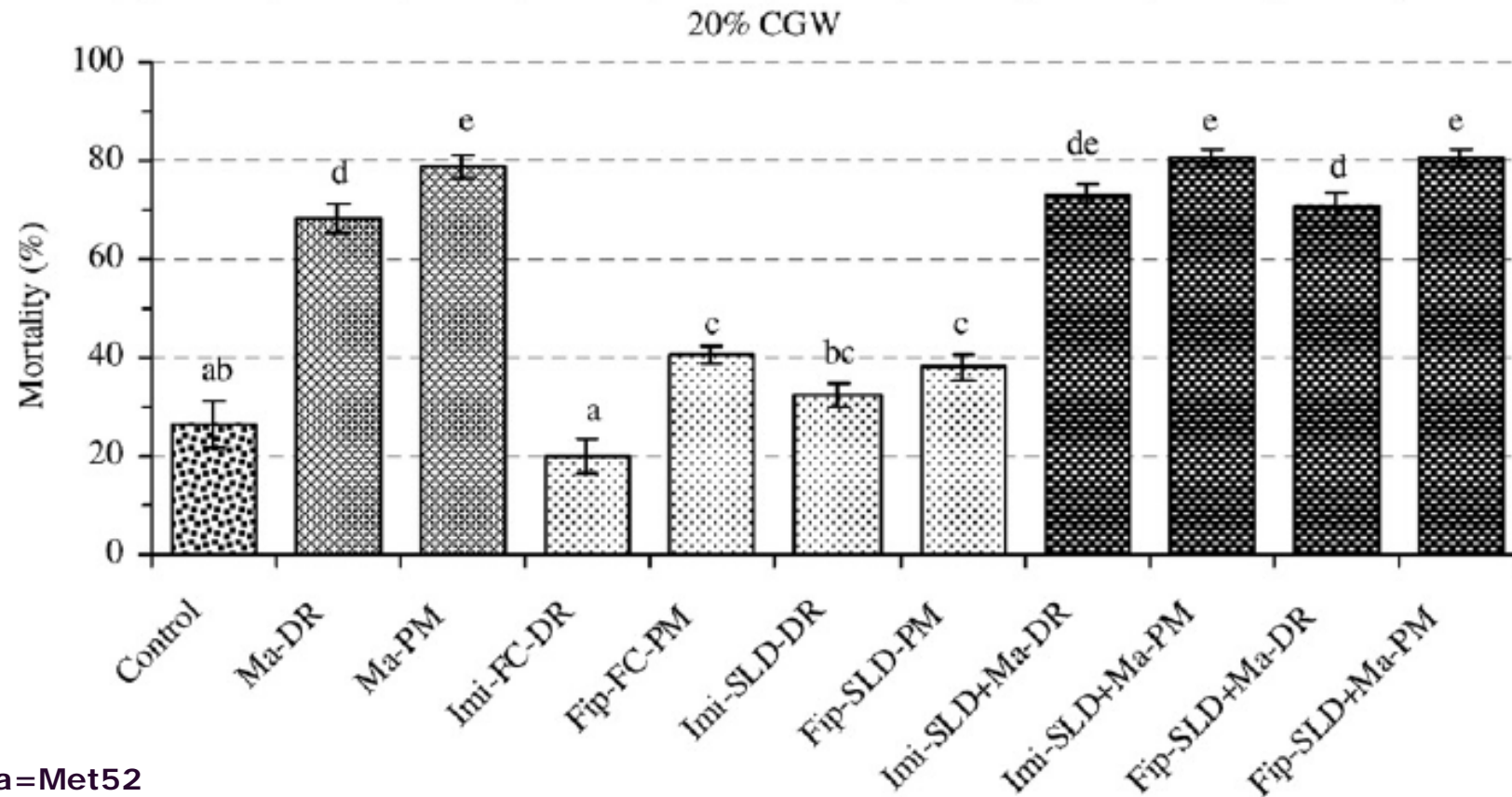




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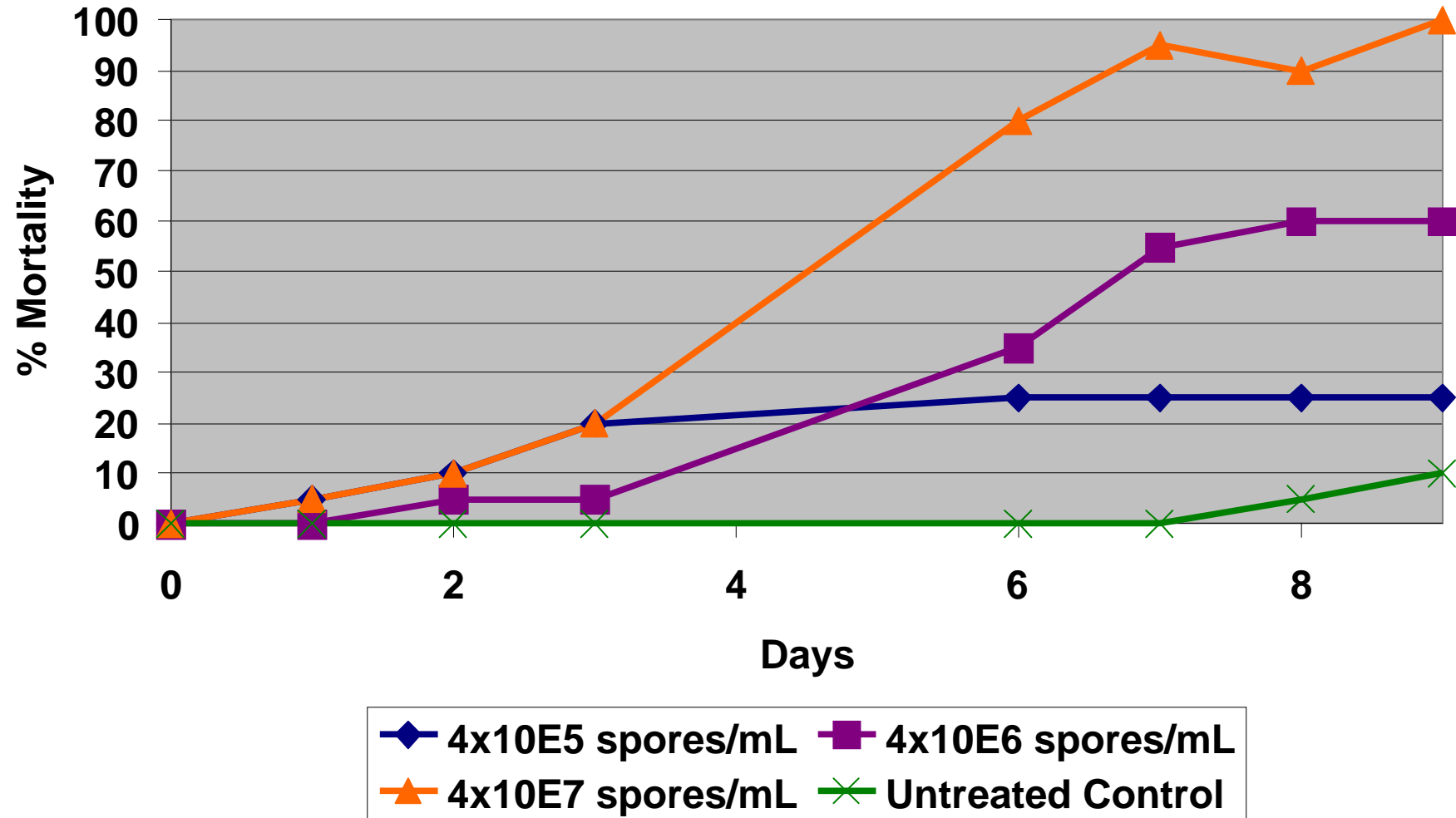
Potential for Thrip Pupae Control in Soil



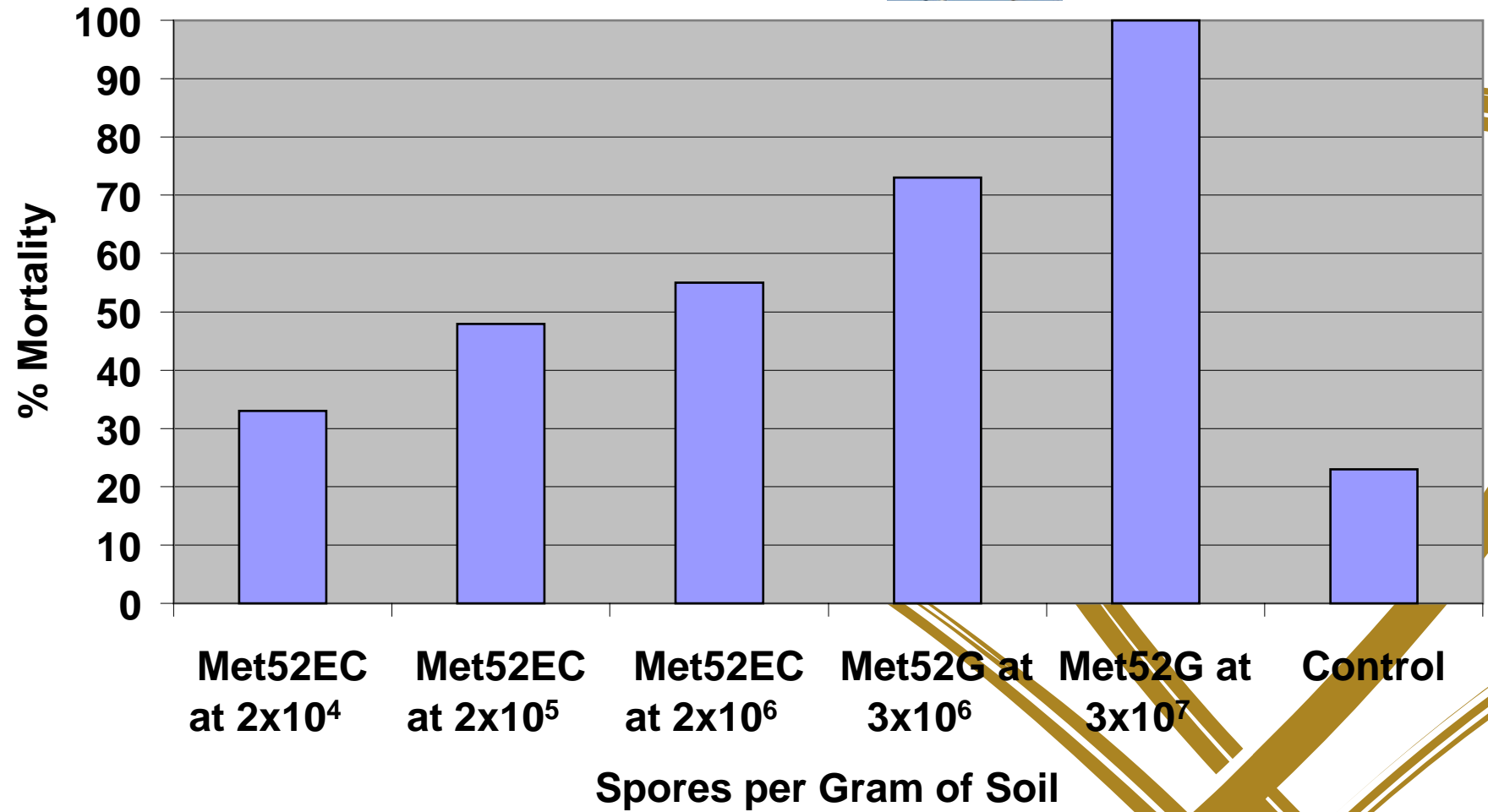
Ma=Met52
Imi=Imidacloprid
Fip=Fipronil
FC= Full Concentration
SLD=Sub-lethal Dose
PM= Premixed
DR=Drench



Mole Crickets – Laboratory Bioassays



Western Corn Rootworm



Summary

- Granular and EC formulations available
- Proven efficacy by independent researchers
- Residual soil activity (one year in potting media)
- Expanding labels for granular and EC to include food use and wider pest spectrum
- Registered in USA and Holland
- EU registration process currently going-on (on active ingredient forth list): decision for Annex 1 inclusion end 2008 – early 2009