Development of biocontrol products from vermicomposted cow manure

Allison L. H. Jack[1], Thomas E. Herlihy[2], Eric A. Carr[1], Eric B. Nelson[1]
[1] Cornell University Department of Plant Pathology and Plant Microbe Biology, [2] RT Solutions

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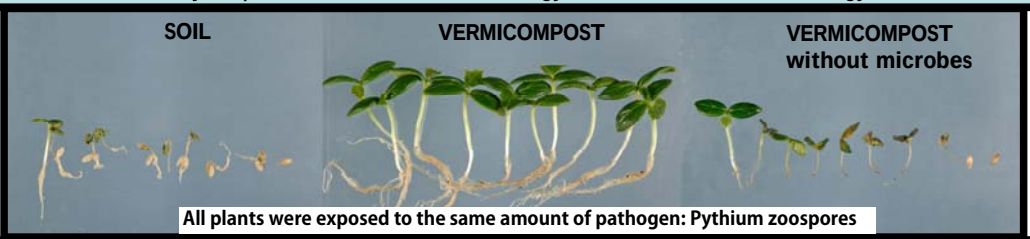
The Problem:

Soil dwelling pathogens infect seeds of crop plants

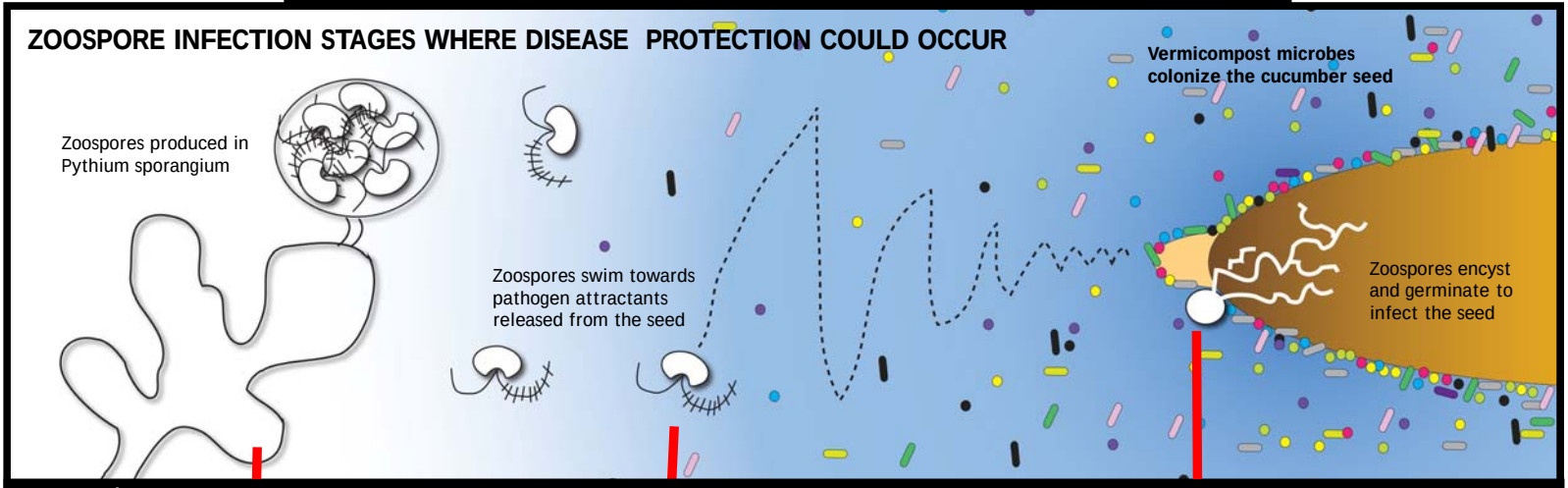


All plants were exposed to the same amount of pathogen: Pythium zoospores

The Solution:

Beneficial microbes found in vermicompost can protect plants

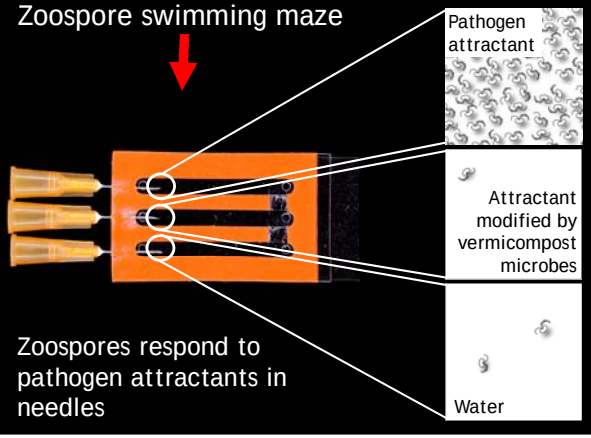
ZOOSPORE INFECTION STAGES WHERE DISEASE PROTECTION COULD OCCUR



Sporangium

Can vermicompost microbes prevent zoospore formation?

Zoospore swimming maze



Zoospores respond to pathogen attractants in needles

Encysted zoospores germinating

Conclusions & Questions

- Microbes from vermicompost interfere with zoospore attraction and encystment
- Are earlier stages of zoospore development affected as well?
- Which seed colonizing microbes from vermicompost are responsible for controlling disease? How exactly are they interacting with the pathogen?

Significance of our findings

- Understanding how protection is achieved will enhance our ability to implement biological disease control
- Vermicomposts may be a source of novel biopesticides
- Identifying beneficial microbes may allow us to develop better predictive tools for disease protection in a variety of composts

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