Testing commercial biocontrol products against Fusarium basal rot of onions in the Annapolis Valley

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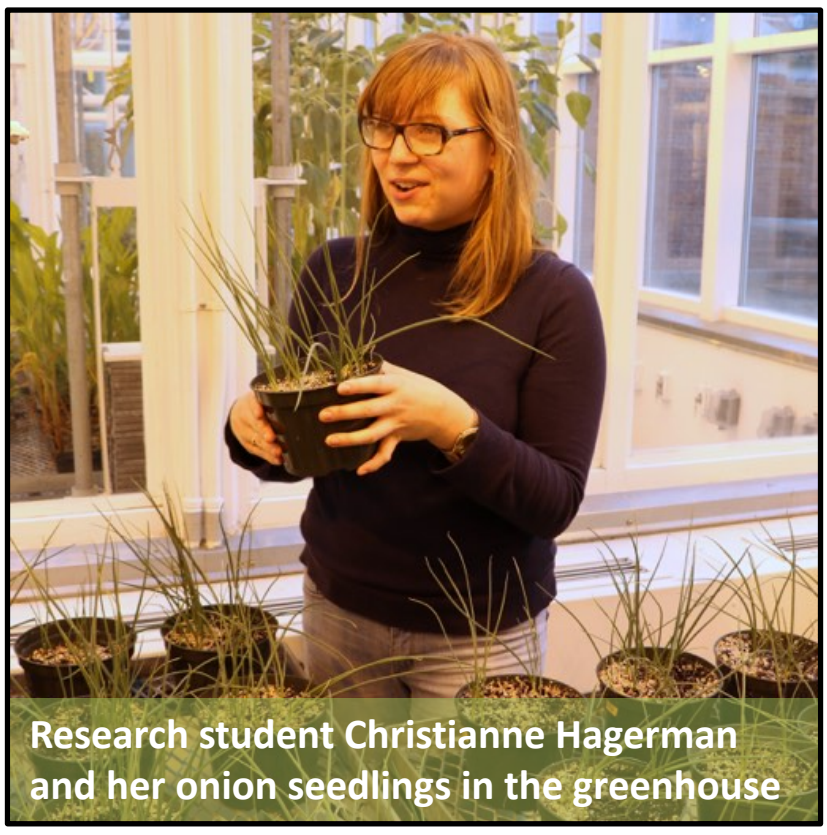


Research student Christianne Hagerman and her onion seedlings in the greenhouse

Biological control (adding an organism to the system that will decrease the disease incidence) is an ideal strategy to control a fungal pathogen: bio-control agents act against the pathogen in multiple ways, are otherwise beneficial to the plants, have low toxicity, and can be self-propagating.

Fusarium basal rot refers to the rotting that begins in the basal plate of bulb onions, caused by the soil-borne fungal pathogen ***Fusarium oxysporum* f. sp. *cepae* (FOC)**.

The incidence and severity of Fusarium basal rot have recently increased in the Annapolis Valley, causing significant crop loss despite current control measures.

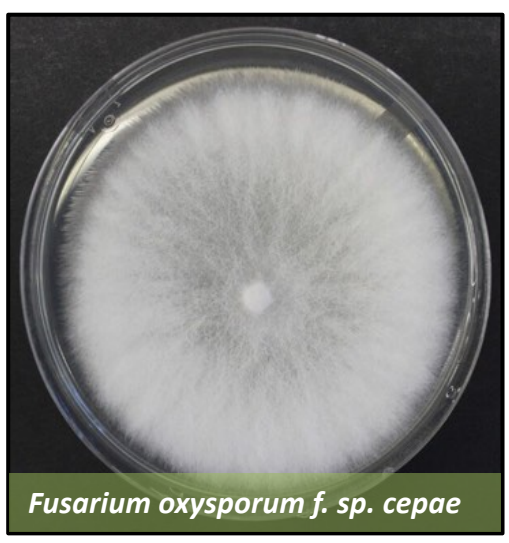
Infected onion

Objective: to test commercial biocontrol products that could be incorporated into a control strategy against Fusarium basal rot in the Annapolis Valley.

Methods:

1. Propagate FOC
2. Inoculate soil with FOC and add biocontrol products (Serenade Soil, Mycostop)
3. Observe basal rot symptoms to test biocontrol products against FOC in greenhouse conditions

Onions inoculated with FOC growing from seed in the greenhouse



Fusarium oxysporum f. sp. cepae

Work Done to Date:

2016-2018

- 2 *Trichoderma* species reduced Fusarium basal rot symptoms in onion greenhouse trials when applied as seed treatments
- PreStop and Trianum biological control products reduced symptoms as seed treatments
- Rootshield product reduced symptoms when applied as a drench
- qPCR primers were developed to identify Fusarium levels in field soil
- 2018 field trials were completed to monitor FOC levels in soil during growing season

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