Outline for plant transmission Experiment paper

Intro:

Describe disease transmission concepts from a disease ecologist perspective-

Density vs. frequency dependent

‘sit and wait’

Survivability in environment

What factors influence transmission in other systems

Pathogens can evolve to exploit the tight evolutionary relationship between plants and their pollinators. Therefore, the bee-plant-pathogen model is a good model system to study complex horizontal disease transmission routes.

Give examples of pathogens that exploit this system: fungi, bacteria, viruses (not just of bees but also of plants)

Reported bee declines have brought attention to the various bee diseases and their transmission through plants.

Nosema, Crithidia (etc… use review paper by Graystock and McArt).

Enter RNA viruses- describe them. Can bee viruses transmit via plants?

Evidence for:

Viruses are in many insect species

Viruses found in pollen grains to be infective (Singh and other paper)

Other examples…

Why do we care?

Conservation perspective… viruses are harmful to bees (not clear their effects on many other bee species). And we care about bees because of their declines.

dilution vs. hotspot pollinator planting may be important to consider.

End summary: In this paper, we experimentally demonstrate, for the first time, that viruese can be transferred to plants while bees forage. However, under these experimental conditions, we did not show bees to become infected after visited flowers previously visited by infectd individuals. We provide caveats to our experimental conditions to explain these results and suggest future experiments to further test this well accepted hypothesis for bee virus transmission.