Dissertation ideas: Increasing efficiency and optimization of biocontrol agent releases and acceptance of a classical biocontrol program for weeds.

Lab studies

1. Climate overlap: What are environmental tolerances of BPP and BPT? In what parts of the range of BP are they likely to overlap? In what places are they likely to be allopatric? Geographically separated?
   1. General description & hypothesis: BPP and BPT climactic range may fully or partially overlap, or could be completely distinct. Releases of one or both agents will be more successful in climes that most closely match their home range.
   2. Treatments: Growth chamber studies & climate modeling
   3. Variables:
   4. Design:
   5. Data Collection:
   6. References
2. Competition or Complement
   1. Hypothesis: Since BPP and BPT occupy different feeding niches, their introduction on a single plant is likely to be complementary
   2. Treatments: control (no herbivore) and 3 treatments (BPP only, BPT only, BPP +BT) on both biotypes of BP and hybrid.
   3. Variables:
   4. Design:
   5. Data Collection:
3. Choice Test: Birds of a Feather
   1. Hypothesis/Question: Does either insect prefer clean plants, either without conspecifics or the other biocontrol agent?
   2. Treatments
   3. Variables:
   4. Design:
   5. Data Collection:
4. Density dependence & associational effects
   1. How does host plant density influence its reproductive success? How dos insect density effect its reproductive success
5. Don’t let your defenses down:
   1. Hypothesis/Question: are plants grown from seeds collected in Florida less chemically defended than Brazilian seeds – tested chemically with chem analysis and herbivory.
   2. Treatments
   3. Variables:
   4. Design:
   5. Data Collection:
6. Insect movement: Oh the places you’ll go
   1. Hypothesis: insect movement through plant architecture and between host plants is a factor in predicting insect population dynamics through BP infested areas. BPP pupate in galls and then fly? To adjacent plants. BPT pupate in soil and then jump/crawl/fly? to nearest neighbor.
   2. Treatments:
   3. Variables:
   4. Design:
   5. Data Collection:

Field Studies

1. Young plants old plants
   1. Hypothesis: Do younger plants more readily active defensive pathways thereby attracting predators/parasitoids?
   2. Treatments:
   3. Variables:
   4. Design:
   5. Data Collection:
2. There goes the neighborhood: does BP provide a refuge for citrus pests or serve as a sink. What happens to those citrus pests when we control adjacent BP plants?
   1. Hypothesis:
   2. Treatments:
   3. Variables:
   4. Design:
   5. Data Collection:
3. Spillover Effects
   1. Hypothesis:
   2. Treatments:
   3. Variables:
   4. Design:
4. Walking Predator Exclusion
   1. Hypothesis:
   2. Treatments:
   3. Variables:
   4. Design:
5. Insect movement: Oh the places you’ll go, outside edition

Social/Economic/Network Studies

1. Benefit-Cost Analysis
2. Contingent Value Survey
3. Network Analysis of Attitudes toward classical biological control