Question: How does wind exposure alter the effects of willow genotype on insect communities?

Completely Randomized Block Experimental Design

* 2 treatments
  + Exposed (front of willow patch relative to prevailing winds)
  + Unexposed (behind willow patch relative to prevailing winds)
* 10 genotypes
  + Genotypes vary significantly in how they allocate carbon and nitrogen to their leaves.
  + Measure more plant traits from the lab
* 7 blocks
  + 7 different willow patches.
* 1 replicate per treatment per genotype per block
* Experimental unit: 1 willow cutting planted directly into the ground per treatment per genotype per block.
* Summary of material
  + 140 cuttings (7 blocks \* 2 treatments \* 10 genotypes \* 1 replicate per treatment per genotype per block)
* After 2-3 months:
  + Survey insects for their abundance and diversity.
  + Survey sedentary insects (galls, leaf miners, leaf folders, etc.) and rear them for their parasitoids.

Plant Trait Study: Same as above, but entire cutting is bagged for the duration of the study to prevent herbivory and explicitly examine the effects of wind on plant traits.

* 4 blocks
  + 4 different willow patches
* Summary of material
  + 80 cuttings (4 blocks \* 2 treatments \* 10 genotypes)
* After 2-3 months:
  + Quantify plant traits:
    - Sample leaves to measure C:N ratio (approximately how expensive are each of these samples?)
    - SLA (specific leaf area)
    - Water content
    - Trichome density
    - Leaf toughness
    - Defensive chemistry…(I found a collaborator interested in measuring these traits, how much are you able to invest toward measuring plant traits?)

Observational Study:

* Survey sedentary insect densities within and among willow patches that vary in their degree of wind exposure
* Rear subsample of galls and leaf miners to assess parasitism.