

Figure 1. The most abundant arthropod pest groups depicted as the percentage represented within the total number of total pest individuals collected using vacuum suction. Two spotted spider mites and potato leafhoppers together represent 74% of pest individuals on hop plants.

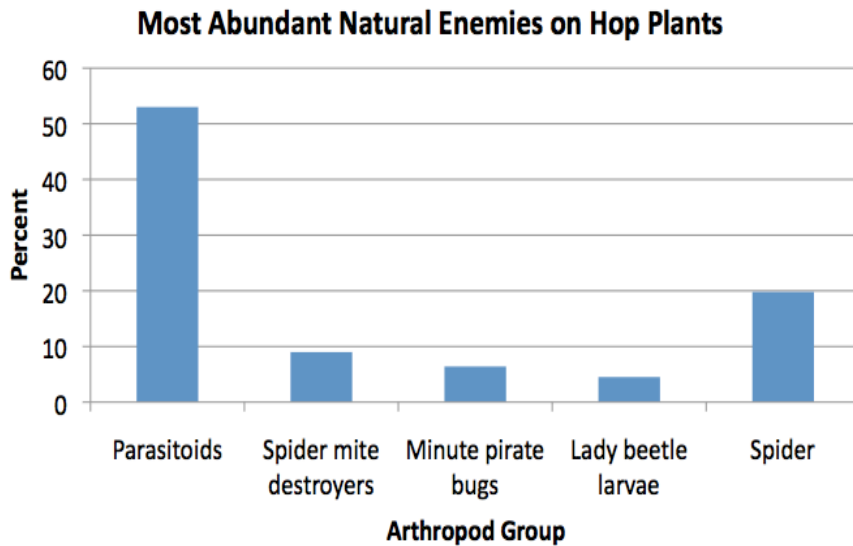
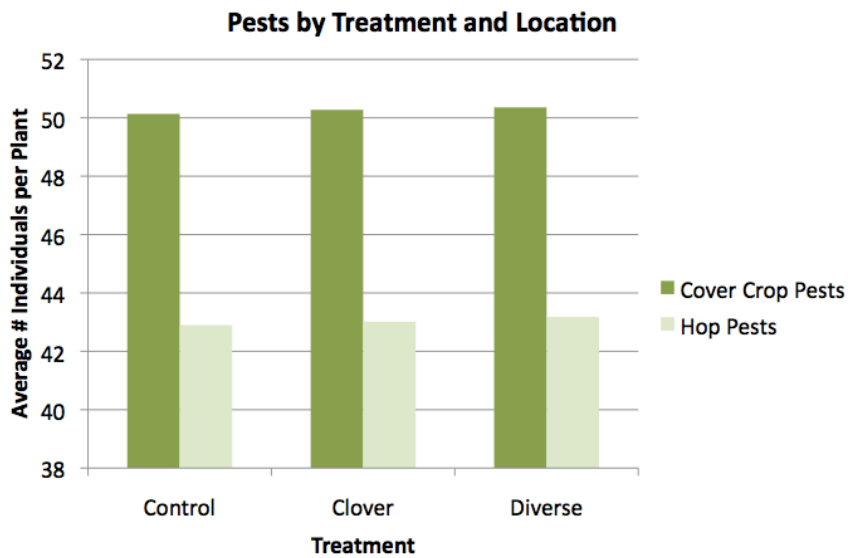
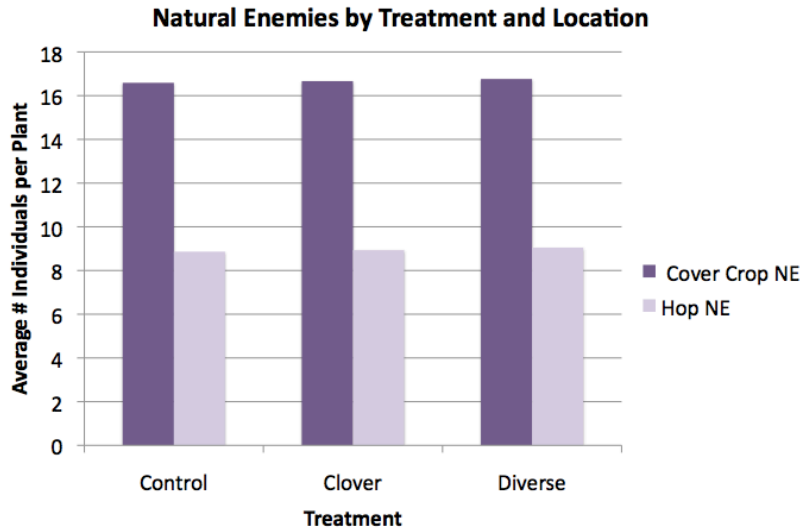


Figure 2. The most abundant natural enemy groups on cover crop trial hop plants are depicted as a percentage of the total of natural enemy individuals.



Figures 4 & 5. There is no significant difference between the number of pests or natural enemies across cover crop treatments or on hop plants. The average number of pest individuals far exceeds the number of natural enemy individuals per plant.

A one way analysis of variance indicated a significantly higher number of total pest and natural enemy average individuals ($P < .0001$). This indicates that there is a significant difference between arthropod functional groups when compared by location (hop plant or within cover crop). Hop plants within cover crop treatments were pooled. Cover crop treatments were also pooled. Analysis with pooled groups was possible because there is no significant difference between treatments.

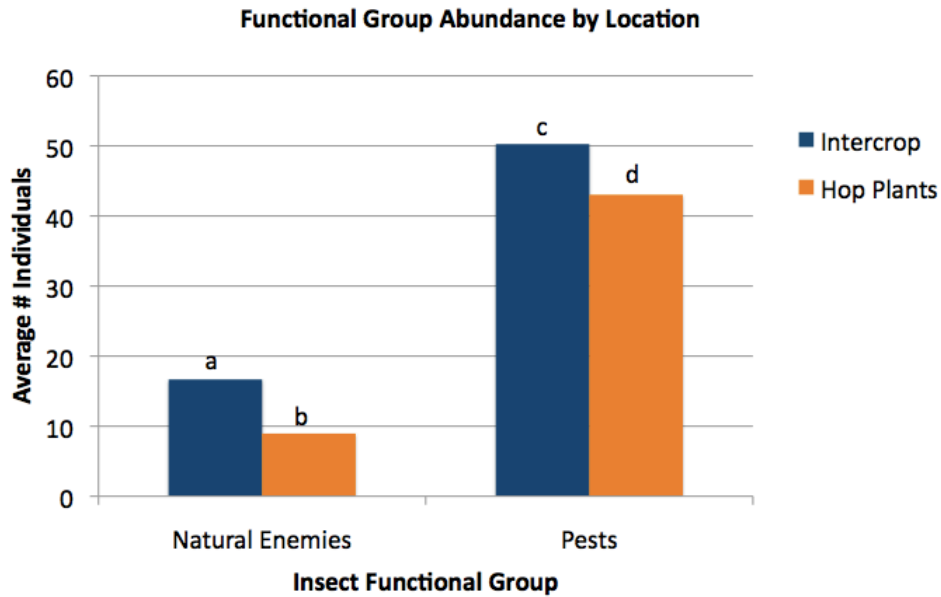


Figure 5. There is a significant difference ($P < .0001$) between the average number of individuals on hop plants compared to those within cover crop plots under equal sampling effort.

As expected the cover cropped drive rows exhibited a higher abundance of all arthropods than hop plants per 60 second vacuum suction sample. It has been shown that with additional diversity, both pest and natural enemy arthropod groups increase (Tooker et al. 2012). We found there to be remarkably consistent numbers of natural enemy and pest individuals across treatments and replicates in 2012. It has been shown by Grasswitz et al. 2009 that a flowering cover crop in hops can take 3 years to mature. The cover crop arthropod community is continually changing given plant development. Although second year perennials were planted, the youth of our cover crop treatments in 2012 may explain the even distribution of arthropods within cover crops and on hop plants between cover crop treatments. 2013 arthropod results will be completed and reported by May 2014.