**How do interactions drive productivity in diverse crop fields?**

**(Lin), Liette Vasseur** \*\*does not include presenter

Crop fields are plant communities where in general diversity is artificially kept very low in order to increase productivity of a target species. However, as plants grow, intraspecific competition becomes increasingly intensive, limiting the growth of the target species. On the other hand, crop diversification, by growing two or more target crop species at the same filed, can potentially reduce the intensity of intraspecific competition and lead to facilitation among crops. However, in such systems, interspecific competition among crops and weeds also occur. Additionally, in organic fields, weeds may differ in the aggressiveness in comparison with weeds continually exposed to conventional controls. The purpose of this research was to investigate the role of competition and facilitation among onion and yellow wax bean and how diversification could influence the species productivity. In addition, we investigated crop-weed interactions under monocrop and intercrop microcosms as well as the adaptive responses of two weed species, *C. album* and *A.hybridus*, from a conventional and an organic farm. Using a full factorial experimental design (mono and intercrop, presence or absence of a weed species), crop and weed fresh and dry weight were measured and land equivalent ratio was calculated. We found that growth of onion under intercropping is significant higher than its growth in monoculture. Weeds had significantly lower biomass and height under intercropping. Intercropping onion with wax bean may reduce the net effect of competition with weeds by using resources more efficiently compared with monoculture, thus increasing crop productivity and supressing weed growth.