**May Wang’s Exit Seminar Abstract**

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**Title: Soil-Biodegradable Plastic Mulch in a Double Cropped Strawberry and Lettuce System and Implications on Splash Dispersal of Gray Mold**

Plastic mulch can promote yield of strawberry and lettuce with soil-biodegradable plastic mulch (BDM) providing opportunities to reduce plastic waste generation. However, BDM is a relatively new technology with limited studies in double-cropped systems. Mulch impacts on fungal pathogens dispersed through rain splash is also unknown. The objective of the first experiment was to compare nondegradable plastic mulches [polyethylene (PE) film and “weedmat”, a woven PE-mulch] and BDM to bare ground cultivation in a strawberry-lettuce double cropped system in maritime Pacific Northwest (PNW). A split-plot randomized complete block design experiment was conducted from May 2020 through Sept. 2021 with mulch treatment as the main factor and double cropping rotation scheme as the split-plot factor. BDM performed similarly to PE in terms of soil temperature and moisture modification, weed suppression, and promotion of crop growth and yield despite high levels of deterioration. Crop performance was reduced in the bare ground treatment due to the absence of soil temperature and moisture enhancements as well as weed suppression effects provided by mulching. The objective of the second experiment was to assess the potential impact BDM has on splash dispersal of asexual spores (conidia) of *Botrytis cinerea*, which causes gray mold disease in strawberry. Splash dispersal pattern of BDM were compared to PE and weedmat using a fabricated rain simulator in a screenhouse. Mulch permeability, surface characteristics, and splash dynamics were also characterized. Splashed conidia on weedmat was unpredictable and less consistent due to the woven, physical structure and semi-permeable characteristics. Total conidia counts were greater for BDM than PE and splash dynamics data confirmed this. In conclusion, double cropping with BDM is a promising practice for diversified production systems, but could contribute to greater incidence of gray mold and other fungal diseases dependent on rain dispersal due to enhanced splash dispersal.