



Department of Horticulture Seminar Series

HORT 509/510

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Thursdays, 2:50-3:40 pm

Presented at the following WSU campuses and Research and Extension Centers: Pullman, Tri-Cities, Mount. Vernon, Prosser, Puyallup, Wenatchee

Plastic biodegradable mulch controls weeds and produces pie pumpkins similar as polyethylene mulch

Shuresh Ghimire, Ph.D. candidate, WSU-Horticulture, Mount Vernon

Abstract

Use of plastic biodegradable mulch (BDM) for production of many vegetable crops has provided equal weed control, crop yield and quality benefits as polyethylene mulch. However, performance with a large-fruited crop like pumpkin (*Cucurbita pepo*) where fruit rests on the mulch for an extended period is still unclear. BDMs are designed to be tilled after use, but a method to assess the amount of BDM in the field post-harvest has not been developed. We carried out two studies in Mount Vernon, WA and Knoxville, TN in 2015 and 2016 to (i) investigate whether pumpkin fruit cause mulch to degrade too quickly thereby influencing crop performance, and (ii) determine the distribution of mulch fragments in the plot and adequate number of soil samples for estimating the amount of mulch in the field post soil-incorporation. The first study compared four plastic BDMs and a paper mulch to polyethylene mulch and bare ground for their effects on weed growth and pie pumpkin yield and fruit total soluble solid (TSS). BDMs controlled weeds at both locations but increased marketable fruit yield only at the Mount Vernon location. TSS was higher for fruit grown on plastic mulches than bare ground or paper mulch in 2016 only. In the second study, five to 128 soil samples from multiple sections of a plot (edge to center) were collected using a golf hole cutter. This sampling method recovered < 70% tilled-in mulch with high variability, and even the treatment of 50 samples per plot was inadequate for a reliable estimate. Concluding, plastic BDMs performed comparably to PE mulches for weed control, pumpkin yield and TSS. Assessing the amount of mulch in the field post soil-incorporation with a golf hole cutter was unreliable due to uneven distribution of mulch fragments in the plot, thus new methods are needed.