Soil Fumigation and Biodegradable Plastic Mulch Application

Lisa DeVetter[1], Carol Miles[1], and Inga Zasada[2]
[1]WSU- Northwestern Washington Research and Extension Center, Mount Vernon, WA
[2]USDA-ARS, Corvallis, OR

Biodegradable plastic mulches (BDMs; Fig. 1) are increasingly being adopted in commercial horticultural production systems for their ability to promote crop productivity through weed suppression and modification of soil moisture and temperature. Many of these production systems undergo pre-plant soil fumigation for disease, nematode, and weed control. Consequently, growers have inquired if BDMs can be incorporated into the soil fumigation process to serve the function of a tarp.

The question of soil fumigation in combination with BDM application was posed to the Washington State Department of Agriculture (WSDA) and the Environmental Protection Agency (EPA). In particular, we inquired if BDM application during or immediately after soil fumigation was a legal application consistent with the pesticide label.

It has been determined that BDMs are not EPA-approved tarps for soil fumigation. Tarping with soil fumigation is label-specific based on a quantifiable standard. BDMs can only be legally applied after the restricted-reentry interval (REI) for the specific soil fumigant has expired. Following this practice assures that applicators and/or pesticide handlers are compliant with chloropicrin, metam sodium/potassium, and 1,3-dichloropropene labels and with handling tasks allowed in accordance with label instructions. **Therefore, BDMs are legally not allowed to be applied as part of the soil fumigation operation and must be a separate application after the REI has expired.**

Tarps are agricultural films that are highly impermeable to soil fumigants. Tarps must be tested for permeability to qualify for buffer zone reduction credits by the EPA. Tarps can be applied as part of the soil fumigation process (Fig. 2). Tarps are approved by active ingredients and a list of approved tarps can be found at https://www.epa.gov/soil-fumigants/tarps.

Figure 1. Biodegradable plastic mulch (BDM) in a field experiment with fall-planted red raspberry.

Figure 2. Bed fumigated red raspberry field tarped with a totally impermeable film (TIF).

Thank you to Tom Hoffmann and Tim Schultz of WSDA Pesticide Division for provision of information and review of this document.