



Dimensions and Costs of Biodegradable Plastic and Polyethylene Mulches



Biodegradable plastic mulches (BDMs) can be comparable to polyethylene mulch (PE) for weed management, increasing soil temperature and moisture, promoting plant establishment and growth, and enhancing yield. Many studies have been conducted with BDMs in annual vegetable production systems, where results show potential for BDM commercial application. Perennial systems, like raspberry planted as tissue culture (TC) plugs, could benefit from mulching during the first few months or year(s) of plant establishment. An appealing aspect of

BDMs is that they should safely degrade over time, thereby providing the benefits of mulching while leaving no residuals that could damage soil health. The labor savings of BDMs is also an attractive factor because less herbicides and hand weeding would be required for weed management compared to bare ground cultivation. Unlike PE mulches, BDMs would also not require hand labor for their removal and disposal, as they are engineered to safely degrade in soils and have no removal or disposal costs associated with their use.

Cost analysis is one of the first questions for growers asking about a new technology. Information regarding commercial amounts of BDM needed per field for raspberry growers is provided in Table 1-3.

Table 1. Actual production area in a field with bed spacing of 10 ft (center-to-center).

Field size	5 acres	10 acres	30 acres	60 acres	100 acres
Production area	1.4 acres	2.9 acres	8.7 acres	17.4 acres	29 acres

Table 2. Length (ft) of mulch needed for the production area based on bed spacing of 10 ft (center-to-center).

Field size	5 acres	10 acres	30 acres	60 acres	100 acres
Roll length	21,783 ft	43,560 ft	130,680 ft	261,360 ft	435,600 ft

Table 3. Comparison of mulch roll size and thickness, purchase cost, weight and suitability for machine laying.

	PE ¹	Organix A.G. Film ^{2, 3}	Bio360 ^{2, 3}
Roll length ⁴	Up to 4000 ft	4000 – 8000 ft	4000 – 8000 ft
Roll width ⁴	Up to 72 in	36 – 60 in	36 – 66 in
Roll thickness	0.5-1 mil	0.5 - 0.7 mil	0.5 - 1 mil
Purchase cost (per 1000 ft) ⁵	\$25-\$65	\$50 - \$90	\$63 - \$150
Weight (lbs/1000 ft)	9-21 lb	21 – 29 lb	9 – 25 lb
Machine application	Yes	Yes	Yes

¹Information for this product is from the WSU Extension factsheet ‘Dimensions and Costs of Paper, Polyethylene and Biodegradable Plastic Mulch’.

²These biodegradable mulches are the ones we used for the TC raspberry studies established in 2017. More commercial biodegradable mulches are available, visit <https://ag.tennessee.edu/biodegradablenmulch/Pages/biomulchprojects.aspx> to learn about more products available on the market place.

³Information for the product is from mulch distributor websites: Organix Solutions <https://store.organixsolutions.com/>; Dubois Agrinovation <http://www.duboisag.com/en>.

⁴Wider and longer rolls may be available; check with suppliers.

⁵Cost decreases if more product is purchased.

Additional Resources:

WSU Small Fruit Horticulture: <http://smallfruits.wsu.edu/>

Biodegradable mulch: www.biodegradablenmulch.org



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