



Performance and Adoptability Biodegradable Mulch

biodegradablenmulch.org

Report No. LCA/SC-2018-01

June, 2018

Authors:

Kuan-Ju Chen
Suzette Galinato
Shuresh Ghimire
Stuart MacDonald
Thomas Marsh
Carol Miles
Peter Tozer
Margarita Velandia

Summary

An interactive “mulch calculator” assists farmers in determining the quantity of mulch needed and provides cost comparison to polyethylene mulch.

This material is based upon work that is supported by the National Institute of Food and Agriculture, under award number 2014-51181-22382. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.



United States
Department of
Agriculture

National Institute
of Food and
Agriculture

Mulch Calculator

Cost is one of the major factors in a farmer’s decision to use a particular type of mulch. The Mulch Calculator is an interactive tool that estimates the quantity of mulch needed for a given production area (Requirement Calculator), and provides a comparison of the costs of using PE mulch and BDM (Cost Calculator). Results are particularly useful for growers who consider transitioning from PE mulch to BDM. Click the linked the [Excel version of the Mulch Calculator](#) to download. The file should be downloaded as an Excel Macro-Enabled Workbook in order to retain the full features of the calculator.

Individuals using the calculator will be able to choose their preferred system of units – English or metric system. Additionally, the calculator has two components:

1. The Requirement Calculator aims to determine how many rolls of mulch (per acre or per hectare) need to be purchased based on roll length and spacing between bed centers.
2. The Cost Calculator accounts for the machinery cost, material cost, as well as the cost of labor to install the mulch, costs associated with clean-up activities at the end of the growing season. The following factors are assumed:
 - The required machinery and number of man-hours to install plastic mulch or BDM is assumed to be the same.
 - Regarding removal of PE mulch, the example in the Cost Calculator shows that the mulch is removed by hand. If machinery is used to remove PE mulch, the machinery cost should be entered in the form.
 - Drip tape is removed simultaneously with PE mulch. On the other hand, drip tape is removed before BDM is tilled into the soil, and it takes about 1.5 hours per acre to remove the drip tape based on information collected from a farm testing BDMs. This number can be adjusted in the calculator as necessary.



- Drip tape is removed simultaneously with PE mulch. On the other hand, drip tape is removed before BDM is tilled into the soil, and it takes about 1.5 hours per acre to remove the drip tape based on information collected from a farm testing BDMs. This number can be adjusted in the calculator as necessary.
- After removing PE mulch in the field, it is taken to the landfill and the grower is charged a disposal fee. On the other hand, BDMs are tilled into the soil at the end of the season which eliminates the cost of their removal and disposal.
- It takes 7 hours per acre to till BDM into the soil based on the field study in Mount Vernon NWREC. This number can be modified in the calculator if needed.

Instructions are provided in the Requirement Calculator and Cost Calculator Excel worksheets. Also, an **important note: the numbers in the Cost Calculator are only examples used to illustrate how the calculator works, and they do not represent any particular farm operation. Crop producers need to modify some values in order to evaluate their own needs and costs.** For example, the cost of BDM will vary depending on the product. In the Cost Calculator, we used the average cost of PE mulch and BDM per 1,000 ft based on a survey of 10 mulch manufacturers. Also, the labor cost and disposal fee will vary depending on the location of the farm, and attention should be paid to these and other variable costs in the Cost Calculator of the Excel Workbook.

Please contact *Suzette P. Galinato* (sgalinato@wsu.edu) if you have questions or comments about the Mulch Calculator.