

Estimated Cost Per Acre of Removing and Replacing Plastic Mulch Damaged by Hurricane Michael in Georgia

By

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After the damage caused by Hurricane Michael on October 10, 2018 for which the Georgia Vegetable industry suffered a total loss of \$480 million, we decided to calculate the estimated cost/Acre of removing and replacing destroyed plastic mulch, by growers. Our calculations are based on the recommendation of the Extension Vegetable Team, information gathered from Vegetable Growers and County Agents during our multiple visits of vegetable farms in South Georgia to collect data needed to generate 2020 vegetable budgets for the state of Georgia (Table 1).

Georgia vegetables are grown either in a system called ‘plasti-culture’ or on ‘bare-ground’. There are many advantages of plasti-culture production including higher yields, but it is much more expensive than ‘bare-ground’ production. For growers using plasti-culture, a planting bed approximately 12 inches high and 3-4 feet wide covered with plastic is required. Beneath the plastic, drip lines are run for irrigation, fertilization and pesticide applications. In addition, during the process of laying the plastic mulch, the bed is fumigated for soil borne diseases and weed seeds and/or weed control.

It is important to note that Growers normally use the plastic bed for 3-4 crops before having to reshape and re-fumigate the beds, re-place the plastic and drip lines. In many cases and during our visit and assessment, Hurricane Michael damaged or destroyed the beds and plastic, requiring re-laying of plastic, drip lines and fumigation. Table 1 below is a simplified breakdown economic analysis itemizing the operational recovery cost per acre for possible replacement of field production, plasti-culture damaged by Hurricane Michael.

Table 1: Analysis of the \$-Value of Replacing Plastic Mulch Loss Due to Hurricane Michael to the South Georgia Vegetable Industry, 2018

Description	\$-Total/Ac
Removal of plant material, plastic mulch, stakes and disposal at land fill.	
Removal of plastic – 4 workers @ \$14.53/hr. – 2 hr./A	\$ 116.24
Removal of drip tape – 2 workers @ \$14.53/hr. -1 hr./A	\$ 29.00
Removal of stakes – 6 workers @ \$14.53/hr. – 1 hr./A	\$ 87.18
Removal of string – 4 workers @ \$14.53/hr. – 1 hr./A ¹	\$ 58.12
Mowing old plants – 1 worker @ 14.53/hr. – 1 hr./A	\$ 14.53
Plus fuel	\$ 9.60
Disposal at landfill -	\$ 50.00
Total of Planting Material Removal	\$ 364.67
Laying new plastic, land prep, materials, fertilization, fumigation, labor.	
Land prep – tractor/driver/fuel – 3 tractors - \$10/A	\$ 30.00
Fertilizer – 300 lb./A - \$600/ton (\$.30/lb.)	\$ 90.00
Fumigant – 135 lb./A - \$4.40/lb.	\$ 594.00
Plastic - 8,712 ft./A - \$0.055/ft. ²	\$ 479.16
Tape – 8,712 ft./A - \$ 0.014/ft.	\$ 125.84
Tractor & Equipment to Lay plastic	\$ 150.00
Labor – Fumigation/Fertilization/plastic laying: 10 workers @ \$14.53/hr. – 1 hr./A	\$ 145.30
Irrigation Hookup – 2 workers @ \$14.53/hr. – 2 hr./A	\$ 58.12
Stakes – 2200/A - \$0.25/stake	\$ 550.00
Labor to install stakes – 12 workers @ \$14.53 – 1 hr./A	\$ 174.36
Total Laying New Plastic, land-prep, material, fertilization, fumigation, labor	\$ 2,396.78
Grand Total Costs³	\$2,761.45
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¹Cost of strings are not included because that is a cost for the new crop and in normal operations, the string is lost.

²Plastic costs will be higher for tomato growers because they would need silver mulch to control White fly instead of using black mulch.

³The Grand Total Cost does not include interest rate of 6.5% used in the enterprise budgets.

The total \$-value for replacing plastic mulch loss due to Hurricane Michael to the South Georgia Vegetable Industry, 2018 is estimated at \$2,761.45 (Table 1).

If you have further questions or need any clarification, by all means, do not hesitate to contact us via phone 229-386-3512 or 229-559-5562 office or email: gfonseh@uga.edu or justin1@uga.edu