

Evaluating the Effectiveness of Locally Available Woodchips for Weed Control

Patrick Johnson¹ and Leonard Githinji²

¹NANIH Farm and Garden; ² Virginia State University

1. Introduction

NANIH Farm and Garden, Inc. located in Richmond, VA, was founded in 2013 with an objective of growing various vegetable, fruits, herbs, flowers. The operation, which includes both annual and perennial plants, uses organic production practices. While not certified organic, we market ourselves as an ecologically friendly, local permaculture farm and follow organic standards as laid out by the National Organic Program.

One of the main challenges of crop production, especially in organic systems, is weed management. Indeed, it is estimated that weed control can take up to 30-50 percent of production cost on small, intensely managed farms.

Some of the methods of weed control available to organic vegetable growers include: cover cropping, use of herbicides, tillage, solarization, mechanical removal and various types of mulching.

2. Materials and Methods

A study was conducted at NANIH Farm and Garden to evaluate the effectiveness of chipped wood mulch to control weeds in small fruit and vegetable production. The experimental design was a completely randomized design with two mulch treatments and control, replicated 5 times. The treatments included single and double shredded hardwood bark applied at a depth of 4 inches; and Control (no mulch). Weed infestation was determined by monitoring the population density and identification of the species. Multiple vegetables and herbs were planted including tomatoes, basil, onions, zinnias, okra, kale, melons, cucumbers, and summer squash. Harvestable and marketable yield for each of these crops were recorded at harvest time for each experimental plot.

3. Results

For each of the research plots, the average weed mass (g) was higher for the control plots (no mulch) compared to those that with organic mulches (Figure 1).

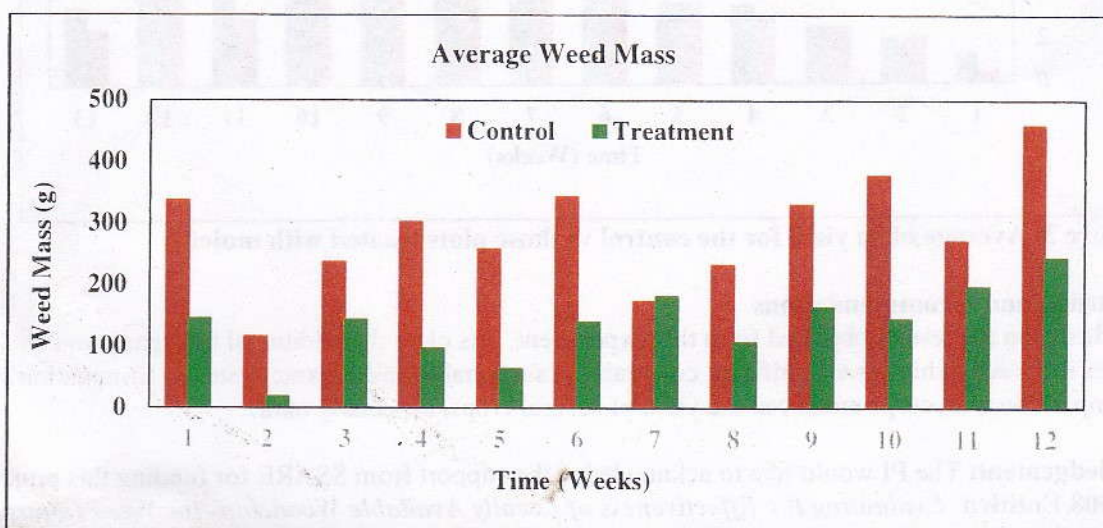


Figure 1: Average weed mass for the control vs those plots treated with mulch

The average weed mass for all the control plots was 286 g compared to 137g for those treated with the mulch, clearly revealing the benefits of addition of the organic mulch.

The visual assessment of the experimental plots show that those with added organic mulch (Figure 2) had observable weed suppression compared to the control plots.



Figure 2: Visual assessment of the weed growth on the experimental plots

The yield results for one of the test crops (okra) shows the impact of applying the mulch treatment. The average okra yield for the plots treated with mulch was 5.88 lbs compared to 4.98 lbs for the untreated ones. It's apparent that the impact of the mulch treatment was observed later in the season, from the 10th week of the study, compared to the beginning.

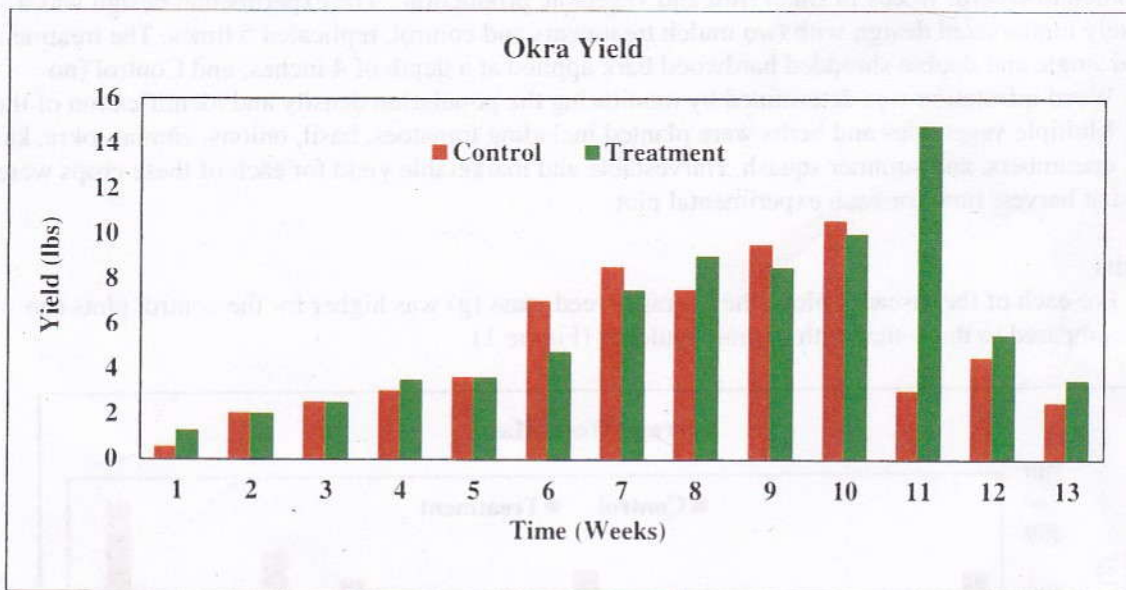


Figure 3: Average okra yield for the control vs those plots treated with mulch

4. Conclusion and recommendations

Based on the results obtained from this experiment, it is clear the additional of organic mulch suppresses the weed, which is a significant constraint in sustainable and organic systems. Elimination of weed competition with crops enhanced the yield of several crops, especially okra.

Acknowledgement: The PI would like to acknowledge the support from SSARE for funding this project # FS18-308 Entitled: *Evaluating the Effectiveness of Locally Available Woodchips for Weed Control.*