Mule Barn Farms

Regenerative Agriculture Gardening

2018 Summer Research Project

Austin Livingston

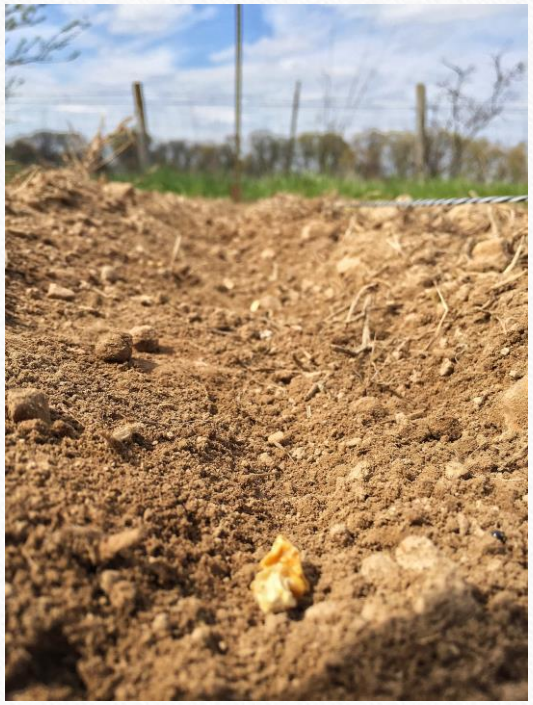
Purpose

- Explore production levels of various gardening techniques
- Test a regenerative agriculture model on garden crops
- Improve soil health and grow high-quality produce
- Improve pollinator habitat

Premise of Experiment

- **Plot 1:** Conventional tillage with added irrigation, planted May 1.
- **Plot 2:** Ground tilled and burned Spring of 2017 resulting in very little soil coverage through the winter. One application of a 2.5% glyphosate mixture was sprayed weeks before planting and planted no-till with a cordless drill on May 8. **No irrigation was used.**
- **Plot 3:** Ground was a hay field consisting of fescue, orchard grass, and weeds. Two applications of a 2.5% glyphosate mixture was sprayed weeks before planting and planted with a cordless drill on May 22. **No irrigation was used.**

Plot 1 (Tilled) Planting



Plot 2 (Previously Tilled and Burned) Planting

Plot 3 (Hay Field No-Till) Planting

Plot Comparison

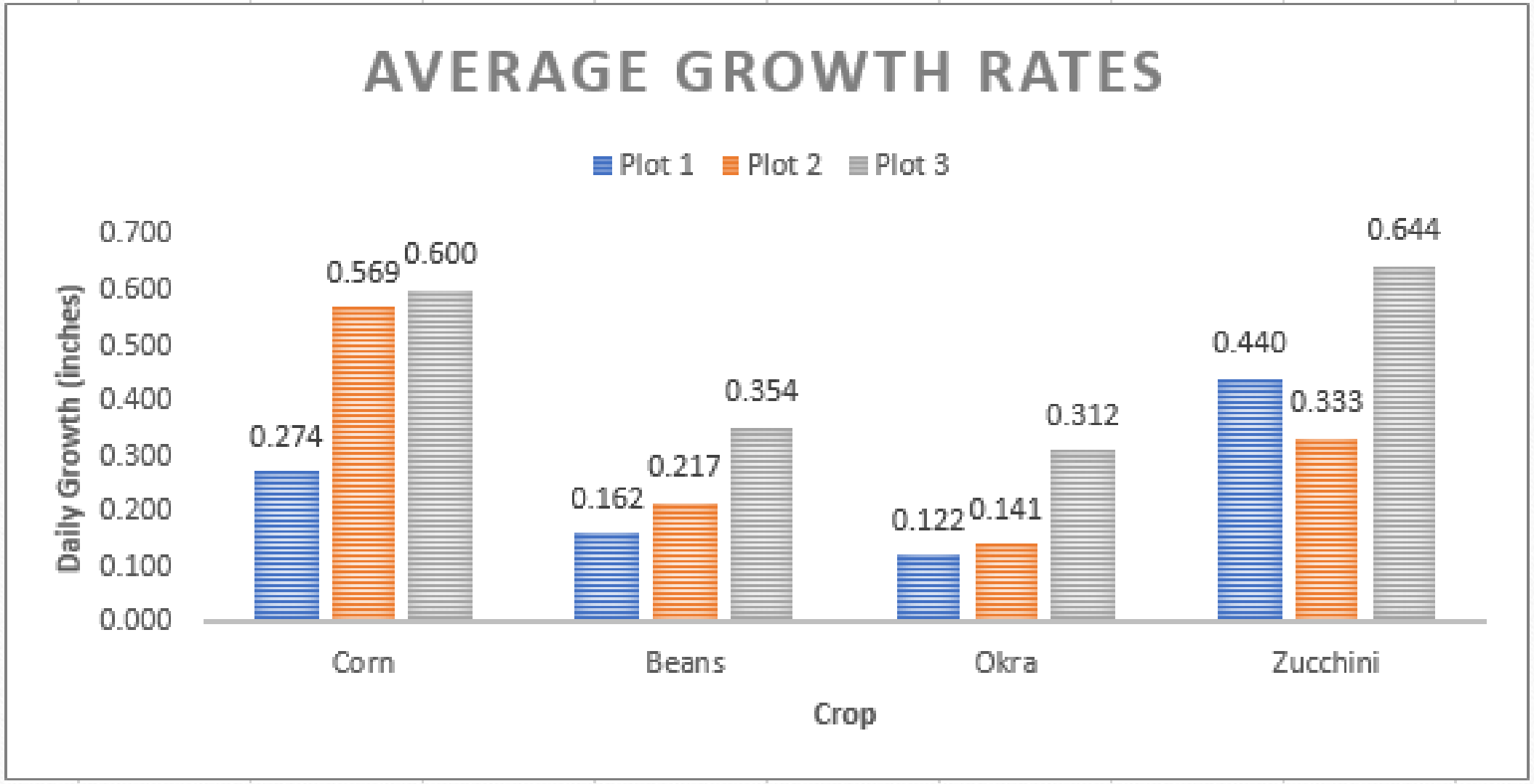
Plot 1

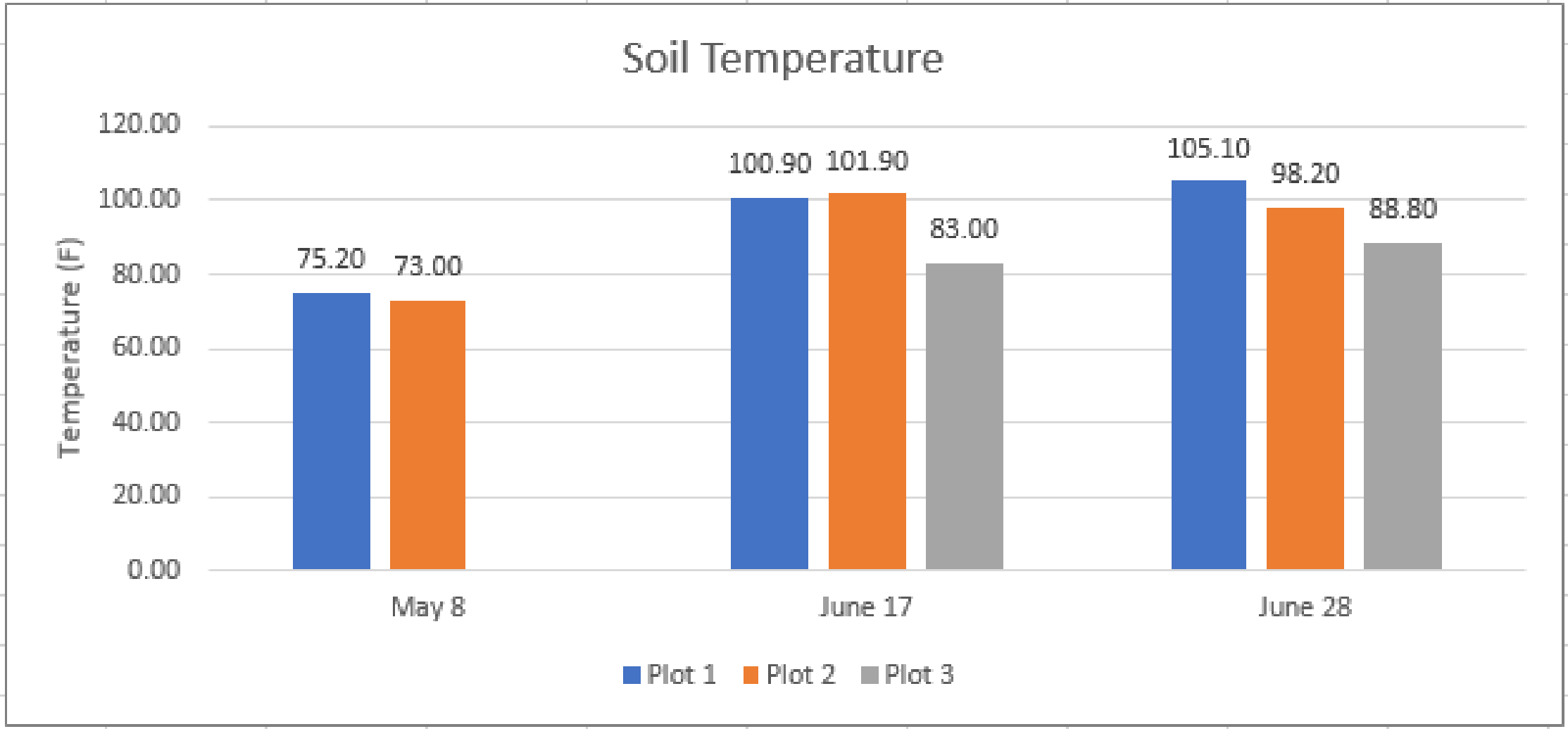
Plot 2

Plot 3

Planting for Pollinators

To attract pollinators, we planted sunflowers and buckwheat in plots 2 and 3


AVERAGE GROWTH RATES
Plot 1
Plot 2
Plot 3
Daily Growth (inches)
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.274
0.569
0.600
0.162
0.217
0.354
0.122
0.141
0.312
0.440
0.333
0.644
Corn
Beans
Okra
Zucchini
Crop


Soil Temperature
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Temperature (F)
75.20
73.00
100.90
101.90
83.00
105.10
98.20
88.80
May 8
June 17
June 28
Plot 1
Plot 2
Plot 3

Conclusions

- All plots received less than 1.5 inches of rainfall from June-July. Plot 1 was the only plot that received additional water.
- Plot 2 was viewed as a failure due to weed overgrowth and a lack of moisture, mainly due to minimal soil coverage.
- Plot 3 shows the importance of keeping the soil covered and planting a diverse polyculture of seeds so that they can work together for nutrients and moisture conservation.

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