

# Testing Organic Pesticides for Vegetable Production in the Southeast United States

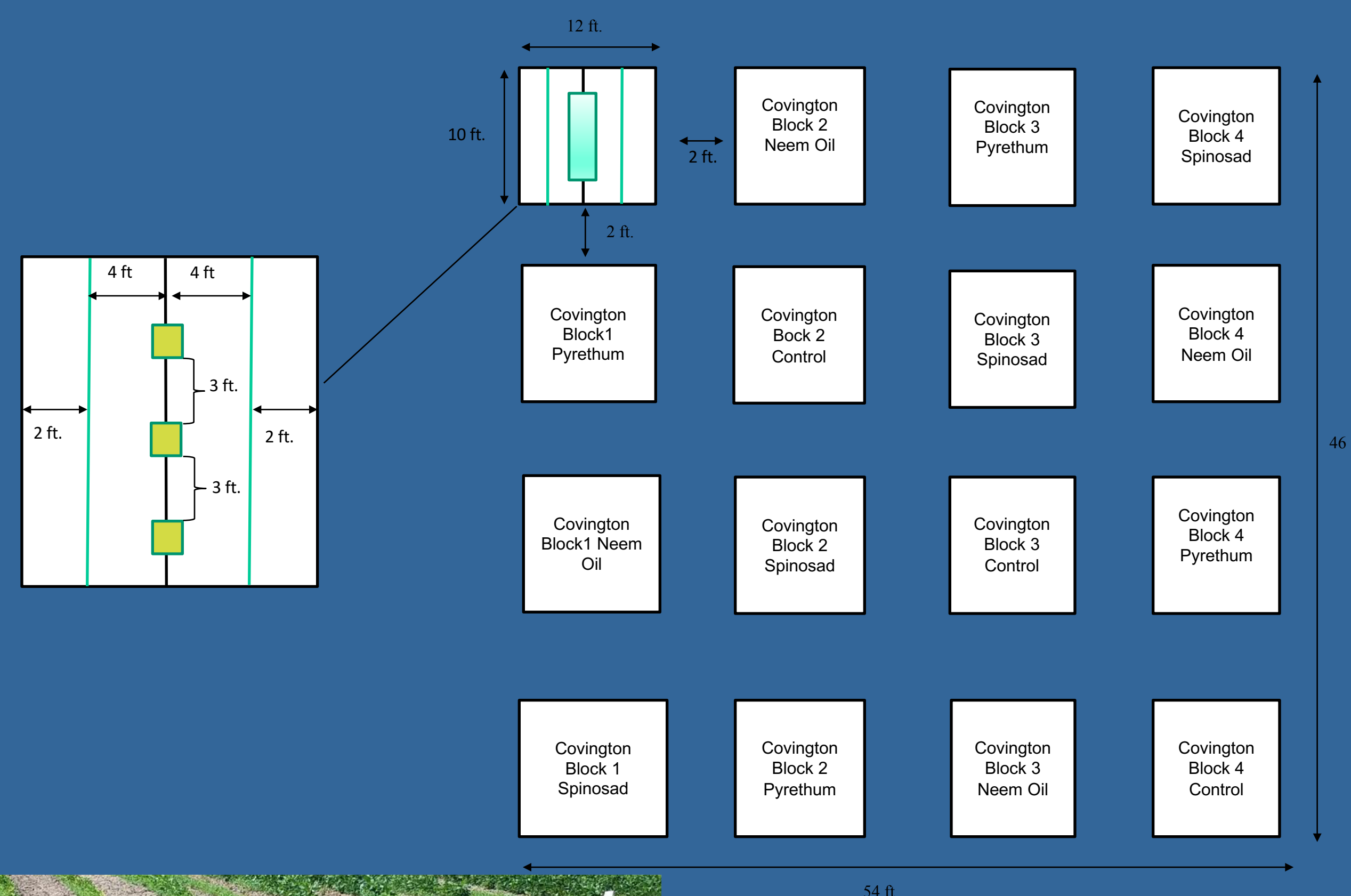
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## Abstract

Organic farming is an integrated cropping system that excludes use of inorganic fertilizers, inorganic pesticides, antibiotics, genetically modified organisms and growth hormones. In the United States, organic farming represents an industry that is over \$5.5 billion. The Midwest (Wisconsin) and the West coast (California) have the greatest land acreages under production of organic food. The southeastern (SE) region of the United States (USA), excluding states Florida and North Carolina, is behind all other regions in organic production. Rapid decomposition of organic matter in soil and proliferation of pests associated with the warm temperatures and high precipitations are some of the reasons why organic production is limited in the SE. A pilot study was carried out at Tuskegee University to test effectiveness of selected OMRI (Organic Materials Review Institute)-approved organic pesticides in the management of a number of major insect pests. Selected organic pesticides have the following active ingredients: Azadirachtin, spinosad, and pyrethrins. The field experiment will be set out as a completely randomized block (CRD) design (3x3x4x4) representing three vegetable crops (sweet potato, squash and southern peas), three cultivars of each crop, and three pesticides (and a control) replicated four times. The objectives of this study are to: 1) identify host preference difference to various varieties and 2) finding the effectiveness in the performance of pesticides in reducing various pests. Results will be presented.

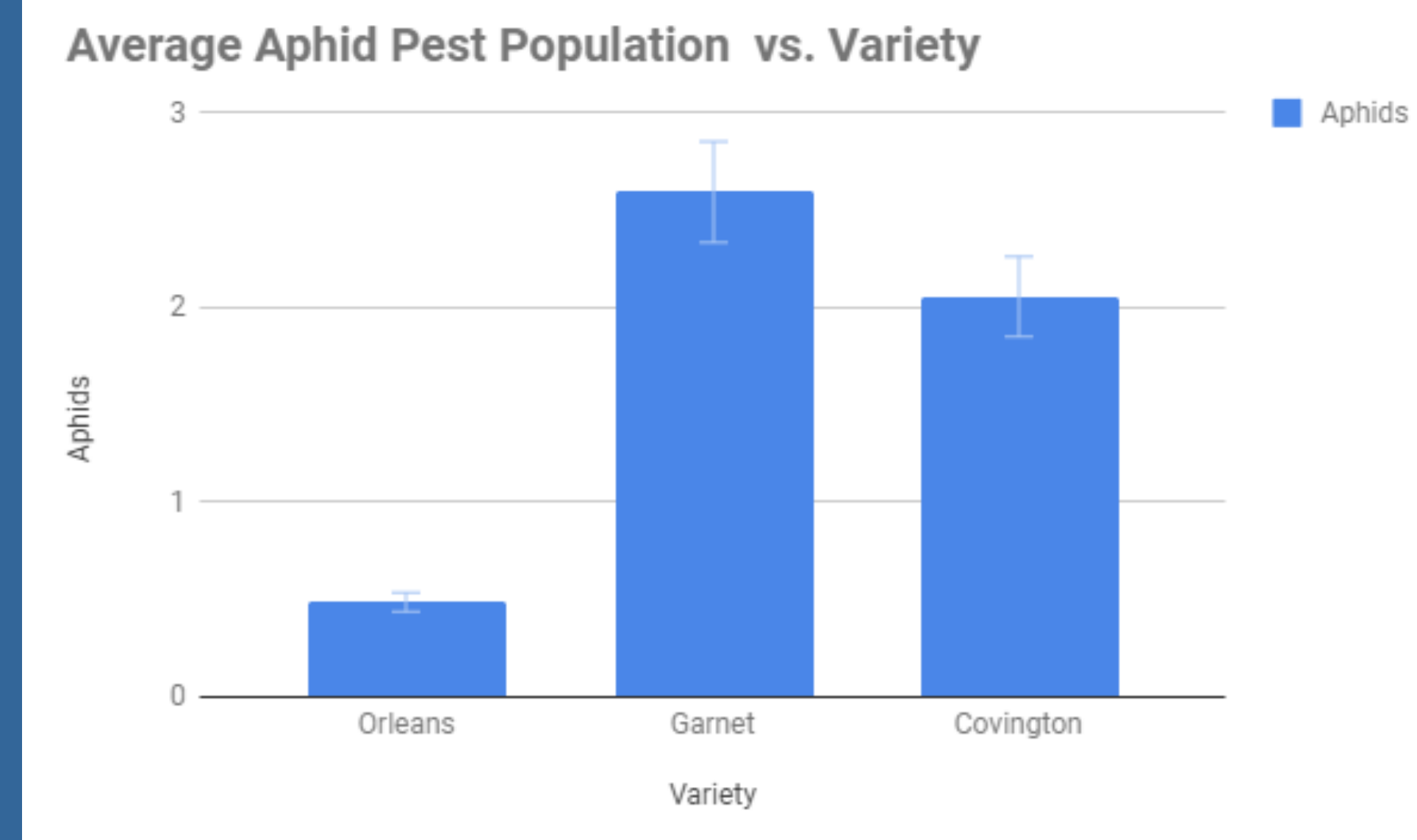
## Methodology

- Block Design
- 3' x 5" yellow sticky cards were mounted on wire stakes 3' apart in the middle row of the three row plots
- Insects were analyzed using a microscope as well as insect identification keys found in various books
- Sweep nets were used
- Visual assessments of crops were conducted before and after spraying pesticides
- Application of pesticides were based on the specific treatment each subplot was allotted to



## Results

- Significant differences in both pest population and variety
- Significant differences in varieties compared to the population
- Significant difference in yield per variety for sweet potatoes
- Significant difference in percent changes when applying different pesticide.



## Conclusion

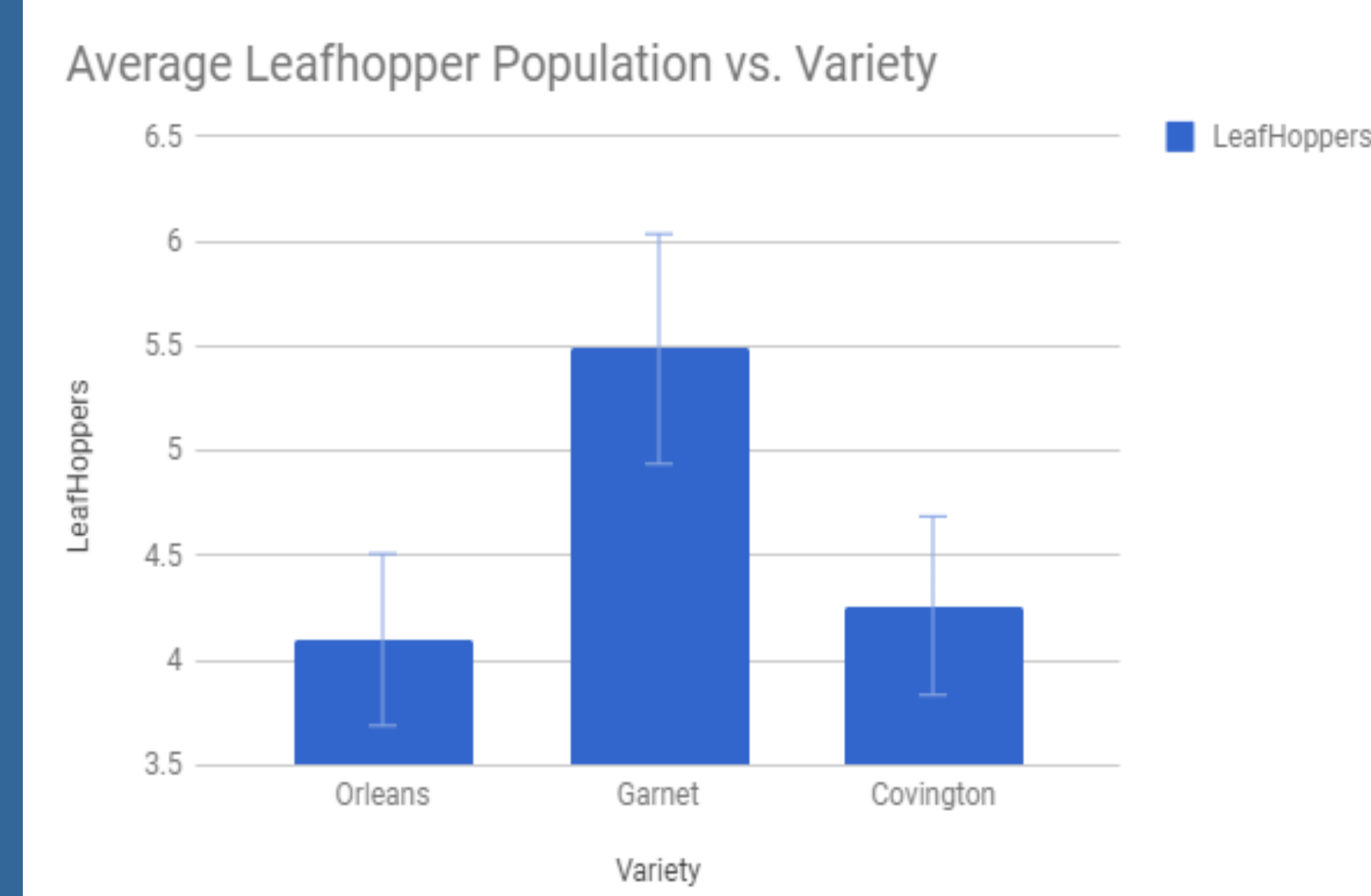
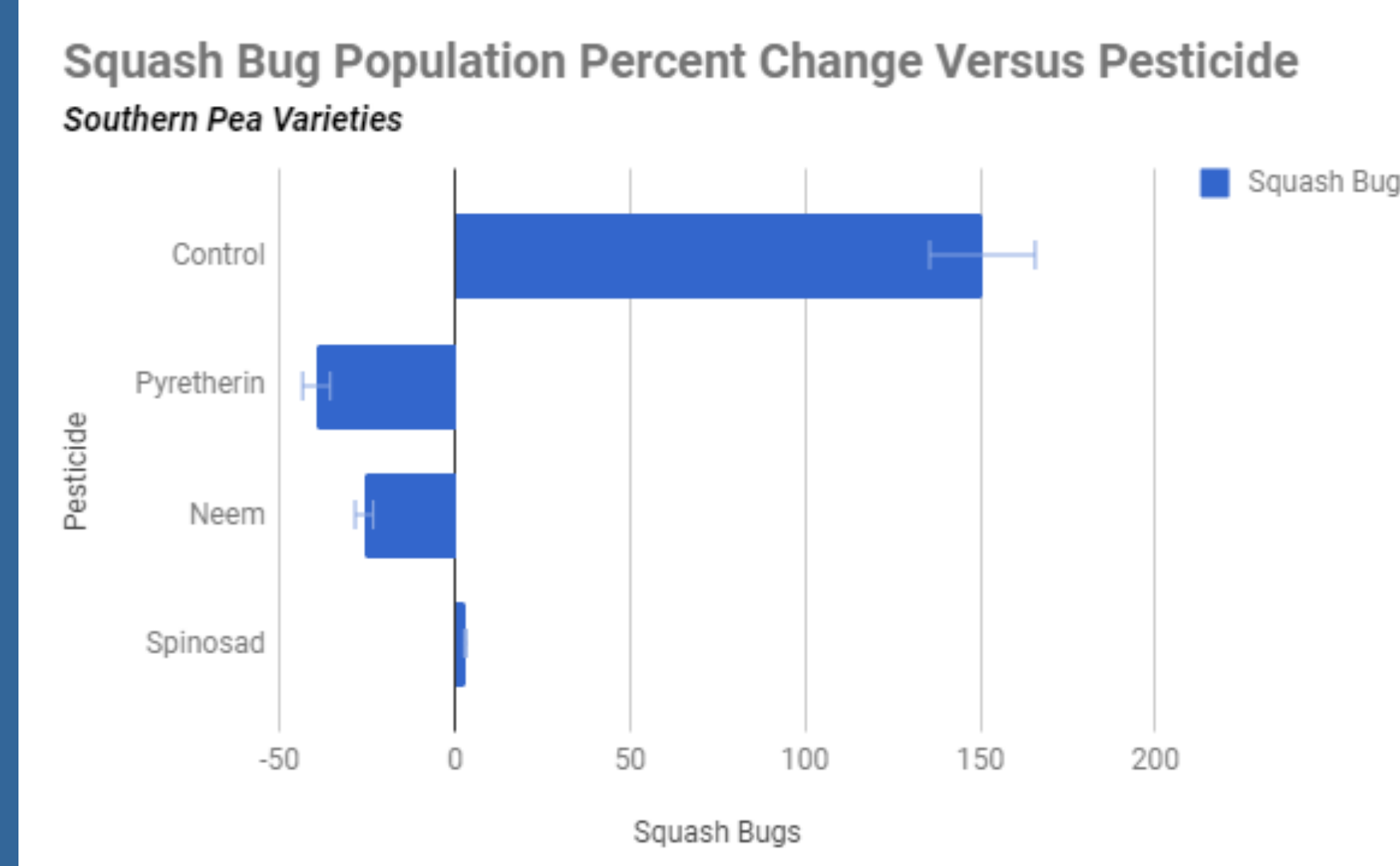
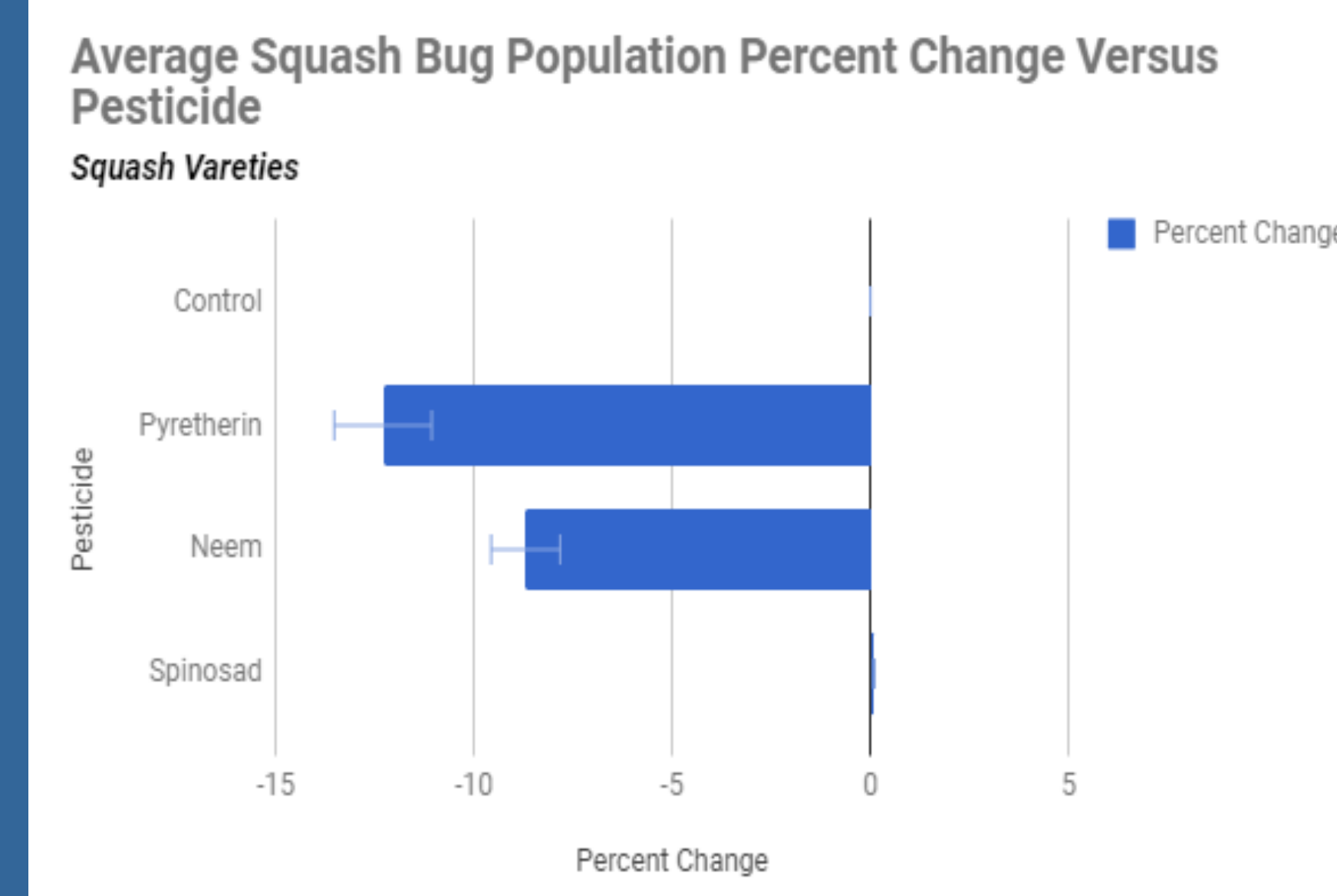
- Host preference present in leafhoppers for the sweet potato variety, Orleans
- Pesticide containing the active ingredient pyrethrins has the greatest performance when compared to pesticides that contained neem and spinosad

## References

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## Introduction

- With the popularity of organic farming steadily increasing in the United States, the southeastern region of the country lags behind. One of the reasons is due to the higher pest pressures caused by warmer temperatures. In comparison to conventional farmers, the use of integrated pest management (IPM) practices is of greater importance and used more intensively amongst organic farmers because reliance on quick fix pesticides is not possible.
- The overall goal of this project is to improve the infrastructure of organic practices throughout the southeast. In order to begin to achieve this goal, we began this project by measuring the total pest population amongst the three crops, southern peas, squash and sweet potatoes as well as analyzing the visual assessments taken before and after the spraying of pesticides.



## Acknowledgements

- This project was supported by USDA/NIFA Competitive Grant Program
- College of Agriculture, Environment, and Nutrition Sciences
- George Washington Carver Experiment Station
- Donald Brooks, Sonu Koirala, Rasheda Beckles, Douglass Curtis, Asia Shipp and other students who helped with data collection