Insecticides are not always the answer for combating pests in onion fields

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I. Introduction

Onion thrips are the insect vector of a severe virus in onion, Iris yellow spot virus. The thrips and virus are primary threats to the economic stability of onion production worldwide. Overuse of insecticides to suppress onion thrips has resulted in the development of resistance, reduced performance of insecticides, and reduced onion yields.

There is a compelling desire to find alternatives to better manage these pests. In this study, we assessed onion thrips populations on onions with low and high nitrogen rates, and near and far from corn and wheat, two common neighboring crops in the onion farm-scape.

II. Methods

The research was conducted at the Utah Agricultural Experiment Station in Kaysville, UT in the summer of 2015. The onion, corn, and wheat plots were established as part of a long-term crop rotation and nitrogen rate study.

Plots were treated with either a high rate (350 lb. N per acre) or low rate (120 lb. N per acre) of nitrogen fertilizer.

Each onion plot was next to a wheat plot on one side and a corn plot on the other side. No insecticides were applied to any of the crops.

Samples consisted of three whole onion plants cut just above the bulb, three whole wheat plants cut at the soil line, and the upper one-third of three corn plants.

III. Results

• Onions growing next to corn had more onion thrips eggs, and more adults and larvae, than those in the center of the plot. Onions growing near wheat had an intermediate number of thrips eggs and fewer adults and larvae than in the center of the plot.

• Onions growing next to corn and wheat had smaller bulbs than those in the center of the plot.

IV. Conclusions

We found that growing onions next to corn increased the number of onion thrips infesting onions and reduced the size of onion bulbs. Wheat as a neighboring crop did not influence thrips populations as much as corn. We conclude that corn is attractive to thrips, and increases their populations on onion when it is grown nearby. Corn is also a high user of nitrogen and water, thus onions next to corn may be more stressed and susceptible to thrips infestation.