

MONITORING ONION PESTS ACROSS THE TREASURE VALLEY – 2021

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Objective

Provide growers with regional assessments of seasonal pest abundance in commercial fields.

Introduction

Growers continue to be challenged in how to manage thrips and iris yellow spot virus, which is transmitted by thrips. The Idaho-Eastern Oregon region has a range of different growing areas, and thrips and virus pressures vary across those areas. Growers have asked for assistance in monitoring pest pressure within their areas so that they can make better informed management decisions.

Methods

In 2021, sixty commercial onion fields (7 - 12 fields in each of seven growing areas) were monitored for thrips, IYSV, and other pest problems on a weekly basis. Those areas were 1) Oregon Slope/Weiser, 2) Vale, 3) Ontario, 4) Nyssa, 5) Adrian, 6) Fruitland/New Plymouth, and 7) Parma. Forty-nine of the fields were yellow onions, 8 were red onion, 2 were white onions, and 1 was a shallot field. A minimum of 10 plants per field were sampled for adult and immature thrips; counts of the number of green leaves were taken on those plants as a measure of crop development. Up to 50 plants per field were inspected for thrips early in the season when infestations are sporadic. A minimum of 200 plants per field were inspected for symptoms of iris yellow spot virus.

Averages of adult and immature thrips, and IYSV incidence for each district were reported to growers, crop advisors and others each week from May 14 to July 31 when tops in most fields had begun to go down. Monitoring ended earlier in 2021 than other years because of the earlier senescence of the crop.

Results and Conclusions

Overall, thrips pressure in 2021 was lower than in previous years although some fields had extremely high thrips numbers. Figures 1 and 2 shows mean total thrips per plant in untreated plots at the Malheur Experiment Station from 2013 to 2021. In 2021, there was no discernable peak abundance in thrips at the Experiment Station site. Counts tended to range from 5 to 20 thrips per plant through June and July.

Thrips had begun colonizing commercial fields by the first week of monitoring (May 15). The fields that had thrips at this point were at the 2- or 3-leaf stage, which is the typical growth stage

where thrips begin to colonize onions. Fields with younger plants (flag leaf, first leaf) had not yet been colonized by thrips. Thrips numbers were low (<0.1 per plant) and sporadic within colonized fields. Less than 5% of plants had thrips at this time (Figure 4). A few immature thrips were present on a few plants at the 3-leaf stage in a red onion field in Parma, indicating that adults had colonized plants at least within the past week.

Thrips populations built through June, but they remained between 5 to 30 per plant for most of the season (Figure 4). There was no distinct peak in abundance as compared with other years where thrips abundance peaks in late June through mid-July. Approximately 90% of plants had thrips present during this time (Figure 3). The exception to this trend for 2021 were some fields in the Parma area where extremely high numbers of thrips were present through July (Figure 4).

The first plants infected with iris yellow spot virus (IYSV) were detected the week ending June 26 (Figure 7). Virus was present at low levels (<3%) in fields in Fruitland (3%), Ontario (<1%), and Parma (<1%) at this time. These areas had the greatest virus pressure for the season (Fruitland/New Plymouth 47%; Parma 33%; Ontario 13%). Iris yellow spot was detected in all areas; 86% of monitored fields had infected plants. However, the incidence of infected plants remained less than 5% in Adrian, Nyssa, Oregon Slope/Weiser, and Vale. Although some fields had a substantial amount of iris yellow spot, the virus overall was not as severe as in some past years.

Note that Figures 3 through 7 show averages for each growing area and that patterns among individual fields vary. Individual fields often showed peaks in thrips abundance, which largely depended on when and what insecticides were applied. In 2021, several fields had late season infestations of adult thrips as tops were going down. In some cases, these infestations led to late season infections of iris yellow spot. Figure 8 shows patterns for three representative fields with varying degrees of thrips pressure.

Acknowledgments

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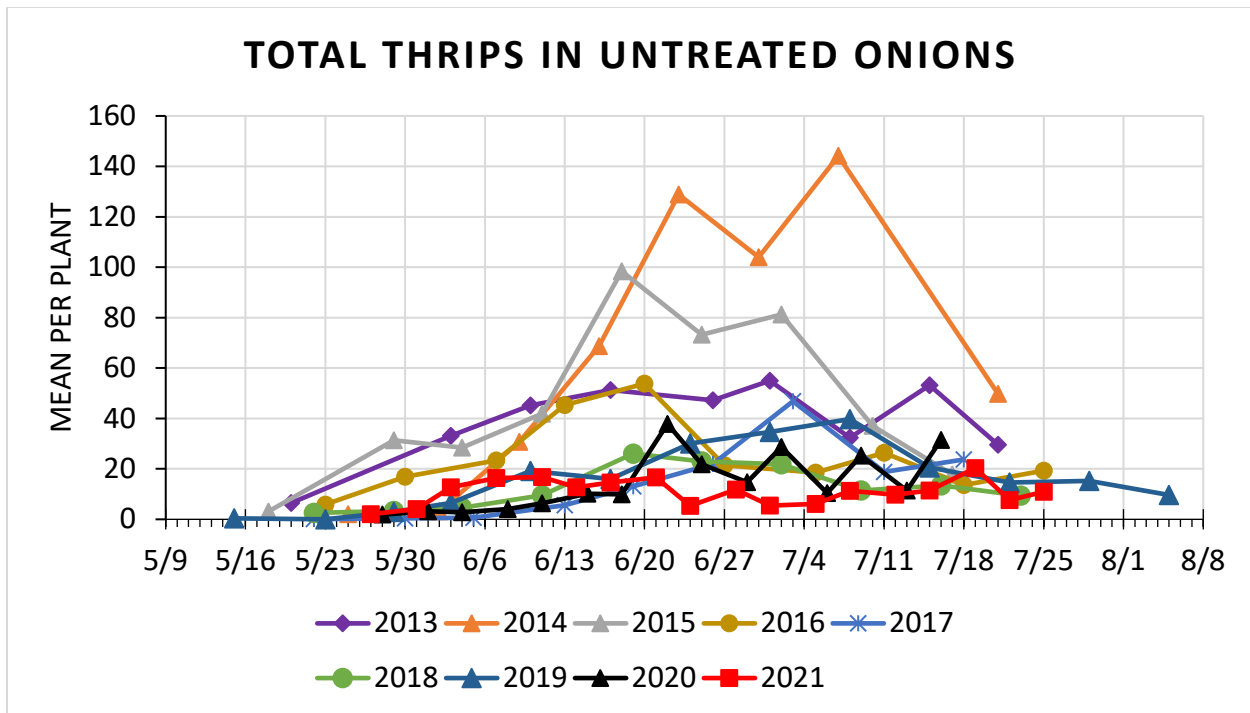


Figure 1. Mean total thrips per plant for each sample date in untreated onion plots at the Malheur Experiment Station from 2013 to 2021. The 2021 data are shown by the red squares lower on the graph.

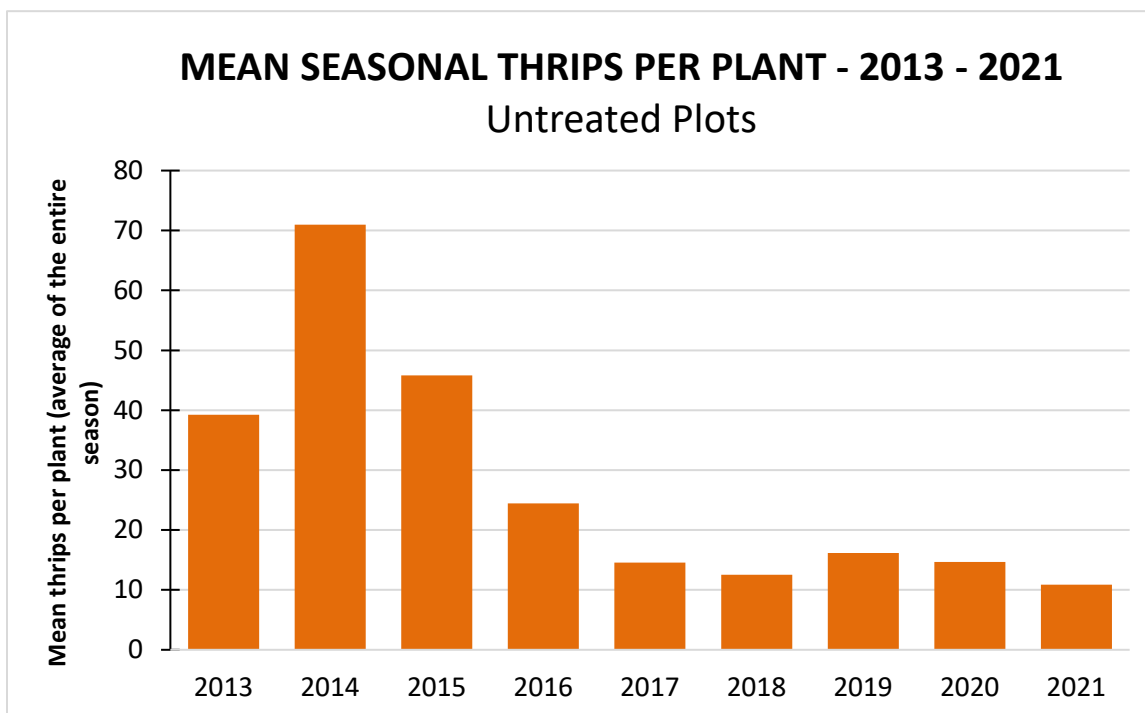


Figure 2. Mean total thrips per plant, averaged over the season, in untreated onion plots at the Malheur Experiment Station from 2013 to 2021.

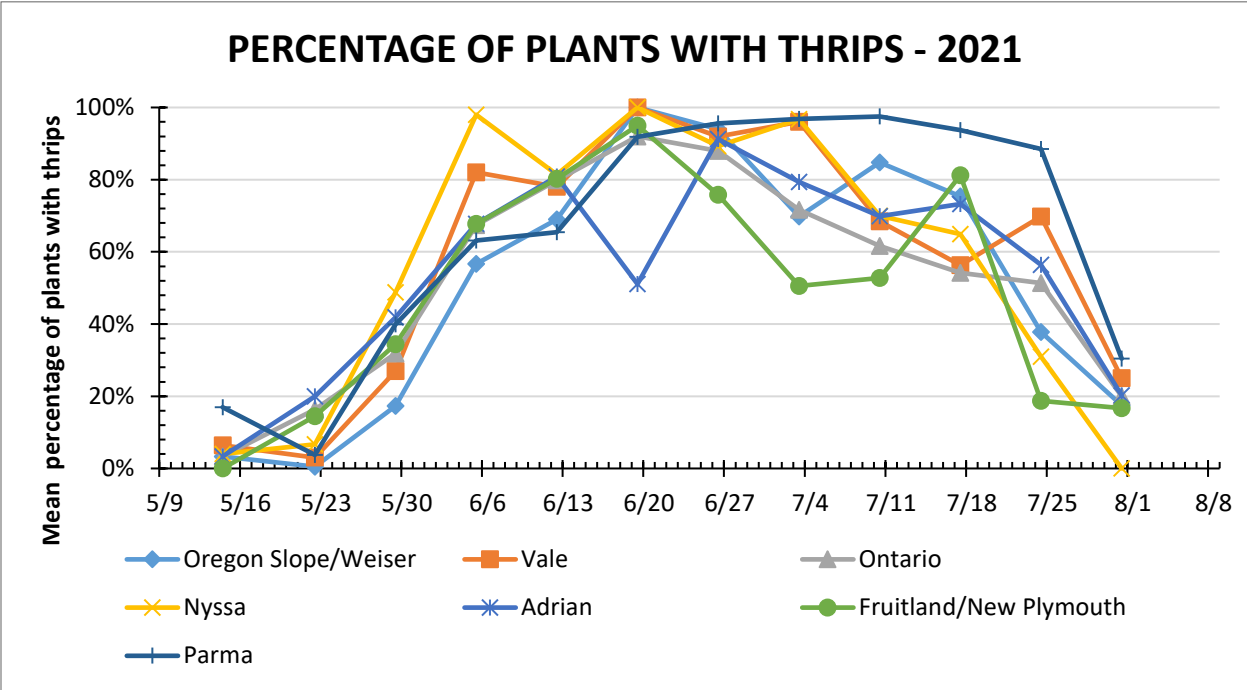


Figure 3. Average percentage of onion plants with thrips present during the 2021 season from different growing areas of the Treasure Valley.

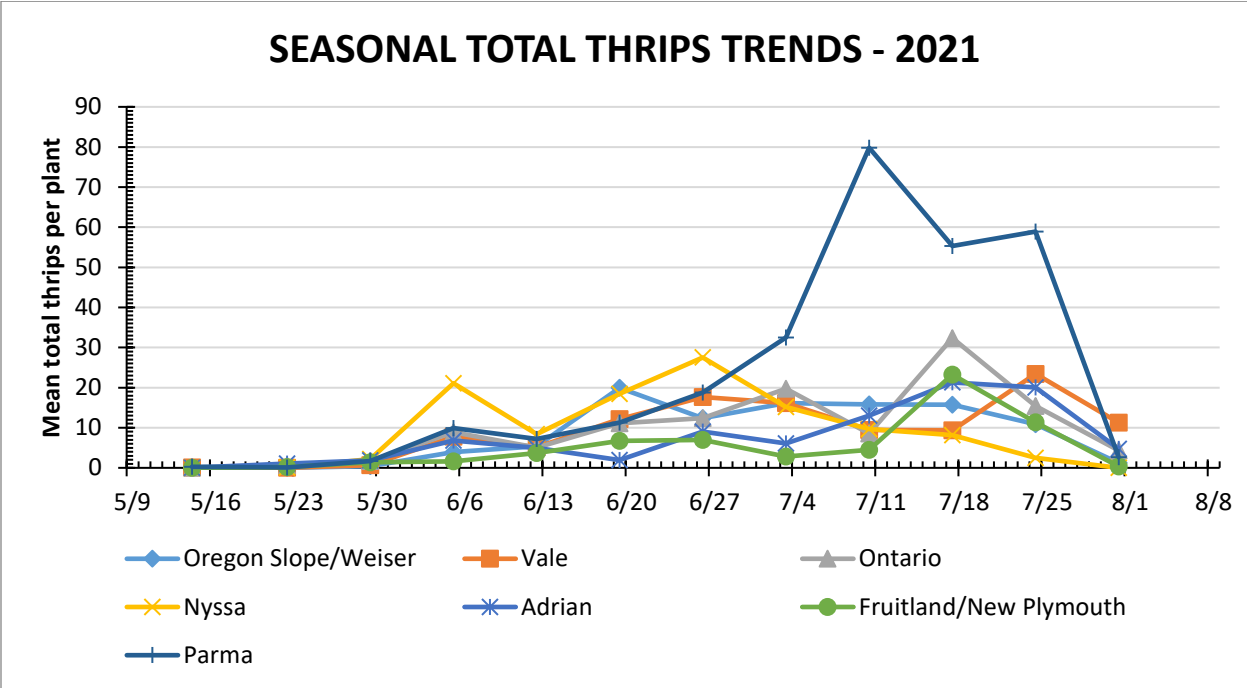


Figure 4. Seasonal trends of total thrips in onion growing areas of the Treasure Valley during 2021.

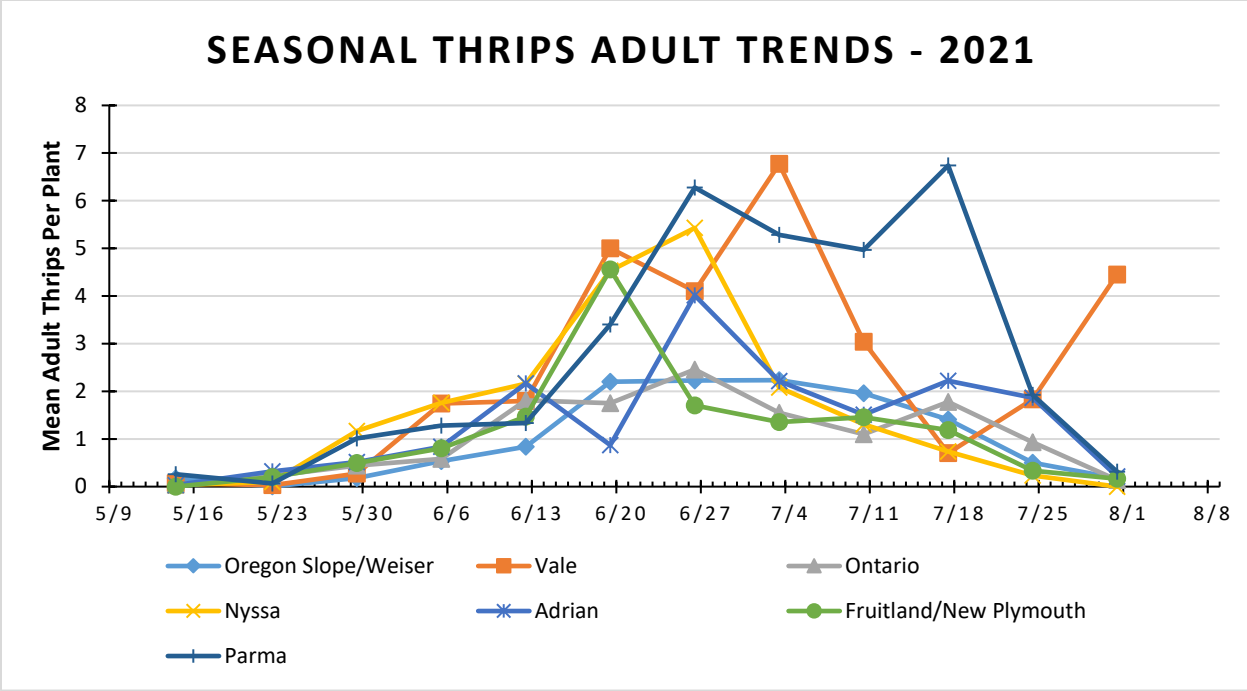


Figure 5. Seasonal trends of adult thrips in onion growing areas of the Treasure Valley during 2021.

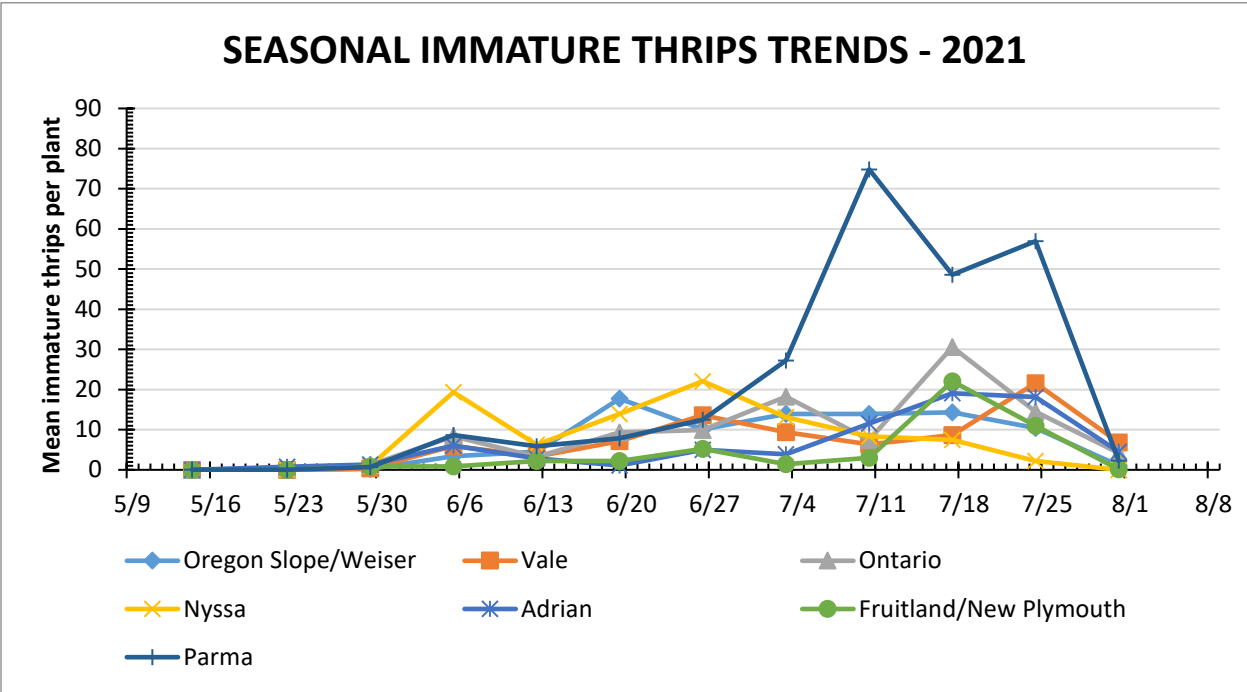


Figure 6. Seasonal trends of immature thrips in onion growing areas of the Treasure Valley during 2021.

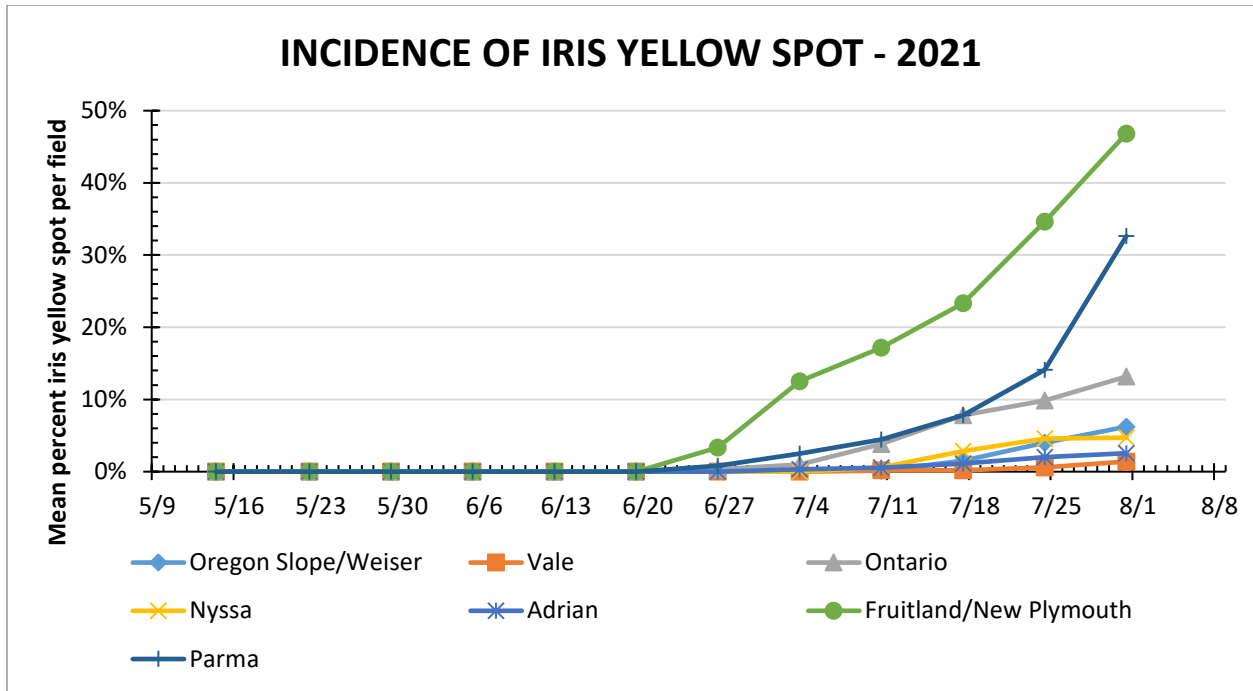


Figure 7. Seasonal incidence of Iris yellow spot virus in commercial onion fields from different growing areas of the Treasure Valley during 2021. Values are the mean percentage of infected plants per field for each area.

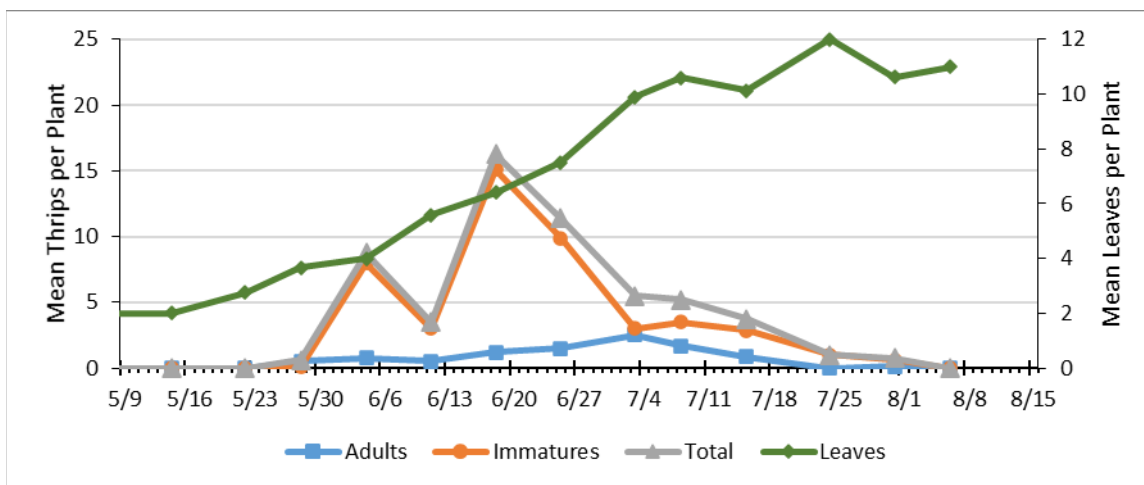
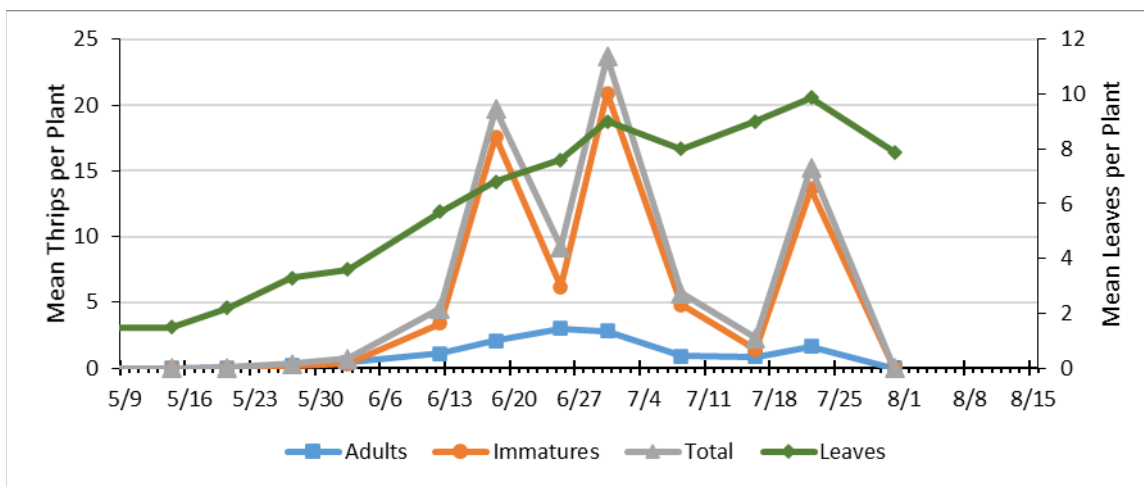
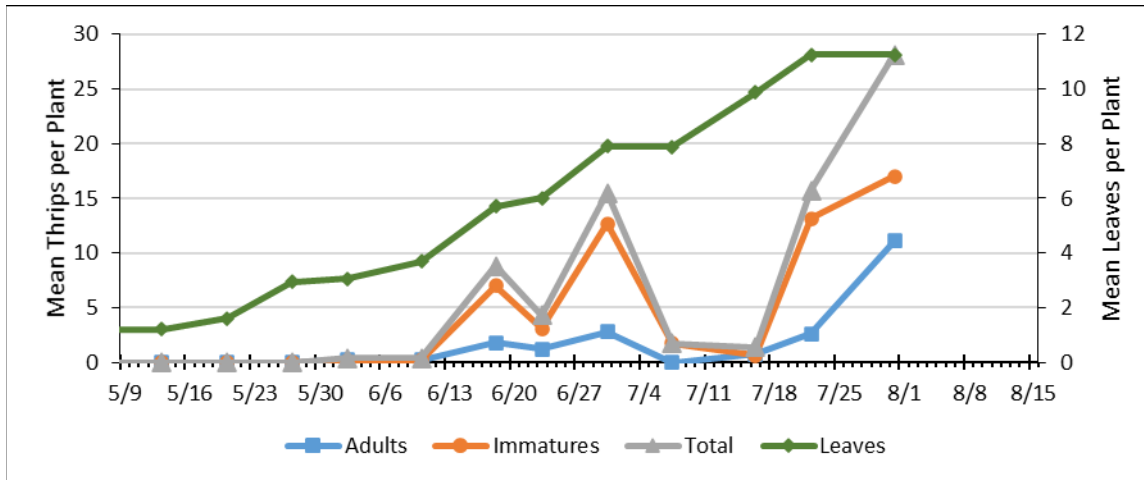


Figure 8. Representative trends for individual fields during the 2021 growing season. Note different scale of the axis for numbers of thrips on each graph.