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Research Article

Area wise entomological survey of cotton whitefly in Okara

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Abstract

An entomological survey on pest scouting was conducted to evaluate area-wise comparison of above and Below Economic Injury Level (AEIL and BEIL) of whitefly in standing cotton field in Okara during 2013-2014. The area-wise infestation of whitefly was recorded Above Economic Injury Level i.e. 0%; 3.21%; 3.74%; 3.51%; 0% and 0% however 46.62%; 32.80%; 22.97%; 31.35%; 45.96% and 34.96% was Below Economic Injury Level during May-October 2013. The infested area of cotton whitefly was recorded Above Economic Injury Level i. e. 0%; 2.91%; 2.44%; 1.69%; 0.60% and 0% however 8.06%; 22.66%; 31.98%; 22.28%; 20.48% and 23.12% area was infested Below Economic Injury Level during May-October 2014.

Keywords: Entomology; Survey; Cotton, Whitefly, Okara

Introduction

Agriculture needs a major revolution and significantly contributes towards the improvement of livelihoods of the population as well as macro-economic welfare and prosperity. Pakistan's agriculture and food security concerns remain high on the policy agenda at national level. Due to intensive actions, the performance of agriculture has been encouraging with growth of 2.1% (Anonymous, 2013). Cotton (Gossypium hirsutum L.) is cash crop popularly known as silver fiber, back bone of country; considered the forth largest producer and third largest consumer throughout the world (Zeeshan et al., 2010). The agriculture's crop sub-sector component includes important crops grew by 3.7% while other crops and cotton ginning showed a negative growth of 3.5% and 1.3%. Important crops accounted for 25.6% of agricultural value added and has experienced a growth of 3.7% in fiscal year 2013-14 against growth of 1.2% during the same period of last year. The cotton having a share of 1.4% in GDP and 6.7% in agriculture value addition and is an important source of raw material to the textile industry. Textile industry fetched foreign exchange of US$ 10.385 billion during 2013-2014. The crop was cultivated on an area of 2806 thousand hectares, 2.5% less than last year's area of 2879 thousand hectares. The production stands at 12.8 million bales against the target of 14.1 million bales, showing decline of 9.2% against the target and decline of 2.0% over the last year production of 13.0 million bales. The cotton production is decreased due to fall in the area sown which is due to less rates of cotton nationally and internationally prevailed during last two years that discouraged the growers to cultivate maximum area under crop and shifting the area to maize and rice crops in some districts of Punjab due to their better market returns (Anonymous, 2013). However several insect pest complexes are responsible for causing yield reduction in cotton either directly through

sucking cell sap or even eating different parts of plant. Insect pests are major limiting factors in producing of cotton and hundreds of species of insect pests found in a cotton field, but 10-15 of those species are capable of producing economical damage (Greene, 2012). Whiteflies (Homoptera: Aleyrodidae) are small insects; feed on nymphs and adults on plant sap with piercing-sucking mouthparts (Stewart, 1914). A serious outbreak of cotton whitefly (Bemisia tabaci) was recorded in August, 1974 and completely destroyed the crop in parts of Lahore, Sahiwal, Faisalabad, Jhang, Sargodha and Rahim Yar Khan Districts where majority of the farmers had to plough up their cotton fields (Yunus et al., 1980). Therefore an entomological survey was carried out on cotton whitefly in the area of Okara to evaluate area-wise of infestation (%) during 2012-2013.

Materials and Methods

An entomological survey on pest scouting was conducted to evaluate month-wise infestation (%) of area of above and Below Economic Injury Level (AEIL and BEIL) of whitefly in cotton field in Okara during 2013-2014. The entire District was divided into small pockets and pest scouting was done by Mario Method, however pest scouting was done at morning and evening time. The pest attack was recorded from three upper, middle and lower portions of leaves from randomly selected plant then taken its average (Shah et. al., 2015). The above and below EIL of this pest was recorded by selection of total infestation divided by total area during the month and made its percentage.

Results and Discussion

From Figure-1, area of Above Economic Injury Level of whitefly was recorded 0%; 3.21%; 3.74%; 3.51%; 0% and 0% however 46.62%; 32.80%; 22.97%; 31.35%; 45.96% and 34.96% was recorded Below Economic Injury Level during May-October 2013. The area of Above Economic Injury Level of cotton whitefly was recorded 0%; 2.91%; 2.44%; 1.69%; 0.60% and 0% however 8.06%; 22.66%; 31.98%; 22.28%; 20.48% and 23.12% area was infested Below Economic Injury Level during May-October 2014. These results were in accordance to Shah et. al., (2015) who reported in their spot-wise entomological survey that the population of whitefly was recorded maximum during June to October and the population trend was increasing with the passage of time.

Conclusion

At the end it was concluded that the population of cotton whitefly was recorded at maximum level from June to August during both the years. However the farmers are advised to be vigilant in these months to overcome the problem of cotton whitefly.

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