



Prevalence of whitefly (*Bemisia tabaci*), Jassid (*Amrasca biguttula*) and Thrips (*Thrips tabaci*) in standing cotton crop in Toba Tek Singh, Punjab Pakistan

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Abstract

The study was conducted at Pest Warning & Quality Control of Pesticides, Toba Tek Singh, Punjab-Pakistan during 2014. The percentage spot of Above Economic Injury Level (AEIL) of (*Bemisia tabaci*), Jassid (*Amrasca biguttula*) and Thrips (*Thrips tabaci*) was recorded on daily basis then converted into month-wise and compared with metrological data. The data showed that during June 12.30% spots of Whitefly were AEIL with temperature ranged 41.95°C-27.20 °C to which gradually increased in July (16.19%) with temperature ranged 37.87°C-22.15 °C to with relative humidity (64.15-75.08%) and rainfall (4.50-18.53mm). In August-October percentage spots of Above EIL of Whitefly was 12.16% which gradually decreased due to gradual increased in relative humidity up to 84.45% and rainfall 28.15mm. In June, Jassid attack was recorded nil which gradually increased in July (7.95%), August (15.41%) then decreased trend was developed with the passage of time as in September (14.75%) and in October (11.87%). The maximum spot percentage of Thrips was recorded in June (7.12%) and July (9.09%) with relative humidity ranged 64.15%-75.08%. After that in August AEIL spots decreased (5.08%-0%).

Keywords: Pest, Scouting, Survey, Cotton, *Amrasca biguttula*, *Thrips tabaci*, *Bemisia tabaci*, Toba Tek Singh, Punjab-Pakistan.

Introduction

Cotton (*Gossypium hirsutum* L.) is a major/cash crop of farmers and textile industry also. Farmers desired high yielding while industry demanded superior quality of fibers trait of Cotton. In Pakistan per hectare yield is low compared to major Cotton producing countries. Cotton breeds obtained significant progress in producing high yielding varieties through various genetic manipulations and breeding approaches (Anonymous, 2009). Cotton seed is the 2nd largest source of vegetable oil production in world (Singh et al., 2004). In Pakistan, cotton contributes about 50-62% of total domestic edible oil production. It contributes 24.61% share in total value addition in major agricultural crop of Pakistan (Anonymous, 2011).

Among various sucking insect pests, (*Bemisia tabaci*), Jassid (*Amrasca biguttula*) and Thrips (*Thrips tabaci*) are the most serious pest of cotton. These insects suck

cell sap from the lower side, upper side of leaves and secrete honey dews on which sooty moulds develop, which interferes with plant photosynthesis ultimately reducing yield. Whitefly adults transmit viral disease called cotton leaf curl virus (Buttler and Hennerberry, 1994). In thrip attack the damage symptom was recorded as a clear cut silvery appearance on lower surface of leaf. Among different control measures the chemical control of pest is quick and rapid one. Heavy infestation weakens plants, causes wilting and yellowing of leaves ultimately death of the plant. However excessive usage of pesticides is harmful however indiscriminate usage of synthetic pesticides led to adoption of integrated pest management (IPM) system. Host, plant resistance is major component of IPM. Therefore varietal resistance can play a vital role in compatibility of pest control tactics of IPM (Jin et al., 1999; Khan et al. 2003). Therefore the entomological study had been planned to evaluate

percentage spot of above economic injury level (AEIL) recorded on daily basis then convert on month-wise of sucking pests of cotton in agro ecological condition of Pest Warning and Quality Control of Pesticides, Toba Tek Singh during 2014.

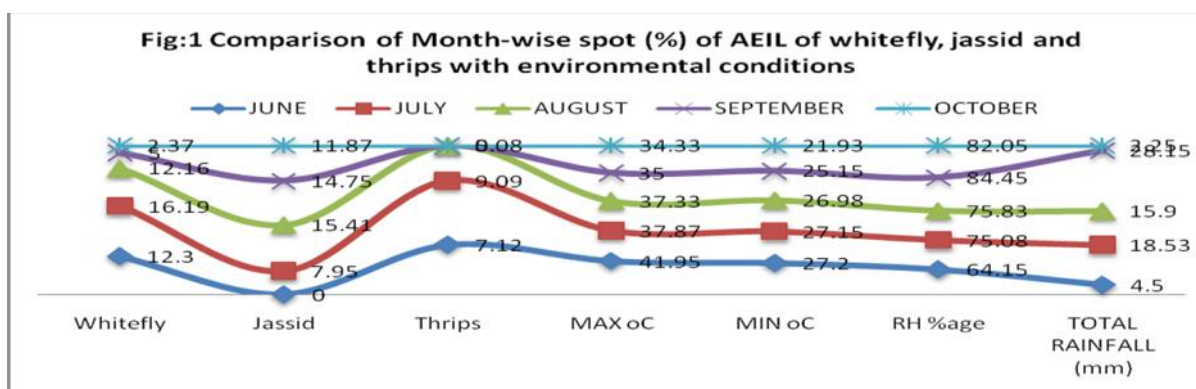
Materials and Methods

The study was conducted at Pest Warning & Quality Control of Pesticides, Toba Tek Singh, Punjab-Pakistan during 2014. The percentage spot of Above Economic Injury Level (AEIL) of (*Bemisia tabaci*), Jassid (*Amrasca biguttula*) and Thrips (*Thrips tabaci*) was recorded on daily basis then converted into month-wise and compared with metrological data. The entire district was divided into small pockets/plots and pest scouting was done manually by Mario Method at morning & evening time. The attack was recorded from upper, middle and lower leaf from randomly selected twenty plants (Shah et al., 2015). Insect pest population of 20 leaves was collect and divided on 20, resulting per leaf of insect pest population was recorded. The EIL of both nymph & adult of Jassid was 1/leaf, Thrips 8-10/leaf & Whitefly was 5/leaf during the whole season.

Results and Discussion

From figure-1, the data showed that during June 12.30% spots of Whitefly were AEIL with temperature ranged 41.95°C-27.20 °C to which

gradually increased in July (16.19%) with temperature ranged 37.87°C-22.15 °C to with relative humidity (64.15-75.08%) and rainfall (4.50-18.53mm). In August-October percentage spots of Above EIL of Whitefly was 12.16% which gradually decreased due to gradual increased in relative humidity up to 84.45% and rainfall 28.15mm. In June, Jassid attack was recorded nil which gradually increased in July (7.95%), August (15.41%) then decreased trend was developed with the passage of time as in September (14.75%) and in October (11.87%). The maximum spot percentage of Thrips was recorded in June (7.12%) and July (9.09%) with relative humidity ranged 64.15%-75.08%. After that in August AEIL spots decreased (5.08%-0%). These results were in accordance to Shah et. al., (2015) who reported in his survey that whitefly infested hot spots of AEIL was gradually increased from June-August, but September-October results were contradictory to him. These results of Thrips were in accordance to Shah et al. (2015) who reported in his experimental that Thrips above EIL was gradually increased from June-August and decreased down from September- October. These results of jassid were in accordance to Shah et al. (2015) who reported that in June aphid attack was gradually increased from July-October with minimum extant. These results were contradictory to Shah et al., 2015. These results were in accordance to Sontakke et al., (2000); Natwick et al., (2002).



Conclusion

At the end it was concluded from the experiment that the spots (%) of above economic injury level of whitefly were increased from June- July after that decreasing trend was developed from August-October. Percentage of above EIL spots of Jassid was NIL in June; however the spots were increasing from July-August and decreased down slowly up to

October. Above EIL spots (%) of Thrips were increased from June-July but NIL during August-October. However the farmers were advised to be vigilant in these months and regular pest scouting will be conducted with the consultation of experts of Pest Warning and Quality Control of Pesticides to overcome the problem of pests in agro-ecological zone to save from pest complex of their crops.

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