

REPORTING VARIETAL PREFERENCE OF THRIPS *THRIPS TABACI* LIND ON COTTON

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ABSTRACT: The experiment was carried out at the Nahiyoon Agricultural Farm, village Haji Darya Khan Nahiyoon Khesana morri District Hyderabad during the kharif cotton growing season during-2014. In this trial five cultivars of cotton viz., BH-95, MNH-554, MNH-552, RH-400, and NIAB-78 were sown in a dibbling method in rows of 10 meters and each cultivars replicated three times. Observations were taken at 15 days after crop germination by counting the nymph and adults of thrips on five leaves per plant i.e., two from bottom, two from middle and one leaf from the top of each plant. The data revealed that thrips attacked all the cotton cultivars from germination till harvesting. The maximum mean thrips population per plant was recorded RH- 400 cultivar (6.21), followed by MNH-554 (5.33), MNH-552 (5.23), BH-95 (5.08) and NIAB-8 (3.80). Among all varieties, NIAB-78 was comparatively more resistant than others. The RH-400 variety was more susceptible than the others. It is therefore suggested that NIAB-78 variety may be sown to avoid the attack of thrips on cotton.

Keywords: Cotton thrip, *thrip tabaci*, Cotton Varieties.

INTRODUCTION

Cotton, *Gossypium hirsutum* L. is the most important cash crop of Pakistan. Besides fiber it also provides food and feed in the form of oil and cotton seed cake, for the human and animal consumption respectively. Cotton plays a very important role in the economy of Pakistan and wellbeing of several million people depends upon its good production and utilization in the country. It is commonly known as silver fiber. It also brings huge amount of foreign exchange to the national exchange through export of its raw material as well as finished products. Cotton is a soft, fluffy staple fiber plant of the genus *Gossypium*; and belongs to family Malvaceae [1, 2]. The greatest diversity of wild cotton species is found in Mexico, followed by Australia, Asia and Africa [3]. Botanically, there are three principal groups of cotton that are of commercial importance. The first, (*Gossypium hirsutum*), is native to Mexico and Central America and has been developed for extensive use. The sucking complex Thrips, *Thrip tabaci* Lind are very minute, slender, and yellow in color and active insects. During development and vegetative growth stage of cotton, the leaf eating and sucking insect pest's occurrence the cotton plants. Among them, Jassid, *Amrasca devastans* Dist., Thrips, *Thrips tabaci* Lind And whitefly, *Bemisia tabaci* Genn. Are the major sucking pest, they suck the cell sap from leaves resulting on necrosis which reduce the photosynthesis activity and consequently effect the yield of the crop [4]. Thrips are important sucking insects of cotton in Sindh. Both nymphs and adults attack cotton seedlings at emergence. The injure cotyledons leaves and terminal buds of seedling by sucking and exuding sap from these parts by piercing the underside of leaf-tissue with their sharp cone like mouthparts. Ultimately they kill the shoots and cause weathering and falling of leaves and opening of premature bolls. The female's lay white bean shaped eggs on the tender leaves or buds which hatch in 5 to 10 days. The whole lifecycle is completed in 25-35 weeks in cotton season. The pest active from germination of cotton seeds till harvesting. Maximum damage starts when crop is young. The attacked

leaves develop a silvery coating on the lower surface of the leaves and the attacked leaves become bowl shaped [5].

MATERIALS AND METHODS

This Research experiment was carried out at the Nahiyoon Agricultural Farm, village Haji Darya Khan Nahiyoon khesana morri District Hyderabad during-2014. For the experiment, five cultivars of cotton, viz., NIAB-78, BH-95, MNH-554, MNH-52, RH-400 were sown on dibbling (furrow) method with space of 9 inches between plant to plant and 3 ft. between row to row. Each furrow was 9 meters long and replicated 3 times. All the recommended agronomical practices were performed uniformly in all the furrows. The weekly data was started at 15 days after planting of the crop. The population of thrips was recorded on 10 plants in each row randomly selected. The observations on each cultivar of cotton were made by counting the nymphs and adults of thrips on five leaves per plant i.e., two from bottom, two from middle and one leaf from the top of each plant. The mean population recorded on each cultivar. The collected data was statistically analyzed through software Student Statistix 8.1.

RESULTS

The varietal performances of five cultivars of cotton were tested for their susceptible/resistance quality against the thrips. The results mentioned in Table-6 indicate the overall picture of the thrips population on 5 difference cultivars of cotton. The data reveals that among all cultivars/varieties, NIAB-78 was more resistant against the attack of pest. The mean thrip number of NIAB-78 was 3.80 per plant followed by BH-95 (5.08), MNH-552 (5.23), MNH-554 (5.33), and RH-400 was a susceptible variety of cotton. On all cotton varieties the pest Population was greater during the months of July and August when the percent humidity was high. The analysis of overall data also shows that there was highly significant difference between the intervals; however, there was no significant difference among the different varieties of cotton.

Table 1. Mean overall population of thrips on different varieties of cotton.

Date of observation	Varieties				
	NIAB-78	MNH-552	RH-400	BH-95	MNH-554
16-6-2014	2.23	2.16	1.86	1.76	2.76
22-6-2014	5.16	3.6	4.66	2.5	4.03
29-6-2014	7.26	6.06	6.23	3.9	5.46
6-7-2014	3.53	7.76	8.26	6.93	7.03
13-7-2014	1.56	4.7	7.03	4.63	4.76
20-7-2014	5.2	6.3	7.36	7.16	6.86
27-7-2014	8.06	7.56	9.56	8.63	7.4
3-8-2014	5.36	7.16	9.8	8.6	7.96
10-8-2014	4.9	8.1	9.53	7.36	8.33
17-8-2014	2.8	5.93	6.4	5.6	5.33
24-8-2014	2.13	4.3	4.93	4.53	4.9
31-8-2014	0.53	3.03	3.46	3.56	3.13
7-9-2014	0.76	1.33	1.73	1.9	1.46
Total	49.51	67.99	80.81	66.06	69.41
Mean	3.80	5.23	6.21	5.08	5.33

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DISCUSSION

During present studies it was observed that the Thrips, *Thrips tabaci* Lind. preferred different varieties of cotton. Both adult and nymph damage the leaves. The infested leaves became silvery white in the beginning, but later in turned dirty white. The silvery white and up-shaped appearances of leaves are the identification marks for thrips infestation. Different authors have reported that *Thrip tabci* (Lind). One of the major sucking pests of cotton According to [6] Our results agreement with [7] who reported that Ravi cultivars was the most resistant, exhibiting the lowest average population of white-fly (2.98 per leaf), jassids (1.27 per leaf), thrips (1.84 per leaf) and mites (1.09 per leaf), and lowest percent boll damage (12.57%). The highest average population of white-fly (7.86 per leaf), jassids (3.98 per leaf), thrips (6.92 per leaf), mites (5.94 per leaf), and highest percent boll damage (31.12%) were observed in CIM-443, MNH-147, CIM-436, CIM-436, and Rehmani, respectively. Our results completely agreement with the scientists who reported that cotton (*Gossypium hirsutum*) cultivars (Krishma, CIM443, CIM448, BH36 and

FH634) to sucking insect pests. In The lowest mean population of thrips (0.74 per leaf), jassid (0.13 per leaf) and aphid (0.14 per leaf) was recorded on CIM443. The population of these insect pests was low during the period of the study. All cultivars were highly susceptible to whitefly, with mean populations of 6.74, 8.50, 9.69, 12.39 and 6.06 per leaf respectively. [8] Our findings also agreed with [9] who studied on cotton cultivars viz, AEH-1, AEH-2, AEH-4, AEH-6, CRIS-9, CRIS-121, CRIS-124, CRIS-128, CRIS-129 and Red Okra to sucking complex. It was observed that the cultivar AEH-4 showed comparatively greater resistance to attack of thrips (infestation per leaf basis) when compared with rest of the cultivars tested, and cultivar AEH-2 showed relative susceptibility to thrips attack. The population of thrips rapidly increased between Junes to July and then sharply declined up to August 8th. After this date the population of thrips remained very low and did not exceed the level of one thrip per leaf infestation, while jassids population exceeded the economic injury level from July to August.

CONCLUSION

It is concluded that thrip attacks cotton crop from germination till harvesting. The maximum mean population recorded in the months of July and August. Among cultivars NIAB-78 was more resistant against the attack of thrips as compare to other.

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