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INSECT AND MITE PESTS OF COTTON IN PAKISTAN

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An exhaustive survey and collection of insect and mite pests of cotton were carried out throughout the growing period of the crop from different localities of Pakistan during the years 1972 and 1973. As a result of this survey 93 species of insects and mites have been recorded feeding on the cotton plant.

INTRODUCTION

Cotton plant with its green succulent leaves, many large, open flowers, nectaries on every leaf and flower and a vast amount of fruit attracts a large number of insects and mites. Some of these insects and mites are useful parasites and predators while another large number feed on different parts of the cotton plant. Some of these feeders take a few bites here and there while others are notoriously obnoxious and cause heavy losses to the crop. There is need to collect all types of pest species from cotton. There is no properly identified and adequate reference collection of the pests of cotton in Pakistan. Identification of insects and mites is basic to all kinds of researches in Entomology.

Apart from few insects which regularly appear as epidemic, very little is known about the insects and mites of our cotton crop. Lefroy (1906) gave a preliminary account of Indian insect pests. He stated the spotted boll-worm, pink boll-worm, cotton leaf-roller, bud caterpillar, cotton stem borer, cotton stem weevil, red cotton bug, dusky cotton bug, cotton leaf hopper and cotton aphid as major pests and also made a mention of eight minor pests. According to Ayyar (1940), the insects associated with this crop number about two dozen or more but the really serious pests do not exceed half a dozen. Rahman (1940) gave an account of identification, distribution, life history, mode of damage, alternate host plants and control measures of pink boll-worm, spotted boll-worm, semi-looper, leaf-roller, bud moth, grey weevil, jassid and whitefly which were reckoned by him as important pests of cotton in the Punjab. Nangpal (1948) stated that about 130 species of insects and a few mite species

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were responsible to a great extent for the low yield of cotton in India. Afzal and Ghani (1953) identified four species of cotton jassids from different localities of the Punjab. According to them, *Empoasca devastans* was the only serious pest of cotton in this region. Khan and Rao (1960) listed 235 insect species damaging this crop in different parts of India. Metha and Verma (1968) included pink boll-worm, spotted boll-worm, leaf roller, jassid, dusky cotton bug, red cotton bug, whitefly and cotton aphid in the list of important insect pests of cotton.

The need to know the insect and mite pests damaging our cotton crop was keenly felt. An opportunity to start the work was provided by USDA by sanctioning a PL–480 Research Project A17–Ent–29, Grant No. FG–Pa–178 for five years and the results of this study are reported in this article.

MATERIALS AND METHODS

An exhaustive survey and collection of the insect and mite pests of cotton from different places in Faisalabad, Lahore, Jhang, Sargodha, Gujrat, Sialkot, Sahiwal, Multan, Bahawalpur, Rahimyar Khan, Dera Ghazi Khan, Mianwali, Muzaffargarh, Nawabshah, Sukkur, Hyderabad, Thatta and Peshawar districts of Pakistan were carried out. This reconnaissance was done from the time the seed was sown until the crop was harvested. The cotton plants and fields were searched thoroughly at about monthly intervals for collecting the insect and mite species damaging this crop. Minute and smaller pests like mites, thrips, whiteflies, jassids and aphids were collected with an aspirator whereas an ordinary insect net was used to sweep many adult and large insects. Different stages of many insects were also obtained by loosening or digging the soil and uprooting the damaged plants. Larvae of the boll-worms were either hand-picked from the flowers or taken out from squares and bolls by opening them with a knife. The immature stages of some insects were also reared in the laboratory into adults. All the collected/reared specimens were preserved properly and identified with the help of keys/comparison with identified specimens in entomological museums.

RESULTS

The survey and collection carried out during 1972 and 1973 have yielded 93 insect and mite species feeding on the cotton crop. Many of these species have little economic importance, others are potential pests needing control at times while still others are major pests which cause heavy economic losses and require timely and proper control measures. Out of the major insect pests

of cotton, boll-worms, jassids, whiteflies, aphids and thrips are distributed in all the cotton growing localities while the Egyptian cotton worm (tobacco worm), cotton leaf-roller, American boll-worm (gram catorpillar), termites and some gryllids (like *Acheta domesticus, Acheta hispanicus* and *Gryllus bimaculatus*) are serious pests only in localised areas.

LIST OF INSECT AND MITE PESTS OF COTTON IN PAKISTAN

S.No.	Name of the pest	Family	Order
On Seed and Seedlings			
1.	*Chrotogonus trachypterus* Blanch.	Acrididae	Orthoptera
2.	*Chrotogonus incertus* Bol.	,,	,,
3.	*Chrotogonus fuscescens* Kirby.	,,	,,
4.	*Chrotogonus robertsi* Kirby.	,,	,,
5.	*Acrida gigantea* Hbst.	,,	,,
6.	*Acrida lugubris* Burr.	,,	,,
7.	*Acrida exaltata* Wlk.	,,	,,
8.	*Aeolopus tamulus* F.	,,	,,
9.	*Aeolopus affinis* Bol.	,,	,,
10.	*Aeolopus thalassinus* F.	,,	,,
11.	*Aeolopus strepens* F.	,,	,,
12.	*Atractomorpha crenulata* F.	,,	,,
13.	*Atractomorpha acutipennis*	,,	,,
14.	*Anacridium aegyptium* L.	,,	,,
15.	*Acrotylus humbertianus* Saws.	,,	,,
16.	*Pyrgomorpha conica* Oliv.	,,	,,
17.	*Trilophida annulata* Thug.	,,	,,
18.	*Paratettix* sp.	,,	,,
19.	*Acheta domesticus* L.	Gryllidae	,,
20.	*Acheta hispanicus* Rambur.	,,	,,
21.	*Gryllus bimaculatus* Degeer.	,,	,,
22.	*Gymnogryllus erythrocephalus* Serv.	,,	,,
On Roots and Stems			
23.	*Pseudococcus corymbatus* Green	Pseudococcidae	Hemiptera
24.	*Sphenoptera gossypii* Cotes.	Buprestidae	Coleoptera
25.	*Microtermes obesi* Hal.	Termitidae	Isoptera
26.	*Odontotermes obesus* Ramb.	,,	,,

27.	*Gryllotalpa africana* Pal.	Gryllotalpidae	Orthoptera
On Leaves			
28.	*Poekilocerus pictus* F.	Acrididae	"
29.	*Empoasca devastans* Dist.	Jassidae	Hemiptera
30.	*Empoasca punjabensis* Pruthi.	"	"
31.	*Empoasca kerri* Pruthi.	"	"
32.	*Empoasca minor* Pruthi.	"	"
33.	*Heoalus facialis* Dist.	"	"
34.	*Pyrilla perpusilla* Wlk.	Fulgoridae	"
35.	*Aphis gossypii* Glov.	Aphididae	"
36.	*Chionaspis* sp.	Diaspididae	"
37.	*Cerococcus hibisci* Green	Cerococcidae	"
38.	*Bemisia tabaci* (Germ.)	Aleurodidae	"
39.	*Dysdercus koenigii* F.	Pyrrhocoridae	"
40.	*Leptobelus tanrus* Wlk.	Membracidae	"
41.	*Dolycoris indicus* Spoil.	Pentatomidae	"
42.	*Nezara viridula* L.	"	"
43.	*Eusarcocoris guttiger* Thunb.	"	"
44.	*Mecidea* sp.	"	"
45.	*Leptocorisa varicornis* F.	Coreidae	"
46.	*Megacoelum pallidiger* Wlk.	Miridae	"
47.	*Megacoelum* sp.	"	"
48.	*Lygaeus hospes* F.	Lygaeidae	"
49.	*Lygaeus* sp.	"	"
50.	*Geocoris tricolor* F.	"	"
51.	*Oxycarenus laetus* Kirby.	"	"
52.	*Urentius sentis Dist.*	Tingidae	"
53.	*Thrips tabaci* Lind.	Thripidae	Thysanoptera
54.	*Scirtothrips dorsalis* Hood.	"	"
55.	*Danais chrysippus* L.	Nymphalidae	Lepidoptera
56.	*Anaphoeis mesentin* Cr.	Pieridae	"
57.	*Terias hecabe* L.	"	"
58.	*Parnara mathias* F.	Hisperidae	"
59.	*Sylepta derogata* F.	Pyraustidae	"
60.	*Amsacta moorei* Butler	Arctiidae	"
61.	*Euproctis fraterna* Moore	Lymantriidae	"
62.	*Euproctis lunata* Wlk.	"	"
63.	*Zinckenia fascialis* Cr.	Pyralidae	"

64.	*Glyphodes indica* Saund.	"	"
65.	*Chilades lavis* Cr.	Lycaenidae	"
66.	*Utetheisa pulchella* L.	Arctiidae	"
67.	*Psichotoe duvauceli* Boisd.	Syntomidae	"
68.	*Macara streniatarta* Wlk.	Geometridae	"
69.	*Rhodometra sacraria* L.	"	"
70	*Tarache notabilis* Wlk	Noctuidae	"
71.	*Trigonodes hyppasia* Cr.	"	"
72.	*Euxoa segetum* Schiff.	"	"
73.	*Euxoa spinifera* Kirby.	"	"
74.	*Laphygma exiqua* Kirby.	"	"
75.	*Prodenia litura* F.	"	"
76.	*Agrotis flaminatra* Schiff.	"	"
77.	*Henosepilachna chrysomelina* F.	Coccinellidae	Coleoptera
78.	*Aulacophora foveicollis* Lucas.	Chrysomelidae	"
79.	*Gynandrophthalma* sp.	"	"
80.	*Tanymecus indicus* Fst.	Curculionidae	"
81.	*Myllocerus blandus* Fst.	"	"
82.	*Myllocerus maculosus* Desb.	"	"
83.	*Solenopsis geminata F.*	Formicidae	*Hymenoptera*
84.	*Tetranychus telarius* L.	Tetranychidae	*Acarina*
85.	*Tetranychus gossypii* Banks	"	"
86.	*Eutetranychus* sp.	"	"
87.	*Tenuipalpus* sp.	Tenuipalpidae	"

On Squares, Flowers and Bolls

88.	*Pectinophora gossypiella* (Saund.)	Gelechiidae	Lepidoptera
89.	*Eartas insulana* Boisd.	Noctuidae	"
90.	*Earias fabia* Stoll	"	"
91.	*Phycita infusella* Meyr.	"	"
92.	*Heliothis armigera* Hb.	"	"
93.	*Zonabris pustulata* Thunb.	Meloidae	Coleoptera

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