Ecological and biological studies on different aphid species infesting some legume plants in egypt

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During the last few years cool-season food legumes include faba bean, lentil, chickpea, fenugreek and pea crops become of major important in Egypt due to the dramatic decrease of cultivated areas. The most injurious pest being aphids, which infested plants throughout their different growth stages causing economic losses to their yields. To plan a control program of this insect pest, it is necessary to survey and identify different species of aphids attacking legumes in Middle Egypt. Obtain some ecological and biological data as well as effects of some agricultural practices and seed treatment before cultivation with pesticide on population density of this pest.Results obtained could be summarized as follows:I. FIELD SURVEY OF THE DIFFERENT APHID SPECIES INFESTING FIVE COOL-SEASON FOOD LEGUME CROPS IN MIDDLE EGYPT.Survey studies were carried out to survey and identify aphid species infesting five cool-season food legume crops i.e., faba bean (Vicia faba L.); lentil (Lens culinaris Medik.); chickpea (Cicer arietinum L.); fenugreek (Trigonella foenum-greacum L.); and pea (Pisum sativum L.) plants in Beni-Suef Governorate, Middle Egypt. The survey methodology was adopted the direct count method (inverse binomial sampling technique). Regular bi-weekly samples were taken throughout 1998/99 growing season. Identification procedures andconfirmation of identification with reference collections were carried out. Seasonal activities of surveyed species in the five legume hosts were recorded.a. On Faba Bean (ViCia faba L.) Plants:Six aphid species were surveyed on faba bean plants in Beni-Suef Governorate, Middle Egypt, i.e., the cowpea aphid, Aphis craccivora Koch; the black bean aphid, A. fabae Scopoli; the cotton aphid, A. gossypii Glover; the pea aphid, Acyrthosiphon pisum (Harris); the green peach aphid, Myzus persicae (Sulzer); and the bean root aphid, Smynthurodes betae Westgood. Aphis craccivora was found to be the most abundant species (467.97 individuals), followed by A. fabae (96.12 individuals); M persicae (13.03 individuals); A. gossypii (6.59 individuals); while S. betae and A. pisum were the least abundant species recording 4.91 and 2.77 individuals / 10 plant shoots,respectively.The two dominant black aphids A. craccivora and A. fabae were found to be infested faba bean plants throughout the whole growing season of the plants fromlate October to the 3rd. week of April and from mid-November to 3rd. week of March, for the two species of aphids, respectively. A. gossypii occurred on faba bean plants in two main periods of seasonal activities, from mid-November to mid-December and from the 3rd. week of February to 3rd. week of April . A. pisum, M persicae and S. betae had one activity period, starting from 1st. week of February, last week of November, and 4th. week ofSUMMARY -201 -January to the end of the growing season in 3”I. week of April, for the three aphid species, respectively.b.On Lentil (Lens culinaris Medik.) Plants:Lentil plants were infested with four aphid species in Beni-Suef locality, Middle Egypt throughout the growing season of 1998/99.The cowpea aphid, A. craccivora was the most dominant species (30.54 individuals / 10 plant shoots), followed by the pea aphid, A. pisum and the black bean aphid A. fabae (19.05 and 16.37 individuals, respectively); while the bean root aphid, S. betae was recorded in few number (3.74 individuals).A. craccivora and A. pisum were occurred in the same time from late November to 3rd. week of April. Meanwhile, A. fabae was occurred on lentil plants from mid-November to mid-April. The bean root aphid, S. betae was found

in few numbers starting from 2". week of January to 17th. April.c.On Chickpea (Cicer arietinum L.) Plants:Survey of different aphid species existing on this host was carried out in Beni-Suef Governorate during 1998/99 growing season. Only two species of aphid were recorded on chickpea plants during 1998/99 season. These species of aphid were Aphis craccivora and Acyrthosiphum pisum, and had seasonal mean numbers of 43.21 and 41.89 individuals / 10 plant shoots, respectively. Both species found to occur from mid-November to the 3'.d. week of April.d.On Fenugreek (Trigonella foenum greacum L.) Plants:Three aphid species were sheltered on fenugreek plants, of which, the cowpea aphid, A. craccivora was found to be the most serious and abundant species being 169.74 individuals / 10 plant shoots. This species was found to occur from the last week of October to mid-April. The black bean aphid, A. fabae was comparatively ranked moderately abundant with seasonal mean number 28.26 individuals / 10 plant shoots and found 4o be occurring from the last week of October to mid-April. The green pea aphid, A. pisum was noticed the least abundant species infesting fenugreek plants (8.75 individuals / 10 plant shoots), occurred from mid-December to mid-April.e.On Pea (Pisum sativum L.) Plants:Three aphid species were surveyed on pea plants in Beni-Suef Governorate during 1998/99 season, i.e., Aphis craccivora, A. fabae and Acyrthosiphon pisum. The pea aphid, A. pisum was found to be the most abundant species (46.72 individuals / 10 plant shoots), while A. craccivora and A. fabae were found lower in abundance recording 10.97 and 12.65 individuals / 10 plant shoots, respectively.The two black aphid A. craccivora and A. fabae were starting infesting pea plants from the last week of November and mid-December, respectively to 17th. April, whilst A. pisum occurred from mid-November to the end of the season in 17th. April.