Inducing resistance of cotton plants against bollworms infestation

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Field studies were carried out on cotton plants (Giza 85 variety) for three years (2004-2006). Plants received three applications of each of five different treatments, i.e., EM (effective microorganisms), Dipel 2X (bioinsecticide), Mikrofol (foliar fertilizer), Pleo (new chemical insecticide) and Conventional Spray Program. The effect of these treatments on percentages of cotton bolls infestation by Pectinophora gossypiella and Earias insulana and reductions in larval content, % of opened bolls, seeded cotton yield, fiber quality, some biochemical components on cotton bolls and numbers of predators of bollworms were evaluated.The obtained results may be summarized as follow:-I. Field studies:A. 2004 and 2005 season1. Effect of application of tested products on the rate of infestation with bollworms:1.1. Pink bollworm, Pectinophora gossypiella: 1.1.1. Infestation percent:The obtained data indicated marked effect of the tested agrochemicals in reducing the rate of infestation of cotton bolls with the pink bollworm, during the two seasons of study. On the other hand, the time after spraying of agrochemicals showed fluctuated infestation percentages according to the tested compound, but, in general, pink bollworm infestation percentages were lower than in the untreated check. The seasonalmean percentages of P. gossypiella infested bolls were 26.56 and 28.39 % among bolls of the untreated cotton plants in 2004 and 2005 seasons, respectively, opposed to 20.17, 17.20, 18.67, 4.1 and 5.6 % in 2004, and 21.22, 18.67, 19.78, 4.75 and 6.10 % in 2005, respectively, after application of EM, Dipel X, Mikrofol, Pleo and C.S. Program, respectively. These results showed that the tested agrochemicals had, almost, the same trend of efficacy in the two seasons where the chemicals insecticide Pleo was the most potent, while the lowest efficacy resulted from microorganisms (EM) treatments.The efficacies of the tested agrochemicalsL in reducing infestation with P. gossypiella are also clear in th two years' means of reduction percentages of infested bolls with treatments than control. The highest reduction % (83.83 %) occurred among bolls that received sprays with Pleo, followed by C.S.Program treatment which caused 77.47 % reduction in percentages of infested bolls than control. Thus, Pleo and C.S.Program could be, fairly, considered the most efficient againt the pink bollworm infestation than the other treatments which caused 36.18, 33.30 and 26.39 % reductions in infestation % than control for treatments with Dipel 2X, Mikrofol and EM, respectively.1.1.2. Larval content in cotton bolls:Efficacies of the 5 tested agrochemicals in reducing the number of P. gossypiella larvae in cotton bolls took the same trend as that recorded for their effect on percentage of bolls infestation by the same pest species. Mean numbers of 22.33 and 24.20 larvae were the seasonally counted in 2004 and 2005,.