

Chapter - 099

Highlights

HIGHLIGHTS

The programme has been carried out in a holistic approach comprising nature of pest constraints of tomato and different aspects for their management through the generation of basic information on pests and their application at field level in perspective of rapid, constantly changing dynamic agriculture with an ultimate objective to formulate future IPM models befitting tomato crop in terai region of west Bengal. The highlight of the present work is enumerated below :

- **In terai region of West Bengal, among the different insect-pests attacking tomato, aphid (*Aphis gossypii* Glover), white fly (*Bemisia tabaci* Gennadius), leaf miner (*Liriomyza trifolii* Burgess), fruit borer (*Helicoverpa armigera* Hubner), hadda beetle (*Henoscepilachna vigintioctopunctata* Fabr.) and tingid bug (*Urentius hystricellus* Richter) have been recorded as regular insect-pests of tomato.**
- **Among the pests of regular occurrence, aphid, white fly, leaf miner and fruit borer are predominant and cause considerable damage to the crop. Of the four species, aphid and white fly are more harmful during earlier part of the crop growth stage *i.e.* during the early establishment stage of crop growth. While the magnitude of damage of the two internal feeders, namely, leaf miner and fruit borer increases gradually with the advancement of crop-growing season as well as crop-growth stage.**
- **The, white fly, leaf miner and fruit borer were biologically more active (shorter life cycle) during warmer part of the crop growing season. This phenomenon has been reflected at field level as larger size of pest-population during warmer part of the seasons.**
- **Early crop (winter) suffered less than late crop (spring-summer) and loss in yield due to pest-complex also followed the similar trend. Loss in yield was observed more on hybrids than on open-pollinated variety. Open-pollinated variety suffered more due to sucking pests (aphid and white fly) while internal feeders (leaf miner and fruit borer) attacked more the hybrids.**

- **Hybrids, in general, were out-yielder than open-pollinated variety. Considering overall performance with respect to yield and pest-reaction, the hybrid 'Arjuna' performed consistently better among the commonly grown varieties in this region because of moderate tolerance to the pest complex and as a consequence giving relatively higher yield of tomato.**
- **Pesticides of biological origin, particularly the HaNPV and avermectin are also safer to health, environment and natural enemies of the pests as well as compatible with IPM. These were equal or even more effective than the malathion and DDVP. Out of which avermectin and HaNPV were found more effective against the key pests of tomato.**

After appreciation of pest-problem of tomato and critical analysis of the results of different components of pest management it is suggestive that growing of moderately tolerant varieties/hybrids, timely planting for asynchronising peak period of activity of pests at vulnerable stages of crop growth, early harvesting of mature fruits and use of safer pesticides have practical significance in formulating future IPM programme of tomato crops in terai region of West Bengal. Such approach and strategy may also be applicable in areas having identical problem.