



APHID INFESTATION AT FLORAL FARMS IN NAGARDEVALE, AHMEDNAGAR

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Abstract:

Sonala dam is an earthen dam, constructed by irrigation department of Maharashtra Govt. The present work is an extensive survey conducted from July to December, 2015 to study the occurrence and abundance of floral aphids and their associated floral plants in the area of Nagardevale, the place with abundance of floral farms just 4 k. m. away from Ahmednagar city. The aphids are the sap suckers and are considered as a serious floral pest of great importance. About 11 species of aphids belonging to family Aphididae were found during investigative studies of the floral farms. It was observed that, 5 species of aphids are more destructive and affects the commercially important flowering plants belonging to family Rosaceae, Asteraceae, Asparagaceae, Malvaceae and Lamiaceae including the most important flowering plants like rose, aster, tuberose, marigold and tuls in the area of Nagardevale where the survey was conducted. The remaining 6 species were associated with sunflower, soybean, cabbage, ladies finger, brinjal and castor. The identification of aphids was done by using standard taxonomic keys. The collected data was summarized. This investigative study will help in identification and control of the aphid population to yield more from the flower production.

Keywords: Malvaceae, Rosaceae, Asteraceae, Asparagaceae, Aphids, Host plants.

Introduction

Aphids are considered as serious agricultural and horticultural pests (Hill, 1997) as they feed by sucking plant juices, causing distortion of young leaves and stunting new growth. The sap-suckers belong to order Hemiptera and family Aphididae. These are soft-bodied, small, slow-moving inconspicuous insects with piercing and sucking type of mouth parts. They feed in groups near the tips of new shoots and flower buds. They are responsible for transmission of different plant pathogens causing serious plant diseases. (Schepers, 1987). The saprophytic fungi are attracted by the sticky fluid excreted by the aphids. It also forms a coating over the leaves leading to reduction of photosynthetic competence of the host plant (Schepers, 1987).

There are about 4702 species of aphids recorded in the world so far (Agarwal, B. K., 2007). There are about 300 aphid species are known as vectors carrying several plant pathogens, infecting large number of plants (Eastop V.F., 1977) and (A. J. Dhembare, et.al, 2012). Thus the present survey focuses on some of the aphid species affecting the commercial flora of Nagardevale and its nearby localities.

Materials and Methods

The present investigation is related with the study survey of floral aphids from different floral farms at Nagardevale near Ahmednagar city. It is conducted during July 2015 to December 2015. During this investigative

survey, mostly the floral farms were taken into consideration for collection of aphids.

The observed aphids were collected using fine forceps with their host flowering plant materials and stored in vials containing 70% ethyl alcohol (A. J. Dhembare, et.al, 2012). The collected aphids were examined with the help of microscope and identified using aphid identification keys (Blackman, R.L. and Eastop, V.F. 2006) as well as by using internet source.

Results and Discussion

There is abundance in insect biodiversity due to specific dense vegetation zones maintained by Mechanized Infantry Regimental Centre, Ahmednagar of defense department and Municipal Corporation in and around Ahmednagar city. The city is surrounded by number of agricultural and floral farms. Survey of the floral fields at Nagardevale near Ahmednagar city was conducted during July 2015 to December 2015 (Table 1).

The aphids observed were causing damage to their host plants in floral farms, gardens and floral Islands in the survey area. During this survey, it was observed that the flowers like rose, aster marigold, tuberose, chrysanthemums having high market value were found to be infested by aphids on large scale. It was observed that the occurrence of aphids increases in early winter season although there were fluctuations in the pattern of climate during this study period. Because of the polyphagous feeding habit, aphids are serious

pest of almost all floral farms (Minks and Harrewijn, 1987). They feeds upon almost all parts of the plant like leaves, shoot, fruit, flower, bud and even roots (Blackman and Eastop, 2000). Thus they cause severe damage to the commercial flowering plants as well as other host plants.

About 6 different types of flowering plant species were recorded with high infestation of aphids and it was observed that *Aphis gossypii* became the most common aphid species attacking almost all flowering plants species in this survey. It was also observed that

the winter season is favorable for the growth of aphids as the population of aphids is recorded maximum in the month of November of the investigation period.

Several vegetable farms producing vegetables like cauliflower, brinjal, lady's finger, tomato, cabbage, green peas, etc are found damaged by different species of aphids. The severe infestation by *A. gossypii* and *Microsiphoniellasanborni* is recorded in Chrysanthus farm while the cash crop like soya bean was shoddily destroyed by *A. glycines*.

Table 1: List of commercial flowering host plants and the aphid species found with the m.

Sr.No	Host plants	Common names	Aphids
1	<i>Polianthes tuberosa (L.)</i>	Tube rose	<i>Aphis gossypii</i>
2	<i>Chrysanthemum sp. (L.)</i>	Chrysanthus	<i>Aphis gossypii</i>
3	<i>Ocimum sanctum (L.)</i>	Tulsi	<i>A.crassivora</i>
4	<i>Tagetes erecta(L.)</i>	Marigold	<i>A.fabae</i>
5	<i>Rosa indica</i>	Rose	<i>Macrosiphumrosae</i>
6	<i>Chysanthemum</i>	Chrysanthus	<i>Macrosiphoniellasanborni</i>

Conclusion

For prevention of such crop pest, farmers are applying different insecticides. Due to the excessive application of such insecticides, the quality of flower crop, vegetables or fruits gets deficiently affected with some other problems like insecticidal residues in water, soil, destruction of natural enemies of these pests as well as disturbance in ecosystem of that location (Palikhe, 2002). Hence the proper management of aphids through biological agent is required. There should be an integrated pest management programme against aphids and other insect pests along with the applications of biodegradable pesticides so that the production of commercially important flowers, their quality and ecosystem of the floral farm can remain in good condition.

Thus the conducted survey provides the information about the polyphagus aphid species, period of their infestation on flowering host plants. By using this information, the changing pattern of cultivation of such plants can control the infestation of aphids at certain level which will result in proper production of flowers having good market value and the farmers can yield considerable production of their flower crops.

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