



DIVERSITY OF APPLE PESTS AND THEIR EFFECTS ON THE PRODUCTIVITY OF APPLE CROPS IN JAMMU REGION OF J & K STATE

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ABSTRACT

The results of the findings revealed that the population buildup rate was so high during the months of May and June in both the insect pests. The productivity was also reduced in the infested garden quite considerably.

KEY WORDS: Pests, infestation, apple, orchard.

INTRODUCTION

Growing of fruit plants both wild and cultivated is a very old tradition for the man to support his family (Green, 1903). Among the fruits, worth mentioning, apple is undoubtedly the most important temperate fruit, very widely distributed in the temperate climate conditions of the world like USA, Russia, China, India, South Africa and South Australia (Hayes, 1966). Frequent fluctuations in the environmental conditions occur in the Jammu region during the fruiting season of apple crops. Fluctuation in the environmental conditions directly or indirectly affects the apple crops and because of this apple orchards suffering losses and meager productivity because of certain limiting factors which includes attacks insect pests (Bindra, 1967). During my research work it has been found there are number of insect pests responsible for damaging apple crops directly or indirectly which are San Jose Scale, Woolly Aphid, Tortricid moth, hairy caterpillar, stem borer *etc.*, out of which the most important which are severely affecting the apple crops in quality and quantity are San Jose Scale and woolly aphid were infested severely in a variety of ways, like defoliation or reduction in leaf surface, discolouration of leaves and fruits, retardation of growth *etc.*, farmers not realize the damage caused by insect or a disease is ultimately likely to responsible for damaging apple crops because of the environmental fluctuation mostly during the month of May to June. Keeping this in view, the study was under to examine the diversity of apple pests and their effects on the productivity of apple crops in Jammu region of J & K state.

MATERIALS AND METHODS

The study was carried out in an orchard (Apple) at Mandi areas of jammu region. To assess the environmental influence especially temperature and humidity on the incidence of two insect pests San Jose Scale and Woolly Aphid of apple crops was observed in summer season during the year 2009-10. The fruiting seasons of apple

starts from the month of May to August and during this months the productivity of the same orchard was also assessed. Three kanal garden was undertaken for the study having 43 apple trees (1 Acre = 8 Kanal). The data regarding incidence of insect pests and productivity was recorded and presented in the form of figures 1-5.

The formula used for calculating the infestation rate is as under:-

$$\frac{\text{Total number of plants infested}}{\text{Total number of plants}} \times 100$$

RESULTS AND DISCUSSION

The data pertaining to population build up of San Jose Scale given in Fig 1, showed that it remained dormant during the month of January, February and December, it starts emerging during the month of March and its population build up is very high during the month of May, June and July because of the favorable environmental condition. Contrary to this, the population build up with regard to woolly aphid showed different trend it remained active throughout the year but its population build up rate is very high during the month of May and June Fig (2). The results of the rate of incidence of San Jose Scale exerted that during the month of may it was 35.22% under 30°C temperature and 85% humidity, whereas the rate of incidence was 45.21% under 33°C temperature and 70% humidity (Fig-3). The data regarding rate of incidence of woolly aphid revealed that during the month of may it was found to be 29.21% under 30°C temperature and 85% humidity, whereas the it was high during the month of July 37.41 under 33°C temperature and 70% humidity (Fig-4). The data regarding productivity in two kanal apple orchard showed that with infestation the productivity was 800Kgs, whereas the productivity was 1500 Kgs where no infestation was occur (Fig-5).

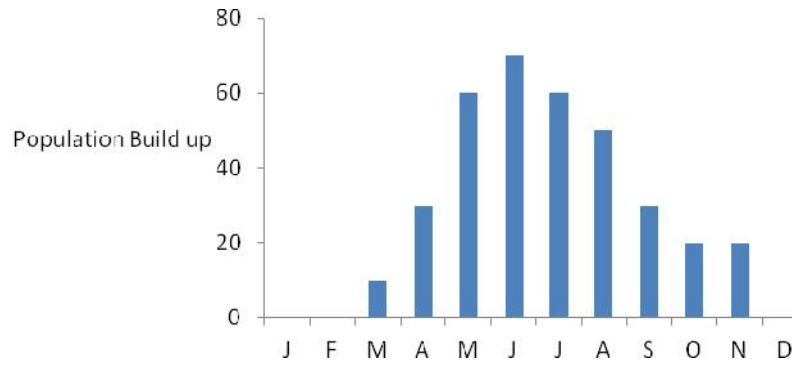


FIGURE 1. Population buildup of San Jose Scale, *Quadriotus perniciosus*

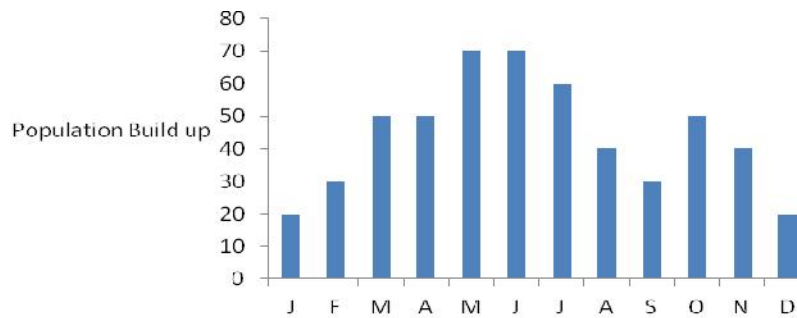


Fig 2. Population buildup of Woolly aphid, *Eriosoma lanigerum*.

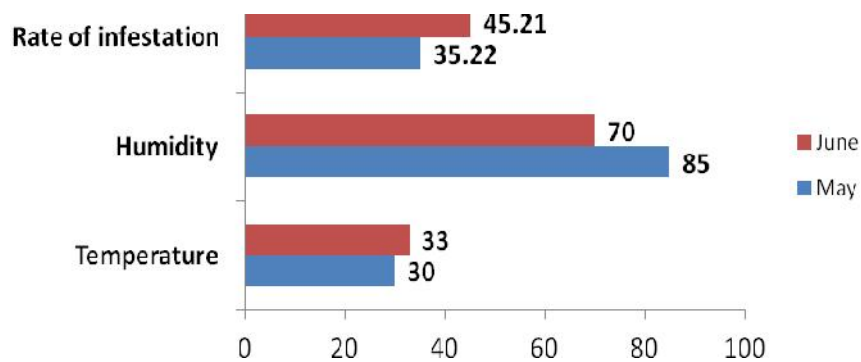


FIGURE 3.

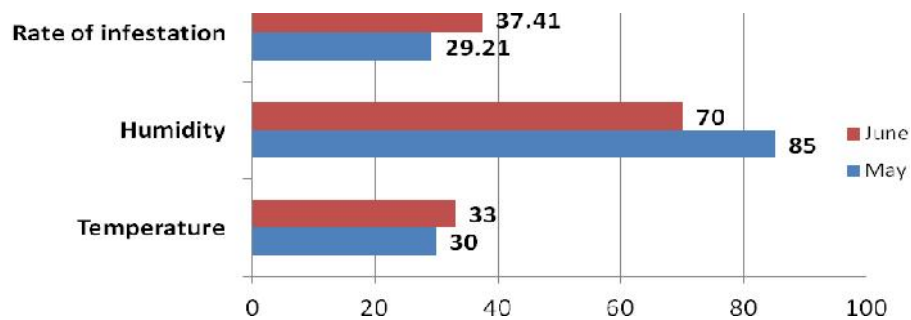


FIGURE 4. Incidence of woolly aphid on the apple trees.

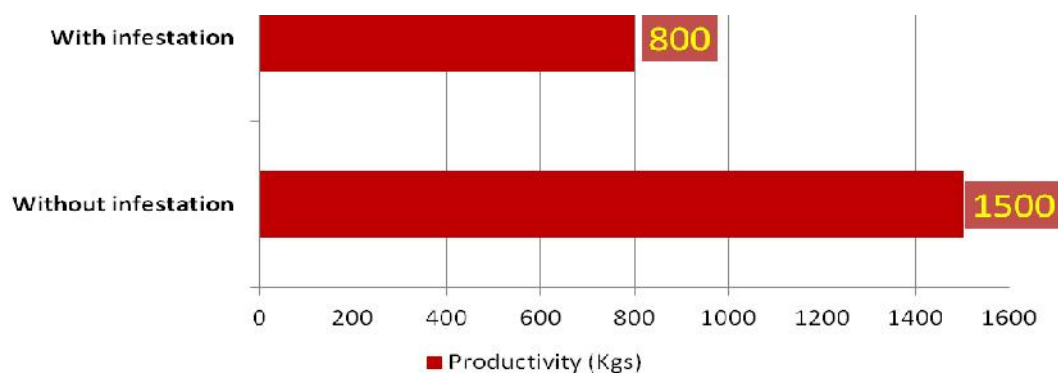


FIGURE 5. Production status from two kanal apple orchard with and without infestation.

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