



EFFICACY OF TWO DORMANT SPRAY OIL AGAINST SAN JOSE SCALE A PEST OF APPLE TREE

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ABSTRACT

The findings of the study exerted that by spraying two dormant spray oils considerably reduces the rate of infestation in the apple trees. The maximum infestation was found to be reduced when sprayed with 8.33% concentration of diesel + fish oil and diesel oil + fish oil in combination with ethion 50EC @ 0.05 % respectively.

KEY WORDS: Infestation, apple tree, dormant sprays.

INTRODUCTION

San Jose scale is a major pest of apple trees and it can injure fruit directly and can also reduce tree vigor by removing sap, eventually killing the tree. San Jose scale (*Quadraspidiotus perniciosus*) was first time reported in America around 1970s, San Jose California, from where it gets present name. Since this pest has been accidentally introduced to many countries and is considered a major pest in most region of the world where deciduous fruits are grown (Madson and Morgan, 1970). This pest was first time reported in Kashmir by N.Gopal, the then director Agriculture in 1921 (Fotedar, 1936, 1941). It is presumed that the insect was introduced into Kashmir in early twentieth century along with Japanese ornamental plant *Cydonia japonica* due to defective quarantine measures (Fotedar, 1941). It has become a key pest being present in every apple orchard causing serious losses to the fruit and trees where as many orchards have to be cut down due to severe infestation of this pest (Sud *et al.*, 1975; Singh *et al.*, 1996). This pest sucks the sap of apple trees and causes severe loss especially vigor, poor growth and death. Keeping this in view, the experiment was undertaken to test the efficacy of two dormant spray oil against San Jose scale a pest of apple tree.

MATERIALS AND METHODS

To evaluate the effectiveness of two dormant spray oils against San Jose scale on apple, field trial was carried out in an apple orchard in Mandi area of Poonch district. The orchard had apple trees of Red Delicious cultivar having uniform size and age of 15 years. The orchard was selected taking into account the outbreak and damage caused by the pest. The emulsion solution was prepared with two different combination *i.e.*, diesel oil + fish oil and diesel

oil + fish oil in combination with ethion 50EC @ 0.05 % per litre of solution. For both the emulsion solution the concentrations were 8.33, 6.25 and 4.54% for testing during the month of June due to heavy infestation caused by the San Jose Scale. One control without spraying was also maintained for comparing the effectiveness of these dormant oil sprays. The findings of the study were depicted in the form of graphs for presenting the results Fig. 1 & 2.

RESULTS AND DISCUSSION

Among the fruits cultivated in Jammu and Kashmir state apple plays a main role in its economy, and thus occupy the major portion in its areas under cultivation and production. During the past few years the productivity of apple crops declined quite significantly owing to attacks of different insect pests as a result led to economic loss to the farmers. The results of the present study shown in Fig 1, depicted that among the concentrations tested *viz.*, 4.54, 6.25 and 8.33% all these concentrations showed improved performance pertaining to reduced rate of infestation 21.2, 23.4 and 33.4 % over the control without spray (45.3%). The maximum effect was noticed in 8.33% concentration of diesel + fish oil. The data shown in Fig 2, regarding efficacy of diesel oil + fish oil in combination with ethion 50EC @ 0.05 % in three different concentrations *viz.*, 4.54, 6.25 and 8.33% also revealed improved performance in reducing the rate of infestation caused by San Jose Scale pest 23.4, 25.4 and 35 % against the control without spray (42.2%). However, maximum effect was noticed in 8.33% concentration. The studies are more or less in conformity with the studies of Lal (1952), Khajuria and Sharma, (1999) and Hix *et al.*, (1999) who reported the similar results.

Two dormant spray oil against San Jose Scale

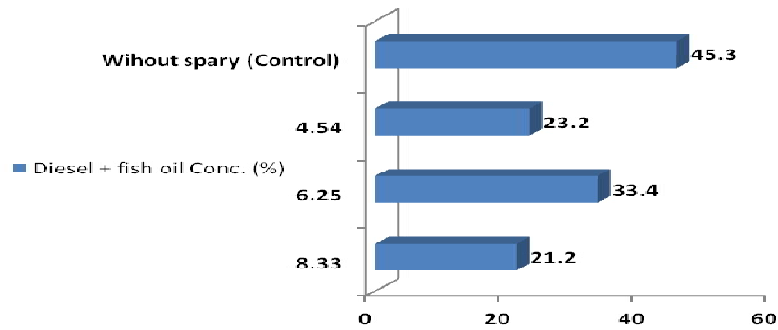


Fig 1. Efficacy of spraying of diesel + fish oil on infestation of San Jose Scale pest.

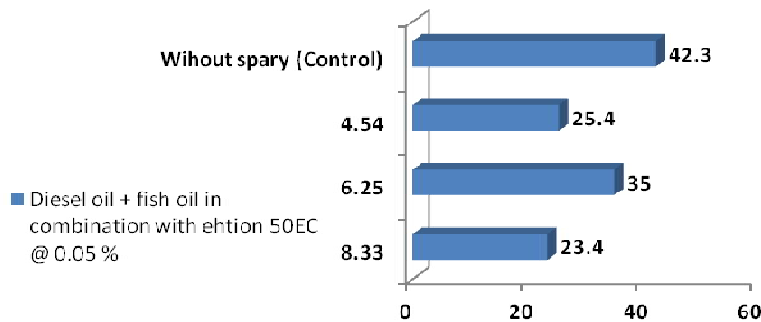


Fig 2. Efficacy of diesel oil + fish oil in combination with ethion 50EC @ 0.05 % on infestation of San Jose Scale.

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