STUDIES ON THE PERSISTENCY OF CARBARYL RESIDUES IN FRUIT

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INTRODUCTION

Carbaryl is a contact insecticide with good residual qualities; it is recommended for use against several pests of fruit trees, vegetable and forage crops etc. (2, 3, 6, 7).

In Romania Carbaryl has been successfully used in the control of some fruit tree and vegetable pests such as codling moth (Carpocapsa), red plum maggot (Grapholitha), plum fruit sawfly (Hoplocampa), Colorado beetle etc.

Studies carried out up to the present demonstrated that, following an application, the original toxicant deposit ranges between 4 and 16 ppm in lettuce, 4 ppm in tomato, 1 to 8 ppm in apple, etc., the best period ranging between one day in the USA (8) and 9 to 14 days in Austria (1); in most countries a 7 day interval is recommended.

The present paper deals with studies on the dynamics of Carbaryl residue loss on fruit after field applications.

MATERIALS AND METHODS

The tests were conducted between 1967 and 1968 on the experimental grounds of the Research Institute for Plant Protection, at Baneasa - Bucharest; the experiments were made with 3 trees each, of which each was a replication.

The applications were made with Sevin 5o WP (Union Carbide at 0,15%). The insecticide was sprayed on apple-, plum- and peach-trees during fruit maturation. The dynamics of the loss of residue was followed for 7 or 21 days. About 1,5-2 kg fruit were harvested at each sampling. The fruit as cut in small slices which were then divided into 3 to 4 medium sized samples of 300 g each.

For the extractions methyl chloride at 2:1 (ml/g) was used and the solvent-covered fruit was left overnight.

Residue analysis was made according to the modified Polizu-H. Greger method (5).

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RESULTS AND DISCUSSIONS

From the graphs it results that the initial toxicant deposit is variable, being high on peaches (10 to 15 ppm), lower in apples (1 to 4 ppm) and still lower in plums.

The loss of toxicant on peaches in 1967 was slight during the first days, and more evident when rainsfalls occurred during the 4 to 7 day interval after the applications. In 1968 a 30% loss was recorded during the first days after the application, since during this period the rainfalls amounted to 6 mm. Fourteen days later (1967) a 90% loss of residue was found and the

Fig. 1. Dynamics of the Carbaryl residue deposit on peaches 1967 – 1968