

EVAUATION OF ZERO TILLAGE WHEAT PLANTING AFTER RICE FOR CARRY OVER THE BORER POPULATION (SCIRPOPHAGA INCERTULUS AND S. INNOTATA(WLK.)

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ABSTRACT

Five crop rotations viz, Rice-wheat (zero tillage)-Rice, Rice-wheat (conventional)-Rice, Rice-Potato-Rice, Rice-Berseem-Rice and Rice-Fallow-Rice were studied during 1991 -93, at Sialkot for their relative impact on stem borers (Scirpophaga incertulus & S. innotata (WLK) in rice nursery as well in crop. At nursery stage maximum borer infestation (1.12%) was recorded in crop rotation Rice-Fallow Rice. The rotations Rice-Potato-Rice and Rice - Wheat (Conventional)-Rice gave minimum borer infestation 0.38% and 0.43% respectively which were statistically similar to each other but differed significantly from the rest treatments. Where as the Rice - Wheat (Zero tillage)-Rice gave 0.87% infestation. In transplanted rice crop, the rotations Rice-Fallow-Rice and Rice-Berseem-Rice yielded maximum borer infestation 6.15% and 5.12% Where as the Rice-wheat (Zero tillage)-Rice was next with 4.51%. Where as the Rice-Wheat (Conventional)-Rice and Rice-Potato-Rice had the lowest borer infestations 2.55% and 2.80% respectively and were significantly lower than the other crop rotations. Thus Rice - Wheat (Zero tillage)-Rice along with Rice-Fallow-Rice and Rice-Berseem-Rice crop rotations must be discouraged as these favour the carry-over of rice borers population.

KEYWORDS

Scirpophaga incertulus (WLK) crop rotation, Rice- -Wheat (Conventional)-Rice, Rice-wheat (zero tillage)-Rice, Rice-Berseem-Rice, Rice,-Potato-Rice, Rice-Fallow-Rice, infestation, carry-over.

INTRODUCTION

Rice (Oryza sativa L.) contributes approximately 15% to the total foreign exchange earnings of Pakistan and is grown on two million hectares (Chaudhary, 1986). Rice stem borers, Scirpophaga incertulus (WLK) and S. innotata (WLK) are the most serious pests of rice (Haq et al., 1971). In epidemic form 70.90% of crop may be damaged by these species (Latif, 1956). Chaudhary (1965) estimated that rice borers caused losses to rice crop worth of Rs. 40 million / annum.

In Sialkot District rice is cultivated 368. 84 thousands acres of land (Anonymous, 1994). The typical crop rotations in the District are Rice-Berseem-Rice, Rice-Wheat (Conventional)-Rice, Rice-Potato-Rice, Rice-Berseem-Rice and Rice-Fallow-Rice. As the rice is harvested in November and it delays the planting of wheat, the preferred second crop after rice. For planting wheat in time, planting with zero-tillage is being tried which is defined as the introduction of seed into untilled soil, while rice stubbles remain intact. Rice stubbles are the major source of carry-over of rice borer larvae from one to the next crop (Atwal 1984).