POTATO PEST: INSECTS AND ITS CONTROL

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Abstract : The main storage pests reported from various reasons include the potato tuber moth, the tuber borer, mealy bugs aphids and mites. 1. Potato tuber moth: Phthorimea operculella (Zell). The potato tuber moth, tuber worm, potato grub, potato leaf minor and tobacco leaf minor is a nocturnal pest of world-wide distribution.

I. INTRODUCTION

II. INSECT PESTS OF POTATO IN INDIA: BIOLOGY AND MANAGEMENT

India has a great diversity of insect pests attacking potato. More than 100 species of insects attack potato plants. These pests can damage the plants by feeding on leaves, reducing photosynthetic area and efficiency by attacking stems, weakening plants and inhibiting nutrient transport, and by attacking potato tubers destined for consumption or use as seed. Tubers are heavily damaged in the field and in storage and the damage causes direct loses to farmers. Insect pests that damage tubers include whitegrubs, cutworms, potato tuber moth, termites, red ants and mole crickets. Sop-feeding insects such as aphids, leafhoppers, thrips, and whiteflies inflict damage by directly feeding on different parts of a plant and acting as vectors of plants viruses. Aphids and whiteflies constitute a mojor threat to the cultivation of seed potato because they transmit viruses such as the PLRV, PVY and Gemini viruses from one plant to other in an efficient manner. Leaf-feeding insects include several species belonging to the orders Lepidoptera and coleopteran. The important leaf-feeding caterpillars are spodoptera spp. Heliothis armigera, plusia orichalcea, and spilosoma oblique. Among coleopterans, the most destructive pests are hadda beetles, flea beetles, and blister beetles.

III. INSECT PESTS AFFECTING POTATOES IN TROPICAL, SUBTROPICAL, AND TEMPERATE REGIONS:

Ensuring the sustainable production of potato is an important challenge facing agriculture globally. Insect pests are major biotic constraints affecting potato yields and tuber quality. The high pesticide uses to control them is of high health concern, and it is expected that this will be further exacerbated through impact of climate change. The chapter provides an overview of the geographical distribution of potato insect pests and their importance in tropical, subtropical, and temperate potato production regions. Climate change will potentially contribute to expand their geographical distribution of potato insects pests and their importance in tropical, subtropical and temperate potato production regions. Climate change will potentially contribute to expand their geographical range of distribution, and increasing population will lead to greater crop and post-harvest losses. Good progress has been made in applying insect-pest modeling in pest risk analysis of potato pests to inform and create better awareness of future pest risk under climate change. Potato pests include some of the species which have evolved resistance to a wide variety of chemical; and potato growers have already experienced the situation that available chemicals, failed to control their targets. This chapter emphasizes the development, use and adaptation of integrated pest management (IPM) across all potato-growing regions of the world. Ultimately, this will lead to sustainable and more resilient potato production system not overly dependent on pesticides. IPM requires a god knowledge and understanding of individual potato production system; identifying pest species; knowing their biology and symptoms of infestation is essential for making educated decisions on their integrated management. There are 49 insect pests of potato and the status quo of their management around the world.

IV. POTATO PEST CONTROL:

During the past several years, many new insecticides have been labelled for use on white potatoes that have been useful tools in a potato pest management program. These materials have new chemistries, different modes of action, and are extremely active against the various insect pest of white potatoes. However, these insecticides must be sued wisely to ensure maximum benefit of the application as well as to reduce the potential of insecticides resistance to these materials by the targeted insect pest.

Mocap its still the only material labeled as a preplant insecticide for wireworms. Brigade and capture mocap, regent and thimet are labeled for planting applications only bifrenthrin, however, is labeled for application after planting. Wireworms are one of the most difficult insect pests to control, and results of wireworms efficacy trials over the past several years have been inconsistent. However, all of the labeled materials have shown that they can be effective against wireworms.

Several important potato insect pests cause damage after the plants emerge. The most important of these pests are Colorado potato beetles and potato leaf hoppers, and the less important pests include potato flea beetles and aphids.

Both sud-piece treatment and at-plant applications are very effective and economical application methods for control of these pests.

Many combinations are insecticides are rapidly becoming labeled combining multiple mode-of-actions as well as increasing the range of pests being controlled. These exciting new products are already available to growers, and will be excellent tools for their pest management and insecticide resistance management programs.

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