EFFECTS OF DIFFERENT HARVEST PERIODS ON POPULATION DYNAMICS OF POTATO TUBER MOTH (PTM) *Phthorimaea operculella* (Zeller) ACTIVITY IN FIELD AND STORE

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Abstract

Potato, *Solanum tuberosum L.,* is the second most important food crop in Kenya after maize and plays an important role in food security. However farmers face many constraints in its production, with pests and diseases being the most important. PTM is the most destructive insect pest capable of causing 25% damage in the field and upto 90% loss in store. The study was undertaken to determine the effect of different harvest periods; Harvest two weeks before maturity, Harvest at maturity, Harvest two weeks after maturity and Harvest four weeks after maturity on PTM activity in the field and later in store. The experiment were set in a complete randomized design both in the field and in store with four replicates and repeated for two seasons where larvae, mines and yield were collected as parameters to assess PTM damage. The study demonstrated that PTM infestation in the store depended much on the initial PTM infestation in the field. Harvesting two weeks before maturity significantly lowered PTM infestation in the store ($P< 0.001$) and population of PTM builds up after two months of storage causing serious tuber damages. This harvest period also significantly lowered the potato tuber yield ($p<0.001$). The results show that harvesting two weeks before maturity has the potential to manage PTM in storage and can be used by small scale farmers aiming at producing potato seed for their own use and for sale. Farmers can however accommodate different harvest periods as components of an IPM strategy for PTM management.

Key words: Management, IPM, PTM, Harvest periods, Seed tubers, Ware potato, Maturity