

Potato Tuberworm: A Threat for China Potatoes

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Received date: March 27, 2018; Accepted date: March 29, 2018; Published date: April 05, 2018

Citation: Gao Y (2018) Potato Tuberworm: A Threat for China Potatoes. Entomol Ornithol Herpetol 7: e132.

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Editorial

The potato crop is one of the world's most important food crops, along with rice, wheat, and maize [1,2]. Potatoes are widely grown over many latitudes and elevations. Especially in developing countries such as China. In 2015, China has been boosting potato production to become the fourth major crop produced in the country following rice, wheat and corn, developing potato as the staple food was also included by Ministry of Agriculture of China in its important agenda. Developing potato as the staple food will not only promote the adjustment of planting structure, achieve the sustainable development of agriculture and safeguard China's national food security, but also improve and enrich the diet structure of Chinese people [3]. Unfortunately, insect pests are one of the major constraints to commercial production of potato in China.

The potato tuberworm, *Phthorimaea operculella* Zeller (Lepidoptera: Gelechiidae), is considered one of the most important potato (*Solanum tuberosum* L.) pests worldwide including in China [4]. In Southwest of China, *P. operculella* is responsible for about 20 to 30% and 100% infestation in the field and storage, respectively [5]. The pest is very difficult to control and over the years growers have relied extensively on the use of insecticides and a wide variety of cultural practices [2]. *P. operculella* likely originated in WesternSouth America along with its main host, the potato [4,6]. In China, *P. operculella* was first reported in Guangxi Province in 1937, at present, *P. operculella* is widely distributed mainly in Yunnan, Guizhou and Sichuan provinces [5]. All these provinces are key potato production areas. Several approaches for the development of an integrated pest management system for *P. operculella* are available [7-9]. However, the use of chemicals is still the main foundation of *P. operculella* control worldwide including in China.

A thorough knowledge of the distribution, host range, biology, ecology and economic effect of a pest is necessary before developing management practices. It is difficult to achieve effective control by a single method when the infestation is very high. When populations are low, any individual component may be effective. Other actions such as deeper seed planting, hilling the rows, irrigation, release of parasitoids

in the early stage of the crop should be practised. In later stages, the selective use of recommended insecticides and mass trapping with sex pheromones or yellow cards should be put into practice. In storage, it is necessary to remove damaged tubers before storing. Sex pheromones may be used for monitoring and mass trapping with water traps. Screening of germplasm may be practised in endemic areas to identify resistance in the field and in storage. This will provide a base for long-term management to reduce the pest incidence in a continuous cropping system.

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