

## Controlling African Armyworm with a novel Biopesticide Armyworm NPV

### African Armyworm

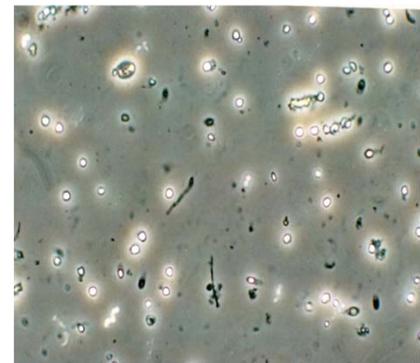
The African armyworm is the caterpillar of the moth *Spodoptera exempta* and is a major crop pest in Eastern Africa. Its annual outbreaks frequently escalate into major causing major damage to cereal crops and pasture. These plagues start primary outbreak areas of Tanzania and Kenya, but moths can travel long distances subsequently to start new outbreaks throughout Africa.



### Armyworm outbreaks

In major outbreak years, hundreds of thousands of hectares of grain crops can be attacked and destroyed, which has a massive impact on the food security of millions of the poorest families in Africa. Armyworms can be killed by chemical pesticides but most poor farmers lack access to these and in armyworm plague 70 per cent of poor farmers can lose crops. Armyworm control is a high priority for countries such as Tanzania, but a combination of the high cost of chemical pesticides and the unwillingness of donors to support the wide-scale use of chemicals, due to their environmental impact, has resulted in increasing failure to effectively control this pest.

### Armyworm caterpillars swarming



Armyworm killed by NPV

NPV seen as bright particles  
under microscope (x1000)

### What is NPV?

NPV is a naturally present disease that kills armyworm. The NPV disease is caused by an insect virus that occurs naturally in Africa. However, while NPV can destroy outbreaks once it has established in the armyworm population, in most years the NPV appears too late in the outbreak cycle to prevent serious armyworm damage.

## NPV development in Tanzania

Under a joint UK-Tanzania project funded by DFID researchers from NRI, Lancaster University, and Pest Control Services of the Ministry of Agriculture in Tanzania, it has been shown that NPV could be used as a biological pesticide to infect armyworm outbreaks and destroy them as effectively as using chemical pesticides (Grzywacz et al. 2008). It could be applied using the farmer's simple ground sprayers or on a large scale by aerial spraying.



**Ground spraying armyworm NPV**



**Aerial Spraying of armyworm NPV**

## NPV is it safe ?

Yes. NPV only infects the armyworm and cannot harm man, domestic animals, plants or even other insects. An international report by the OECD (2002) concluded that NPV use is safe and does not cause any health hazard. A number of different NPVs have already been developed to control other pests and have been adopted for wide-scale use as safe and effective biological pesticides in Europe, North America and Asia.

## NPV production in Africa.

A new plant for producing Armyworm NPV has been built in Arusha, Tanzania, with DFID Research Into Use programme funding to produce a cheap biological pesticide for armyworm. It is hoped that this work will give Tanzania a new, safe control method for armyworm that can be produced locally. This would be much cheaper than insecticides and so there will be enough for all the needs of poor farmers.



**New NPV production plant in Arusha**

## Reference:

Redman E.M. Wilson K. Grzywacz D. & Cory J.S. (2010) High levels of genetic diversity in *Spodoptera exempta* NPV from Tanzania. *Journal Invertebrate Pathology* 105, 190-193.  
Grzywacz, D., Mushobozi, W.L., Parnell, M., Jolliffe, F., and Wilson K., (2008). The evaluation of *Spodoptera exempta* nucleopolyhedrovirus (SpexNPV) for the field control of African armyworm (*Spodoptera exempta*) in Tanzania. *Crop Protection*, 27, 17-24.