

## Occurrence of White Grubs in Groundnut Crop in Uplands of South Vietnam: A New Report

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Groundnut (*Arachis hypogaea*) is an important crop in South Vietnam covering more than 125,000 ha under different cropping systems. Crop surveys, and the on-farm research organized in Trang Bang, Cuchi, Duc Hoa and Go Dau during the past (until 2000), brought out the importance of the foliage feeding insect pests (*Spodoptera*, *Helicoverpa*) as economically important in farmers' fields (Ranga Rao 1995). Field visits during the last week of May 2004 and interactions with the farmers in Tra Vinh province, villages around Cau Ngang town revealed the occurrence and importance of white grubs in this region. This soil-inhabiting pest is a menace in this area, which is in the heart of Mekong delta mostly covered by irrigated rice (*Oryza sativa*) cultivation with multiple cropping system.

During field visits, white grub adults were found feeding on nearby trees. Discussions with the farmers of My Thap village (Mai Van Tiep and colleagues) clearly brought out the importance of white grubs in their groundnut crops. According to farmers, these grubs infest crops such as groundnut, sugarcane (*Saccharum officinarum*), cowpea (*Vigna unguiculata*), cassava (*Manihot esculenta*) and maize (*Zea mays*) in uplands. The adults cause foliar damage in orchards particularly mango (*Mangifera indica*), cashew (*Anacardium occidentale*), litchi (*Litchi chinensis*), guava (*Psidium guajava*), etc. Among the various crops, groundnut and sugarcane were most severely affected. Though the adults were active during the nights, search for few hours in nearby mango and cashew orchards during daytime may yield several hundred adults.

### Population dynamics of white grubs in Tra Vinh province

Based on the field observations and the farmers' experience, it was concluded that adults emerge soon after the summer rains (April–May) from their pupation sites (soil). The adults feed and mate at their feeding sites (cashew and mango trees). After feeding and mating, the adults return to their oviposition sites (groundnut or any other

upland crops). The young grubs are seen during June–July while weeding the groundnut crop. Generally groundnut is sown in these villages in the last week of May, which coincides with the adult emergence. Since the adult feeding sites are nearby the groundnut crops, it is easy for adults to locate the oviposition sites. After the harvest of May-sown crops, farmers take up another groundnut crop in October. Thus two groundnut crops are grown in a year in the same field.

The adults are dull brown in color, measure about 25 mm in width and 40 mm in length with white markings on the posterior end of the elytra. The adults are identified as *Lepidiota signata* (Fig. 1). According to the farmers, the grub damage to May-sown groundnut crop was not severe, probably because the crop would be harvested before the grubs reach considerable size to inflict damage. The October-sown crops are affected severely because the crop is sown directly into grub-infested fields and the well-grown grubs kill groundnut plants. Farmers observed grubs until November. Hence it is clear that the grub period extends from June to November (Table 1).

**Table 1. Calendar of events in white grub biology in Tra Vinh province, Vietnam.**

Stage of the insect	Month of activity
Adults	May–June
Young grubs	June–July
Well-grown grubs	September–October
Grub developmental period	June–November
Pupae	November–April



**Figure 1.** *Lepidiota signata* adult.

However, detailed studies are required to define the developmental biology of this species in this region. According to farmers, total loss due to severe infestation on groundnut was not uncommon.

Though information is available on the importance of white grubs in North Vietnam pertaining to groundnut crop (Tran Huy Tho et al. 2001), the occurrence and the importance of white grubs in South Vietnam was not known. In view of the importance of Mekong delta for agricultural productivity and stability, the information pertaining to this pest is of immense value for sustaining the agricultural productivity in the upland areas of this region.

### Control

Generally farmers apply basudin 10H at 10 kg ha<sup>-1</sup> as basal application in groundnut to manage this pest. Some farmers are also aware that soil application of carbofuran (furadan) granules 3 G at 1 kg ai ha<sup>-1</sup> controls the pest. However, the farmers are not clear about the efficient management of this pest.

### Conclusions

- White grubs occur in upland areas of Mekong delta.
- *Lepidiota signata* causes loss to groundnut crops in Tra Vinh province of South Vietnam.
- Adults emerge in April–May soon after the summer rains.
- White grubs cause severe plant mortality in groundnut crop sown in October than in the crop sown in May.

- Basal application of basudin at the time of sowing gave satisfactory control.
- Several dryland crops such as sugarcane, cassava and maize are also infested by white grubs.
- Studies on the detailed biology, crop loss assessment, taxonomy and potential management strategies of white grub species are of high priority.
- We suggest to have a nation-wide white grub research project for effective control.
- Since the grubs pupate by November, delaying groundnut sowing to December wherever possible can help to overcome this menace.

### References

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