

Control of the Green Stinkbug, *Nezara viridula* in the Federated States of Micronesia

N. M. ESGUERRA, W. S. WILLIAM and J.R. SMITH

College of Micronesia Land Grant Program
P.O. Box 1179, Kolonia, Pohnpei
Federated States of Micronesia 96941

Abstract—*Nezara viridula* (Hemiptera: Pentatomidae) has, for many years, been considered a major insect pest of vegetables on Pohnpei, Chuuk and Yap States of the Federated States of Micronesia. The egg parasitoid, *Trissolcus basalis*, obtained from Hawaii, was released on Kolonia, Nett and Madolenimw, Pohnpei and was recovered readily from stinkbug eggs 4 and 7 months after release. As a result of this introduction, the stinkbug population became so low that it is seldom observed on vegetable plantings on Pohnpei.

Introduction

The green stinkbug, *Nezara viridula* (Linnaeus), attacks a wide range of cultivated plants (Waterhouse & Norris 1987). In the Federated States of Micronesia, it is an important pest of okra, cucumber, beans, tomato, eggplant, capsicum, cassava, melons, rice, sweet potato and corn. It is attracted more to okra, beans and cucumber than to other crops (Esguerra et al. 1990).

Both nymphs and adults suck sap from developing fruits and flowers, making the fruits distorted and unmarketable. Damaged flowers fall to the ground.

Since *Nezara* was considered a major insect pest of crops on Pohnpei, a parasitic wasp, *Trissolcus basalis* (Wollaston), was obtained from the Hawaiian Department of Agriculture.

Materials and Methods

A shipment of *N. viridula* eggs parasitized by *T. basalis* was received on November 16, 1989. The eggs were incubated in the laboratory for one week and newly emerged *T. basalis* adults were field released on November 23, 1989 on vegetable plantings around Kolonia, Nett and the Pohnpei Agriculture and Trade School (PATS), Madolenimw.

Egg rafts of *N. viridula* were collected from bean plantings around Kolonia and exposed to newly emerged *T. basalis* adults.

Prior to releasing newly emerged *T. basalis*, the adults were collected and transferred to test tubes provided with cotton balls soaked in sugar solution as

food. Releases were done in the afternoon and care was taken not to expose them directly to the sun while being transported to the field.

Cucumber, okra and bean plantings infested with *N. viridula* were selected as release sites. A week prior to releasing the parasites, *N. viridula* eggs were collected from okra and cucumber and incubated for a week to check whether any parasites attacked the eggs. Four and seven months after *T. basalis* release, egg masses of *N. viridula* were again collected from field plantings of vegetables, incubated in test tubes plugged with cotton, and the number of eggs, emerged nymphs of *N. viridula* and adults of *T. basalis* counted.

Results and Discussion

Pre-release surveys conducted around Kolonia, Nett and Madolenimw revealed that egg masses of *N. viridula* could easily be collected on vegetable plantings that showed a high infestation of the pest. Also, it was observed that no parasitic wasps attacked the eggs of *N. viridula*.

A survey on March 16, 1990, revealed the establishment of *T. basalis* in the release areas (Table 1). The percent parasitisation of *Nezara* eggs ranged from 40 to 94. Seven months after release, somewhat higher parasitisation, namely from 57 to 95 percent, occurred at the two sites. Nine months after release, very few stinkbug adults could be observed and no egg masses were found. *N. viridula* is no longer considered an insect pest on Pohnpei, marking another successful clas-

Table 1. Parasitisation of the green stinkbug by *Trissolcus basalis*.

Date	Place	Number of <i>N. viridula</i> eggs in each eggmass	Number of <i>T. basalis</i> that emerged	Percent parasitisation
Nov. 15/89	Kolonia and Nett	66	0	0
		89	0	0
		90	0	0
		113	0	0
	PATS	46	0	0
		84	0	0
		73	0	0
March 16/90	Kolonia and Nett	111	44	40
		82	51	62
	PATS	98	73	75
		42	26	61
		48	45	94
June 16/90	Kolonia and Nett	60	54	90
		76	43	57
	PATS	66	63	95
		53	46	87

sical biological control project in one of the islands of the Federated States of Micronesia.

It is planned to introduce *T. basalis* to other islands of the FSM, such as Chuuk and Yap, where the stinkbug sometimes damages vegetable crops.

References

- Esguerra, N. M., W. S. William & J. R. Smith. 1990. Survey of pests of crops in the Federated States of Micronesia. College of Micronesia, Land Grant Programs Extension Report No. 1. 58 pp.
- Waterhouse, D. F. & K. R. Norris. 1987. Biological Control: Pacific Prospects. Inkata Press, Melbourne. 454 pp.