Mass Production of Phytoseiids:

I. Evaluation on Eight Host Plants for the Mass-rearing of *Tetranychus urticae* Koch and *T. kanzawai* Kishida (Acarina: Tetranychidae)¹

Wen-Tai Lee, Chyi-Chen Ho and Kang-Chen Lo²

Abstracts: Ten crops were evaluated for mass-production of *Tetranychus urticae* Koch and *T. kanzawai* Kishida. Considering the cost of seeds, growth vigor of host plants, and reproduction rate of the spider mites, a soybean native variety, Chin-pe Tou, was the best. The rice seedling-nursery box (60×30×3cm) was chosen to maximize a continuous canopy produced under the least space with the lowest cost. The leaf weight, leaf area and plant height at various cultivating density were compared, and the density of 900 seedlings per box was considered the most economical. This method is suggested as the best method for mass-propagating spider mites so far. Information on the control of the various soybean pests was also given.

Introduction

Biological control of spider mites has been one of the major interest of acarologists in recent years. Among the various natural enemies of spider mites, the predaceous phytoseiids attracted the most attention. Phytoseiids were reported to be the predator of spider mites as early as in 1912 (Quale, 1912). Yet, their applicability was not studied until 1950's. Form then on, many authors studied the production and application of phytoseiids to control spider mites (Kamburov, 1966; McMurtry and Scriven, 1965, 1966b, 1975; and Ristich 1956). However, these efforts to produce phytoseiids were primarily for small scale releases. The large scale releases were initiated only in the last 10 years (Fournier et al., 1985; Hendrickson, 1980; Hoy et al., 1982; and Storozhrov and Kaznacheeva, 1980).

Artificial diet has been studied for raising tetranychids (Fritzsche, 1960; Rodriguez and Davis, 1971; Storms and Noordink, 1970) and phytoseiids (Kennett and Hamai, 1980; McMurtry and Scriven, 1962, 1966a; Ochieng et al., 1987; Shehata and Weismann, 1972). None of these was proven to be promising for mass production programs. Therefore, the most effective way of mass-producing phytoseiids is utilizing spider

¹. Contribution No. 1511 from Taiwan Agricultural Research Institute (TARI), Wufeng, Taichung, Taiwan, Republic of China.
². Assistant Entomologist, Entomologist, and Senior Entomologist, respectively. Department of Applied Zoology, TARI.