

Different origins of rice gall midge occurrence in Thailand

The rice gall midge, *Orseolia oryzae* (Wood-Mason) in the family Cecidomyiidae, is one of the important insect pests of rice in the tropical Asia. In Thailand, studies on forecasting method of the insect occurrence have been conducted with special reference to relationship between population density of the insect on wild host plants during dry season and damage of rice plants during wet season.

A total of 4 kinds of the wild host plants was reported from Thailand (Hidaka et al. 1974). So far as present studies are concerned, the wild rice is found to be the most important host plants of the rice gall midge, followed by *Leersia hexandra* which is said to be morphologically close to rice plants.

In Chiengrai Province of northern Thailand, wild rice is found in field ditches into which water is supplied throughout the year. Big flora of wild rice is also seen intermittently along the High Way, Phaholyothin Road. Under such a condition, the galls were not seen on wild rice in January and February. However, galls began to occur from March, and two peaks of gall occurrence were recognized in June and September-October. The highest damaged tillers of wild rice reached 84% at the end of October at Pasang Village, Chiengrai Province. It is obvious that a great number of larvae is found in wild rice during dry season.

Table 1. Different kinds of wild host plant of rice gall midge in Thailand

District	Locality	Wild host plant
North	Chiengrai	wild rice
	Phrae	<i>Leersia hexandra</i>
Northeast	Ubol	<i>Paspalum</i> sp.

As given in Table 1, a host plant, *Leersia hexandra*, was investigated at the Phrae Rice Experiment Station in dry and wet seasons because no wild rice is found at Phrae Province. The host plant is grown in ditches and

dykes of paddy fields and can be seen all year round. The rice gall midge raised in rice plants in October-November was found to migrate to *Leersia hexandra*. The insect usually enters into the host plant at larval stage in dry season. The insect began to appear from April and disappear in the beginning of June. Rice gall midges were not found on *Leersia hexandra* in the planting season.

In Phibul Mansahan Village in Ubol Ratchathani Province, northeast of Thailand, there is an area with the serious occurrence of the rice gall midge, although host plants so far known for the insect have not been found there yet. *Paspalum* sp. is supposed to be one of the host plants because this plant is grown abundantly in paddy fields instead of wild rice and *Leersia hexandra*. A few galls were collected from *Paspalum* sp.. Small flora of wild rice grown near Sirithorn Dam in the village was found but the size of the flora is not enough as an origin of the insect occurrence.

As mentioned above, it is obvious that the kinds of wild host plant of the rice gall midge are quite different from locality to locality.

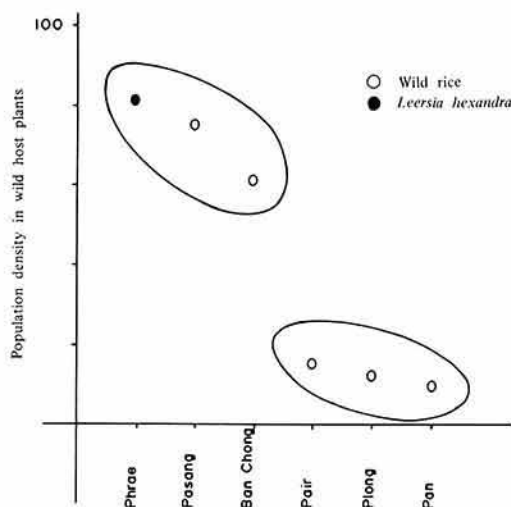


Fig. 1. Difference of population density of rice gall midge in wild host plants between areas with serious occurrence of the insect and areas of low infestation in northern Thailand

This is a most important finding that the rice gall midge occurs from different host plants by localities. It is necessary to study whether or not the rice gall midges originated from these different host plants have any biological differences.

In order to clarify relationship between serious damage of rice plants in wet season and population density of the insect in wild host plants in dry season, a study was carried out in Pasang, Ban Chong, Pair, Plong and Pan Villages in Chiengrai Province and Phrae in Phrae Province. In all of these areas, rice cultivation is not practiced in dry season. Three localities, Phrae, Pasang and Ban Chong, were observed to be seriously damaged by the insect. As given in Fig. 1, it is recognized that population density of the rice gall midge in wild host plants in dry season is extremely higher in the seriously damaged

areas than in low infestation areas. Survival rate of the insect larvae in wild host plants is considered to be high in the former areas. Numerous eggs were deposited on wild host plants by adult females migrated from rice plants before harvesting. It is considered that this finding is also important for the development of studies on the forecasting technique of the gall midge occurrence in northern Thailand.

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