Introducing Solitary Wasps (Delta esuriens) as a Predator for Pest Control in Cultivation Area Using Pseudo Brood Cells Produced from Its Habitat Imprinting Behavior

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Damage from insects is a major problem in agriculture. Using insecticide is harmful and expensive. We tried to introduce predator as the bio- control for the pest in a cultivation area. We observed that two species of native solitary wasps, Delta esuriens and Sceliphron javanum, show the nesting behavior of using mud to build their brood cells and prey on other insects. These wasps usually build nests near old broods on the corner of fences and houses. There are numerous pests in both brood cells. We wanted to introduce Delta esuriens to banana field as predator of the pests . We created pseudo brood cells made from sawdust, paper, and clay in the same shape and size of the natural broods The Delta pupas were inserted in these cells in each treatment, placed in the nest wood box and set in banana field. We found that the pseudo broods made from sawdust had the highest survival percentage of adult wasps. This method induced its nest building in the banana field by 75% and reduced pest insect damage on banana leaves by 12 times. Thus, using the native predator to control the pest insect in a cultivated area is an alternative way to make sustainable organic farming and the predator population can be managed by controlling the number of their nests.

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