EFFECT OF TYPE AND PATTING VARIATIONS OF REFUGIA PLANTS ON PEST - PREDATOR INTERACTION PATTERNS AS A NATURAL PEST CONTROL IN RICEFIELD ECOSYSTEM

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ABSTRACT

One application of the secondary cropping system is refugia. Refugia is the planting of several types of plants that can provide shelter, food sources or other resources for natural enemies such as predators and parasitoids. Refugia functions as a microhabitat which is expected to be able to contribute to efforts to conserve natural enemies that will play a role in natural pest control (Pia Parolin, et al, 2012). The purpose of this study was to analyze: (1) the patterns of interaction between insect pests and their predators in the various research treatments; (2) the effect of species variation and placement of refugia plants on pest insect population control in rice field ecosystems, (3) the type and placement of refugia plants that most effectively affect natural pest control.

This two-factor experimental research was conducted in the PIAT UGM garden, Berbah Sleman. The independent variables of this study were the type and placement of refugia plants in rice cultivation. The types of refugia plants are kenikir and long bean plants, while the refugia plants are placed in the middle and on the edge of the rice planting. Each treatment consisted of 3 replicate plots, with a uniform plot area (4m2). As a control is a plot without refugia. Every 3 weeks the dependent variable is observed, namely the population of insect pests and predators. Data analysis with the Bipartite in R Statistics program to see the interaction pattern. The difference test was carried out with ANOVA to determine the most effective types of plants and the placement of refugia.

The results of the study were: (1) The pattern of interactions between insect pests and predators in the variation of research treatments, will be seen from the value of Connectance, Interaction evenness, Shannon diversity, Niche overlap, Number of higher trophic species and Number of lower trophic species. In the results of this study, the highest Number of higher trophic species was in the treatment of long bean refugia plants by placing it in the middle of the plot, while the highest Number of lower trophic species was in the treatment of long bean refugia plants by placing it on the edge of the plot; (2) The effect of refugia on pest insect population control in the paddy field ecosystem, namely by functioning as a trap crop for natural enemies, the highest being in the refugia treatment of string beans planted on the edge of the plot; and (3) The best treatment for natural pest control in terms of the lowest pest population and the highest natural enemy in rice was refugia treatment of kenikir plants on the edge of the plot. However, it is necessary to research more than 1 planting season to see the significance.

Kata Kunci: *refugia, interaction, natural pest control*