

ABSTRACT

The rice cultivation system can affect agroecosystem complexity such as abundance and diversity of pest. This study was conducted to determine the effect of simple agroecosystems (conventional paddy fields) and complex agroecosystems (surjan paddy fields) on diversity and abundance of pests, and to determine the appropriate pest control strategies. The study was conducted using a survey method on three plots of simple agroecosystem (conventional paddy fields) and three plots of agroecosystem complex (surjan paddy fields) in Pleret Village, Panjatan Subdistrict, Kulon Progo Regency, Yogyakarta. The method used for sampling soil, plants, and pests is purposive sampling. Pest sampling was collected using pitfall trap method, sweep net, and yellow trap. The results showed that soil and plant nutrition improved abundance and diversity. Diversity index and abundance of pest on surjan paddy fields tend to be higher than on conventional paddy fields. Pests obtained in the conventional field was 20,313 individuals consisting of 8 orders, 26 families, and 52 morphospecies. Pests obtained on surjan paddy fields were 11,033 individuals consisting of 11 orders, 33 families, and 69 morphospecies. Pest control strategies that can be carried out on conventional and surjan paddy fields was crop rotation, improving agroecosystems complexity, simultaneous planting, using the resistant varieties, the arrangement of planting space, using organic fertilization, trap installation, utilization of natural enemies, and using of organic insecticides.

Keyword: Paddy, Pest, Agroecosystem, conventional paddy fields, Surjan paddy fields.