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Farmers’ and academia’s views”

## Abundance and diversity of arthropods in chili plant ecosystems cultivated by IPM

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### Abstract

Chili (*Capsicum* sp. ) is a strategic commodity with high economic value in Indonesia. Chili cultivation cannot be separated from the agrochemical inputs. Pest control on chili plants generally uses synthetic chemical insecticides which can reduce the diversity of arthropods. Reduced diversity of food sources for natural enemies can spur an increase in pest populations to the detriment.

The objectives of this study were to determine the abundance and diversity of arthropods in the chili plant ecosystem using IPM techniques. The observation area is 6 acres. Sampling was carried out in August-October 2020 in Jagaraga Village, West Lombok District, Indonesia, on chili fields using the IPM technique, namely a combination of the use of pheromone and botanical insecticides and non IPM cultivation techniques using chemical insecticides, and carried out using the Yellow Pan Trap and Pitfall Trap. Observations were conducted on the generative phase of chili planting.

Result of research indicates that 612 ground surface arthropods were recorded in chili plots using the IPM system representing 41 species, 24 families and 10 orders. The order Collembola which acts as a decomposer is the most abundant ( 42.81 %) of the total collected arthropods collected, followed by Hymenoptera (28.92 %), and Diplopoda (12.25 %). Analysis of functional groups showed that the species richness of arthropods in IPM plots was higher than that of non-IPM. On IPM plot, there are almost all functional groups, namely predators ( 18 species), decomposers (11 species), parasitoids (1) species and pest 11 species. The high number of predator species in IPM chili fields indicates the large number of niches are available and the abundance of prey for predators to colonize. The Order hymenoptera is the most abundant predator group collected from the chili field IPM system. The Shanon index value of arthropods on IPM plot of 2,887 indicates that the chili ecosystem with IPM is a fairly stable habitat, the natural control mechanism is going well. Every agronomic action carried out should be able to preserve and increase the carrying capacity of the environment so that it can support the development of organisms for sustainable stability.

**Keywords:** Arthropods, chili plant, diversity, ecosystem, IPM