Title: Habitat management effects on arthropods community in crab apple orchards (*Malus sylvestris* (L.) Mill.)

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Abstract:

Crab apple (*Malus sylvestris* (L.) Mill.) is native to Central Europe and successfully commercially grown in Indonesia. Management practices that increase biodiversity in agroecosystems are essential for mediating the negative impacts of intensive agriculture. This study aims to compare arthropod abundance and diversity between grass ground cover and *Hydrangea* intercropping in crab apple orchards and assess their impact on arthropod functional groups providing ecosystem services. In this study, arthropods were sampled by using three types of traps i.e., pitfall trap, yellow sticky trap, and pan trap. Arthropod specimens were identified by order and family, and then categorized by their ecological role: detritivore, omnivore, herbivore, the natural enemy (predator and parasitoid), and pollinator. In our study, a total of 164 families belonging to the five examined functional groups were collected. Differences among habitat management (*Hydrangea* intercropping vs. grass ground cover) were found for the total abundance and family richness of arthropods collected. *Hydrangea* intercropping showed significantly higher pollinators than grass ground cover in crab apple orchards based on abundance and family-level richness. Detritivore is dominantly found on grass ground cover, it can also be related to providing alternative prey for predators on crab apple orchards. *Hydrangea* and grass ground cover enhance the abundance and richness of pollinators, detritivores, and natural enemies in crab apple orchards and thus could shape arthropod assemblages to meet targeted conservation or pest management purposes.

Keywords: arthropods diversity, crab apple orchard, grass cover, natural enemies, *hydrangea* flower intercropping