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**THE USE OF NATURAL VEGETATION BIOMASS AS AN
ALTERNATIVE OF SUSTAINABLE AGRICULTURAL
PRODUCTION IN SOUTHEAST SULAWESI**

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Abstract

Extensive areas of the secondary vegetation can still be found in Southeast Sulawesi forests where within these forests the slash-and-burn system is being practiced by the local farmers. When the last crop was harvested, the land was initialized to be abandoned and allowed the secondary vegetation comprising of various species composition to grow naturally. It was noted that the capacity of the natural vegetation to accumulate biomass and nutrients mainly depends on the species composition, the intensity of land degradation and soil types. The huge amount of biomass accumulated by the natural vegetation has a high potential use as an alternative sustainable crop production in the study region. A study on the quantity of the secondary vegetation biomass in different fallow ages in abandoned agricultural fields of Southeast Sulawesi was carried out. The results of recent study showed that total biomass of secondary vegetation within 2 – 15 years of fallow ages ranged from 11 – 235 ton/ha, corresponding to nutrient accumulation of 123 – 1180 kg N/ha, 9 – 110 kg P/ha and 113 – 1610 kg K/ha. This capacity of biomass as a source of organic mulch and nutrients is considerable, indicating that nutrients deriving from the biomass can to a large extent supply the demand of main crops such as upland rice and maize in the study region. The results of tested crop conducted in the farmers agricultural areas are described. A detrended correspondence analysis (DCA) using an average biomass production along the fallow ages was also analyzed. The need to seek the most suitable and sustainable agricultural system is obvious and it is assumed that the most appropriate alternative to manage the nutrient content stored in the secondary vegetation. The use of organic matter of fallow vegetation as mulch may be the most efficient use of the fallow vegetation of the region. This method could only be adopted if the land was managed by fire-free land preparation that is reasonable and turns into a promising approach in agricultural development of the region in the future.

Key words: *Indonesia, nutrient stocks, organic mulch, shifting cultivation, spontaneous vegetation.*