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Forest Tree Regeneration on Fallow Land after Shifting Cultivation in the Northwest Region, Viet Nam

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Abstract

In the Northwest region of Viet Nam, agricultural land becomes increasingly limited resource. Slash-and-burn agriculture is still predominating and is one of the main factors for deforestation, land degradation and biodiversity losses due to increasing population density. Consequently, there is a large area of fallow land (about 2,000,000 ha) with low vegetation cover and species diversity. This study was conducted on fallow land at Chieng Boom commune in the Northwest region. The objective of this study was to evaluate whether forest trees can be regenerated on fallow land, by measuring the number of regenerated forest tree species and their abundance. The experimental area of 100m² per plot and random sampling method were used to collect data for the number of regenerated forest tree species and their abundance. All fallow land was divided into 4 categories, based on the number of years after fallow. Species richness, abundance and Shannon index were used to evaluate the diversity of regenerated forest tree species.

The longer the fallow period was, the more forest tree species appeared. After 15 years of fallow period, the number of regenerated forest tree species was 42, which accounts for 80 % of total species in the adjacent natural forests. Their abundance was very high, but those mainly were seedlings and saplings. The percentage of trees with DBH bigger than 6 cm was 7.2 %, equivalent to 65 trees per ha. The main part of regenerated species was pioneer species, which grew very fast at the beginning. More than 80 % of trees were regenerated from seeds and the rest from sprouting, indicating that seed is the key for the regeneration of forest trees on fallow land in this region. The seed source is mainly from mother trees which were left when shifting cultivation was conducted and adjacent natural forests, but some from seed bank in the soil.

Keywords: Fallow land, forest tree regeneration, shifting cultivation.