

## Factors influencing variations in the density, extent of canopy cover, and origin of trees in paddy fields in a rainfed rice-farming village in northeast thailand / Watanabe Moriaki, Patma Vityakon, A. Terry Rambo

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### Abstrak

#### <b>ABSTRACT</b><br>

Paddy fields in Northeast Thailand are unusual in that they contain large trees. In recent years, however, in concert with major changes in the agricultural system of Northeast Thailand, including the shift from subsistence to cash crops, mechanization, use of chemical fertilizers, and increased reliance of rural people on manufactured consumer goods, the role of trees in paddy fields has also been changing, leading to a decline in tree densities. This study was conducted in Khok Kwang village, Khon Kaen Province, in order to examine factors influencing variations in density, canopy coverage, and origin of trees in paddy fields there. In recent years, the rate of tree cutting appears to have been increasing and the density of trees declining. This decline reflects many changes in agricultural practices in the village. Farmers now rely on chemical fertilizer rather than litter from the trees to maintain soil fertility. They no longer value any increase in rice yield during dry years in the parts of their helds that are close to the trees because they are now able to pump irrigation water to maintain productivity; and trees are seen as an impediment to the use of four wheel tractors, which have difficulty working efficiently in paddy helds with many trees. In addition, several farmers have begun to plant their paddy Iields with sugarcane, which is less shade tolerant than rice. The density of trees in paddy fields planted with sugarcane (5.7 trees/ha) is much lower than in helds where rice is cultivated (9.6 trees/ha). In upper paddies that are still planted with rice, the trees are retained because they provide valuable goods and services to the farmers and rice yields there are in any case low and unstable. This study illustrates at the micro level how changes in farmer goals, choice of crops, and production technology that are part of the agrarian transformation of Northeast Thailand are reshaping the rural landscape.