Factors affecting termite mound density on agricultural land in the Pendjari region (Benin)

Ogoudedji Georges Pascal Codjovi[1], Nuppenau Ernst-August[2] ,Korb Judith[3]

1University of Giessen, Institute of Agricultural Policy and Market Research, Germany
2University of Giessen, Institute of Agricultural Policy and Market Research,
3University of Osnabruck, Institute of Behavioral Biology.

Abstract

Termites and termite mounds revealed to be multipurpose utilisation for African local communities (mounds for soil fertilisation, traditional ceremonies and construction, …). Recently, researches implemented by BIOTA West Africa teams observed the decreasing of termite mounds in the populated area of Pendjari. We present here the approach used to investigate the factors affecting the density of termite mound on agricultural land in the region.

Regression analyses have been carried out thanks to STATA9. The tobit regression helps determining the factors influencing either the presence or the density of termite mound on the crop plots. The logit regression helps determining the factors influencing only the presence of termite mound on the crop plots. The truncated regression helps determining the factors affecting the amount of termite mounds on the crop plots.

According to the living termite mounds (with termite), it is more likely to found living termite mound on a ferralitic soil (red soil) than on sandy (white soil) and low land soils (black soil). The probability to found a living termite mound on a plot increases with the soil slope, the use by the farmer of small equipment (hoe), the existence of cotton in the rotation on the concerned plot and the duration of farming on the concerned plot. But the density of living termite mound is influenced by the farmer age, the soil structure and the existence of cotton in the rotation. It decreases with the farmer age and the existence of cotton in the rotation on the concerned plot. However it increases on ferralitic soil than on sandy and low land soil.

According to the dead termite mounds (without termite), the probability to found a dead termite mound on a crop plot increases with the land security, the duration of farming on the plot, the existence of cotton in the rotation, the use by the farmer of small equipment (hoe). It is more likely to found dead termite mound on a ferralitic soil than on sandy and low land soil. The density of dead termite mound increases with the existence of cotton in the rotation on the concerned plot.

Keywords: termite, tobit regression, logit regression, truncated regression, Pendjari.