Tree growth and wood quality of *Ceiba pentandra* (sumaúma) grown of "terra firme" and "várzea" sites

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Ceiba pentandra (sumaúma) is one of the most important tree species for plywood production in the Amazon. Until today the strong demand of this species is exclusively satisfied from primary forests of "várzea sites", which leads to high exploration of this species in natural forests.

As to counteract this tendency timber firms and research organizations installed experimental plantations (monocultures, misted cultures agroforestry systems) of *Ceiba pentandra* on terra firme and várzea sites.

In this study growth and wood quality of Ceiba pentandra grown in different plantations on terra firme and várzea sites were investigated.

Highest growth rates were found in fertilized agroforestry systems on terra firme sites (age: 5 year; ø = 44,0 cm; height = 14,24 m) indicating a high nutrient demand of *Ceiba pentandra.*

After 5 and 7 year respectively a high survival rate was found in agroforestry systems on terra firme sites and monoculture systems on várzea sites as well.

No significant influence of the study site and the plantation system on the density of the wood was found.

Density variation within the stem was studied and a significant gradient was found from pith to bark following the subsequent regression equations:

Primary Forest (várzea): $Dens = 0{,}059453pos - 0{,}00312pos^2 + 0{,}00005pos^3$ (R_a^2 = 92,31 e CV(%) = 28,66)

Monocultures (várzea): $Dens = 0{,}138978pos - 0{,}016981pos^2 + 0{,}000645pos^3$ (R_a^2 = 93,63 e CV(%) = 25,75)

Agroforestry System (t. fir): $Dens = 0{,}11615pos - 0{,}011233pos^2 + 0{,}000323pos^3$ (R_a^2 = 93,00 e CV(%) = 26,98)

Monocultures (terra firme): $Dens = 0{,}13900pos - 0{,}016822pos^2 + 0{,}000642pos^3$ (R_a^2 = 93,82 e CV(%) = 25,43).

A comparison of plantation and natural grown trees indicated a slight increase of the anisotropy of the wood of plantation grown trees compared to natural growth.

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