

# Dynamics of extraction of nutrients in *Guadua angustifolia* Kunth.

Author: Hormilson Cruz Rios.

Mexico is a deficit wood country and for such reason *Guadua angustifolia* was introduced from Colombia to do impressive commercial plantations with this important specie. Actually Mexico has the biggest compact commercial plantation of *Guadua* at world-wide. Now, in Colombia and other countries plantations with this specie are beginning but for getting important and rapid results, is necessary to consider many technical aspects that favor their fast development. Also, to reduce the time of cut the stems it must be necessary consider the technical fertilization applications. For more of ten years, in Mexico also deep investigations in *Guadua* have been done, throwing scientific results in biomass generation, carbon capture, spacing of sowing, physiology of the photosynthesis, dynamics of extraction of nutrients, etc. The extraction dynamics was investigated during seven years, time for which the *Guadua* forest is already developed. The study discovered the amount of nutrients is absorbed by the plant and determining the order of importance of each of them according to the age. The extraction of 11 elements was evaluated: Nitrogen (N), Phosphorus (P), Potassium (K), Calcium (Ca), Magnesium (Mg), Iron (Fe), Manganese (Mn), Copper (Cu), Zinc (Zn), Boron (B) and Sodium (Na). In the field were extracted little clumps of one year age, then others of two years age and so on until the seven years of age. For every year of the research was taken the humid weight of the *Guadua*'s clump, obtaining its biomass. Then every plant component of the clump was also separated. Of the each plant was separated every one of its organs; roots, rhizomes, stems, branches and leaves and were taken samples being carry on to the laboratory where they were put under drying processes. With the use of an atomic absorption spectrophotometer the amount of each element absorbed by organ and according to the age of the plant was determined. Of the great amount of resulting information it is possible to be summarized that the order of importance of the elements in its extraction from seedtime to year seven is K, N, Ca, P, Na, Mg, Fe, Mn, Zn, Cu and B. Analyzing only the organs, the stem is the biggest extractor followed of the rhizome, leaves, branches and roots. The extraction of nutrients changes of importance according to the organ and age of the plant, appearing rotations among them and favoring the physiology according to the age. At the seven years of age every *Guadua* clump extracts 20862 gr. of nutrimental units. The Potassium is the biggest extracted with 53,2% of the assimilated total. The Nitrogen absorption is of 33,9%, being this the second element more extracted. In this study was discovered the enormous importance that the Sodium (Na) owns as a nutrient for the plant. The knowledge of the dynamics of extraction of nutrients by the plant according to the age and the knowledge of the nutrients that the soil owns, now allows making technical, rational and economic fertilizations. This research is being taken like model to determine the dynamics of extraction of nutrients in other bamboos.