

SUMMARY

In the province of Vizcaya, Pinus radiata afforestations on cenoman sandstone soils, related periglacial debris layers and older drifting loam exhibit strongly differing growth rates.

On the predominating slopes loam, and sandy to stony soils have developed into parabraunerde, pseudo-gleyic influences are observable in certain locations. The originally coarse and porous sandstone becomes cemented by clay and hydrated sesquioxide illuviation, forming the so-called cayuela, which is (nearly) impenetrable by plant roots and leads to stagnath water at a depth of 70-100 cm.

Comparative micromorphological soil investigations and chemical and physical analyses revealed that differences in site class (after ECHEVARRIA) of P. radiata plantations are mainly influenced by the depth and permeability of the soil in connection with water stagnation due to cayuela formation. Site classes are up to two classes lower under adverse conditions. In addition, top soil compaction as a result of intensive grazing can be of significance.