

Cork Oak (*Quercus suber* L.) Site Rating

*Ana Cristina Gonçalves, Susana Saraiva Dias,
Alfredo Ferreira and Nuno Almeida Ribeiro*

Abstract

Alentejo cork oak stands are crucial in terms of cork production and sustainability of agrosilvopastoral systems, therefore the development of a tool that allows site zoning, according to cork oak establishment and growth potentials, is worthwhile. The site potential and consequently tree development are mainly governed by soil characteristics such as depth, permeability, chemistry, internal drainage, runoff, and climate characteristics such as precipitation and temperature. A cork oak site-rating index, as a function of the above characteristics, was implemented allowing the definition and grading of areas for growth and development. The information was integrated in a GIS environment, using geoprocessing and spatial analysis resulting in the production of interpretative maps.

Keywords: Soil, site rating, Alentejo, cork oak, GIS

Introduction

In Portugal, the Alentejo region is mainly composed of *Quercineae* stands (*Quercus suber* and *Quercus rotundifolia*) which play an important role both in terms of cork and fruit production, and sustainability of agrosilvopastoral systems. According to DGF (2001) these two species cover 18% and 15% of the land, respectively, and account for 79% of the forest area of Alentejo.

The definition of areas with homogeneous productive potential allows one to organize areas for sustainable management and biodiversity conservation. Thus the development of a site zoning tool, according to cork oak establishment and growth potentials, is necessary. The site index measures the site productive potential, and for tree species, whose main product is timber, it is based on stand dominant height at a reference age (Assmann, 1970). For cork oak stands whose main production is the bark, a quality class can also be defined using site characteristics such as soil, topography and phyto-sociology (Oliveira, 1985). This type of classification has the advantage of defining productive potential classes for non-forested areas, which is not possible with the quality class site index.

In the literature review carried out for this study two main references were considered; one developed by Ferreira et al. (2001) and the other by Storie and Weislander (1948). Ferreira et al. (2001) defined quality classes for the most important forest species in Alentejo, based on soil, ecological zone and slope.