

Study of root growth in relation to shoot phenology in a date palm, *Phoenix dactylifera* in San Remo (Italy)

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The date palm *Phoenix dactylifera* L. plays since ages a lead role in both human and animal nutrition in the Mediterranean area. Its growing is mainly connected with the date production, but in Europe and in other continents it is widespreadly used as an ornamental plant. In Italy (Sanremo and Bordighera) and in Spain (Elche) date palms are grown since the Middle Ages mostly in order to produce and trade their leaves for both the Christian Easter religious ceremonies and the Jewish holiday of Sukkot. *Phoenix dactylifera* is a monocotyledon arboreal plant which belongs to the botanical family of the Arecaeae and to the order of the Arecales. From the point of view of the arboreal profile it follows the CORNER model. The palm is formed of three morphologically different parts: the root system, the vegetative organ and the reproductive system. Unlike the aerial part, the root system isn't satisfactorily known yet, maybe because of the problems that arise from an underground inspection. The architecture of a root system is determined by the nature and the position of the different growth axes and it depends on the underground apical meristems. In order to expand the knowledge of this theme, a rhizotron for the study of the root dynamics of *Phoenix dactylifera* has been installed in Sanremo (Italy) within the project of international cooperation named Euromed 3+3 MOCAF. At the foot of a date palm, in the subsoil, through a plexiglass panel, the dynamics of the root growth and more exactly the root development, direction and dimension are followed and recorded according to a predetermined protocol which schedules also the recording of the air and soil temperature and humidity. The periodic data collection is related also to phenological remarks which have been carried out on the palm in order to identify the relationships between the aerial and the root activity. The grafic recording of the root growth will lead to a subsequent data processing which will provide some useful elements to have a better representation of the root architecture. The research activity began in September 2013.