ABSTRACT

THE DETAILED BASIC SOIL SURVEY AND LAND EVALUATION OF HANBAT PLAIN IN DENİZLİ PROVINCE AND THE POSSIBILITY OF IDENTIFYING THE SOIL PROPERTIES BY SPECTRORADIOMETRIC MEASUREMENT TECHNIQUES

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In each area as well as agricultural areas, human endowed with broad knowledge aimed the optimal use of the land according to their kinds, the morphological and characteristics of the soils for both agricultural and non-agricultural use by the benefits of new technologies.

In this thesis, the basic soil, the potential use and agricultural suitability maps of Hanbat plain which were classified according to the basis of horizon were generated according to 1/25.000 scale by the latest technology. According to agricultural suitability classification it has been identified that the 1st exclusive class of agricultural land takes 8.7 % (2494 ha) of the total agricultural land, and the 2nd class also the quite good agricultural land covers 27.1 % (7779 ha) of the total agricultural land. According to the potential use the product priority in irrigated agriculture should be given as quince, pear, tomato, eggplant, spinach, barley, wheat, rye and oats and in dry farming as sainfoin and barley.

In this study there was also investigated the efficacy of the NIR spectroscopy technique (Near-Infrared Reflectance Spectroscopy) to analyze some soil parameters instead of using the traditional laboratory analyzes. Three different moisture conditions were taken into consideration of the soil samples. The best estimations were obtained from the soils oven dried at 65 °C. According to the results of the statistical analysis in three different humidity conditions, calcium carbonate and organic matter can be determined with high accuracy, and phosphorus could not be successfully determined in soils with high lime content.

Key words: soil survey and mapping, land use planning, NIRS