

Project title: **Determination of Plant Nutrient and Potential Toxic Element Scopes of İzmir-Manisa-Aydın Provinces Agricultural Soils**

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| <b>Research Area</b>  | Soil Water Resources and Environment   |
| <b>Research Program</b>   | Soil Quality and Soil Pollution  |
| <b>Executive Institute</b>  | International Agricultural Research and Training Center  |
| <b>Supporting Institute/s</b>   | Adnan Menderes University Faculty of Agriculture, Department of Soil Science and Plant Nutrition   |
| <b>Project Leader</b>   | Dr. Nejat ÖZDEN  |
| <b>Assistant Researchers</b>  | İdris USLU, Süleyman ŞEN, Ömer SÖKMEN, Nuri CANDAN, Sinan ARAS, Nalan RAHMANOĞLU, Oğuz Fehmi ŞEN, Faruk METİNOĞLU, Yrd. Doç. Dr. Selçuk GÖÇMEZ |
| <b>Research Period</b>  | 2013-2017  |
| <b>Project Summary:</b> <p>This study was carried out to determine plant nutrients and potential toxic element contents and to create soil databases and maps by evaluating these soil properties with Geographical Information Systems in İzmir, Manisa and Aydın agricultural lands between 2013-2017. The survey area was determined by thoroughly analyzing soil maps and considering agricultural practices such as irrigated agriculture, dry land farming, vineyards, orchards, olive, citrus etc., and accordingly 2.5 km x 2.5 km grids were formed and it was found out that the survey area could be represented by selecting 1725 points corresponding to agricultural lands. After the analyses, the soil samples were classified according to the soil fertility boundary values, it was found that soil texture was mostly sandy-loamy, pH level was mildly alkaline-neutral, EC was non-mildly saline, CaCO<sub>3</sub> was non-calcareous-mildly limy and organic matter was around average level. In terms of micro and macro elements, available phosphorus was insufficient-average, available potassium was sufficient-very rich, Ca was very rich, Mg level was average, exchangeable Na was non or mild, B was insufficient-average, Fe and Mn were rich, Cu was average, Zn was low-average. The results of the total heavy metal analyses on soil samples taken from the survey area are as follows; copper 2.52-142.40 mgkg<sup>-1</sup>, cadmium 0.01-2.17 mgkg<sup>-1</sup>, chrome 4.6-873.9 mgkg<sup>-1</sup>, lead 0.41-263.92 mgkg<sup>-1</sup>, cobalt 0.14-45.60 mgkg<sup>-1</sup>, calcium 750-788060 mgkg<sup>-1</sup>, iron 91-70906 mgkg<sup>-1</sup>, potassium 443-89010 mgkg<sup>-1</sup>, magnesium 179-266050 mgkg<sup>-1</sup>, manganese 1-23181 mgkg<sup>-1</sup>, sodium 26-563392 mgkg<sup>-1</sup>, nickel 2.4-560.6 mgkg<sup>-1</sup> and zinc 6.42-247.51 mgkg<sup>-1</sup>.</p> <p><b>Key words:</b> Soil pollution, total heavy metal, plant nutrients, soils of İzmir, Manisa and Aydın districts</p> |  |