

Projenin Adı: Determination of Boron Nutrition Status of Vineyards in İzmir, Manisa, Denizli Provinces and Investigation of the Effect of Boron Fertilization on Yield in Vineyards

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<p>Project Summary</p> <p>This study aimed to determine the boron content in vines, the soil in vineyards and find out the effect of boron fertilization on yield in İzmir, Manisa and Denizli. The study had two phases, in the first phase nutrition levels of the soil and vines in were determined. In the next phase boron fertilizer experiments were carried out in five locations with low available boron levels in the soil (Belen, Yağcılar, Kumkuyucak, Doğan and Yazır).</p> <p>According to the size of seedless grape vineyards in Aegean Region, 30 soil and leaf samples from İzmir (9.2% of total samples) 177 samples from Manisa (54.3% of total samples) and 119 samples from Denizli (36.5% of total samples) were taken in the first phase of the study.</p> <p>As to the results of the analyses, it was found out that boron content in the soil of vineyards varied between 0.05-4.77 mgkg⁻¹ and the average level was 0.65 mgkg⁻¹. 53.07% of total soil samples had enough available boron content, while 43.56% of them had low levels. The lowest boron content was found in Denizli, 71.43% of samples were classified in low boron levels, it was followed by Manisa (28.25%) and İzmir (23.33%). While İzmir and Manisa vineyard soils had sufficient available iron, copper, zinc and manganese, there was iron and zinc deficiency in Denizli vineyard soils. Available phosphorus, potassium, calcium and magnesium levels were enough in all these cities.</p> <p>It was found that boron content in the leaf samples, simultaneously taken with the soil samples from vineyards in İzmir, Manisa and Denizli, varied between 13.30-628.80 mgkg⁻¹ and the average level was 75.12 mgkg⁻¹. 16.26% of all samples had low boron levels, 52.76% had sufficient boron content, however, 30.98% had excessive amounts of boron. The lowest boron level was found in Denizli, 31.09% of samples were classified in low boron levels and followed by İzmir (13,33%) and Manisa (6.78%) respectively.</p> <p>While there was no deficiency in terms of calcium and magnesium in vineyard soils, phosphorus and potassium levels were rather low. As regards to micro elements, iron, copper, zinc and manganese levels were sufficient in Manisa, however, in İzmir zinc was problematic and in Manisa zinc and copper levels were insufficient.</p> <p>Although boron levels can be improved via fertilization in vineyards with low boron content, it can also cause toxicity because of excessive use, thusly it should be used in areas with less than 0.5 mgkg⁻¹ boron content according to the results of soil analyses.</p> <p>In the next phase, in order to determine the effect of boron fertilization on yield, in five predesignated areas, Beslen, Yağcılar, Kumkuyucak, Doğan and Yazır, boron fertilization was applied on the soil as 0-1-3 kgBha⁻¹ and foliar application dosage was 0-300 mg^l-1 of Etidot-67 (20.8% B).</p> <p>According to the results, it was understood that foliar application didn't have any affect, however, it was found that in areas with less than 0.5 mgBkg⁻¹ boron content, 3 kgBha⁻¹ application rate increased cluster weight and fresh grape yield.</p> <p>Key words: Boron, vineyards, fertilization, yield, İzmir, Manisa and Denizli</p>	