The present study was carried out to determine effects of molasses obtained from sugar beet on yield and quality of sugar beet in Isparta, Turkey during 2011 and 2012 crop seasons. Different concentrations of molasses were applied to soil and to plant leaves at different doses (0, 25, 50, 75 and 100 kg/ha) 3 times during the vegetation period. The experiment was setup as factorial design with randomized complete block design with three replications. Molasses applications significantly increased root yield and quality compared to the control. Soil applications were more effective than foliar applications for all parameters studied. Molasses applications at more than 50 kg/ha for soil and foliar applications negatively affected plant and root growth and their effects was more pronounced in the foliar application. Molasses increased root yield by 20.4% in soil applications and by 9.6% in foliar applications compared to control. The highest root yield was obtained in the soil applications at 50 and 75 kg/ha (72.3 and 72.0 t/ha, respectively) and in the foliar applications at the same dose (66.1 t/ha). Sugar content and gross sugar yield significantly increased with molasses treatments by 1.2 % and 2.9 t/ha, respectively compared to control. It was concluded that sugar beet molasses can be used effectively in order to increase sugar beet yield and quality.