In this study, the relationships between the productivity of Anatolian black pine forests and the environmental variables were investigated in Demirci (Manisa) district of Turkey. Inventory study was performed on 40 stands totally. Ages and heights for 3 different plus trees in each stand were measured and site (bonitet) index values were calculated according to height at the age of 100 for the black pine. At the first stage, Pearson and Spearman correlation analyses were used to determine binary linear relations between productivity of the species and environmental factors in the district. Multiple regression analysis and regression tree method were performed to obtain the productivity models of the species, respectively. As a result of these analyses, it has been concluded that the lower slopes and flats with a smooth surface at average altitudes of 1000 m-1350 m are the most suitable areas for the productivity of Anatolian black pine in the district. Furthermore, it has been found that litter thickness on the soil is not a clear indicator for the productivity of the species in the natural stands. On the other hand, it has been determined that the north aspect significantly contributes to the productivity of this species in the elevations below 1000 m and all these relationships are especially related with water and nutrition contents in the environment.