This study was performed to determine modeling height growth of Anatolian black pine (Pinus nigra Arn. ssp. pallasiana (Lamb.) Holmboe) stands according to the site factors in the Buldan forest district. Site index and environmental data obtained from 19 sample plots in the district were fitted by Stepwise Multiple Regression Analysis (SMRA) and Regression Tree (RT) using SPSS 17.0 and DTREG softwares. Schist structured quartzites, slope position and clay percent of B horizon (R² =0.67) were determined as the most significant variables for the model obtained from SMRA. Two different models were determined by RT statistics. The first one was represented by slope position and altitude (R² =0.67), while slope position and surface stoniness were the most important variables in the second model and prediction values of site index were separately calculated by all these models. Consequently, R² =0.84 was the most significance level when the average of these prediction values correlated with the actual site index values.