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Some Parameters Affecting Fire Behavior in Anatolian Black Pine Slash

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Abstract: This study presents and discusses the results of a fire behavior study conducted in Anatolian black pine (Pinus nigra J.F. Arnold subsp. nigra var. caramanica (Loudon) Rehder) slash. A total of 30 experimental fires were conducted over 3 years under varying weather and fuel loading conditions in aging slash. Relationships between fire behavior and fuel properties and weather conditions were determined with correlation and regression analyses. Spread rate, fuel consumption, and fire intensity were all related to fuel properties and weather, and ranged from 0.2 to 3.1 m min^{-1}, from 0.71 to 6.65 kg m^{-2}, and from 14.05 to 3961.46 kW m^{-1}, respectively. Fuel loading ranged from 1.56 kg m^{-2} to 6.96 kg m^{-2}. Differences in fire behavior were clearly shown to be a function of wind speed, fuel moisture, slash age, and fuel loading. Results obtained in this study should be invaluable in overall fire management practices. However, its use should be restricted to the range of conditions within which the data were gathered.

Key Words: Fire behavior, slash fuel, Pinus nigra, Turkey

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