

# Turkish Journal of Agriculture and Forestry

Turkish Journal

of

Agriculture and Forestry



Fire Development from a Point Source in Surface Fuels of a Mature Anatolian  
Black Pine Stand

Ömer KÜÇÜK<sup>1</sup>, Ertuğrul BİLGİLİ<sup>2</sup>, İsmail BAYSAL<sup>3</sup>

<sup>1</sup>Kastamonu University, Faculty of Forestry, 37200 Kastamonu - TURKEY

<sup>2</sup>Karadeniz Technical University, Faculty of Forestry, 61080 Trabzon - TURKEY

<sup>3</sup>Duzce University, Faculty of Forestry, 81320 Düzce - TURKEY

 [Keywords](#)  
 [Authors](#)



[agric@tubitak.gov.tr](mailto:agric@tubitak.gov.tr)

[Scientific Journals Home Page](#)

**Abstract:** A total of 28 line and 24 point-source fires were ignited under varying weather and fuel loading conditions in Anatolian black pine (*Pinus nigra* J.F. Arnold subsp. *nigra* var. *caramanica* (Loudon) Rehder) stands. Relationships between the rate of fire spread and fuel and weather conditions were determined with correlation and regression analyses. The rate of fire spread ranged from 0.12 to 1.20 m min<sup>-1</sup> in line fires. In the ignition, transition, and steady state phases of point-source fires, the rate of fire spread ranged from 0.04 to 0.78 m min<sup>-1</sup>, from 0.11 to 0.59 m min<sup>-1</sup>, and from 0.08 to 0.99 m min<sup>-1</sup>, respectively. Surface fuel loading ranged from 1.27 to 2.45 kg m<sup>-2</sup> for line fire and from 1.56 to 2.67 kg m<sup>-2</sup> for point-source fire. The results showed that the rate of fire spread was closely related to wind speed and fuel moisture content for line and point-source fires. The linear prediction for wind conditions estimates that equilibrium spread rates may be achieved within 25 min after the ignition of point-source fires.

**Key Words:** Fire growth, line fire, point fire, litter fuel, black pine

---

Turk. J. Agric. For., **31**, (2007), 263-273.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Agric. For., vol.31, iss.4.](#)