Influence of Prescribed Fire on Nitrogen Dynamics in Mid-Rotation Loblolly Pine Plantations. (S07-hosea151536-Oral)

Authors:

- R.E.Hosea* - *Mississippi State University*
- S.H.Schoenholtz - *Oregon State University*
- S.D.Roberts - *Mississippi State University*
- J.L.Smith - *Mississippi State University*

Abstract:

Intensive management of southern pine plantations commonly includes the silvicultural practice of prescribed burning in order to create favorable growing conditions. Changes in vegetation and soil properties as a result of burning could influence N availability. This study examined effect of prescribed fire on N mineralization, related soil properties, and stand growth characteristics in four loblolly pine stands ranging in age from 19 to 23 years. All sites were bedded at establishment and are located in the interior flatwoods region in Mississippi on Wilcox fine, montmorillonitic, thermic Vertic Hapludalfs. All sites were burned in January 2000. Sampling of mineral soil and forest floor was conducted between July 1999 and December 2000. Rate of N mineralization was determined using sequential cores on a one-month incubation cycle. Soil moisture and temperature were collected on two-week intervals. Forest floor biomass and nutrient content were examined every three months. Tree growth, leaf area index, foliar nutrient content, and specific leaf area were collected quarterly between July 1999 and December 2001. Results will indicate effect of prescribed fire on N mineralization, related soil properties, and stand growth characteristics.

Corresponding Author Information:

Ross Hosea
Mississippi State University
PO Box 2178
Starkville, MS 39760

phone: 662/325-8356
fax: 662/325-8726
e-mail: rosshosea@hotmail.com

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