EFFECTS OF VESICULAR-ARBUSCULAR MYCORRHIZAE
AND SEED SOURCE ON GROWTH OF NURSERY-GROWN
JUGLANS NIGRA L. SEEDLINGS

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Twelve Juglans nigra L. seed sources were grown in fumigated nursery soil with and without vesicular-arbuscular mycorrhizal fungi formed by Glomus intraradicies or Glomus etunicatum Becker and Gerd. Nuts were planted on April 30 and seedlings lifted December 20, 1988. Plants inculated with intraradicies held their leaves and retained color longer than those without mycorrhizae or inoculated with G. etunicatum. G. intraradicies appeared to stimulate the greatest amount of fibrous root growth to all seed sources, while G. etunicatum stimulated a greater number of larger primary roots. Data on height, caliper, percent colonization, and number of first order laterals > 2 mm are analyzed and discussed.

APPLICATION OF BIOCHEMICAL GENETICS IN NATIONAL FOREST MANAGEMENT

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In 1988, the USDA Forest Service established a national laboratory to assist forest management on the National Forests with application of current biochemical genetics technology. This laboratory provides checks on clonal identity, and controlled cross verification, to help improve accuracy in the management of crossing programs. In seed orchards, isozymes will be useful to estimate pollen contamination and outcrossing rates, as well as to monitor the efficacy of supplemental mass pollination. In natural populations, isozymes will be used to map patterns of genetic variation in natural populations, and to help monitor the effects of management on the gene pool and genetic diversity. In recurrent mass selection programs, inbreeding will be kept to a minimum through the use of isozymes or RFLPs to check selected individuals prior to breeding. Additional projects involve seedlot identification in nursery management, and genetic origin and variation estimates for plantations. Benefits from the lab are expected to be 1) improved decision-making for selecting specific families to include in breeding programs, and 2) additional information on natural populations which can be applied to managed forest tree populations.