



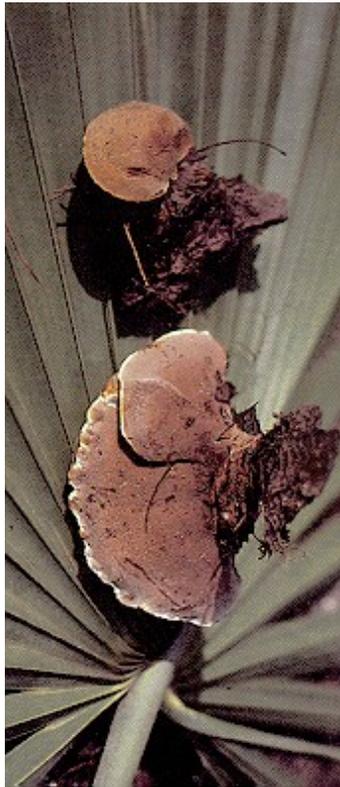
Forest Health Protection, Southern Region

RED ROOT AND BUTT ROT,

caused by *Inonotus circinatus*

Importance. - *Inonotus circinatus* causes a root and butt rot of slash, sand, and shortleaf pines in the South. It is the fungus most often associated with diseased sand pines over 20 years old.

Identifying the Fungus. - The fungus produces fruiting bodies in the fall and winter on the bases of affected trees and from infected subsurface roots. Fruiting bodies are firm-textured and yellowishbrown, and can be bracket-shaped or have a well-defined stem. The lower surface of the fruiting body is composed of many pores.



Red root and butt rot conks.



Red root and butt rot conks.

Identifying the Injury. - Infected trees appear thin-crowned, with dwarfed, yellow needles. As the disease progresses, windthrow becomes common. Infected roots show a dark, reddish-brown stain. Resin often impregnates stained wood and exudes through the bark at the base of the tree. Roots with advanced decay have small, elliptical pockets filled with white mycelium.

Biology. - Red root and butt rot is a slow-acting disease, primarily of older pine stands. Trees may be infected by airborne spores that are deposited on basal wounds. Fusiform rust galls on slash pine seem particularly susceptible to infection. Once established in a tree's root system, the fungus can spread to healthy trees via root contacts. Diseased pieces of roots can persist in the soil for a number of years.

Control. - Direct controls for this disease are not available. Management techniques to minimize its impact are: sanitizing or completely salvaging affected portions of stands, including trees with basal rust galls; avoiding wounding trees during stand entries; lowering rotation age; and harvesting overmature stands.
