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Some Structural Features of Mycorrhizae on Coniferous Seedlings

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the yellow seeds, but there was no significant difference in germination. Seeds harvested before the heads are well ripened tend toward a high percentage of brown seeds.

The pigment determining the color of the seed is in the Malpighian layer, the outermost cell layer of the seed coat. The seeds are green previous to ripening, and pass from green to yellow and finally to purple. In case of brown seeds, the embryo which is normally white is often brown.

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SOME STRUCTURAL FEATURES OF MYCORRHIZAE ON CONIFEROUS SEEDLINGS

ANDREW L. McCOMB AND J. E. SASS

Development of mycorrhizae was found to be promoted by inoculating nursery soil with humus and top soil from well-established coniferous plantations, or by application of phosphorus fertilizer. Two types of host cell fungus relationships have been observed. In one type the root has a mantle of mycelium with abundant clamp connections. The internal mycelium is intercellular and segmented into short, straight-sided cells. The second type has a mantle of much coarser, "moniloid" mycelium. The internal mycelium is intracellular, partly peripheral along the cell walls, and segmented into rounded cells. Abundant coarse, blunt hyphae protrude into the vacuoles. In some roots the outer cortical cells contain large wefts of extremely fine mycelium. It is not improbable that two or three fungal organisms are involved, the relative prominence of each being determined by cultural treatment.

IOWA STATE COLLEGE,
AMES, IOWA

COMPARISON OF FLORAL INITIATION IN AMERICAN-GROWN AND HOLLAND-GROWN TULIPS

J. E. SASS

The destruction of the bulb industry in the Netherlands has stimulated the production of bulbs in the United States. The question of relative flowering capacity of European and American bulbs has been raised. The flowering cycle is essentially the same in tulip bulbs from both sources; floral primordia are initiated about August first, and the bulbs enter dormancy with the pollen