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Abstract of:  
SEASONAL PERIODICITY IN ROOT REGENERATION  
by  
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The ability of the seedling to regenerate rapidly an extensive root system when transplanted is an important factor in determining whether it will live or die.

Regeneration of a new root system following transplanting depended upon elongation of the short laterals already formed and the initiation and subsequent elongation on new laterals.

Both root elongation and root initiation of transplanted seedlings displayed a distinct seasonal periodicity which was evident under greenhouse conditions where soil moisture and nutrients were abundant, and the soil temperature was held constant. Neither root elongation nor root initiation occurred on seedlings transplanted into the greenhouse in July and August. Root elongation was evident at all other times although greatest activity was in the spring immediately prior to the breaking of the terminal bud. Root initiation, on the other hand, was only evident from December to June although the greatest activity was also immediately prior to the breaking of the terminal bud.

The data presented, although incomplete, suggest that the particular seed zone and/or the nursery in which the seedling is raised affects its physiological condition of the seedling and its subsequent response when transplanted to the greenhouse. They also suggest that the transplanting of the ponderosa pine seedlings in the spring rather than in the fall is in general a safer practice. In the spring a greater number of the short laterals elongate per unit time than in the fall. Furthermore since new laterals are initiated only in the spring replacement of those roots that dry out and are killed accidentally during transplanting is