

Fertilizer

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The nutrient requirements for different species are not well known by nurserymen. In a general way, those species with more exacting requirements can be separated from those which will grow on poor soils. S. A. Wilde has established some fertility levels, but they like other standards, must be interpreted in relation to the extraction solution used to remove the elements from the soil. The standards set up for agricultural crops don't apply to forest tree seedlings. Often it seems that even those standards intended for tree seedlings don't work very well either. The analysis of soils under good and poor plants often doesn't reveal the reasons for the differences, probably because a plant is the product of both chemical and biological factors acting over a relatively long time in the soil and which can't be measured by a sampling for nutrients at one point in time.

Most nurseries use granular fertilizers, but several use liquid applications of soluble fertilizer either by sprayers or through the irrigation systems. There was interest in the use of the irrigation system as in New Hampshire where 15-15-15 has been applied through the Skinner system for several years with no apparent damage to the irrigation equipment. Irrigation applications of fertilizer are not made at Saratoga because of the lack of uniformity of water application with sprinkler irrigation and because the edges and some ends of the blocks use half-circle sprinklers. These would have to be shut off just halfway through the application time, involving a complex corn-

munications system and the devotion of the irrigation system to fertilizer application at the expense of regular watering schedules.

Late fertilizer applications, so long thought to cause succulent seedlings susceptible to winter injury, are now common. Many nurseries, including Saratoga and Pennsylvania nurseries, make their last application in late September without any trouble from winter injury. Pennsylvania recounted their recent experience with an early frost which damaged low fertility larch seedlings more than high fertility seedlings.