

NUTRIENT RECOMMENDATIONS FOR COMMERCIAL CHRISTMAS TREE PRODUCTION

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The nutrient requirements of Christmas trees vary according to the species. Compared to other crops, however, the nutrient requirements for most Christmas tree species are minimal during their 8-10 year growing cycle.

Nitrogen Recommendations

Nitrogen leads to the development of the rich, green color associated with a healthy, attractive Christmas tree. Over application of nitrogen, however, leads to undesirable growth characteristics, such as long internodes and an open growth habit.

Nitrogen requirements are species-dependent. If required, nitrogen applications are usually limited to the second year in the growth cycle and the spring before harvest. Scots pine requires virtually no nitrogen applications. Other pines require only the spring before harvest, unless they are being produced on sandy, low fertility soils. Spruces and most firs typically respond to nitrogen the second year in the growth cycle and the spring before harvest. Fraser fir requires nitrogen annually (Table1).

Table 1. Nutrient recommendations for established Christmas tree species commonly grown commercially in Maryland.

Species	Timing	Rate lbs/acre (N-P ₂ O ₅ -K ₂ O)	Comments
Scots pine	—	—	Unwanted growth is stimulated by nitrogen.
All other pines	2 nd year	100-0-0	Do not apply unless trees are grown on a sandy, low fertility soil.
	Spring before harvest	100-0-0	Apply at bud break
Spruce	2 nd year	100-110-0	Apply at bud break
	Spring before harvest	100-0-0	Apply at bud break
Fraser fir	2 nd – 5 th years	75-75-40	Apply at bud break
	6 th through harvest years (Applied in spring)	100-100-50	Apply at bud break
All other firs	2 nd year	75-0-0	Apply at bud break
	Spring before harvest	100-0-0	Apply at bud break

Phosphorous and Potassium Recommendations

Pre-establishment phosphorous (P) and potassium (K) applications should be based on the amount of available P and K already in the soil (Table 2). For pine and fir, (excluding Fraser fir) P and K applications should be limited to pre-establishment. More nutrient demanding species, such as spruce and Fraser fir, require additional P or K, or both, during the production cycle. Both P and K-bearing fertilizers should be banded, if possible.

Over-application of P should be avoided, as it can lead to the suppressions of mycorrhizal development. The mycorrhizal relationship enhances the uptake of both water and nutrients.

Table 2. Phosphorous (as phosphate P_2O_5) and potassium (as K_2O) recommendations for the establishment of Christmas trees, in pounds per acre.

	Soil Test Category			
	Low (FIV 0-25)	Medium (FIV 26-50)	Optimum (FIV 51-100)	Excessive (FIV>100)
P_2O_5	60	30	0	0
K_2O	40	20	0	0

pH Management

Most Christmas tree species prefer a pH in the 6.2 to 6.4 range. An exception to this is Scots pine, which prefers a pH of 5.5.

Fertilizer Placement

For new plantings the recommended quantities of phosphorus-bearing and potassium-bearing fertilizers should be banded before planting near the location of tree establishment rather than broadcast. For establish trees, fertilizers should be applied within the dripline, avoiding the area within 6 inches of the trunk.

Weed Management

If fertilizers are used to grow Christmas trees, banded application of herbicides is highly recommended. The use of fertilizers without chemical weed control will result in excessive vegetative growth of weeds in close proximity to tree seedlings, often resulting in high losses.