

Nutrient Management

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NUTRIENT RECOMMENDATIONS FOR COMMERCIAL CHRISTMAS TREE PRODUCTION

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 growth cycle.

typically respond to nitrogen the second year in the growth cycle **AND** the spring before harvest. Fraser fir requires nitrogen annually (Table 1).

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 nitrogen only the spring before harvest, unless they are being produced on sandy, low fertility soils. Spruces and most firs



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

SPECIES	TIMING	RATE/ACRE (N-P ₂ O ₅ -K ₂ O)	COMMENTS
Scots pine	-	0-0-0	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 year through 5 th year	75-75-40	Apply at bud break.
	6 th year through harvest year (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.

Phosphorus and Potassium Recommendations

Pre-establishment phosphorus (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 and/or K 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 suppression of

mycorrhizal development. The mycorrhizal relationship enhances the uptake of both water and nutrients.

Mycorrhiza is the term for a mutually beneficial or symbiotic relationship between soil fungi and plant roots. The fungi form a sheath around and/or within the roots as well as extending far out into the soil matrix. The fungi absorb nutrients and water and transport these materials back to the plant. The plant in return supplies the fungi with carbohydrates.

Mycorrhizal relationships are common on perennial plants.

Table 2. Phosphorus (as phosphate, P₂O₅) and potassium (as potash, K₂O) recommendations for the establishment of Christmas trees.

Soil Test Category				
	Low (FIV 0-25)	Medium (FIV 26-50)	Optimum (FIV 51-100)	Excessive (FIV >100)
P₂O₅	60	30	0	0
K₂O	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- and potassium-bearing fertilizers should be banded before planting near the location of tree establishment rather than broadcast.

For established 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.

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