

KENTUCKY CHRISTMAS TREE PRODUCTION WORKBOOK

FOR-24



FERTILIZATION

Bonnie L. Appleton and Deborah B. Hill

As with any plant material, Christmas trees need nutrients to increase growth, improve vigor and enhance color. Some species grown are heavy feeders, some are not; therefore, fertilizer recommendations vary.

Major, scheduled fertilization is not a common Christmas tree cultural practice. Few Kentucky growers fertilize their trees both because no adequate recommendations currently exist and because fertilization has not been a standard practice. However, fertilization may be important and should be considered.

Fertilization should be considered at 3 times: pre-plant, at planting time and post-plant. For preplant and planting time fertilization, a current soil test will be helpful in determining the type and rate of fertilizer to use. For postplant fertilization more indirect indicators such as site characteristics, available moisture and species may be helpful. For example, Scots and Virginia pines will tolerate dry, unfertile sites; the various spruces and firs will not.

Preplant Fertilization

A soil test should be taken (see Cooperative Extension Publication AGR-16, *Taking Soil Test Samples*) when land is being prepared so that if any fertilizers or lime are needed, they can be incorporated before planting. Incorporation in the fall before a spring planting is advisable. Remember that Christmas tree needs differ from typical crop needs. Christmas trees prefer acid soils (pH 5.0-6.5).

Ask to have a soil test run for phosphorus (P), potassium (K), and pH. If P and K rates are very low or zero, apply a moderate amount of each (e.g., **40 lb** active ingredient/acre **P** and **160 lb** active ingredient/acre **K**). If the pH is below 5.0, lime to raise it to between 5.0 and 5.5. If the pH is only mildly acid (6.5), neutral (7.0) or alkaline (above 7.0), some foliar chlorosis (yellowing) may develop but it is

not economically feasible to add sulfur to lower the pH (except possibly immediately around each tree using a product like sulfur-coated urea, SCU). Adding some form of nitrogen (N) may help. Use of leguminous ground cover also helps.

Preplant fertilizers should be applied across the entire area to be planted, not just per tree site. Use **per acre** rates. Nitrogen fertilizer should not be applied pre-plant due to rapid losses by leaching and volatilization. Ammonium nitrate and urea also will burn the new seedlings.

Planting Time Fertilization

At **planting time fertilizer** may be applied on a **per tree basis**. Use slow release materials conveniently packaged as tablets, spikes, small bags, etc. Place them either in the planting hole or preferably in the hand planting closing hole. Follow the manufacturer's rate recommendations.

Postplant Fertilization

Postplant fertilizer should be applied on a **per tree** basis, not broadcast on an acre basis. The trees, not grass, weeds, or surrounding ground cover, should be all that is fed.

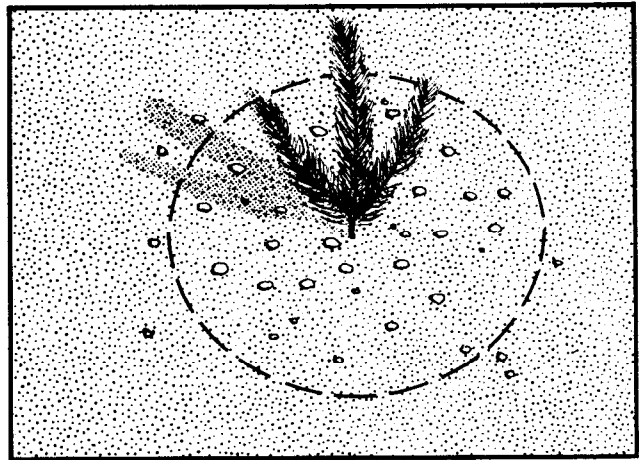


Slow-release fertilizers are used at planting time.

If tree growth seems slow or color is off, fertilization with a high nitrogen (N) fertilizer such as urea (46-0-0) or ammonium nitrate (33-0-0) may be desirable after the second year of growth. Here is a chance for growers to experiment to determine types and rates of fertilizer to use for their species of trees under their soil and climate conditions (see FOR-32 in this series, *Developing a Demonstration Plot*). Whether you want to fertilize before the growing season for growth or after the growing season for color is another variable to consider. Some growers have successfully used diammonium phosphate as a side dressing on trees 4 years old and older.

Fertilizer Analysis

A fertilizer may supply only one major nutrient (urea, 46-0-0, supplies 46% nitrogen (N)) or may be complete and supply all three major nutrients (10-10-10, supplies 10% N, 10% P as P_2O_5 and 10% K as K_2O). The first number always refers to the percent N, the second, the percent P and the third, the percent K.



Pelleted fertilizers are broadcast around each seedling after planting.

The percent equates to a weight basis (ten lb of a 10-10-10 fertilizer contains 10% each N, P and K or one lb of each—the other 70% or 7 lb is inert carrier).