

Pesticides and Fertilizers in Growing Christmas Trees



Guide H-411

Herbicides, insecticides, and fertilizers are needed to operate a Christmas tree plantation successfully. These agricultural chemicals help optimize tree growth; however, apply them judiciously. Follow label directions, to the letter, to prevent tree injury.

Herbicides

Herbicides are chemicals manufactured specifically for killing undesirable weed species. They vary in the way they do their job. Many control a group or certain types of weeds, others kill all vegetation with which they come in contact.

Weeds in tree plantations must be controlled yearly, because they compete with trees for moisture, nutrients and sunlight. They grow rapidly and may envelop young trees and, in many instances, choke them to death.

Herbicides, such as Amitrole, Paraquat and Roundup, that kill all types of vegetation may be used to clear fields of undesirable weed species before trees are planted and used afterwards as spot treatments to prevent re-invasion. Amitrole and Roundup are absorbed by plant tissue and distributed throughout the plant system, killing both roots and shoots within two to three weeks. Use extreme caution when applying Paraquat because it is highly toxic to mammals. Paraquat kills all vegetation it comes in contact with but does not kill roots, therefore perennials resprout.

When spraying nonselective herbicides, control droplet size (large droplets drift less than small droplets) by reducing pressure, as contact with trees may cause injury or even death. New herbicide applicators such as the Herbi and the rope-wick types may help avoid injury from drift.

To control weeds after the trees are planted, a selective herbicide such as simazine or atrazine can be sprayed over the trees before weeds emerge (pre-emergence), or one such as velpar after emergence (postemergence). Pre-emergence herbicides are mainly active in the top 2 inches of soil, where they are absorbed by germinating seeds and small weeds. Best results are obtained when weeds are less than 2 inches tall. To prevent tree injury, apply pre-emergence herbicides before buds on trees begin to

swell in the early spring. Mechanical incorporation is needed if no rain occurs during the first week after application.

Postemergence herbicides should be applied directly on actively growing weeds when they are about 6 inches tall. Spraying equipment for herbicides should have an agitator to keep the herbicide in suspension.

The use of herbicides in New Mexico is highly restricted, due to the low organic matter content of most soils (less than 1%). Probably the best choice would be a herbicide that breaks down as soon as it reaches the soil.

Insecticides

Insecticides are used to manage insect pests. Constant inspection of the tree plantation eliminates the need for most preventive spraying, which may kill beneficial insects. Whenever an insect population is building up, spray only those trees that have been attacked. Evaluate the effectiveness of the application after 72 hours. If some insects are still alive, respray with a different insecticide.

On blue spruce, use preventive spraying with malathion to control the spruce-gall aphid. (A New Mexico pesticide applicator license is not needed to apply malathion.) Start spraying in early spring when buds start to swell. Applications are needed during a two- to three-week period. The spray will kill winged females laying eggs and newly hatched nymphs that feed on very young needles.

Preventive spraying with malathion is also needed in late May and early June to protect pines from pine tip moths. It is during this time that adult moths lay eggs on new shoots or needles near terminal buds. Newly hatched larvae bore into buds, laterals and terminals and mine out the pitch, from the tip down to the base of the shoot. If terminal leaders are destroyed, the next year's growth is reduced and the desired symmetry is more difficult to attain. As an alternative to preventive sprays, systemic insecticides, such as Cygon or Metasystox-R, can be applied before the trees begin to grow. (Pesticide applicators license is needed to apply these chemicals).

Conifer aphids generally feed on new growth by piercing the bark of branches and sucking out great quantities of sap. With heavy infestations, this is very debilitating and may so weaken young trees that they become susceptible to attack by other insects. Aphids expel a sweet and sticky liquid from their bodies. A black mold and ants feed on the exudate, and the presence of either one warrants closer investigation. Aphids can be controlled by one or two applications of malathion or by systemic insecticides.

Fertilizers

Fertilizers are used in tree-growing operations to increase growth, vigor and color. If the grower already considers these three factors to be acceptable, it is not necessary to add fertilizers. If the grower feels the growth rate is not adequate, or if the trees appear spindly and off-green, fertilization is needed. Most New Mexico soils are deficient in soil nitrogen, and addition of this single element usually is enough to correct a nutrient deficiency.

In studies conducted across the United States, applying fertilizer on new plantings has injured some trees. Fertilization should be started the second year after planting and should be done in the spring before buds begin to swell. Spread two heaping tablespoons of ammonium nitrate at the base of

each tree. Take care not to concentrate large amounts near the stem. On sandy soils, split the rate, applying one half early in the spring and the other half in late June. Beneficial effects of fertilization are carried into the next season's growth; therefore, application will be necessary only every other year. Double the rate for the second and third applications (4th and 6th years, respectively). Use the double rate (4 heaping tablespoons) during July of the harvest year to improve color and market acceptability.

Ability to apply fertilizer efficiently comes through grower experience. Careful observation of the trees and their response to fertilizers will tell the grower how to gauge his application rates. The rates given are low and may need to be increased on some sites; however, no more than 4 heaping tablespoons should be applied during the second year due to potential damage to young trees. Addition of fertilizers should be coupled with an effective weed control program and timely applications of irrigation water.

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