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Forestry Pesticide Fact Sheet No. 7

EFFECTIVENESS OF 2,4-D AND PICLORAM AS FORESTRY HERBICIDES

by

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Foresters use 2,4-D, alone or in combination with picloram, as often as any herbicide in the South. An active analog of the plant growth hormone indole acetic acid, 2,4-D is used as a selective herbicide against broadleaved weeds. In most forest soils in the South where organic matter, moisture, and temperature are adequate, 2,4-D degrades rapidly. Amine and salt formulations most commonly used in forestry do not change readily. While 2,4-D will leach under some soil conditions, concentrations found in forest streams are infrequently detected at levels approaching the 100 ppb water quality standard.

The herbicide 2,4-D is only slightly toxic to most aquatic life and very low in toxicity to animals. It does not bioaccumulate and is readily metabolized by plants and soil microoganisms. A variety of formulations are available, including low volatile esters, high volatile esters, water-soluble amines, oil-soluble amines, the parent acid, and inorganic salts.

Picloram is a non-selective, wide-spectrum herbicide used for control of woody plants and most broadleaved weeds. This herbicide is used mainly in site preparation, for removal of undesirable hardwoods and most frequently in combination with 2,4-D. Picloram is low in toxicity to soil microoganisms, fish, birds, and mammals. Readily absorbed by plant roots, it is translocated through plants where it can accumulate and slowly degrade. This herbicide, like 2,4-D does not bioaccumulate and is readily excreted by animals.

Picloram is moderately to highly persistent in forest soils with half like ranging from one month in warm, humid regions to several years in arid or cold climates. Picloram is soluble in water and has a high potential to move off-site under the right conditions. Some nontarget plants can be affected by low concentrations in water.

The effectiveness of 2,4-D and picloram in controlling important forest weeds has been documented by a number of studies. The more important ones are listed in this fact sheet. Contact the authors of this fact sheet for more complete listing or for any other information regarding the chemicals.

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