



Atrazine

Pesticide Fact Sheet: Forestry Use

Product Information

- Atrazine is the common name for the active ingredient in the products **AAtrex Nine-O**, **AAtrex 4L**, **Co-op**, **Conifer 90**, and **Co-op Atra-pril**, herbicides commonly used by foresters.
- Formulations include liquids, wettable powders, and dry flowables. One of the forestry products, **AAtrex Nine-O**, is formulated as a water-dispersible granule, which is mixed with water. Atrazine is typically applied as a liquid solution at 0.5 to 4.0 pounds of active ingredient per acre.
- Most forest applications are made aerially. Forestry applications are limited to once or twice in the life of a tree plantation.
- Atrazine is used primarily to prepare areas for tree planting. Nurseries and Christmas tree growers also use atrazine, and it is used for season-long grass and pre-emergent weed control.
- Because of atrazine's potential to move into ground and surface water, the Environmental Protection Agency (EPA) classifies atrazine-based herbicides as Restricted Use Pesticides (RUP). These pesticides may be applied only by certified or licensed applicators.
- For comparative purposes, the EPA categorizes pesticides by their

short-term toxicity on a scale of I (most toxic) to IV (least toxic). Most undiluted atrazine formulations are Toxicity Category III.

Public Health

- Researchers use animal studies to define the potential for a pesticide to cause harmful effects to human health. It is important to know that these tests are carried out using doses high enough to cause toxicity (poisoning). Effects seen at toxic doses in animals are unlikely to occur after short-term, low-level exposure in humans. The level of exposure must be considered to estimate the risk of harmful effects.
- Based on laboratory studies, atrazine is classified as slightly toxic to mammals on a short-term (acute) basis.
- Animals fed atrazine in laboratory studies excreted 86% of the pesticide in 72 hours. It is unlikely to accumulate in the body.
- Female laboratory animals fed high doses of atrazine exhibited reproductive toxicity only at high doses. Doses high enough to be toxic to the mother also adversely affected fetal development.
- Atrazine is unlikely to cause genetic damage.
- The EPA has classified atrazine as a Class C carcinogen (possible human carcinogen). The agency is currently reviewing this assessment.

Wildlife Effects

- Based on laboratory and field studies, atrazine is classified as slightly to moderately toxic to birds, bees, and small mammals in short term (acute) tests.
- Insects and plants living in water are particularly sensitive to atrazine. Very low concentrations (50 parts per billion) of atrazine in water are harmful to some plants. The most sensitive insects are affected at levels twice that high—about 100 parts per billion. Concentrations high enough to cause damage are unlikely in forestry situations except in the case of direct spray. Atrazine usually does not persist in water long enough to cause damage to plants or animals.
- Atrazine is moderately toxic to fish. The levels of atrazine in water from normal forestry spraying will not harm fish. However, if atrazine residues in water are high enough to kill plants, the fish will lose food sources and habitat.
- Atrazine is not expected to bioaccumulate in wildlife.

Environmental Fate

- Atrazine is stable to breakdown in water (hydrolysis) at pHs ranging from 5 to 10, but it breaks down rapidly in the presence of sunlight.
- Atrazine breakdown in soils is dependent on soil pH, microbial

action, organic material, and moisture. It will break down faster in basic soils than acidic soils. It is very slow to break down in neutral soils. Half-life estimates range from 42 to 146 days with a typical half-life of 60 days. Atrazine breakdown products are less toxic than those of the parent compound.

- When applied to forest environments, atrazine has a 13-day half-life on foliage and a 66-day half-life on leaf litter.

- Atrazine is classified as highly mobile and can travel with water through soil and enter groundwater. It should not be applied to sandy or loamy soils or to areas with shallow ground-water. Atrazine can also move with runoff and enter surface water. Forestry uses should be evaluated for potential ground and surface water contamination.

Risk Assessment

- The EPA has recently made significant revisions regarding the regulation of atrazine. Under these revisions, rigorous monitoring for atrazine in raw source water will be conducted and if levels are found to be above safety standards, its use within the specific watershed will be prohibited.

- The EPA has evaluated use practices, environmental fate, potential exposure routes, and toxicity of atrazine and has set a Reference Dose (RfD) for atrazine of 0.035 mg/kg/day. A 70 kg (154 lb) person would have an RfD of 2.45 mg/day. The RfD is the amount of daily pesticide exposure judged to pose no appreciable risk over a 70-year lifetime. The RfD for atrazine is based on the results of the most sensitive animal studies (rat) and includes built-in safety measures.

- EPA has determined that the expected exposure associated with

atrazine in forestry use will not result in adverse health effects. However, you should take reasonable precautions to avoid exposure. Do not walk through freshly-sprayed vegetation. Do not eat berries, mushrooms, or other edibles, or drink the water from newly-treated areas. If you are concerned about exposure, consult the resources listed in **Additional Information**.

References

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- Meister, R.T., editor. 1996. Farm Chemicals Handbook '96. Meister Publishing Company. Willoughby, OH.

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- U.S. Environmental Protection Agency. 1988. Health Advisory. Atrazine. Office of Drinking Water. Washington, D.C.

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- Vogue, P.A., E.A. Kerle, and J.J. Jenkins. 1994. OSU Extension Pesticide Properties Database. Department of Agricultural Chemistry. Oregon State University. Corvallis, OR.

Additional Information: Oregon

- Oregon State University Extension Environmental Chemistry and Toxicology Program
1-541-737-5993 Extension Specialist

- Oregon Poison Control
1-800-222-1222 (National)
1-503-494-8968 (Portland)
1-800-452-7165 (Outside Portland)

- Oregon Department of Agriculture
1-503-986-4550
1-503-986-4635 (Pesticide Division)

Washington

- Poison Control Center
1-800-222-1222 (National)
1-206-526-2121 (Seattle)
1-800-732-6985 (Outside Seattle)

- Washington Department of Agriculture, Pesticide Management Division
1-877-301-4555 (toll free)
1-360-902-2040 (Olympia)
1-509-576-3064 (Yakima)

- Washington State University Food and Environmental Quality Laboratory
100 Sprout Road
Richland, WA 99352-1643
1-509-372-7462 (phone)
1-509-372-7460 (fax)

- Washington Department of Health
1-800-525-0127
1-360-236-3360 (Pesticide Program)
1-888-586-9427 (toll free)

Nationwide

- National Pesticide Information Center
1-800-858-PEST (7378)
<http://npic.orst.edu/>

- Extension Toxicology Network (EXTOXNET)
<http://ace.orst.edu/info/extoxnet/>

- DuPont Agricultural Products
P.O. Box 80038 Wilmington, DE 19880-0038
1-800-441-7515
1-800-441-3637 (emergency phone)
1-302-992-2276 (fax)