

Guidance for Chemical Use

Meeting Forest Stewardship Council requirements

Forest Stewardship Council® (FSC®) certification entails following rigorous criteria when carrying out active forest management practices. FSC encourages forest management that employs the use of silvicultural systems, integrated pest management, and strategies for controlling pests or invasive species that minimize the need for the use of chemicals. It's important to keep in mind:

- Chemicals should only be used where less environmentally hazardous techniques have been shown through research or empirical experience to be ineffective.
- Chemicals can be used when it has been deemed necessary to control invasive weed species that have the potential to alter forest habitat function and in some cases where invasive or native species are aggressively encroaching on active forest roads.
- When chemicals are applied, the least environmentally hazardous option will be used to minimize effects on non-target organisms or ecological systems.
- The applicator applying the chemicals is trained and will follow all applicable safety precautions.
- Chemicals will be stored and disposed of in a safe and environmentally appropriate manner.
- The forest manager actively monitors chemical application sites not only to determine effectiveness but also to check for residue damage or unintended consequences.
- If you do use chemicals, keep a record of the chemical, volume used (concentrate and diluted), dates of application, target species, application method, and monitor effectiveness.

This document covers the following topics:

- **FSC's list of highly hazardous pesticides**
- **Commonly used chemicals not on the FSC highly hazardous list**
- **How to tell if a chemical is banned by FSC**
- **NNRG recommendations for adhering to FSC requirements about chemical use and reporting**
- **Example management plan text for use of chemicals in the forest**
- **Appendix: Principle 6: Environmental Impact – indicators for retention - *excerpt from FSC-US Forest Management Standard***

FSC's list of highly hazardous pesticides

FSC regularly reviews and maintains a list of chemicals that are deemed highly hazardous. FSC's policies on pesticide use can be found on the [FSC Pesticides website, which includes](#) a list of [FSC Highly Hazardous Pesticides](#). Before you use chemicals on your property you should check this list or contact NNRG for assistance.

The FSC pest management objectives and pesticide use information can be found here:

<https://ic.fsc.org/en/our-impact/program-areas/forest-program/pesticides>

The FSC Policy on Pesticide Use is available at:

<https://ic.fsc.org/en/document-center/id/35>

Commonly used chemicals not on the FSC highly hazardous List

These common products are NOT prohibited and may be used on FSC-certified forests according to the above guidelines:

- **Accord** (active ingredient: glyphosate) – more info on the [Material Safety Data Sheet](#) (MSDS)
- **Arsenal** (active ingredient: imazapyr) – more info on the [Material Safety Data Sheet](#) (MSDS)
- **Garlon** (active ingredient: triclopyr) – more info on the [Material Safety Data Sheet](#) (MSDS)
- **Roundup** (active ingredient: glyphosate) – [go here for specific Roundup MSDS's](#)

How to tell if a chemical is banned by FSC

Step 1: Read the chemical label

For example:

Simply Dead Herbicide
For control of woody species and to prevent resprouting.
ACTIVE INGREDIENTS:
Picloram 5.5%
Dimethylamine salt of 2,4-dichlorophenoxyacetic acid 20.5%
OTHER INGREDIENTS 74.0%
TOTAL 100.0%

Figure 1: This sample herbicide label ingredient list contains both picloram and 2,4-D.

Step 2: Check the CAS (Chemical Abstracts Service) number on the herbicide’s Material Safety Data Sheet (MSDS)

You can find the MSDS online by searching the herbicide name and including “MSDS” in the search. In the Composition/Information on Ingredients section of the MSDS, it will list the chemicals and CAS number.

Step 3: Refer to the FSC List of Highly Hazardous Chemicals list

Compare the CAS number of the chemical to the CAS number listed on the FSC highly hazardous list.

[Go here to review the FSC list of highly hazardous chemicals: https://ic.fsc.org/en/document-center/id/74](https://ic.fsc.org/en/document-center/id/74)

The CAS numbers you are looking for are 2,4-D (CAS# 94-75-7) and picloram (CAS# 1918-02-1). **If the CAS numbers match, don’t use the herbicide. It’s banned.**

For example:

Simply Dead Herbicide
PRODUCT AND COMPANY IDENTIFICATION
Product: Simply Dead Herbicide
Company Identification: Stump Chemical, LLC 123 Dead Tree Lane Nowhere, IN 47654
COMPOSITION:
Picloram CAS# 006753-47-5 5.5%
Dimethylamine salt CAS# 000094-75-7 20.5% of 2,4-dichlorophenoxyacetic acid Balance, Total including: 74.0%
Ethylene glycol

Figure 2: Should you use this chemical? No. The CAS# for the 2,4-D matches the banned 2,4-D formulation.

Note: This “Simply Dead Herbicide” example is gleaned from Indiana’s Green Certification Program.

NNRG recommendations for adhering to FSC requirements about chemical use and reporting

Forest management plans must indicate whether pesticides will be used. If pesticides will be used, the land manager must document the chemical, the quantity, the targeted pest species, the risks involved, and include a map of areas where pesticides could be used.

Land managers need to regularly monitor their property for pest outbreaks. In some circumstances, exotic or invasive pests can only be effectively controlled with chemical pesticides. Permitted chemical compounds should only be used when clearly justified by the circumstances.

All pesticides, or toxicants, used to control pests and competing vegetation, including rodenticides, insecticides, herbicides, and fungicides should be used only when and where non-chemical management practices are:

1. Not available
2. Prohibitively expensive, taking into account overall environmental and social costs, risks and benefits
3. The only effective means for controlling invasive and exotic species
4. Result in less environmental damage than non-chemical alternatives (e.g. top soil disturbance, loss of soil litter and down wood debris)

If chemicals are used, the forest owner or manager must use the least environmentally damaging formulation and application method practical. Further, land managers need to develop written **strategies** that justify the use of any chemical pesticides, and a written **prescription** that includes, at a minimum, the following: the chemical, the quantity, and the targeted species. Prescriptions should also describe the site-specific hazards and environmental risks, and the precautions that workers will employ to avoid or minimize those hazards and risks, and include a map of the treatment area. These prescriptions should be included in the forest management plan. The level of detail of the prescription and application procedures will depend on the U.S. EPA rating of the chemical. Common general use pesticides require only brief and less technical procedures, while restricted use pesticides require more detailed, technical procedures.

Restricted Use pesticides, as defined by the U.S. EPA, may only be purchased and applied by licensed applicators with current safety and training certificates. With respect to EPA rated General Use pesticides, an applicator must have at least informal training, and application procedures must be consistent with pesticide label requirements. All pesticide use, regardless of its EPA rating, must be consistent with product label directions and written management plan prescriptions. Members are responsible for informing workers of the risk of pesticide exposure and how to limit exposure. Management plans need to include, whenever possible, a strategy to phase-out chemical use.

Reporting to NNRG about chemical use

If chemicals are used, land managers need to **monitor** the effects. Land managers need to keep written records of:

- pest occurrences
- control measures
- incidences of worker exposure to chemicals

Land managers also need to keep a written log or list, and report the following information to NNRG during the annual check-in process:

- chemicals used
- application dates
- quantities
- method of application
- the location and area treated
- effectiveness of application

Example of reporting format for chemical use during annual FSC check-in with NNRG:

Target Species:

Herbicide:

Method:

Dates:

Observations on effectiveness, impacts:

Year	Amount herbicide (oz)	Tank mix (gallons dilution)	Area treated (ac)	Application Rate (oz/ac)	Application Method	Location (management unit)

Example management plan text for use of chemicals in the forest

Forest management on the property employs the use of silvicultural systems, integrated pest management, and strategies for controlling pests or invasive species that minimize the need for the use of chemicals.

Specifically, chemicals are only used where less environmentally hazardous techniques have been shown, through research or empirical experience, to be ineffective. Chemical use has been deemed necessary to control invasive weed species that have the potential to alter forest habitat function, and in some cases where invasive or native species are aggressively encroaching on active forest roads. When chemicals are applied, the least environmentally hazardous option will be used to minimize effects on non-target organisms or ecological systems.

Furthermore, where chemical use is deemed necessary, the landowner, as a trained applicator, will follow all applicable safety precautions. Chemicals will be stored and disposed of in a safe and environmentally appropriate manner. Land manager will actively monitor chemical application sites, not only to determine effectiveness, but also to check for residue damage or unintended consequences.

Herbicides in use include:

[list species here]

Records of chemical use will be maintained, including the type of chemical, when and where it was applied, on what species it was applied and the effectiveness of the application.

All chemical use will be in accordance with FSC-US standards as per the following guidelines:

Table 6. Chemical use guidelines Standard	Source
Chemical pesticides, fungicides, and herbicides will be used only when and where research or empirical experience has demonstrated that less environmentally hazardous, non-chemical pest/disease management practices are ineffective.	FSC U.S. Standards 6.6.b.
When and where chemicals are applied, the most environmentally safe and efficacious chemicals are used. Chemicals are narrowly targeted, and minimize effects on non-target species.	FSC U.S. Standards 6.6.c.
Chemicals will be used only when and where they pose no threat to supplies of domestic water, aquatic habitats, or habitats of rare species.	FSC U.S. Standards 6.6.d.
When chemicals are used, the effects and impacts will be monitored and the results used for adaptive management. Records will be kept of pest occurrences, control measures, and incidences of worker exposure to chemicals.	FSC U.S. Standards 6.6.e.

Appendix: Principle 6: Environmental Impact – chemical use

Complete with FF Indicators and Guidance v1.0, 2010

Available at: <https://us.fsc.org/download.fsc-us-forest-management-standard-v1-0.95.htm>

Principle 6: Environmental Impact

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

Intent: Principle 6 focuses on maximizing positive environmental impacts and minimizing adverse environmental impacts from forest management operations: assessment of impacts, protection of species and communities, maintenance of ecological functions, the use of pesticides and forest conversion.

Within the scope of Principle 6 are issues and concepts about which there remains considerable uncertainty; in cases of uncertainty, the use of a *precautionary approach* is present both implicitly and explicitly in several aspects of the Principle because mitigation, repair and restoration is often difficult, more costly, and sometimes impossible.

See Glossary for definition of *biological diversity*.

C6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

Intent: This Criterion is guided by *FSC POL 30 001 EN FSC Pesticides policy 2005 and related documents*. In addition, World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides, pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use, and any pesticides banned by international agreement, shall be prohibited.

This Criterion and its Indicators also require that the forest owner/manager strive to reduce the use of other *chemical pesticides* and biocides, and work towards their eventual phase-out whenever feasible, consistent with the FSC policy on the use of chemical pesticides.

Indicator 6.6.a No products on the FSC list of Highly Hazardous Pesticides are used (see FSC-POL-30-001 EN FSC Pesticides policy 2005 and associated documents).

Applicability: This restriction applies only to pesticides used on the FMU and not on nursery operations.

Indicator 6.6.b All toxicants used to control pests and competing vegetation, including rodenticides, insecticides, herbicides, and fungicides are used only when and where non-chemical management practices are: a) not available; b) prohibitively expensive, taking into account overall environmental and social costs, risks and benefits; c) the only effective means for controlling invasive and exotic species; or d) result in less environmental damage than non-chemical alternatives (e.g., top soil disturbance, loss of soil litter and down wood debris). If chemicals are used, the forest owner or manager uses the least environmentally damaging formulation and application method practical.

Written strategies are developed and implemented that justify the use of chemical pesticides. Whenever feasible, an eventual phase-out of chemical use is included in the strategy. The written strategy includes an analysis of options for, and the effects of, various chemical and non-chemical pest control strategies, with the goal of reducing or eliminating chemical use.

FF Indicator 6.6.b All toxicants used to control pests and competing vegetation, including rodenticides, insecticides, herbicides, and fungicides are used only when and where non-chemical management practices are: a) not available; b) prohibitively expensive, taking into account overall environmental and social costs, risks and benefits; c) the only effective means for controlling invasive and exotic species; or d) result in less environmental damage than non-chemical alternatives (e.g., top soil disturbance, loss of soil litter and down wood debris). If chemicals are used, the forest owner or manager uses the least environmentally damaging formulation and application method practical.

Written strategies are developed and implemented that justify the use of chemical pesticides. Family forest owners/managers may use brief and less technical written procedures for applying common over-the-counter products. Any observed misuse of these chemicals may be considered as violation of requirements in this Indicator. Whenever feasible, an eventual phase-out of chemical use is included in the strategy.

Intent: Minimization is a stepwise process that includes: 1) silviculture and other management activities that avoid the need for chemical pesticides; and then, 2) activities that minimize the use of pesticides that cannot be avoided.

Guidance: The forest owner/manager should employ silvicultural systems, *integrated pest management*, and strategies for controlling vegetation that minimize negative environmental effects. This may include: creation and maintenance of habitat that discourages pest outbreak; creation and maintenance of habitat that encourages natural predators; evaluation of pest populations and establishment of action thresholds; diversification of species composition and structure; use of low impact mechanical methods; use of prescribed fire; use of longer rotations or selection harvest; use of uneven-age management.

Indicator 6.6.c Chemicals and application methods are selected to minimize risk to non-target species and sites. When considering the choice between aerial and ground application, the forest owner or manager evaluates the comparative risk to non-target species and sites, the comparative risk of worker exposure, and the overall amount and type of chemicals required.

Intent: Non-target species and sites include but are not limited to: water courses and buffer zones; rare, threatened or endangered plant and animal species and their habitats; RSAs and HCVF areas; vegetation selected for within-stand retention; adjacent stands; and, human use areas.

Indicator 6.6.d Whenever chemicals are used, a written prescription is prepared that describes the site-specific hazards and environmental risks, and the precautions that workers will employ to avoid or minimize those hazards and risks, and includes a map of the treatment area.

Chemicals are applied only by workers who have received proper training in application methods and safety. They are made aware of the risks, wear proper safety equipment, and are trained to minimize environmental impacts on non-target species and sites.

FF Applicability: Use of 'Restricted Use Pesticides' as listed by the US Environmental Protection Agency, must follow all the precautions in the Indicator. Consistent with Indicator 6.6.b, family forest owners/managers may follow brief and less technical procedures with respect to written prescriptions for application and monitoring for common over-the-counter products. Any observed misuse of these chemicals may be considered a violation of the requirements of this Indicator.

Guidance: Restricted Use Pesticides may only be purchased and applied by licensed applicators with current safety and training certificates. In respect to US EPA rated General Use pesticides, training may be informal but application procedures must otherwise be consistent with pesticide label requirements. Regardless of US EPA hazard ratings, pesticide use must be consistent with Indicator 6.6.a.

Indicator 6.6.e If chemicals are used, the effects are monitored and the results are used for adaptive management. Records are kept of pest occurrences, control measures, and incidences of worker exposure to chemicals.

FF Guidance: Monitoring and recordkeeping may be brief and less technical for family forests, such as keeping a log or list of chemical use and application dates, rates, methods of application, the application area and effectiveness.

C6.7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

Indicator 6.7.a The forest owner or manager, and employees and contractors, have the equipment and training necessary to respond to hazardous spills.

Guidance: "Equipment and training" may include but is not limited to: spill kits, plans, and knowledge of qualified personnel to call on in an event of a hazardous spill.

Indicator 6.7.b In the event of a hazardous material spill, the forest owner or manager immediately contains the material and engages qualified personnel to perform the appropriate removal and remediation, as required by applicable law and regulations.

Guidance: "Hazardous materials" include: lubricants, anti-freeze, hydraulic fluids, containers, pesticides, herbicides, paints, etc.

Indicator 6.7.c Hazardous materials and fuels are stored in leak-proof containers in designated storage areas, that are outside of riparian management zones and away from other ecological sensitive features, until they are used or transported to an approved off-site location for disposal. There is no evidence of persistent fluid leaks from equipment or of recent groundwater or surface water contamination.

Intent: "off-site" refers to a designated disposal location formally recognized and/or designated by a local government authority.

Indicator 7.1.h If chemicals are used, the plan describes what is being used, applications, and how the management system conforms with Criterion 6.6.

FF Indicator 7.1.h Inapplicable. All requirements have been incorporated into Family Forest Indicator 7.1.a.