2015 FSC Pesticide Derogation Applications

An Overview
The Overview

• This document provides a brief overview of the core information being presented in the derogation applications under development

• The Overview is intended to provide stakeholders with basic information to assist them in understanding the derogation and determining whether they agree that the individual FSC Highly Hazardous Pesticides are needed in forest operations
Overview Structure

1. Background – FSC Highly Hazardous Pesticides
2. FSC Pesticide derogation procedure and the pesticides for which derogation is being sought
3. The National stakeholder engagement process for the 2015/16 derogation applications
4. Technical background to consider
5. The derogation details – a series of information pertaining to the individual pesticides a derogation is being sought for.
Background - FSC Highly Hazardous Pesticides

- FSC Highly Hazardous Pesticides are those pesticides that exceed the acceptable indicators and thresholds as set in the *Indicators and Thresholds for the Identification of Highly Hazardous Pesticides* Standard [FSC-STD-30-001 V1-EN](https://example.com).

- The following criteria are used in this assessment:
  1. Acute toxicity to mammals and birds
  2. Carcinogenicity
  3. Mutagenicity to mammals
  4. Developmental and reproductive toxin
  5. Endocrine disrupting chemical (EDC)
  6. Acute toxicity to aquatic organisms
  7. Persistence in soil or water and soil sorption potential and biomagnification and bio-accumulation
  8. International legislation
  9. Dioxins (residues or emissions)
  10. Heavy metals
Background - FSC Highly Hazardous Pesticides

- Pesticides identified as FSC Highly Hazardous are listed in the addendum FSC-STD-30-001a V1-0 EN.

- The FSC Highly Hazardous Pesticide list was reviewed in early 2015 which resulted in the removal of some pesticides previously classified as Highly Hazardous (e.g. Simazine and Hexazinone).

- FSC Highly Hazardous pesticides can only be used in FSC certified forests with a temporary derogation – that is with approval from FSC International.
FSC Pesticide Derogation Procedure

- The procedure to apply for a derogation is set out in the FSC Pesticides Derogation Procedure FSC-PRO-30-001 V1-0 En and includes the following elements:

  - Demonstrate the need to use the pesticide
  - Show that controls are in place for safe use of the pesticide
  - Outline the active programme searching for viable alternatives to the pesticide use
  - Stakeholder engagement with those affected and/or interested in pesticides
## Pesticides requested for derogation

Derogations are being sought for the following pesticides:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Pest animal management</th>
<th>Insect control</th>
<th>Nutrition</th>
<th>Nutrition &amp; pathogen control</th>
<th>Weed management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredient</td>
<td>1080</td>
<td>Pindone</td>
<td>Alpha- C</td>
<td>Fipronyl</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td>62-74-8</td>
<td>83–26–1</td>
<td>67375–30–8</td>
<td>120068-37-3</td>
<td>1333-22-8</td>
</tr>
<tr>
<td>APFL (WA)</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>HQP (QLD)</td>
<td>Y</td>
<td></td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>PF Olsen (Aus) (WA VIC QLD SA)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>ABP (WA SA VIC)</td>
<td>Y</td>
<td></td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Forestry Tas. (TAS)</td>
<td></td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>HVP (VIC)</td>
<td>Y</td>
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<td>Y</td>
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<tr>
<td>WAPRES (WA)</td>
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<td></td>
<td></td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>Bunbury FP (WA)</td>
<td>Y</td>
<td></td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Forico (TAS)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>SFM (TAS)</td>
<td></td>
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</tbody>
</table>

Those pesticides in **Red** are new on the FSC Highly Hazardous list. Those in **Black** are pesticides currently being used under a derogation with a derogation renewal being sought in this application.
A word about CAS numbers

- The pesticides are classified by FSC as highly hazardous based on their CAS number (an identifier assigned by the Chemical Abstracts Service) which relates directly to the chemical compounds.
- Sometimes numerous chemicals are sold under market names which can cause confusion as they are actually different chemical compounds and hence have different risk profiles.
- Therefore FSC Highly Hazardous pesticides are identified by their CAS Numbers **NOT** their market names.

<table>
<thead>
<tr>
<th>Id</th>
<th>CAS Number</th>
<th>Pesticide active ingredient</th>
<th>Basis for inclusion on FSC 'highly hazardous' pesticides list</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Criteria</td>
</tr>
<tr>
<td>1</td>
<td>542-75-6</td>
<td>1,3-dichloropropene</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>94-75-7</td>
<td>2,4-D</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>94-82-6</td>
<td>2,4-DB</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>133-32-4</td>
<td>4-indol-3-ylbutyric acid</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>71751-41-2</td>
<td>abamectin</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>30560-19-1</td>
<td>acephate</td>
<td>1</td>
</tr>
</tbody>
</table>
Regulatory Controls That Apply to ALL Pesticides

• For all chemicals there are various State and federal regulatory controls which must be followed.
• These include a registration process which is based on the risks associated with the use of the pesticide.
• State and federal laws require:
  ▫ Chemicals are only used for the purpose for which they are registered
  ▫ that pesticides are transported and stored safely
  ▫ that pesticides are applied by licensed businesses with trained operators.
  ▫ protecting the health and safety of operators and the public
  ▫ protecting the environment, especially off-target plants and water quality
  ▫ keeping detailed records of the amount of pesticide applied, the location it was used, the application methodology and the environmental conditions at the time of application
  ▫ the prevention of off site impacts e.g. spray drift or leaching

However, compliance with FSC Standards require forest managers to go beyond this required minimum
The search for alternatives - A combined effort

- In searching for alternatives to FSC Highly Hazardous pesticides a combined effort across the forest industry is required.
- While there are numerous company trials that assist in the search, the complex task is onerous and no company is large enough to tackle it alone.
- The Commonwealth Scientific Industrial Research Organisation (CSIRO) has conducted cooperative research in the past, however this funding is no longer available.
- The Australian Forest Products Association (AFPA) is lobbying to streamline the registration of alternatives, however the significant time lag presents a major barrier e.g. even organic oils need registration and it’s a 7 year process.
- The forest industry is committed to the search for alternatives, with funding provided to dedicated collaborative groups including the West Australian based Industry Pest Management Group (IPMG), and the Australian Plantation Industry Pesticide Research Consortium (APIPRC).
The stakeholder consultation process

- A minimum of 45 days consultation period is required. This 52 day consultation period will commence 25 September 2015 until 16 November 2015
- A Stakeholder Engagement Plan was developed by an independent engagement expert in consultation with core industry stakeholders.
- This plan includes a range of engagement opportunities, including:
  - Survey of public attitudes
  - Meetings with forest managers
  - Public comment
  - Public and/or online forums

- The derogation applications and stakeholder feedback will be peer reviewed by an appointed Advisory Group. Derogation applications will be amended in response to stakeholder feedback.
NOTE:

- **FSC Australia** do not make the final decision on the derogation applications, the final decision is made by a technical committee of **FSC International**.

- FSC Australia may provide advice to FSC International regarding quality of the application and associated stakeholder engagement process.

- Your feedback on the stakeholder engagement opportunities and your experiences with them can be provided for consideration by FSC Australia within the [survey], or through [public comment].
The Derogations

The following series of slides provide the core information regarding the pesticide and the derogation application, including:

- What is the pesticide and why is it classified FSC Highly Hazardous?
- How is the pesticide used in forest management?
- Why does the pesticide need to be used in forest management?
- What additional controls are in place for the pesticides safe use? (beyond regulatory controls)
- How are alternatives for the pesticide being sought?
1080
Sodium fluoroacetate
1080 - Why is it on the list?

1080 is classified as FSC Highly Hazardous due to its:

*Acute toxicity to mammals and birds*

As a mammalian poison
1080 will harm and/or kill mammals and birds
1080 - Why do we still need to use it?

• 1080 is used for two main purposes: conservation outcomes through the control of feral animals (e.g. pigs, cats, dogs), and to a lessor extent the protection of plantations through rodent and rabbit control.

Conservation Outcomes of 1080

• 1080 is predominantly used to control pest species these includes feral animals such as foxes, pigs, cats, dogs and rabbits.

• These feral animals threaten native animal species, cause soil erosion and damage tree crops.

• Foxes that live in plantations may kill lambs and other livestock.

• In rural communities forest managers are expected to participate in 1080 community baiting programmes to control feral animals.
1080 - Why do we still need to use it?

**Plantation Protection**

- In Queensland, 1080 is used to control rats in Hoop Pine forests.
- In Western Australia, 1080 occurs naturally in native plants therefore it is used for rabbit control as the native animals are unlikely to be affected by the poison.
1080 - Additional Controls

- In addition to compliance with regulatory controls, forest managers seeking to use 1080 will undertake the following controls to reduce risks:

  ▫ Hand deliver notices to adjacent neighbours
  ▫ Deep burying of 1080 baits so as other non-target species (e.g. bandicoots) cannot access the bait, only foxes can dig them up. The effectiveness of this practice is confirmed by “blank baiting” (see [http://www.pestsmart.org.au/ground-baiting-of-foxes-with-1080/](http://www.pestsmart.org.au/ground-baiting-of-foxes-with-1080/))
  ▫ Large buffers around homes with pet animals
  ▫ Rats are only controlled by 1080 only in Qld when populations spike
  ▫ Rabbits are controlled by 1080 predominantly in WA where 1080 occurs in native plants and indigenous species are immune
  ▫ Occasionally 1080 is applied in oats for serious rabbit outbreaks
  ▫ Any 1080 bait not consumed within a fixed period is collected and destroyed. Animal carcasses are collected and destroyed.
  ▫ No 1080 baiting occurs in the vicinity of waterways.
  ▫ 1080 is not to be used in Tasmania
1080 - The search for an alternative

- Targeted shooting and approved trapping programs for some pest animals.
- Use another Pesticide when domestic animals are in close proximity to pest animals, but these are also on the FSC highly hazardous list.
- Participating in the use of bio-controls.
- Monitor research regarding effective pest animal control being undertaken by the Invasive Animals CRC, who collaborates with industry groups where relevant, including:
  - PAPP (para-aminopropiophenone)
  - Sodium nitrite based bait for pigs and rats
  - Research for new biocontrols like Rabbit Haemorrhagic Disease Viruses
- The forest industry is undertaking ongoing change in forest management practices to reduce the impact of rats and rabbits.
Amitrole
Amitrole - Why its on the list

Amitrole is classified as FSC Highly Hazardous as it is an:

*Endocrine disrupting chemical (EDC)*

These substances are suspected of interfering with the hormone systems, which can cause cancerous tumours, birth defects, and various developmental disorders.
Amitrole - Why we still need to use it

• Amitrole is used in the 2nd and 3rd year of plantation establishment to control weeds on planted mounds. It is used in preference to Glyphosate because it does not kill the seedlings.
• The cost of alternatives to Amitrole are 4 times the cost of Amitrole.
Amitrole - Additional Controls

• Hand deliver notices to adjacent neighbours.

• As an endocrine disruptor critical risk controls are those that reduce human exposure to the pesticide. Pesticide application therefore requires the use of appropriate protective equipment especially to prevent inhalation (e.g. respirators).

• Spray drift is minimised in all spraying operations through the use of appropriately trained chemical applicators and specialised equipment. In addition, spray drift is contained in tree canopies further reducing risk.

• Spray buffers put in place along waterways and other sensitive environments will be determined in accordance with the associated risk of the treatment area.

• In operations deemed too high risk for the use of Amitrole, alternative chemicals with lower risk will be used, regardless of cost.
Amitrole - The search for alternatives

• Previous Federally funded research programmes for the forest industry, including alternative weed control mechanisms (e.g. Cooperative Research Centres) are no longer operating, inhibiting the industries capacity to find an alternative for Amitrole.

• The Australian Plantation Industry Pesticide Research Consortium was formed in 2010 with a small industry budget to seek further opportunities for research into alternative pesticides.

• Despite substantive efforts, no commercially viable non-herbicide based management options have yet been identified that could replace the use of Amitrole.
Alpha-Cypermethrin - Why it's on the list

Alpha-Cypermethrin is classified as FSC Highly Hazardous due to its:

Acute toxicity to mammals and birds
&
Acute toxicity to aquatic organisms

As an insecticide Alpha-Cypermethrin harms and/or kills mammals, birds and aquatic organisms if they come into contact with high doses of the pesticide.
Alpha Cypermethrin - Why we still need to use it

• Alpha-C is used to control pest insects in rare cases where pest insects reach population levels predicted to cause irreversible damage to crop trees.
• Few legal (registered for forestry) alternatives exist.
• A range of local pest insect species attack Eucalypt plantations.
• Insect plague events (potential total loss of plantation asset) can also occur if insect control is not implemented.
• Alternative pesticides are available, however they are:
  ▫ more expensive,
  ▫ don’t work well in large insect populations
  ▫ have a very specific insect range, or
  ▫ need multiple applications which increases associated risks.
**Alpha Cypermethrin - Additional Controls**

- Hand deliver notices to adjacent neighbours.
- Integrated Pest Management (IPM) Strategies are utilised which reduce Alpha-C use to restricted periods of known risk and only then if risk thresholds are exceeded.
- Nutrient levels in plantations will be monitored and managed to reduce risk of insect outbreaks.
- Where sensitive animals, invertebrates (e.g. bees) or ecosystems are known to exist, additional buffers are put in place to avoid harm.
- Spray buffers along water courses and between adjacent neighbours are established using the USDA Forest Service validated model AGDISP on each forest.
Alpha-C - The search for alternatives

- Improved plantation establishment methods have reduced requirements for use of Alpha-C during plantation establishment.
- The use of pheromones or other attractants to attract insects to a bait is being investigated but is currently too expensive for wide scale use in forestry.
Fipronil
Fipronil - Why its on the list

Fipronil is classified as FSC Highly Hazardous due to its:

**Acute toxicity to mammals and birds**

As an insecticide Fipronil harms and/or kills mammals, birds if they come into contact with high doses of the pesticide.
Fipronil - Why we still need to use it

• Fipronil is used to control grasshoppers, plague Locusts and European wasps.

• Fipronil is a better alternative for early and targeted hopper control so that the use of Alpha-C can be minimised.

• European Wasps are:
  ▫ a health and safety hazard and
  ▫ an environmental concern because of their effect on native bee populations

• Existing alternatives, including bio-controls like Greengaurd™ are more expensive and/or more hazardous to non-target species (e.g. bees).
Fipronil - Additional Controls

• Hand deliver notices to adjacent neighbours.
• Fipronil will not be used where bees are known to forage.
• For wasp control meat bait stations will be used to improve target specificity.
• Hopper control will occur during hot periods when many waterways are mostly dry. Buffers will be applied around active waterways.
• Nutrient levels in plantations will be monitored and managed to reduce risk of hopper predation.
Fipronil - The search for alternatives

- Wasps and hoppers are a significant pest for Australia’s agricultural sector. As such a large amount of research is occurring, including:
  - Australian Plague Locust Commission has a large research budget looking at alternatives to Fipronil.
  - CSIRO was recently awarded $1.5 million to research new bio-controls for wasps.

- For wasp control, permission will be sought for the off label use of strategically placed baits so that repeat spray applications can be avoided.
Copper Sulphate
Copper Sulphate- Why its on the list

Copper Sulphate is classified as FSC Highly Hazardous due to its:

Acute toxicity to aquatic organisms

All copper compounds are toxic to aquatic organisms which is a risk as Copper sulphate is highly soluble in water and therefore is easy to distribute in the environment.
Copper Sulphate- Why we need it

• Copper Sulphate is not used as a pesticide in Australian forestry, it is used as a soil mineral supplement. Copper is a critical nutrient for normal growth in all plants.

• Certain soils in coastal lowlands in Queensland are so deficient in copper that commercial plantations are not possible without adding additional forms of copper.
Copper Sulphate - Additional Controls

- Soils are surveyed in advance to ensure only those deficient in copper are treated with copper fertiliser.
- The application method for copper sulphate is restricted to ground based application of the granular product so there is no risk of drift onto non-target aquatic areas.
- Buffers are applied to all waterways.
Copper Sulphate - The search for alternatives

- The one company applying to use Copper Sulphate maintains a series of long term fertilizer treatment response trials to determine the longevity of fertilizer persistence in the soils beyond the length of a single rotation.

- In addition, investigations are underway to determine whether alternative copper compounds (not listed on the FSC Highly Hazardous list) may be substituted for copper sulphate or cuprous oxide.
Cuprous Oxide
Cuprous Oxide - Why its on the list

Cuprous Oxide is classified as FSC Highly Hazardous due to its:

Acute toxicity to aquatic organisms

All copper compounds are toxic to aquatic organisms which is a risk as Cuprous Oxide is highly soluble in water and therefore is easy to distribute in the environment.
Cuprous Oxide - Why we need it

- Cuprous oxide is used as a fertiliser to correct nutrient deficiencies and as fungicide to reduce the impacts of fungal attack.
- Cuprous oxide provides a form of copper that is absorbed by the foliage as radiata pine is poor at accessing soil copper.
- Cuprous Oxide is the most targeted pesticide for the control of fungus as it contains the least amount of elemental copper in formulation compared to alternative pesticides.
- Its risk is relatively low as indicated by its approval for use in organic horticulture (Nordox 75 84% cuprous oxide)
- The application of Cuprous Oxide serves a dual purpose on copper deficient sites where it serves both as fungus control and provides a source supplemental elemental copper.
Cuprous Oxide - Additional Controls

- Hand deliver notices to adjacent neighbours.
- Spray buffers along water courses and between adjacent neighbours are established using the USDA Forest Service validated model AGDISP on each forest.
- Through the use of an Integrated Pest Management (IPM) approach, Cuprous Oxide is applied only where it is deemed absolutely necessary.
Cuprous Oxide - The search for alternatives

- Tree breeding is the main area of research, to select trees that are genetically resistant to copper deficiency and fungal attack.
- Forest managers already have available some select resistant trees available, however a significant period of time is required to develop these to a commercial quantity.
Picloram
Picloram - Why its on the list

Picloram is classified as FSC Highly Hazardous as it is an:

*Endocrine disrupting chemical (EDC)*

An EDC substance is suspected of interfering with the hormone systems, which can cause cancerous tumors, birth defects, and various developmental disorders.
Picloram - Why we need to use it

- Picloram is used as a herbicide for weed control in Queensland.
- Picloram is the only herbicide available with the desired weed control spectrum and that is able to be used in Queensland conditions.
- All other herbicide options that may have the desired spectrum of control are not registered for use in forestry so cannot be legally used.
- Picloram is also used to prevent coppicing in thinned stands. At this stage there are no safe alternatives for this use, as manual coppice control is dangerous for workers and financially unviable.
Picloram - Additional Controls

• As an endocrine disruptor critical risk controls are those that reduce human exposure to the pesticide. Pesticide application therefore requires the use of appropriate protective equipment especially to prevent inhalation (e.g. respirators).

• Spray buffers put in place along waterways and other sensitive environments will be determined in accordance with the associated risk of the treatment area. Buffers are under review by Australian Plantation Industry Pesticide Research Consortium using the USDA validated model AGDISP.

• Spray drift is minimised in all spraying operations through the use of appropriately trained chemical applicators and specialised equipment. In addition, spray drift is contained in tree canopies further reducing risk.
Picloram - The search for alternatives

• Previous Federally funded research for the forest industry, including alternative weed control mechanisms (e.g. Cooperative Research Centres) are no longer operating, inhibiting the industries capacity to find an alternative for Picloram.

• The Australian Plantation Industry Pesticide Research Consortium is continuing its search for an alternative.

• After 5 years of industry-based trials no commercially viable non-herbicide based management options have been identified that could replace the use of Picloram.
Glufosinate ammonium
Glufosinate ammonium - Why its on the list.

Glufosinate ammonium is classified as FSC Highly Hazardous as it is a:

**Developmental and reproductive toxin**

Glufosinate ammonium contain ingredients that are suspected to interfere with normal growth and development, and are potential carcinogens.
Glufosinate ammonium - Why we need to use it

- Glufosinate ammonium is used to break glyphosate resistance in some weeds.
- Glufosinate ammonium is a non-persistent pesticide, as such it does not hang around in the soil or environment but breaks down quickly to become inactive and harmless.
- Glufosinate ammonium is a contact herbicide for weeds and wildling (i.e. plantation seedlings growing outside of the plantation area) control on firebreaks.
- Alternatives include Paraquat and Diquat but these are more toxic.
- Mechanical weed-control options do not effectively remove resistant weed strains.
Glufosinate ammonium - Additional Controls

- Hand deliver notices to adjacent neighbours.
- As a reproductive toxin the use of a respirator approved to the AS/NZS 1715/1716 standard and sealed vehicle cabins with an appropriate chemical filter are required.
- Spray buffers along water courses and between adjacent neighbours are established using the USDA Forest Service validated model AGDISP on each forest.
Glufosinate ammonium - The search for alternatives

• Other agicultural-based organisations are undertaking research into glyphosate resistance and alternatives. A viable alternative to Glufosinate has not yet been identified.

• The Australian Herbicide Resistance Initiative is a strong initiative that is well resourced to provide new and innovative non-pesticide based methods of weed control, including managing issues of herbicide resistance.
Pindone
Pindone - Why its on the list

Pindone is classified as FSC Highly Hazardous due to its:

*Acute toxicity to mammals and birds*

As a mammalian poison
Pindone will harm and/or kill mammals and birds
Pindone - Why we need to use it

• Pindone is used to control rabbits.
• Pindone is an alternative to 1080 where:
  ▫ resistance to 1080 in native fauna is not high (e.g. Eastern Australia).
  ▫ There is a high risk of poisoning domestic animals (e.g. cats and dogs)
• There is an effective antidote available, unlike 1080.
• Shooting and trapping are not an effective form of rabbit control as it is too slow and does not reduce rabbit population sufficiently.
Pindone - Additional Controls

• Hand deliver notices to adjacent neighbours.
• Commercial Pindone baits are set to provide a lethal dose to rabbits but an insufficient dose to present a risk to other non-target species.
• The risk of birds being poisoned is reduced by using oats and applying Pindone to the husk alone, as almost all birds eat the internal contents of the husk only.
• Baits are applied into furrows to reduce the availability to some animals.
• Any bait not consumed within a fixed period collected and destroyed, any animal carcasses collected and destroyed.
• No Pindone baiting occurs in the vicinity of waterways.
Pindone - The search for alternatives

- The Invasive Animals CRC is well funded and is undertaking research into alternative rabbit control mechanisms.
- The Invasive Animals CRC is working to improve the level of control achieved by the RHDB (Rabbit Haemorrhagic Disease Virus).
- The use of Sodium Nitrate as control approach for small mammals may be extended to rabbits.
- In the longer term, tree breeding programs are targeting tree resistance to browsing.