



Approved Pesticide Derogations and Conditions

18th October 2019

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1. Argentina



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Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	29 April 2016
Expiration Date:	29 April 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Fipronil in Argentina
FSC reference code:	FSC-DER-30-V1-0 EN fipronil Argentina 290416

Date: 29 April 2016. Updated 26 July 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use fipronil (granular baits) for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Argentina, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value)¹;
2. limit fipronil use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and complement this with alternatives, for example *Beauveria bassiana* or another pathogenic fungus (if available), possibly combined with diatomaceous earth, plant extract, etc;
3. reduce risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection), limit application to ant nests, gradually reduce total annual use, and employ dispensers (porta-iscas) or sachets ('MIPIS') where possible;
4. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces species*, *Trichoderma viride*, etc), possibly combined with plant extracts,⁴ antagonistic agents (*Trichoderma*

¹ Nickele MA (2008). Amostragem de *A. crassispinus*. <http://dSPACE.c3sl.ufpr.br:8080/dSPACE/handle/1884/16942>
Reis M de A, et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8
<http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle GM, et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras
<http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*,

- harzianum, *T. lignorum*, or *Escovopsis weberi*, etc inhibiting symbiotic fungi),⁵ alternative chemical insecticides (e.g. hydramethylnon or an insect growth regulator),² and ant pheromones or botanical extracts (e.g. of *Hovenia dulcis*, *Aleurites fordii*, etc) to increase bait attractiveness;
5. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants, e.g. preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of the Forest Management Unit (FMU) (proportionate to scale and intensity of management activities);³
 6. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control (approximate colony density - before and after control), include data in audit reports, provide a mid-term report to certifier (informs FSC IC) until end of April 2018 on progress with a programme for alternatives, and set quantitative reduction targets (e.g. - 20% of current total annual use);
 7. strictly follow legislation in Argentina for pesticide use and internal safety guidelines, ensure that all pesticide applicators are trained and use adequate personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat;
 8. consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

Hymenaea courbaril, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, *Trichillia glauca*, etc

See also: Dos Santos JC, et al (2013). Plant-derived products for leaf-cutting ants control.

<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G (2011). Eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

⁵ Bettucci L, et al (2014). Hongos entomopatogénos para el control de hormigas cortadoras. Univ. de la República <http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Protecci%C3%B3n%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Silva A, et al. Mycopathologia 2006, 162(2): 115-9. <http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S, et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

² Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered temporarily for trials: Registro Especial Temporário. <http://www.ibama.gov.br/areas-tematicas-qa/registro-especial-temporario>

³ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5



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Pesticide derogation:	Use of sulfluramid in Argentina
FSC reference code:	FSC-DER-30-V1-0 EN Sulfluramid Argentina 280416

Date: 29 April 2016. Updated 26 July 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use sulfluramid for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Argentina, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value);⁴
2. limit sulfluramid use to minimum effective dose (assessed in tests) in highly infested areas under establishment (1-2 years after planting) where critical value is exceeded, abstain from using it in areas where groundwater is collected for public consumption as drinking-water,⁵ and complement its use with pathogenic fungus (if available, e.g. combined with an insecticide), plant extracts, etc;
3. comply with practices that reduce contact of sulfluramid by humans and non-target species, reduce risks to mammals, birds, and other animals by applying

⁴ Cantarelli EB. Monitoramento e controle de formigas cortadeiras em plantios de Pinus. UFSM 2005

http://cascavel.cpd.ufsm.br/tede/tde_busca/arquivo.php?codArquivo=756

Nickele MA (2008). Amostragem de *A. crassispinus*. <http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M de A, et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8

<http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle GM, et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras

<http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

⁵ Main metabolite PFOS is listed as 'Persistent Organic Pollutant' (UNEP 2009), a 'Presumed human reproductive toxicant' (Cat. 1B) and 'Suspected human carcinogen' (Cat. 2) (EC 2009).

Stockholm Convention on Persistent Organic Pollutants; 2009. Annex B Restriction. <http://chm.pops.int> (p. 42, 45)

European Commission (EC). Commission Regulation No 790/2009 of 10 August 2009 (...) on classification (...) of substances. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1424191532931&uri=CELEX:32009R0790> (p. 182)

(See also: Blum A, et al. The Madrid statement on poly- and perfluoroalkyl substances (PFASs). Environmental Health Perspectives 2015, 123: A107-11. <http://ehp.niehs.nih.gov/1509934/>)

- baits during season and time of day when ants are most active (ensuring maximum collection).
4. gradually reduce total annual use; each certificate holder set progressive reduction goals in the use of insecticide baits throughout the plantation growth (eucalyptus or pine), of at least **5% per year**. It should also be defined an evaluation method of this reduction, based on infestation levels of leaf-cutting ant nests, obtained by the effective implementation of pest monitoring system. These goals must be submitted to the certification body during the first year of the new derogation, considering average consumption of insecticides baits by area during the duration of the previous derogation, so that they can properly audit the reduced use of insecticide baits. This reduction must be evidenced by reduction in the average amount of insecticides baits applied annually by area or by the interval between applications (time reduction). For example, moving from annual application for ranges between 18 to 24 months (or more) between applications. The defined goals shall be fundamental target in the annual audits performed by the certification body. Any increase in the amount of applied insecticide baits must be technically justified by the certificate holder.
 5. limit application to ant nests and trails, in order to enable the use of the lowest possible dose of baits; that is because, in practice, considerable amount of the applied doses are not carried by leaf-cutting ants when out of their usual foraging trail⁶. As a result, the systematic treatment should be reduced to a maximum and applied only when strictly necessary.
 6. apply sulfluramid in bait dispensers ('porta-iscas') or sachets (MIPIS) of high quality biodegradable packaging that protect the baits from moisture and heat, wherever possible, unless open application is necessary (e.g. shown by comparison of costs in audit reports) and measures for risk mitigation are effective (as shown by, for example, analysis of surface waters, groundwater, and non-target animals for residues of sulfluramid and metabolites);
 7. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with plant extracts,⁴ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi*, etc inhibiting symbiotic fungi),⁵ alternative chemical insecticides (e.g. hydramethylnon or an insect growth regulator),⁷ and ant pheromones or botanical extracts (e.g. of *Hovenia dulcis*, *Aleurites fordii*, etc) to increase bait attractiveness;
 8. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants, e.g. preventive silvicultural practices

⁶ Forti, L.C. (2011) MIPIS. Micro porta-isca Evolution:

http://www.mirexs.com.br/index.php?option=com_content&view=category&layout=blog&id=16

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, *Trichillia glauca*, etc

See also: Dos Santos JC, et al (2013). Plant-derived products for leaf-cutting ants control.

<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G (2011). Eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

⁵ Bettucci L, et al (2014). Hongos entomopatogénos para el control de hormigas cortadoras. Univ. de la República

<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Silva A, et al. Mycopathologia 2006, 162(2): 115-9. <http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S, et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

⁷ Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered temporarily for

(selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of the Forest Management Unit (FMU) (proportionate to scale and intensity of management activities);⁸

9. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of sulfluramid (kg bait per ha), level of control (approximate colony density - before and after control), include data in audit reports, provide a mid-term report to certifier (informs FSC IC) until end of April 2018 on progress with a programme for alternatives;
10. strictly follow legislation in Argentina for pesticide use and internal safety guidelines, ensure that all pesticide applicators are trained and use adequate personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat;
11. consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

⁴ Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered temporarily for trials: Registro Especial Temporário. <http://www.ibama.gov.br/areas-tematicas-qa/registro-especial-temporario>

⁵FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5

2. Australia



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Pesticide derogation:	Use of Alpha-Cypermethrin in Australia
FSC reference code:	FSC-DER-30-V1-1 EN Alpha-Cypermethrin Australia 23112016

Date: 23 November 2016. Updated 24 November 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use Alpha-Cypermethrin to control a range of herbivorous insects including; (Chrysomelid leaf beetles (*Paropsis* spp. and *Paropsisterna* spp.), Weevils (*Gonipterus* spp.), Shot hole miner (*Perthisa* spp.), Gum leaf skeletoniser (*Urabalugens*), Cup moth (*Doratifera* spp.), Sawfly's (*Perga* spp.), Scarab beetles (*Heteronyx* spp., *Liparetrus* spp., *Cadmus* spp.), Christmas beetles (*Anoplognathus* spp.) Autumn gum moth (*Mnesampela privata*), in certified plantations of Eucalypt species in Australia provided that the certificate holders:

1. Where possible, limit the use of Alpha-Cypermethrin to ground application (in view of rather high risks to beneficial insects and birds from spray drift which may be considerably greater for aerial application);
2. Work together, and in collaboration with other organisations, to put in place **specific** research to look at alternatives to alpha-cypermethrin. This research should not be passive but should be driven and funded by the forest industry with defined deliverables by specific deadlines;
3. Ensure that alpha-cypermethrin is not used where the alternative insecticide, Clothianidin, is available and suitable for use on the pest.
4. Put in place a decision support system (DSS) to guide forest managers on the ground on when the insecticide needs to be used. This may already be in place but this is not clear from the Application;
5. Use GPS technology in all aerial spraying operations to ensure pesticide is only applied to target areas;
6. Keep records of insecticide use in plantations and nurseries (including

information on the product, area treated, application method and rate), and monitor key natural enemies of pest insects shortly after applying alpha-Cypermethrin in plantations (at least once during the derogation period and on a representative scale).



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Amitrole in Australia

FSC reference code: FSC-DER-30-V1-1 EN Amitrole Australia 23112016

Date: 23 November 2016

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use Amitrole to control various grasses and broadleaved weeds in certified forest plantations in Australia, provided that the certificate holders:

1. Reduce application rates of Amitrole to the minimum needed for achieving management goals by using recognised, registered mixed formulations that contain Amitrole as a (minor) component and supplementing or replacing it with alternatives such as cultural and preventive measures, or less hazardous herbicides (if registered);
2. Work together, and in collaboration with APIPRC, ensure that a specific program is put in place to look at alternatives to Amitrole. This research should be driven and, if required, funded by the forest industry with defined deliverables by specific deadlines;
3. Keep records on Amitrole use (treated area, application rate/method), include information in forest management reports and put in place a decision support system (DSS) to guide forest managers on the ground on when the herbicide needs to be used. This may already be in place but this is not clear from the Application;
4. Continue communicating and consulting with stakeholders, particularly around fears raised in relation to amitrole as an endocrine disrupter;

5. Conduct field trials to identify less hazardous alternative herbicides, and improve non-chemical (cultural, mechanical, and/or biological) methods within integrated weed management;
6. Strictly follow all specified protocols to reduce the risks to workers and non-target species.



PESTICIDE DEROGATION

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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Sodium Fluoroacetate in Australia
FSC reference code:	FSC-DER-30-V1-1 EN Sodium Fluoroacetate Australia 23112016

Date: 23 November 2016. Updated 3rd February 2017.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use Sodium Fluoroacetate (1080) to control: European Fox (*Vulpes vulpers*) , Feral Cats (*Felis catus*) , Wild Dog (*Canis familiaris*) , Wild pig (*Sus scrofa*) , Rabbit (*Oryctolagus cuniculus*) (Western Australia only), Pale Field Rat (*Rattus tunneyi var culmorum*) (Queensland only) in certified forest in Australia, provided that the certificate holders:

1. Communicate and explain to stakeholders the potential positive effects on native flora and fauna if certain pest animals are controlled. In this communications exercise, the collaborative nature of much of this work with Government agencies and adjacent landowners should also be emphasised;
2. Continue collaborating with government agencies for conservation or pest management, experts or PhD students at research institutions and universities, enterprises, and other certificate holders to improve alternative methods of controlling pest animals, including non-chemical methods, alternative poisons and an integrated management approach based on monitoring. In particular, the work of the CRC on alternatives should be pushed to get it in **to operational control plans as soon as possible** and pressure should be kept on this organisation to maintain their research work on these pests. This may require specific industry funded projects into the future;

3. Encourage State or community authorities or contracted staff to limit the amount of 1080 applied (kg active ingredient applied per ha) and the area treated to the minimum needed for effective control of the targeted pest organism, and strive to gradually reduce amount and treated area further by using alternative methods of control and taking measures to prevent damage;
4. Consult with directly or potentially affected parties where 1080 is used and (especially near nature reserves/parks or sensitive areas such as wildlife habitats, rivers, lakes) consult with regional authorities for environmental protection and experts on wildlife conservation.

3. Brazil



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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Deltamethrin in Brazil

FSC reference code: FSC-DER-30-V1-0 EN Deltamethrin Brazil 290216

Date: 29 February 2016. Updated on 22 March 2016. Updated on 12 April 2016. Updated on 10 June 2016. Updated on 26 July 2016. Updated on 30 September 2016. Updated on 2nd December 2016. Updated on 11 August 2017. Updated on 12 December 2017. Updated on 23 March 2018. Updated on 11 June 2018. Updated 31 August 2018. Updated 2nd November 2018. Updated 22nd January 2019. Updated 12th March 2019. Updated 28th May 2019. Updated 5th June 2019. Updated 12th August 2019.

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use deltamethrin (powder) for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Brazil, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value)⁹;
2. limit deltamethrin use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after

⁹ Cantarelli EB. Monitoramento e controle de formigas cortadeiras em plantios de Pinus. UFSM 2005
http://cascavel.cpd.ufsm.br/tede/tde_busca/arquivo.php?codArquivo=756

Nickele MA (2008). Amostragem de *A. crassispinus*. <http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M de A, et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8
<http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle GM, et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras
<http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

- planting), and supplement this with biological alternatives (if available, possibly combined with an insecticide), plant extracts, etc;
3. reduce risks to mammals, birds, and other animals by applying powder during season and time of day when ants are most active (ensuring maximum collection), limit application to ant nests, gradually reduce total annual use, and employ dispensers (porta-iscas) or sachets (MIPIS) where possible;
 4. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with plant extracts,⁴ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi*, etc inhibiting symbiotic fungi),⁵ alternative chemical insecticides (e.g. hydramethylnon or an insect growth regulator),¹⁰ and ant pheromones or botanical extracts (e.g. of *Hovenia dulcis*, *Aleurites fordii*, etc) to increase bait attractiveness;
 5. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants, e.g. preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna 14racteate*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of the Forest Management Unit (FMU) (proportionate to scale and intensity of management activities);¹¹
 6. effectively demonstrate support to research for alternatives to chemical insecticides, with the presentation of results from laboratory and/or field experiments, and support the development of equipment's for application of powder insecticides which are more effective and safer to applicators.
 7. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of deltamethrin (kg powder per ha), level of control (approximate colony density – before and after control), include data in audit reports, provide a mid-term report to CAB (CAB shall then inform FSC IC) until end of December 2017 on progress with a programme for alternatives, and set quantitative reduction targets (e.g. -20% of current total annual use);
 8. strictly follow legislation in Brazil for pesticide use and internal safety guidelines, ensure that all pesticide applicators are trained and use adequate

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, *Trichillia glauca*, etc

See also: Dos Santos JC, et al (2013). Plant-derived products for leaf-cutting ants control.

<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G (2011). Eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

⁵ Bettucci L, et al (2014). Hongos entomopatogénos para el control de hormigas cortadoras. Univ. de la República <http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Silva A, et al. Mycopathologia 2006, 162(2): 115-9. <http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S, et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

¹⁰ Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered temporarily for trials: Registro Especial Temporário. <http://www.ibama.gov.br/areas-tematicas-qa/registro-especial-temporario>

¹¹ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5

- personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat;
9. consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	29 February 2016
Expiration Date:	28 February 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Fipronil in Brazil
FSC reference code:	FSC-DER-30-V1-0 EN fipronil Brazil 290216

Date: 29 February 2016. Updated on 22 March 2016. Updated on 10 June 2016. Updated on 26 July 2016. Updated on 30 September 2016. Updated on 2nd December 2016. Updated on 15 February 2017. Updated on 11 August 2017. Updated on 12 December 2017. Updated on March 23 2018. Updated on June 6 2018. Updated 31 August 2018. Updated on 2nd November 2018. Updated on 22nd January 2019. Updated on 12th March 2019. 18th March 2019. Updated on 28th May 2019. Updated 5th June 2019. Updated 12th August 2019.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use fipronil (granular baits) for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Brazil, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving

- silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value)¹²;
2. limit fipronil use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and supplement this with biological alternatives (if available, possibly combined with an insecticide), plant extracts, etc;
 3. reduce risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection), limit application to ant nests, gradually reduce total annual use, and employ dispensers (porta-iscas) or sachets (MIPIS) where possible;
 4. as a measure of precaution and to reduce risks of contamination of hives by fipronil; collect pollen from the first flowering cycle of plants whose seedlings have been treated with fipronil and analyse the collected pollen for presence of fipronil and its metabolites.
 5. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with plant extracts, 4 antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi*, etc inhibiting symbiotic fungi), 5 alternative chemical insecticides (e.g. hydramethylnon or an insect growth regulator),¹³ and ant pheromones or botanical extracts (e.g. of *Hovenia dulcis*, *Aleurites fordii*, etc) to increase bait attractiveness;
 6. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants, e.g. preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of the Forest Management Unit (FMU) (proportionate to scale and intensity of management activities);¹⁴

¹² Cantarelli EB. Monitoramento e controle de formigas cortadeiras em plantios de Pinus. UFSM 2005
http://cascaavel.cpd.ufsm.br/tede/tde_busca/arquivo.php?codArquivo=756

Nickele MA (2008). Amostragem de *A. crassispinus*. <http://dSPACE.c3sl.ufpr.br:8080/dSPACE/handle/1884/16942>

Reis M de A, et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8
<http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle GM, et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras
<http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Heliopsis scabra*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, *Trichillia glauca*, etc

See also: Dos Santos JC, et al (2013). Plant-derived products for leaf-cutting ants control.

<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G (2011). Eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

⁵ Bettucci L, et al (2014). Hongos entomopatógenos para el control de hormigas cortadoras. Univ. de la República
<http://www.inia.uy/Documentos/P%C3%BABlicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Silva A, et al. Mycopathologia 2006, 162(2): 115-9. <http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S, et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

¹³ Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered temporarily for trials: Registro Especial Temporário. <http://www.ibama.gov.br/areas-tematicas-ga/registro-especial-temporario>

¹⁴ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5

7. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control (approximate colony density - before and after control), include data in audit reports, provide a mid-term report to CAB (CAB shall then inform FSC IC) until end of December 2017 on progress with a programme for alternatives, and set quantitative reduction targets (e.g. -20% of current total annual use);
8. strictly follow legislation in Brazil for pesticide use and internal safety guidelines, ensure that all pesticide applicators are trained and use adequate personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat;
9. consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	29 February 2016
Expiration Date:	28 February 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Sulfluramid in Brazil

FSC reference code: FSC-DER-30-V1-0 EN Sulfluramid Brazil 290216

Date: 29 February 2016. Updated on 22 March 2016. Updated on 12 April 2016. Updated on 10 June 2016. Updated on 26 July 2016. Updated on 26 September 2016. Updated on 15 February 2017. Updated on 11 August 2017. Updated on 12 December 2017. Updated on 23 March 2018. Updated 11 June 2018. Updated 31 August 2018. Updated 2nd November 2018. Updated 22nd January 2019. Updated 23rd January 2019. Updated 12th March 2019. Updated 28th May 2019. Updated 5th June 2019. Updated 2nd July 2019. Updated 12th August 2019

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use sulfluramid for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Brazil, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value);¹⁵
2. limit sulfluramid use to minimum effective dose (assessed in tests) in highly infested areas under establishment (1-2 years after planting) where critical value is exceeded, abstain from using it in areas where groundwater is collected for public consumption as drinking-water,¹⁶ and complement its use with pathogenic fungus (if available, e.g. combined with an insecticide), plant extracts, etc;
3. comply with practices that reduce contact of sulfluramid by humans and non-target species, reduce risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection).
4. strive to reduce total annual use; each certificate holder set progressive reduction goals in the use of insecticide baits throughout the plantation growth (eucalyptus or pine).
5. limit application to ant nests and trails, in order to enable the use of the lowest possible dose of baits; that is because, in practice, considerable amount of the applied doses are not carried by leaf-cutting ants when out of their usual foraging trail¹⁷. As a result, the systematic treatment should be reduced to a maximum and applied only when strictly necessary.
6. apply sulfluramid in bait dispensers ('porta-iscas') or sachets (MIPIS) of high quality biodegradable packaging that protect the baits from moisture and heat, wherever possible, unless open application is necessary (e.g. shown by comparison of costs in audit reports) and measures for risk mitigation are effective (as shown by, for example, analysis of surface waters, groundwater, and non-target animals for residues of sulfluramid and metabolites);
7. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with plant extracts,⁴ antago-nistic agents (*Trichoderma*

¹ Cantarelli EB. Monitoramento e controle de formigas cortadeiras em plantios de Pinus. UFSM 2005
http://cascavel.cpd.ufsm.br/tede/tde_busca/arquivo.php?codArquivo=756

Nickele MA (2008). Amostragem de *A. crassispinus*. <http://dSPACE.c3sl.ufpr.br:8080/dSPACE/handle/1884/16942>

Reis M de A, et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8
<http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle GM, et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras
<http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

² Main metabolite PFOS is listed as 'Persistent Organic Pollutant' (UNEP 2009), a 'Presumed human reproductive toxicant' (Cat. 1B) and 'Suspected human carcinogen' (Cat. 2) (EC 2009).

Stockholm Convention on Persistent Organic Pollutants; 2009. Annex B Restriction. <http://chm.pops.int> (p. 42, 45)

European Commission (EC). Commission Regulation No 790/2009 of 10 August 2009 (...) on classification (...) of substances. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1424191532931&uri=CELEX:32009R0790> (p. 182)

(See also: Blum A, et al. The Madrid statement on poly- and perfluoroalkyl substances (PFASs). Environmental Health Perspectives 2015, 123: A107-11. <http://ehp.niehs.nih.gov/1509934/>)

³ Forti, L.C. (2011) MIPIS. Micro porta-isca Evolution:

http://www.mirexs.com.br/index.php?option=com_content&view=category&layout=blog&id=16

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Heliopsis scabra*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, *Trichillia glauca*, etc

See also: Dos Santos JC, et al (2013). Plant-derived products for leaf-cutting ants control.

<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G (2011). Eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

- harzianum, *T. lignorum*, or *Escovopsis weberi*, etc inhibiting symbiotic fungi),⁵ alternative chemical insecticides (e.g. hydramethylnon or an insect growth regulator),¹⁸ and ant pheromones or botanical extracts (e.g. of *Hovenia dulcis*, *Aleurites fordii*, etc) to increase bait attractiveness;
8. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants, e.g. preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna 19racteate*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of the Forest Management Unit (FMU) (proportionate to scale and intensity of management activities);¹⁹
 9. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control (approximate colony density – before and after control), include data in audit reports, provide a mid-term report to CAB (CAB shall then inform FSC IC) until end of December 2017 on progress with a programme for alternatives, and set quantitative reduction targets (e.g. -20% of current total annual use);
 10. strictly follow legislation in Brazil for pesticide use and internal safety guidelines, ensure that all pesticide applicators are trained and use adequate personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat;
 11. consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

⁵ Bettucci L, et al (2014). Hongos entomopatógenos para el control de hormigas cortadoras. Univ. de la República <http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Protecci%C3%B3n%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Silva A, et al. Mycopathologia 2006, 162(2): 115-9. <http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S, et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

¹⁸ Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered temporarily for trials: Registro Especial Temporário. <http://www.ibama.gov.br/areas-tematicas-qa/registro-especial-temporario>

¹⁹ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	15 th February 2017
Expiration Date:	15 th February 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Oxyfluorfen in Brazil
FSC reference code:	FSC-DER-30-V1-0 EN Oxyfluorfen Brazil 15022017

Date: 15 February 2017. Updated on 11 August 2017. Updated on 23 March 2018. Updated 11 June 2018. Updated 2nd November 2018. Updated 28th May 2019. Updated 5th June 2019

FSC Board Committee decision: Approves a derogation to use **Oxyfluorfen** to control weeds on certified forest plantations in Brazil for a limited period of five years, provided that during the derogation period the certificate holders:

1. Apply the restriction rules established for oxyfluorfen applications, especially in the vicinity of water bodies, due to the high toxicity of this herbicide for aquatic organisms.
2. As there is no registration for aerial application of oxyfluorfen in Brazil, oxyfluorfen applications shall only be performed with ground equipment.
3. Maintain measures of prevention and protection of environmental, occupational and social risks,
4. Reduce application rates of Oxyfluorfen to the minimum needed for achieving management goals by spraying only areas with confirmed major weed problem, using mixed formulations that contain Oxyfluorfen as a (minor) component, and supplementing or replacing it with alternatives such as silvicultural, physical and preventive practices or less hazardous herbicides, and strives to limit use of Oxyfluorfen to spot or band application and areas under establishment or young stands (e.g. during the first few years);
5. Implement and improve risk mitigation measures: documents training of staff or contracted laborers and checks use and maintenance of personal protective equipment (long water-proof clothing, breathing mask with mist filter, chemical-resistant gloves, eye protection, rubber boots), strictly follows all specified protocols to reduce risk to workers or non-target species, takes measures to reduce spray drift and run-off (optimized droplet size, using spray skirts,

choosing optimal weather and soil conditions), avoids manual spraying, and maintains or exceeds minimum buffer zone required next to rivers, lakes, or sensitive wildlife habitats;

6. Conduct joint or support tests to identify less hazardous alternative herbicides, and improve non-chemical (silvicultural, mechanical or biological) methods, e.g. within integrated weed management;
7. Keep records on Oxyfluorfen use (treated area, application rate/method), and include this information in forest management reports, and define voluntary quantitative targets for reductions in Oxyfluorfen use, e.g. % reduction to be achieved in the derogation period, based on treated area (ha) and/or amount applied (kg/ha).



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	13 February 2018
Expiration Date:	13 February 2023
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of permethrin in Brazil

FSC reference code: FSC-DER-30-V1-0 EN Permethrin Brazil 130218

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use permethrin for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Brazil, provided that during the derogation period the certificate holders:

1. Apply the restriction rules established for Permethrin applications by the registration of the product for forest plantations in Brazil.
2. Maintain measures of prevention and protection of environmental, occupational and social risks, as well as records of actions taken in activities of handling and use of pesticides.
3. Application through evaluations of the actual control needs of the target pest.

4. Strive to reduce total annual use; each certificate holder set progressive reduction goals in the use of permethrin throughout the plantation growth (eucalyptus).
5. Continue collaborating with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants.
6. Keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of permethrin.
7. Strictly follow internal safety guidelines, ensure that all pesticide applicators are trained and use adequate personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat.
8. Consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

4. Chile



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	16 th July 2015
Expiration Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 V1-0 EN Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-STD-30-001a EN FSC List of 'highly hazardous' pesticides</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of Brodifacoum in Chile
FSC reference code:	FSC-DER-30-V1-0 EN Brodifacoum Chile 160715

Date: 16th July 2015; Updated 29th May 2019; updated on 7th August 2019;

FSC Board Committee decision: The Pesticides Committee has approved a renewal of the derogation for the use of brodifacoum to control the long-tailed colilargo (*Oligoryzomys longicaudatus*), main carrier of Andes virus/hantavirus), and the house mouse (*Mus musculus*), the ship rat or black rat (*Rattus rattus*), the Norway rat (*Rattus norvegicus*), the Darwin's leaf-eared mouse (*Phyllotis darwini*), the long-haired grass mouse (*Abrothrix longipilis*), the olive grass mouse (*Abrothrix olivaceus*) and the Southern pericote (*Loxodontomys micropus*) in buildings (forest camps, houses, offices, warehouses, and nurseries) inside the Management Unit (MU) on FSC certified plantations in Chile, provided that the certificate holders:

1. only apply rodenticides through trained personnel and by using plastic (PVC) tubes and/or suitable baiting boxes (that are not accessible to non-target

- species), and only if an infestation of rodents cannot be controlled by other measures (such as traps, preventive/sanitary measures, etc.);
2. only apply brodifacoum inside houses, storage building, camps, reduce attractiveness to rodents (no open food waste), regularly remove dead rodents (workers must use adequate personal protection including gloves and mask), and disinfect the area with hypochlorite solution;
 3. document all rodent control measures for each site on MU where chemical control is conducted;
 4. continue to raise awareness among workers regarding the prevention of rodents from occurring in and around houses, consult public health experts and report hantavirus infections, and continue to promote the use of physical barriers which prevent access of rodents to inhabited buildings;
 5. continue to promote and protect predators (owls or other raptors) in areas around camps, nursery, or warehouses by providing some suitable habitat in the vicinity and installing nesting boxes or wooden poles, and collaborate with experts (e.g. the Centro de Estudios Agrarios y Ambientales);
 6. continue to monitor predatory birds around camp sites, especially the established owls or raptors, where necessary in collaboration with wildlife experts;
 7. exchange information with other certificate holders; and
 8. record total annual use of brodifacoum and number of treated sites (or area), include this information in audit reports.

5. Colombia



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	01 March 2016
Expiration Date:	01 March 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Chlorpyrifos in Colombia
FSC reference code:	FSC-DER-30-V1-0 EN Chlorpyrifos Colombia 010316

Date: 01 March 2016. Updated 28 February 2017.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use **chlorpyrifos** (liquid) for control of leaf-cutting ants (*Atta cephalotes* and *Acromyrmex* species) in certified forest plantations in Colombia, provided that during the derogation period the certificate holders:

1. identifies ant species causing major damage and susceptible tree species, estimates damage, defines a critical density (acceptable maximum for achieving silvicultural objectives), monitors distribution of ant colonies, and locates highly infested areas (where estimated density exceeds critical value);²⁰
2. limits chlorpyrifos use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and complements this with alternatives, for example *Beauveria bassiana* or another pathogenic fungus (if available), possibly combined with diatomaceous earth, plant extract, etc, and **sends reports on minimum annual doses to certification body on annual basis.**
3. reduces risks to workers and non-target species (birds, beneficial insects, mammals) by strictly adhering to Colombian legislation for pesticide use and internal safety guidelines, in particular use of adequate personal protective

²⁰ Nickele MA. (2008) Amostragem de *Acromyrmex crassispinus*.
<http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M. de A., et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista *Árvore* 2010, 34(6): 1101-8. <http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle G.M., et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras en plantaciones forestal. <http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

equipment, training of workers, regularly inspects / repairs thermonebulizer equipment, and maintains buffer zone required near streams, rivers or lakes (especially in catchment areas for public water supplies);

4. conducts or participates in tests on pathogenic fungi (e.g. *Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with diatomaceous earth, toxic plant extracts,²¹ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi* etc, inhibiting symbiotic fungi),²² an alternative chemical insecticide (e.g. hydramethylnon), pheromone or botanical product (e.g. *Hovenia dulcis*, *Aleurites fordii*) to increase bait attractiveness;
5. collaborates with experts and PhD students at universities, commercial enterprises, government agencies, and other forest companies in research on *integrated management* of leaf-cutting ants, for example preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserves natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of FMU ('appropriate to scale and intensity of the management activities'),²³
6. keeps records on approximate number of ant colonies per ha, number of colonies treated, total annual use of chlorpyrifos (litres of concentrate), level of control (approximate colony density - before and after control), includes data in audit reports, provides a mid-term report to certifier (informs FSC IC) until end of June 2018 on progress with a programme for alternatives, and strives to gradually reduce total annual use (e.g. by setting quantitative reduction targets);
7. consults with directly or potentially affected parties where chlorpyrifos is used and, especially near nature reserves (parks) and sensitive areas (natural habitat), consults with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

²¹ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, or *Trichillia glauca*.

dos Santos J.C., et al. Plant-derived products for leaf-cutting ants control; In Trdan S. (2013). Insecticides; chapter 9. <http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies>

Araújo G. (2011). Incremento da eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

²² Bettucci L., et al (2014). Hongos entomopatógenos para el control de hormigas cortadoras. UdelaR

<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Ortiz Reyes A. (1998). *Trichoderma* o *Gliocladium* para el control de *A. cephalotes*. <http://www.bdigital.unal.edu.co/12821/>

Silva A., et al. Mycopathologia 2006, 162(2): 115-9.

<http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S., et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

²³ FSC Principles and Criteria V5-1 (2014), Principle 6.4 and 6.5 (or Principle 6.4 and 10.5 of P&C V4-0, 2002)



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	23 May 2016
Expiration Date:	23 May 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Fipronil in Colombia

FSC reference code: FSC-DER-30-V1-1 EN Fipronil Colombia 23052016

Date: 23 May 2016

FSC Board Committee decision: Approve a derogation to use **Fipronil** for control of leaf-cutting ants (*Atta laevigata*, *Atta colombica*, and *Acromyrmex landolti*) in certified forest plantations in Colombia, provided that during the derogation period the certificate holders:

1. identifies ant species causing major damage and susceptible tree species, estimates damage, defines a critical density (acceptable maximum for achieving silvicultural objectives), monitors distribution of ant colonies, and locates highly infested areas (where estimated density exceeds critical value);²⁴
2. limits fipronil use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and complements this with alternatives, for example *Beauveria bassiana* or another pathogenic fungus (if available), possibly combined with diatomaceous earth, plant extract, etc;
3. reduces risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection), limits application to ant nests, gradually reduces total annual use, and employs dispensers (porta-iscas) or sachets ('MIPIS') where possible;
4. conducts or participates in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with diatomaceous earth, toxic plant extracts,⁴ antagonistic agents (*Trichoderma harzianum*,

²⁴ Nickele M.A. (2008) Amostragem de *Acromyrmex crassispinus*. <http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M. de A., et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8. <http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle G.M., et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras en plantaciones forestal. <http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helieta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandi-florus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, or *Trichillia glauca*.

dos Santos J.C., et al. Plant-derived products for leaf-cutting ants control; In Trdan S. (2013).

- T. lignorum, or Escovopsis weberi etc, inhibiting symbiotic fungi),⁵ an alternative chemical insecticide (e.g. hydramethylnon), or with a pheromone or botanical product (e.g. Hovenia dulcis, Aleurites fordii) to increase bait attractiveness;
5. collaborates with experts and PhD students at universities, commercial enterprises, government agencies, and other forest companies in research on integrated management of leaf-cutting ants, for example preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. Mucuna bracteata), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserves natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of FMU ('appropriate to scale and intensity of the management activities');²⁵
 6. keeps records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control (approximate colony density - before and after control), includes data in audit reports, provides a mid-term report to certifier (informs FSC IC) until end of December 2017 on progress with programme for alternatives, and sets quantitative reduction targets;
 7. strictly follows legislation in Colombia for pesticide use and internal safety guidelines, in particular use of adequate personal protective equipment and training of workers, and maintaining minimum buffer zone near surface waters, catchment area (for public water supplies), sensitive areas (natural habitat);
 8. consults with directly or potentially affected parties where insecticide baits are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consults with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

Insecticides; chapter 9. <http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies>

Araújo G. (2011). Incremento da eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

- ⁵ Bettucci L., et al (2014). Hongos entomopatógenos para el control de hormigas cortadoras. Fac. Ciencias UdelaR
<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>
- Ortiz Reyes A. (1998). *Trichoderma* o *Gliocladium* para el control de *A. cephalotes*. www.bdigital.unal.edu.co/12821/
- Silva A., et al. Mycopathologia 2006, 162(2): 115-9.
<http://www.springerlink.com/content/21p71w7135710k60/>
- Haeder S., et al. PNAS 2009, 106(12): 4742-6.
<http://www.pnas.org/content/106/12/4742.full>

²⁵ Revised Principle 6.4 and 6.5, P&C V5-1, 2014 (Principle 6.4 and 10.5 of FSC Principles & Criteria V4-0, 2002)



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	19 May 2017
Expiration Date:	19 May 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Sulfluramid in Colombia

FSC reference code: FSC-DER-30-V1-1 EN Sulfluramid Colombia 19052017

Date: 19 May 2017

FSC Board Committee decision: Approve a derogation to use Sulfluramid to control leaf cutting ants (*Atta Acromyrmex*) in certified forest plantations in Colombia, provided that during the derogation period the certificate holders:

1. Implement Integrated Pest Management (IPM) practices in addition to sulfluramid use. The alternative methods shall be used in order to provide some level of control of the target species, and the additional control should be obtained with the sulfluramid insecticide.
2. Pursue collaboration with local, national or regional Research Institutions or Universities conducting similar research for controlling leaf cutting ants (i.e. IPEF in Brazil) in order to study taxonomy and biology, dose optimization, monitoring, alternative products and IPM practices. A strong emphasis should be done not only for developing studies about alternative chemical compounds, but also for biological agents, pheromones and forest management practices, such as cover crops, time of harvest, partial harvest, time between harvest and soil tillage, for example.
3. Document use of adequate personal protective equipment (PPE) in all applications of sulfluramid. Modern PPE should be used, such as masks with two air entrance devices that support specific filters. In addition, evaluate PPE frequently for quality, and change as necessary.
4. Monitor infestation of leaf-cutting ants. In addition, quantified damage and established thresholds shall be used for determining sulfluramid use.
5. The environmental impact of sulfluramid shall be minimized. A secure monitoring of precipitation with adequate communication to field workers should be put in place. Eucalyptus and pinus plantations should not be performed close to watercourses according with Colombia legislation and also in areas with critical topography.



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	19 May 2017
Expiration Date:	19 May 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Oxyfluorfen in Colombia

FSC reference code: FSC-DER-30-V1-1 EN Oxyfluorfen Colombia 19052017

Date: 19 May 2017

FSC Board Committee decision: Approve a derogation to use Oxyfluorfen for control of weeds in certified forest plantations in Colombia, provided that during the derogation period the certificate holders:

1. Incorporate a more adequate use of Integrated Pest Management (IPM) practices in the pinus and eucalyptus plantations. Although weeds are usually present in all planted areas, a detailed monitoring of the identification of the main species and plant density shall be performed. The burndown application should provide the maximum weed control in order to decrease the infestation after eucalyptus and pinus planting.
2. Pursue collaboration with local, national or regional Research Institutions or Universities focused on pre-emergence herbicides alternatives for controlling weeds. This program should compare herbicides with similar use than oxyfluorfen. Additional herbicides used in the burndown or in the post-emergence application should be evaluated in a different program. Comparisons should be performed within herbicide category.
3. Document use of personal protective equipment's (PPE) regarding quality of the equipment and use by the field workers.
4. The application of oxyfluorfen by tractor should be used instead of backpack sprayers. Areas with high slope that limit tractor operation should not be used for new plantations, or different control methods approved by FSC or derogation process should be applied.
5. Document weather conditions in terms of wind speed, temperature and relative air humidity during the herbicide application.

6. Croatia



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	9 January 2018
Expiration Date:	9 January 2023
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of zinc phosphide in Croatia
FSC reference code:	FSC-DER-30-V2-0 EN zinc phosphide Croatia 09012018

Date: 9 January 2018

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use zinc phosphide to control rodent species in Croatia provided that the certificate holder applies the pesticide with the following conditions:

1. Limits application of zinc phosphide bait to ground application for controlling rodents to the minimum amount needed to achieve silvicultural objectives in young plantations (especially during establishment, e.g. trees aged 1-5 years) or nurseries where estimated rodent numbers and expected tree damage levels are unacceptably high and where no other alternative is viable, and preferentially use non-chemical methods wherever feasible, for example erecting poles and nesting boxes for owls, trapping voles (with snap traps), or protecting stems of vulnerable trees in small areas with plastic spiral guards, protective paint (e.g. a suspension of silica or sand), or a chemical repellent (e.g. rosin, wood tar, cinnamon extract);
2. Develops a best practice technical description of zinc phosphide bait application, including estimates of the minimum and maximum amounts of toxic bait and the number of bait applications that could be conducted under the temporary derogation, and undertakes an initial test of the draft best practice application in a nominated treatment area, compared to an untreated area. A report of the outcomes should be submitted to the certification body;
3. Implements the rodent monitoring system where the nominated threshold levels of trapped rodents will underpin decisions regarding HHP use under the temporary derogation.
4. Records use of zinc phosphide, including age and condition of forest stands where rodents are controlled, estimated (approximate) numbers of mice/voles, total amount of zinc phosphide used annually (kg bait applied per ha), and overall result of poisoning operation (approximate vole numbers and percentage of damaged trees – before and after poisoning operation);
5. Continues collaborating with other companies, scientific experts and postgraduate students at research institutions or commercial enterprises in the search for alternatives to highly hazardous pesticides or methods to minimise pesticide use;
6. Take the greatest care that handling and application of zinc phosphide does not endanger human health and non-target species (in particular, carnivorous and omnivorous birds), take the necessary measures to reduce the risks, as required by specific guidelines of the authorities, and strictly follow all legal requirements in Croatia for the use of pesticides, in particular the controls for occupational and environmental safety required by the national and regional authorities;
7. Promotes the presence of birds of prey or wild mammals as natural predators of rodents in areas where zinc phosphide is not used, by installing nesting boxes and wooden poles for owls and other birds of prey and create/establish habitat for other rodent predators (mustelids, foxes).

7. Czech Republic



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	05 August 2019
Expiration Date:	05 August 2024
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of alpha-cypermethrin in Czech Republic
FSC reference code:	FSC-DER-30-V1-0 EN Alpha-cypermethrin CZ 050819

Date: 5th August 2019;

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use alpha-cypermethrin against the eight-toothed spruce bark beetle (*Ips typographus*) and other bark beetles on spruce, on timber stacks provided that the certificate holder (CH):

1. Continues the multi-level monitoring work as described in Section 1b of the application, including:
 - Evaluation of outbreaks
 - Establishment of control and defence measures on the basis of autumn counts
 - Visual monitoring of dead and dying trees
2. Continues the co-operative work with the Research Institute for Forestry and Game Management and with the Dept. of Forest Management at the Faculty of Forestry of the Czech University of Life Sciences and Czech Union of Beekeepers in Prague.
3. Uses only the minimum amount of the insecticide needed for effective control and avoid adverse impacts to high conservation values.
4. Maintains up to date records of the amount and location of alpha-cypermethrin use to control bark beetles and include this information in audit reports.
5. Strictly follows all legal Czech Republic requirements to protect pesticide users and the environment so as to prevent, minimize and mitigate impacts.
6. Notify the public in areas with frequent public access (e.g. with signs on treated logs) about the wood protection measures.

7. Should explore alternative options such as timely removal of the timber from the forest or treated fabrics.

8. Guatemala



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	01 March 2016
Expiration Date:	01 March 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Chlorpyrifos in Guatemala
FSC reference code:	FSC-DER-30-V1-0 EN Chlorpyrifos Guatemala 010316

Date: 01 March 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use **chlorpyrifos** (powder) for control of leaf-cutting ants (*Atta cephalotes*) in certified forest plantations in Guatemala, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density of ants (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value);²⁶
2. limit chlorpyrifos use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and supplement this with alternatives, for example *Beauveria bassiana* or another pathogenic fungus (if available), possibly combined with diatomaceous earth, plant extract, etc; and sends reports on minimum annual doses to certification body on annual basis.
3. reduce risks to workers and non-target species (birds, beneficial insects, mammals) by strictly adhering to national legislation for pesticide use and internal safety guidelines, in particular use of adequate personal protective equipment, training of workers, regularly

²⁶ Nickele MA. (2008) Amostragem de *Acromyrmex crassispinus*.
<http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M. de A., et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8. <http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle G.M., et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras en plantaciones forestal. <http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

- inspect / repair thermonebulizer equipment, and maintain buffer zone required near streams, rivers or lakes (especially in catchment areas for public water supplies);
4. conduct or participate in tests on pathogenic fungi (e.g. *Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with diatomaceous earth, toxic plant extracts,²⁷ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi* etc, inhibiting symbiotic fungi),²⁸ an alternative chemical insecticide (e.g. hydramethylnon), pheromone or botanical product (e.g. *Hovenia dulcis*, *Aleurites fordii*) to increase bait attractiveness;
 5. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, and other forest companies in research on integrated management of leaf-cutting ants, for example preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ant herbivory), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of FMU ('appropriate to scale and intensity of the management activities');²⁹
 6. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of chlorpyrifos (kg of powder), level of control (approximate colony density – before and after control), include data in audit reports, provide a mid-term report to certifier (informs FSC IC) until end of June 2018 on progress with a programme for alternatives, and strive to gradually reduce total annual use (e.g. by setting quantitative reduction targets);
 7. consult with directly or potentially affected parties where chlorpyrifos is used and, especially near nature reserves (parks) and sensitive areas (natural habitat), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

²⁷ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, or *Trichillia glauca*.

dos Santos J.C., et al. Plant-derived products for leaf-cutting ants control; In Trdan S. (2013). Insecticides; chapter 9. <http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies>

Araújo G. (2011). Incremento da eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

²⁸ Bettucci L., et al (2014). Hongos entomopatógenos para el control de hormigas cortadoras. UdelaR

<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Ortiz Reyes A. (1998). *Trichoderma* o *Gliocladium* para el control de *A. cephalotes*. <http://www.bdigital.unal.edu.co/12821/>

Silva A., et al. Mycopathologia 2006, 162(2): 115-9.

<http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S., et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

²⁹ FSC Principles and Criteria V5-1 (2014), Principle 6.4 and 6.5 (or Principle 6.4 and 10.5 of P&C V4-0, 2002)

9. Ireland



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	01 March 2016
Expiration Date:	01 March 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Cypermethrin in Ireland
FSC reference code:	FSC-DER-30-V1-0 EN Cypermethrin Ireland 010316

Date: 01 March 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use cypermethrin for control of large pine weevil (*Hylobius abietis*) in certified forest plantations in Ireland, provided that during the derogation period the certificate holders:

1. monitor weevils regularly, identify highly infested sites where a threshold for damage or critical density of weevils is exceeded, and limit top-up application of cypermethrin to highly infested sites where a biological product, bioinsecticide, or protective stem coating cannot be used, reducing chemical control to the minimum needed to achieve silvicultural objectives;
2. give high priority to preventive practices such as reduced harvest intensity (e.g. continuous-cover forestry, shelterwood/mosaic cuts, natural regeneration, extended fallow period, etc), planting large robust seedlings or stands of mixed species, and/or use of a protective coating;
3. (where *Hylobius* control is considered necessary): limit and reduce top-up application of cypermethrin further by preferentially treating seedlings prior to planting,³⁰ and by using a biological product (such as Btt, *Metarhizium*, etc) or bioinsecticide (e.g. spinosad or neem);³¹

³⁰ FC UK: Weevils: Pre-planting treatment of conifers. www.forestry.gov.uk/forestry/INFD-5TUG8W

Note: Treating seedlings with Cypermethrin outside FMU and planting these requires no derogation.

³¹ Brudea V. Biopesticides in IPM of large pine weevil. http://www.revagrois.ro/PDF/2009_1_619.pdf

4. strictly follow the legislation for chemical use in Ireland and the EU, provide all staff with appropriate personal protective equipment and adequate training to ensure that buffer zones are maintained next to surface waters, catchment area (collecting water for public supplies), drainage channels, natural habitat or protection zone, and that sufficient measures are taken to prevent spray drift or run-off, and that spraying equipment is regularly inspected/repaired;
5. collaborate with research institutes, private enterprises, or other forest companies in research on the potential of applying a protective coating (quartz sand dispersion or wax)³² to seedling stems, use of chemical antifeedants (e.g. nonanoic acid, dihydro-pinidine, benzaldehyde, cinnamic aldehyde), ³³ pathogenic fungi (Beauveria species or Metarhizium species), *Bacillus thuringiensis* subspecies *tenebrionis* (Bt), parasitic nematodes, bioinsecticides (e.g. spinosad or neem/azadirachthin), and scarification³⁴ of restocking site before planting;
6. participate in research on natural enemies of pine weevils, e.g. identifying parasitoids and predators (conducting at least one survey on a representative scale before/after insecticide use), and promote natural enemies by installing nesting boxes for birds and bats, planting hedges around seed beds in nursery, or retaining suitable habitat or conservation zones for small mammals on part of FMU (proportionate to scale/intensity of management activities);³⁵
7. record total annual use of cypermethrin and treated area, include this information in audit reports, and provide a mid-term report to certifier (who informs FSC IC) until end of June 2017 [December 2017] on progress with testing, implementation of alternatives, and recent annual use of cypermethrin (indicating proportion of pre-plant dipping and top-up spraying), and set a reduction target for annual use by top-up application, e.g. -25% [-33%] per year;
8. notify local authorities prior to direct (top-up) application, and where the public enters FMUs indicate areas treated with cypermethrin, e.g. by putting up notices, and if a FMU is adjacent to a protection zone or beehives consult with regional conservation agency or local beekeepers. Communicate with local beekeepers when plantations to be sprayed are within 2 km of beehive

³² Swedish Univ. of Agricultural Sciences. Pine weevil homepage.
<http://www2.ekol.slu.se/snytbagge/>

³³ Eriksson C. Antifeedants against the pine weevil, *Hylobius abietis*. Sundsvall 2006.
<http://www.diva-portal.org/smash/get/diva2:10021/FULLTEXT01.pdf>

³⁴ Luoranen J, Viiri H. Soil preparation reduces pine weevil damage. *Silva Fennica* 2012; 46(1): 151-161. <http://www.metla.fi/silvafennica/full/sf46/sf461151.pdf>

Petersson M. Regeneration methods to reduce pine weevil damage to conifer seedlings. Swedish Univ. of Agricultural Sci. 2004 (PhD thesis). <http://diss-epsilon.slu.se/archive/00000710/01/Silvestria330.pdf>

³⁵ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5

10. New Zealand



Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	22 February 2013
Expiration Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of Alpha-cypermethrin in New Zealand
FSC reference code:	FSC-DER-30-001 V1-Ext- Alpha-cypermethrin

Date: 22 March 2013; Updated 29 May 2019

FSC Board Committee decision: Extend the temporary derogation for alpha-cypermethrin in certified plantations of Eucalyptus nitens in New Zealand to control Eucalyptus Tortoise beetles Paropsis charybdis for 5 years (until March 1st, 2018), provided that during the period of derogation the Certificate Holders ensure to:

- continue to search for alternatives to alpha-cypermethrin (in view of non-target risks and to prevent Paropsis from developing resistance against it) and participate in field trials on alternatives for control of Paropsis in New Zealand, for example on the effectiveness of microbial insecticides, in particular Beauveria bassiana;
- continue to search for Eucalypt progenies or hybrids with a natural resistance to Paropsis;
- protect aquatic organisms and/or beneficial species by keeping to buffer zones next to surface waters or sensitive areas (such as natural habitat or catchment areas), using only aircraft equipped with precision technology (GPS guidance, calibrated outlet or, if available, GPS-controlled spray nozzles), and monitoring the impact of alpha-cypermethrin on populations of beneficial organisms (in particular Neopolycystus insectifurax) established in treated areas;

- reduce the amount of alpha-cypermethrin applied to the absolute minimum necessary for achieving silvicultural aims by discontinuing routine (preventive) treatment and limiting use to infested sites where pest insect densities exceed a critical threshold;
- carry out initial surveys to estimate the densities of Paropsis (and, if possible, also of biocontrol agents), define a critical density (lowest density requiring control to prevent unacceptable economic damage), and identify infested sites ('hot spots') where estimated Paropsis densities exceed the critical density (possibly necessitating use of a chemical insecticide or bioinsecticide);
- provide a mid-term report to the Certification Body (CB) by August 15th 2015 which shall include the following information: (1) annual estimates of approximate densities of Eucalyptus tortoise beetles Paropsis in managed areas 2013-2015; (2) an overview of the methods currently used in plantations to control Paropsis, frequency of insecticide applications and total amounts of alpha-cypermethrin used annually in the period 2013-2015, and (3) the effectiveness of alternative methods for Paropsis control and progress with research on alternatives.

B. Further, the technical advisors recommend the certificate holders to:

- after the harvest of current stands of Eucalyptus nitens, consider growing tree species which are less susceptible to attack from Paropsis. The practice of replanting E. nitens is not economically and environmentally sustainable and contradicts key principles of IPM. In addition, the planned release of a new predatory insect in 2018 (at the earliest) seems to be the only possible option that may offer long-term control. But as the outcome is open changing to another tree species would present a safer and sustainable option.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	20 July 2016
Expiration Date:	20 July 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Sodium Cyanide in New Zealand
FSC reference code:	FSC-DER-30-V1-0 EN Sodium Cyanide New Zealand 200716

Date: 20 July 2016. Updated 5 October 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use sodium cyanide (and potassium cyanide if it is listed as HHP)³⁶ in certified forests in New Zealand for control of the common brushtail possum (*Trichosurus vulpecula*) within national TB vector control programmes and regional pest management plans established under the Biosecurity Act 1993 (latest version), or the Biosecurity (National Bovine Tuberculosis Pest Management Plan) Order 1998,³⁷ provided that the certificate holders:

1. (where TBFree NZ or the Department of Conservation NZ conduct operations): encourage the responsible agencies and contracted staff to limit cyanide application to areas where a regional Council has established a strict goal for control (e.g. residual trap catch 5% or less), and in the medium or long term aim at improved exclusion of pest animals from pastures where feasible and supplementing control with periodic vaccination against bovine tuberculosis of cattle or wild animal populations in FMUs near farming areas (once a vaccine has been registered);³⁸
2. encourage the agencies to follow all protocols for risk mitigation strictly,³⁹ map target areas, maintain buffer zone near surface waters and catchment

³⁶ Potassium cyanide is currently not on FSC’s HHP list; it may eventually be included: exceeds acute toxicity threshold.

³⁷ NZ Legislation: Biosecurity Act 1993. <http://legislation.govt.nz/act/public/1993/0095/latest/DLM314623.html>
Biosecurity (National Bovine Tuberculosis Pest Management Plan) Order 1998. <http://legislation.govt.nz/regulation/public/1998/0179/19.0/DLM252646.html>

³⁸ E.g. see: Vordermeier et al (2016). TB in cattle: vaccines. <http://dx.doi.org/10.1146/annurev-animal-021815-111311>

³⁹ Use directions on product label and safety guidelines from WorkSafe NZ and NPCA need to be strictly followed, e.g. see: <http://www.business.govt.nz/worksafe/information-guidance/guidance-by-hazard-type/chemicals>. See also: Landcare Research. Vertebrate pest control decision support system.

areas for drinking-water strictly, and reduce risk for birds or non-target animals as far as possible by applying baits in shady places (using bait stations if required or inside bait bags, weatherproof pots, tin lids) after pre-feeding, and where feasible collect leftover baits;

3. (where the landowner controls possums to protect forest plantation): monitor tree damage and possums regularly,⁴⁰ define a threshold for the maximum acceptable possum density to achieve silvicultural objectives (e.g. based on residual trap catch, % trees browsed, fallen-leaf browse and canopy condition), and limit cyanide application to sites where threshold is exceeded;
4. consider using another toxin, e.g. cholecalciferol to control possums and rodents (requiring a derogation), para-aminopropiophenone (stoats), sodium nitrite (possums and feral pigs), other toxins registered for certain pest species,⁴¹ use of approved traps, shooting, or applying chemical repellent or an emetic (conditioned taste aversion) to seedlings/saplings;
5. participate in trials on alternatives by collaborating with research institutions (e.g. Landcare Research, Scion, AgResearch, universities, PhD students), government agencies (TBFree NZ, DoC), commercial enterprises (e.g. Connovation Ltd), or other forest companies;
6. record total annual use of sodium cyanide and potassium cyanide (kg active ingredient) and controlled area in FMUs; include data in audit reports, participation in field trials and progress with use of alternatives (unless external agency conducted *all* applications); and aim at gradually reducing overall use or encourage the responsible agency to reduce use;
7. prior to each baiting operation notify authorities, neighbours and local residents, media, place warning signs on roads or tracks at the boundary of controlled areas,⁴² and inform concerned stakeholders (such as hunters) about the measures which will be taken for mitigating risks.⁴³

<https://pestdss.landcareresearch.co.nz/>

⁴⁰ E.g. see Animal pests monitoring. <http://www.doc.govt.nz/our-work/biodiversity-inventory-and-monitoring/animal-pests/>

⁴¹ Brown K, Elliott G, Innes J, Kemp J. Ship rat, stoat and possum control on mainland New Zealand. 2015 DoC <http://www.doc.govt.nz/Documents/conservation/threats-and-impacts/animal-pests/ship-rat-stoat-possum-control.pdf>

⁴² E.g. sign template for vertebrate toxic agent, <http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/hsno-guidance-pages/signs-warning-of-vta-use>

⁴³ E.g. see ERMA Aerial 1080 communications guideline. <http://www.epa.govt.nz/Publications/ERMA-1080-Guidelines.pdf>



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	20 July 2016
Expiration Date:	20 July 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Sodium fluoroacetate (1080) in New Zealand
FSC reference code:	FSC-DER-30-V1-0 EN Sodium Fluoroacetate New Zealand 200716

Date: 20 July 2016.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use sodium fluoroacetate ('1080') in certified forests in New Zealand for control of the common brushtail possum (*Trichosurus vulpecula*), and of other identified pest animals⁴⁴ such as ship rat (*R. rattus*) for which a product is registered, within national TB vector control programmes and regional pest management plans established under the Biosecurity Act 1993 (latest version), or the Biosecurity (National Bovine Tuberculosis Pest Management Plan) Order 1998,⁴⁵ provided that the certificate holders:

1. (where TBFree NZ or the Department of Conservation NZ conduct operations): encourage the responsible agencies and contracted staff to limit aerial application to areas where a regional Council has established a strict goal for control (e.g. residual trap catch 5% or less), and in the medium or long term aim at improved exclusion of pest animals from pastures where feasible and supplementing control with periodic vaccination against bovine tuberculosis of cattle or wild animal populations in FMUs near farming areas (once a vaccine has been registered);⁴⁶

⁴⁴ Evidence presented did not show that hares (*Lepus europaeus occidentalis*), rabbits (*Oryctolagus cuniculus*), or rats (*Rattus exulans*, *R. norvegicus*, *R. rattus*) are significant vectors of bovine tuberculosis in NZ. (See also: Lugton I.W. (1997) The contribution of wild mammals to the epidemiology of tuberculosis (*M. bovis*) in New Zealand. <http://www.massey.edu/massey/fms/Colleges/College%20of%20Sciences/Epicenter/docs/IanLugtonPhD.pdf>, pp. 255-7)

⁴⁵ Multi-species management of mustelid predators (feral ferret, stoat, weasel) appears to be accepted practice in NZ. NZ Legislation: Biosecurity Act 1993. <http://legislation.govt.nz/act/public/1993/0095/latest/DLM314623.html> Biosecurity (National Bovine Tuberculosis Pest Management Plan) Order 1998. <http://legislation.govt.nz/regulation/public/1998/0179/19.0/DLM252646.html>

⁴⁶ E.g. see: Vordermeier et al (2016). TB in cattle: vaccines. <http://dx.doi.org/10.1146/annurev-animal-021815->

2. encourage the agencies to follow all protocols for risk mitigation strictly,⁴⁷ use only aircraft with GPS guidance / calibrated outlet, minimize 1080 rate (1-2 kg/ha, e.g. clustered baiting), map target areas, maintain buffer zone near surface waters and catchment areas for drinking-water strictly, and reduce risk for birds and non-target animals as far as possible by colouring bait (green), adding scent to deter birds, applying bait in the late afternoon and early evening or using bird scare device, and adding deer repellent to bait (in areas where deer are present);
3. (where the landowner controls possums to protect forest plantation): monitor tree damage and possums regularly,⁴⁸ define a threshold for the maximum acceptable possum density to achieve silvicultural objectives (e.g. based on residual trap catch, % trees browsed, fallen-leaf browse and canopy condition), and limit aerial 1080 application to sites where threshold is exceeded;
4. consider using another toxin, e.g. cholecalciferol (for possum and rodents) or cyanide (both requiring a derogation), para-aminopropiophenone (control of stoats), sodium nitrite (possum and feral pig), other toxins registered for certain pest species,⁴⁹ use of approved traps, shooting, or applying chemical repellent or an emetic (conditioned taste aversion) to seedlings/saplings;
5. participate in trials on alternatives by collaborating with research institutions (e.g. Landcare Research, Scion, AgResearch, universities, PhD students), government agencies (TBFree NZ, DoC), commercial enterprises (e.g. Connovation Ltd), or other forest companies;
6. record total annual use of 1080 (kg active ingredient), application method and controlled area in FMUs; include data in audit reports; provide a mid-term report to certifier (informs FSC IC) until end of December 2018 on recent use, participation in field trials and progress with use of alternatives (unless external agency conducted all applications); and aim at gradually reducing the amount applied aerially (e.g. - 20% per year) or encourage responsible agency to reduce use;
7. prior to each baiting operation notify authorities, neighbours and local residents, media, place warning signs on roads or tracks at the boundary of controlled areas,⁵⁰ and inform concerned stakeholders (such as hunters) about the measures which will be taken for mitigating risks.⁵¹

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⁴⁷ Use directions on product label and safety guidelines from WorkSafe NZ and NPCA need to be strictly followed, e.g. see: <http://www.business.govt.nz/worksafe/information-guidance/guidance-by-hazard-type/chemicals>.

See also: Landcare Research. Vertebrate pest control decision support system. <https://pestdss.landcareresearch.co.nz/>

⁴⁸ E.g. see Animal pests monitoring. <http://www.doc.govt.nz/our-work/biodiversity-inventory-and-monitoring/animal-pests/>

⁴⁹ Brown K, Elliott G, Innes J, Kemp J. Ship rat, stoat and possum control on mainland New Zealand. 2015 DoC <http://www.doc.govt.nz/Documents/conservation/threats-and-impacts/animal-pests/ship-rat-stoat-possum-control.pdf>

⁵⁰ E.g. sign template for vertebrate toxic agent, <http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/hsno/hsno-guidance-pages/signs-warning-of-vta-use>

⁵¹ E.g. see ERMA Aerial 1080 communications guideline. <http://www.epa.govt.nz/Publications/ERMA-1080-Guidelines.pdf>

11. Norway



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	31 st May 2016
Expiration Date:	31 st May 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of Lambda-cyhalothrin in Norway

FSC reference code: FSC-DER-30-V1-0 EN Lambda-cyhalothrin Norway
310516

Date: 31st May 2016.

The FSC Board Committee decision: approve a derogation to use **lambda-cyhalothrin for protecting logs** stored in FSC certified forests in Norway from lineate bark beetles (*Xyloterus lineatus* syn. *Trypodendron lineatum*), provided that during the derogation period the CH:

1. only use the insecticide for controlling bark beetles on logs stored in FMU in regions with periodic outbreaks, and limit use to minimum amount needed for effective protection to achieve silvicultural objectives in susceptible stands where early transport of logs out of forest is not viable,
2. strive to discontinue chemical wood treatment by improving the logistics (felling during the winter, early transport to a dry storage place outside of forest) and by using non-chemical alternatives (e.g. untreated covers for logs),
3. consider the option of using nets treated with alpha-cypermethrin (e.g. Storanet®, if available) to protect logs stored in the forest, rather than liquid spray solution,
4. monitor beetles in affected areas to determine optimum time for application and need for treating logs chemically, e.g. in collaboration with local authorities for forest protection or entomologists at universities and if possible with other forest owners in the region,
5. strictly follow all legal requirements in Norway for risk mitigation during pesticide use, in particular use of appropriate personal protective equipment by workers and maintaining a buffer zone near sensitive areas (such as wildlife habitat, surface waters or catchment area for public water supplies), and locate storage places for logs at least 50 m (measured from outer edge) away from surface waters;
6. record total annual use (litres) of lambda-cyhalothrin and include this information in audit reports,

7. notify the public about the wood protection measures taken in managed areas which are frequented by local residents, farmers, or hunters (e.g. via signs on treated logs), and communicate to any concerned stakeholders which measures for risk mitigation are being taken.

12. Paraguay



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	14 November 2016
Expiration Date:	01 August 2020(In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of sulfluramid in Paraguay
FSC reference code:	FSC-DER-30-V1-0 EN Sulfluramid Paraguay 141116

Date: 14 November 2016. Updated on 29 May 2019

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use sulfluramid for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Paraguay, provided that during the derogation period the certificate holder:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value);⁵²
2. limit sulfluramid use to minimum effective dose (assessed in tests) in highly infested areas under establishment (1-2 years after planting) where critical value is exceeded, abstain from using it in areas where groundwater is collected for public consumption as drinking-water,⁵³ and complement its use with pathogenic fungus (if available, e.g. combined with an insecticide), plant extracts, etc;

⁵² Cantarelli EB. Monitoramento e controle de formigas cortadeiras em plantios de Pinus. UFSM 2005 http://cascavel.cpd.ufsm.br/tede/tde_busca/arquivo.php?codArquivo=756

Nickele MA (2008). Amostragem de *A. crassispinus*. <http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M de A, et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8 <http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle GM, et al (2002). Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras <http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

⁵³ Main metabolite PFOS is listed as 'Persistent Organic Pollutant' (UNEP 2009), a 'Presumed human reproductive

3. comply with practices that reduce contact of sulfluramid by humans and non-target species, reduce risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection).
4. gradually reduce total annual use; each certificate holder set progressive reduction goals in the use of insecticide baits throughout the plantation growth (eucalyptus or pine), of at least 5% per year. It should also be defined an evaluation method of this reduction, based on infestation levels of leaf-cutting ant nests, obtained by the effective implementation of pest monitoring system. These goals must be submitted to the certification body during the first year of the new derogation, considering average consumption of insecticides baits by area during the duration of the previous derogation, so that they can properly audit the reduced use of insecticide baits. This reduction must be evidenced by reduction in the average amount of insecticides baits applied annually by area or by the interval between applications (time reduction). For example, moving from annual application for ranges between 18 to 24 months (or more) between applications. The defined goals shall be fundamental target in the annual audits performed by the certification body. Any increase in the amount of applied insecticide baits must be technically justified by the certificate holder.
5. limit application to ant nests and trails, in order to enable the use of the lowest possible dose of baits; that is because, in practice, considerable amount of the applied doses are not carried by leaf-cutting ants when out of their usual foraging trail⁵⁴. As a result, the systematic treatment should be reduced to a maximum and applied only when strictly necessary.
6. apply sulfluramid in bait dispensers ('porta-iscas') or sachets (MIPIS) of high quality biodegradable packaging that protect the baits from moisture and heat, wherever possible, unless open application is necessary (e.g. shown by comparison of costs in audit reports) and measures for risk mitigation are effective (as shown by, for example, analysis of surface waters, groundwater, and non-target animals for residues of sulfluramid and metabolites);
7. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with plant extracts,⁴ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi*, etc inhibiting symbiotic fungi),⁵ alternative chemical insecticides (e.g. hydramethylnon or an insect growth regulator),⁵⁵ and ant pheromones or

toxicant' (Cat. 1B) and 'Suspected human carcinogen' (Cat. 2) (EC 2009).

Stockholm Convention on Persistent Organic Pollutants; 2009. Annex B Restriction. <http://chm.pops.int> (p. 42, 45)

European Commission (EC). Commission Regulation No 790/2009 of 10 August 2009 (...) on classification (...) of substances. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1424191532931&uri=CELEX:32009R0790> (p. 182)

(See also: Blum A, et al. The Madrid statement on poly- and perfluoroalkyl substances (PFASs). *Environmental Health Perspectives* 2015, 123: A107-11. <http://ehp.niehs.nih.gov/1509934/>)

⁵⁴ Forti, L.C. (2011) MIPIS. Micro porta-isca Evolution:

http://www.mirexs.com.br/index.php?option=com_content&view=category&layout=blog&id=16

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, *Trichillia glauca*, etc

See also: Dos Santos JC, et al (2013). Plant-derived products for leaf-cutting ants control.

<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G (2011). Eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

⁵ Bettucci L, et al (2014). Hongos entomopatogénicos para el control de hormigas cortadoras. Univ. de la República

<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Silva A, et al. *Mycopathologia* 2006, 162(2): 115-9. <http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S, et al. *PNAS* 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

⁵⁵ Pesticides currently not authorized in Brasil for use on leaf-cutting ants in forestry can be registered

- botanical extracts (e.g. of *Hovenia dulcis*, *Aleurites fordii*, etc) to increase bait attractiveness;
8. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, or other forest companies in research on *integrated management* of leaf-cutting ants, e.g. preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of the Forest Management Unit (FMU) (proportionate to scale and intensity of management activities);⁵⁶
 9. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control (approximate colony density - before and after control), include data in audit reports, provide a mid-term report to certifier (informs FSC IC) until end of May 2018 on progress with a programme for alternatives, and set quantitative reduction targets (e.g. -20% of current total annual use);
 10. strictly follow legislation in Paraguay for pesticide use and internal safety guidelines, ensure that all pesticide applicators are trained and use adequate personal protective equipment, and maintain a buffer zone near surface waters, catchment areas (for public water), or areas with natural habitat;
 11. consult with directly or potentially affected parties where insecticides are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wildlife conservation.

temporarily for trials: Registro Especial Temporário. <http://www.ibama.gov.br/areas-tematicas-qa/registro-especial-temporario>

⁵⁶ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	23 rd April 2015
Expiration Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	FSC-POL-30-001 FSC Pesticides Policy FSC-GUI-30-001 FSC Pesticides Policy Guidance FSC-PRO-01-004 Processing pesticide derogation applications

Pesticide derogation:	Use of Fipronil in Paraguay
FSC reference code:	FSC-DER-30-V1-1 EN Fipronil Paraguay 230415

Date: 07th May 2015; Updated on 27th August 2015; Updated on 21st November 2018; Updated on 26st November 2018; Updated on 29th May 2019;

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use fipronil for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Paraguay, provided that during the derogation period the certificate holder:

1. Provide FSC IC with additional and detailed information regarding the research program for alternatives planned for the five years derogation period by the 15th August 2015.
2. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value);⁵⁷

⁵⁷ Derogation does not include Fire ants (*Solenopsis* spp.), Argentine ant (*Linepithema humile*), and Carpenter ants (*Camponotus* spp.) as no evidence was provided to show that control is needed.

Nickele M.A. (2008) Amostragem de *Acromyrmex crassispinus*. <http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>

Reis M. de A., et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8. <http://dx.doi.org/10.1590/S0100-67622010000600016>

Valle G.M., et al. (2002) Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras en plantaciones forestal. <http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

3. limit fipronil use to granular baits and to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and complement this with alternatives, e.g. *Beauveria bassiana* (possibly combined with diatomaceous earth), plant extracts, etc;
4. reduce risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection), limit application to ant nests, gradually reduce total annual use, and employ dispensers (porta-iscas) or sachets ('MIPIS') where possible; conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with diatomaceous earth, toxic plant extracts,⁴ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi* etc, inhibiting symbiotic fungi),⁵ an alternative chemical insecticide (e.g. hydramethylnon), or with a pheromone or botanical product (e.g. *Hovenia dulcis*, *Aleurites fordii*) to increase bait attractiveness;
5. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, and other forest companies in research on integrated management of leaf-cutting ants, for example preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of FMU ('appropriate to scale and intensity of the management activities');⁵⁸
6. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control

⁴ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, or *Trichillia glauca*.

dos Santos J.C., et al. Plant-derived products for leaf-cutting ants control; 2013
<http://www.intechopen.com/books/insecticides-development-of-safer-and-more-effective-technologies/plant-derived-products-for-leaf-cutting-ants-control>

Araújo G. (2011) Incremento da eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

⁵ Bettucci L., et al (2014). Hongos entomopatógenos para el control de hormigas cortadoras. Fac. de Ciencias UdelaR
<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20entomopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Ortiz Reyes A. (1998). Cepa de *Trichoderma* o *Gliocladium* para el control de *A. cephalotes*. www.bdigital.unal.edu.co/12821/

Silva A., et al. Mycopathologia 2006, 162(2): 115-9.

<http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S., et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

⁵⁸ Principle 6.4 and 10.5 of FSC Principles and Criteria V4-0, 2002 (revised Principle 6.4 and 6.5 of P&C V5-1, 2014)

(approximate colony density - before and after control), include data in audit reports and set quantitative reduction targets;

7. strictly follow legislation in Paraguay for pesticide use and internal safety guidelines, in particular use of adequate personal protective equipment and training of workers, and maintaining minimum buffer zone near surface waters, catchment area (for public water supplies), sensitive areas (natural habitat);
8. consult with directly or potentially affected parties where insecticide baits are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wild life conservation.

13. Poland



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	1 July 2019
Expiration Date:	1 July 2024, or until the national HHP Indicators have become effective.
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Chlorpyrifos in Poland

FSC reference code: FSC-DER-30-V1-0 EN Chlorpyrifos Poland 01072019

Date: 1 July 2019;

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use chlorpyrifos for control of the intended target pests of cockchafer (*Melolontha melolontha*) or forest cockchafer (*Melolontha hippocastani*), provided that the certificate holder (CH):

1. Continues to monitor the pest levels using autumn and spring counts as required by the Forest Protection Instruction Manual and be guided by the degree of threat based on the numbers from the counts and follows the recommendations submitted to the Forest District.
2. Carries out an evaluation of the various pest management options available and only uses the insecticide as a last resort and at the minimum level which gives effective control while protecting non-target species, soils and water bodies.
3. Reports annually on levels of insecticide used (the amount of insecticide and the area on which it was used) to the certification body.
4. Complies with all the regulations contained in the product label and described in the Regulation of the Minister of Agriculture and Rural Development on the conditions of use of plant protection products, particularly in relation to the use of adequate personal protective equipment, training of workers and buffer zones required near streams, rivers or lakes.

5. Continues to work with the Forest Research Institute on evaluation of alternatives to chlorpyrifos and to establish and report on statistically sound research trials during 2019.
6. Consults with directly or potentially affected parties where chlorpyrifos will be used and extends future consultation on pesticide use to include more environmental NGO's.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	12 March 2019
Expiration Date:	12 March 2024
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Diflubenzuron in Poland

FSC reference code: FSC-DER-30-V1-0 EN Diflubenzuron Poland 12032019

Date: 12 March 2019;
Updated on 8th April,2019;

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use diflubenzuron for controlling pine tree lappet (*Dendrolimus pini*), black arches (*Lymantria monacha*), white pine sawfly (*Diprion sp.*), pine beauty (*Panolis flammea*), pine web spinning sawfly (*Acantholyda posticalis*) provided that the certificate holder (CH):

1. Continue working with the Forest Research Institute on research for alternatives. In addition, the CH shall present to their CB within the next six months of the approval of this derogation a report detailing what work on alternatives has already taken place. A detailed plan with defined deliverables and specifying future research with specific timelines and

- deadlines shall be provided in addition to their CB within the next six months.
2. A stakeholder engagement plan is implemented to support expand the range of stakeholders consulted to include smaller, more local representatives rather than only larger government organisations.
 3. Continue monitoring distribution and density of pest. Limit diflubenzuron application to areas where estimated insect number exceeds critical value and where a selective bioinsecticide cannot be used and use diflubenzuron at the recommended dose.
 4. Give high priority to preventive practices and report total annual use of diflubenzuron, treated area, application method and doses in audit reports. Provide a mid-term report to the CB by end of February 2022 on progress with a programme to identify and test alternatives (in collaboration with partners). Provide results from, at least, one survey of relevant natural enemies before/after chemical control;
 5. Strictly follow legislation in Poland and the EU for pesticide use, in particular safety measures for aerial application, adequate training of workers and use of appropriate personal protective equipment, take measures to reduce spray drift and maintain buffer zones near surface waters, agricultural area or apiary as required by Polish legislation (preferentially also near catchment area for water supplies, protection zone, natural forest), and inspect/repair spraying equipment regularly before use
 6. Where aerial use of diflubenzuron is planned notify representatives of the local community prior to application and consult with regional authorities, particularly near sensitive areas such as residential or agricultural area, surface waters, apiaries, catchment areas, protection zones, nature reserves or parks.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	13 th August 2014
Expiration Date:	31 st December 2018
Extended Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	FSC-POL-30-001 FSC Pesticides Policy FSC-GUI-30-001 FSC Pesticides Policy Guidance FSC-PRO-01-004 Processing pesticide derogation applications

Pesticide derogation: Use of Diflubenzuron in Poland

FSC reference code: FSC-DER-30-V1-0 EN Diflubenzuron Poland 31122018

Date: 13th August 2014. Updated 27th October 2014. Updated 20 April 2018. Updated 29 May 2019.

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use diflubenzuron for controlling nun moth (*Lymantria monacha*), pine-tree lappet moth (*Dendrolimus pini*), and pine sawfly (*Diprion pini*) in pine forests in Poland until 31 December 2018 (expiry of EU approval), provided that the certificate holders:

1. monitor distribution and density of *Lymantria monacha*, *Dendrolimus pini*, and *Diprion pini* (with parasitism rate of major parasitoids), evaluate critical number (see DGLP)⁵⁹ and locate areas where estimated number exceeds critical value;
2. collaborate with experts to develop a decision support system to evaluate monitoring data of major pest insects, decide if chemical control is necessary, and select ideal application time;⁶⁰
3. as the preferential option, use *Bacillus thuringiensis* var. *kurstaki* on *Lymantria monacha* (first and second larval stage L1-L2) and on *Dendrolimus pini* (L1-L2, and third stage L3 in warm dry weather), unless density of larvae is too high or weather is too cold or humid for BtK to be sufficiently effective, *Diprion pini* needs to be controlled (alone or together with a lepidopteran species) or needle loss has progressed so far that surface is insufficient for insecticide deposition;

⁵⁹ http://www.lasy.gov.pl/publikacje/gospodarka-lesna/ochrona_lasu/instrukcja-ochrony-lasu-tom-ii/

DGLP. Regulation on the reduction of harmful insects number. <https://piorin.gov.pl/>

⁶⁰ e.g. see BioSIM: pest management planning decision support. <http://cfs-scf.nrcan-mcan.gc.ca/projects/133>

4. limit diflubenzuron application to areas where estimated insect number exceeds critical value and where a selective bioinsecticide (e.g. Spinosad) cannot be used, and use diflubenzuron at the recommended dose of 24 g a.i./ha (0.05 L/ha Dimilin® 480 SC) for *Lymantria monacha*, or 36 g/ha (0.075 L/ha) for *Dendrolimus pini* (Głowacka 2004),⁶¹ and at a minimum effective dose for *Diprion pini* (under 0.15 L/ha, as recommended by IBL or determined in tests), and if possible analyse each batch of Dimilin® on diflubenzuron content (g/L);
5. participate in projects of the Instytut Badawczy Leśnictwa, other institutions, or commercial companies, e.g. in field tests on a specific nucleopolyhedrosis virus, fungi pathogenic to Lepidoptera (e.g. *Beauvariana bassiana*, *Metarhizium anisopliae*, *Trichoderma* species) or to Hymenoptera (e.g. *Metarhizium anisopliae*, *Beauveria bassiana*, *Paecilomyces* or *Lecani-cillium* species), *Bacillus thuringiensis* strains active in Hymenoptera, improved monitoring of *Dendrolimus pini* or *Diprion pini* (pheromone, glue rings) or potential of Spinosad;⁶²
6. collaborate with entomologists in identifying and surveying natural enemies of major pest insects (predators or parasitoids such as wasps), and promote natural enemies by protecting or restoring natural forest on part of managed area (proportionate to scale of management activities),⁶³ reducing weed control, or installing nesting boxes for birds and bats;
7. give high priority to preventive practices, e.g. selecting less vulnerable tree clones, planting more mixed forests where suitable (conifers and deciduous species), optimized stand density, reduced harvest intensity (e.g. shelterwood or mosaic cuts, retention trees, sequential harvest), etc;
8. report total annual use of diflubenzuron, treated area, application method and doses in audit reports, and provide a mid-term report to the certifier (informs FSC IC) until end of January 2017 on progress with a programme to identify and test alternatives (in collaboration with partners) and, at least, one survey of relevant natural enemies before/after chemical control;
9. strictly follow legislation in Poland and the EU for pesticide use, in particular safety measures for aerial application, adequate training of workers and use of appropriate personal protective equipment, maintain buffer zones (near surface waters, catchment area for water supplies, protection zone, natural forest), and inspect/repair spraying equipment regularly before use;⁶⁴

⁶¹ B. Głowacka (2004). <https://www.ibles.pl/documents/13012/17740/glowacka4-3-1.pdf>
IPM. www.minrol.gov.pl/pol/Informacje-branzowe/Produkcja-roslinna/Ochrona-roslin/Integrowana-ochrona-roslin

⁶² Instytut Badawczy Leśnictwa, Ochrony Lasu. www.ibles.pl/web/ol
Instytut Agonomii UPH, Ochrony Lasu. www.ia.uph.edu.pl/o-nas/struktura-instytut/zaklad-ochrony-roslin
Spinosad (BioSpin®, SpinTor®): registered in Poland to control Lepidoptera in agriculture, not in forestry

⁶³ e.g. national park Bory Tucholskie controls *Lymantria monacha* and *Dendrolimus pini* with natural enemies
FSC P&C V5-0 Explanatory notes (revised Principle 6.5, p. 83), 2012. <https://ic.fsc.org/the-revised-pc.191.htm>

⁶⁴ Ministerstwo Rolnictwa i Rozwoju Wsi / Ministry of Agriculture Poland. Rejestr środków ochrony roślin (register of authorized plant protection products). www.bip.minrol.gov.pl/DesktopDefault.aspx?TabOrgId=647&LangId=0

10. where aerial use of diflubenzuron is planned notify representatives of the local community prior to application and consult with regional authorities, particularly near sensitive areas such as catchment areas, protection zones, nature reserves or parks.



Type of document: FSC® Pesticide Derogation Approval
Confidentiality: No restrictions
Approved by: FSC Board Pesticides Committee
Effective Date: 01 September 2017
Expiration Date: 01 September 2022
Related Documents: *FSC-POL-30-001 FSC Pesticides Policy*
FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)
FSC-PRO-30-001 Pesticide Derogation Procedure

Pesticide derogation: Use of Diflubenzuron in Poland

FSC reference code: FSC-DER-30-V1-0 EN Diflubenzuron Poland 29082017

Date: 01 September 2017.

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use diflubenzuron for controlling nun moth (*Lymantria monacha*), pine-tree lappet moth (*Dendrolimus pini*), and pine sawfly (*Diprion pini*) in pine forests in Poland, provided that the certificate holders:

1. monitor distribution and density of *Lymantria monacha*, *Dendrolimus pini*, and *Diprion pini* (with parasitism rate of major parasitoids), evaluate critical number (see DGLP)⁶⁵ and locate areas where estimated hazard exceeds the established threshold;
2. collaborate with experts to develop a decision support system to evaluate monitoring data of major pest insects, decide if chemical control is necessary, and select ideal application time;⁶⁶

⁶⁵ DGLP. Instrukcja ochrony lasu, tom II. http://www.lasy.gov.pl/publikacje/gospodarka-lesna/ochrona_lasu/instrukcja-ochrony-lasu-tom-ii/
DGLP. Forest Protection Instruction.

⁶⁶ e.g. see BioSIM: pest management planning decision support. <http://cfs-scf.nrcan->

3. as the preferential option, use *Bacillus thuringiensis* var. *kurstaki* on *Lymantria monacha* (first and second larval stage L1-L2) and on *Dendrolimus pini* (L1-L2, and third stage L3 in warm dry weather), unless density of larvae is too high or weather is too cold or humid for BtK to be sufficiently effective, *Diprion pini* needs to be controlled (alone or together with a lepidopteran species) or needle loss has progressed so far that surface is insufficient for insecticide deposition;
4. limit diflubenzuron application to areas where estimated insect number exceeds critical value and where a selective bioinsecticide (e.g. Spinosad) cannot be used, and use diflubenzuron at the recommended dose of 24 g a.i./ha (0.05 L/ha Dimilin® 480 SC) for *Lymantria monacha*, or 36 g/ha (0.075 L/ha) for *Dendrolimus pini* (Głowacka 2004),⁶⁷ and at a minimum effective dose for *Diprion pini* (under 0.15 L/ha, as recommended by IBL or determined in tests), and if possible analyse each batch of Dimilin® on diflubenzuron content (g/L);
5. participate in projects of the Instytut Badawczy Leśnictwa, other institutions, or commercial companies, e.g. in field tests on a specific nucleopolyhedrosis virus, fungi pathogenic to Lepidoptera (e.g. *Beauveriana bassiana*, *Metarhizium anisopliae*, *Trichoderma* species) or to Hymenoptera (e.g. *Metarhizium anisopliae*, *Beauveria bassiana*, *Paecilomyces* or *Lecanicillium* species), *Bacillus thuringiensis* strains active in Hymenoptera, improved monitoring of *Dendrolimus pini* or *Diprion pini* (pheromone, glue rings) or potential of Spinosad;⁶⁸
6. collaborate with entomologists in identifying and surveying natural enemies major pest insects (predators or parasitoids such as wasps), and promote natural enemies by protecting or restoring natural forest on part of managed area (proportionate to scale of management activities),⁶⁹ reducing weed control, or installing nesting boxes for birds and bats;
7. give high priority to preventive practices, e.g. selecting less vulnerable tree clones, planting more mixed forests where suitable (conifers and deciduous species), optimized stand density, reduced harvest intensity (e.g. shelterwood or mosaic cuts, retention trees, sequential harvest), etc;
8. report total annual use of diflubenzuron, treated area, application method and doses in audit reports, and provide a mid-term report to the certifier (informs FSC IC) until end of January 2020 on progress with a programme to identify and test alternatives (in collaboration with partners) and, at least, one survey of relevant natural enemies before/after chemical control;
9. strictly follow legislation in Poland and the EU for pesticide use, in particular safety measures for aerial application, adequate training of workers and use of

mcan.gc.ca/projects/133

⁶⁷ B. Głowacka (2004). <https://www.ibles.pl/documents/13012/17740/glowacka4-3-1.pdf>
IPM. www.minrol.gov.pl/pol/Informacje-branzowe/Produkcja-roslinna/Ochrona-roslin/Integrowana-ochrona-roslin

⁶⁸ Instytut Badawczy Leśnictwa, Ochrony Lasu. www.ibles.pl/web/ol
Instytut Agonomii UPH, Ochrony Lasu. www.ia.uph.edu.pl/o-nas/struktura-instytut/zaklad-ochrony-roslin
Spinosad (BioSpin®, SpinTor®): registered in Poland to control Lepidoptera in agriculture, not in forestry

⁶⁹ e.g. national park Bory Tucholskie controls *Lymantria monacha* and *Dendrolimus pini* with natural enemies
FSC P&C V5-0 Explanatory notes (revised Principle 6.5, p. 83), 2012. <https://ic.fsc.org/the-revised-pc.191.htm>

appropriate personal protective equipment, take measures to reduce spray drift and maintain buffer zones near surface waters, agricultural area or apiary as required by Polish legislation (preferentially also near catchment area for water supplies, protection zone, natural forest), and inspect/repair spraying equipment regularly before use;⁷⁰

10. where aerial use of diflubenzuron is planned notify representatives of the local community prior to application and consult with regional authorities, particularly near sensitive areas such as residential or agricultural area, surface waters, apiaries, catchment areas, protection zones, nature reserves or parks.

⁷⁰ Ministerstwo Rolnictwa i Rozwoju Wsi / Ministry of Agriculture and Rural Development of Poland. Regulation on the conditions of use of plant protection products, 13 March 2014 www.bip.minrol.gov.pl/DesktopDefault.aspx?TabOrgId=647&LangId=0



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	27 th August 2015
Expiration Date:	27 th August 2020
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of Alpha cypermethrin in Poland

FSC reference code: FSC-DER-30-V2-0 EN Alpha cypermethrin Poland 270815

Date: 27th August 2015; Updated 20 July 2016

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use alpha-Cypermethrin in FSC certified forests/plantations in Poland for the control of the large pine weevil (*Hylobius abietis*), provided that during the derogation period the certificate holders:

1. monitor pine weevil densities regularly to identify population outbreaks early and limits use of alpha-Cypermethrin to the minimum quantity needed to achieve silvicultural objectives in highly infested areas (where critical density of *Hylobius* is exceeded) and where a biological product, bio-insecticide, or protective coating cannot be used;
2. give high priority to preventive practices, e.g. reduced harvest intensity (continuous-cover forestry / underplanting, shelterwood or mosaic cuts, promotion of natural regeneration before felling, or extended fallow period of several years), planting large robust seedlings or mixed species forests, and/or use of physical barriers (coating stem of seedlings with a protective dispersion of quartz sand)
3. (where *Hylobius* control is necessary): aim to reduce direct application of alpha-Cypermethrin further during derogation period by preferentially treating seedling roots with alpha-Cypermethrin prior to planting,⁷¹ if feasible, or by using a biological product (e.g. Btt, *Metarhizium*, etc) or bioinsecticide (e.g. Spinosad);⁷²
4. strictly follow legislation in Poland and the EU for pesticide use, in particular adequate training and use of appropriate personal protective equipment by all workers, measures to prevent spray drift and run-off, maintain buffer zones (next to surface waters, catchment area for water supplies, drainage channels, protection zone, natural forest), and inspect/repair spraying equipment regularly before use;
5. implement research on alternatives in co-operation with research institutes, private enterprises or other forest companies on the effectiveness of using e.g. a protective

⁷¹ FC UK: Weevils: Pre-planting treatment of bare-rooted conifers.
www.forestry.gov.uk/forestry/INFD-5TUG8W

⁷² Note: Treating seedlings with alpha-Cypermethrin outside the FMU and planting these requires no derogation.

coating based on quartz sand (⁷³or wax , chemical antifeedants (e.g. nonanoic acid, dihydro-pinidine, benzaldehyde, cinnamic aldehyde),⁷⁴ pathogenic fungi (*Beauveria* species or *Metarhizium* species), *Bacillus thuringiensis* subspecies *tenebrionis* (Btt), parasitic nematodes, bioinsecticides such as Spinosad or Neem (Azadirachthin), and scarification⁷⁵ of regeneration sites before planting;

6. collaborate in research on natural enemies of *Hyllobius*, e.g. identifying parasitoids and predators (conducting at least one survey on representative scale before/after insecticide use), and promote natural enemies by installing nesting boxes for birds and bats, planting hedges around seed beds in nursery, or retaining suitable habitat or conservation zones for small insectivorous mammals on part of FMU (proportionate to scale and intensity of management activities);⁷⁶
7. record annual use of alpha-Cypermethrin and total treated area, include this information in audit reports, and provide a report to the certifier (which informs the FSC IC) until end of August 2017 on progress with the development of alternatives (project partners, trials);
8. notifies representatives of local communities prior to application and – where managed areas are used by the public – indicates areas treated with alpha-Cypermethrin (e.g. by putting up notices), and (if area is in or next to a nature reserve or park) consults with regional conservation agencies.

⁷³ Swedish University of Agricultural Sciences. Pine weevil homepage. <http://www2.ekol.slu.se/snytbagge/>

⁷⁴ Eriksson C. Isolation, synthesis and structure-activity relationships of antifeedants against the pine weevil, *Hyllobius abietis*. Sundsvall 2006. <http://www.diva-portal.org/smash/get/diva2:10021/FULLTEXT01.pdf>

⁷⁵ Luoranen J, Viiri H. Soil preparation reduces pine weevil (...) damage on both peatland and mineral soil sites one year after planting. *Silva Fennica* 2012; 46(1): 151-161. <http://www.metla.fi/silvafennica/full/sf46/sf461151.pdf>

Petersson M. (2004): Regeneration methods to reduce pine weevil damage to conifer seedlings. Swedish University of Agricultural Sciences (PhD thesis). <http://diss-epsilon.slu.se/archive/00000710/01/Silvestria330.pdf>

⁷⁶ FSC Principles and Criteria V5-1 (2014), Principles 6.4 and 6.5

14. Portugal



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Rejection
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	15 th February 2017
Expiration Date:	15 th February 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-30-001 FSC Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Bromadilone in Portugal

FSC reference code: FSC-DER-30-V1-0 EN Bromadilone 15022017

Date: 15th February 2017

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use Bromadilone to control Rat; Ratazana-preta (Portuguese): *Rattus rattus* Linnaeus Mice; Murganho (Portuguese): *Mus musculus* Linnaeus Rat; Ratazana-castanha (Portuguese): *Rattus norvegicus* Berkenhout rodents in Azores, Portugal provided that certificate holders:

1. Continue to monitor regularly the target species densities to early identify the need for control;
2. Give high priority to preventive practices and to alternative control methods (e.g. multi capture traps), limiting the use of Bromadiolone to the minimum quantity needed;
3. Continue to use the best management practices in order to minimize negative impacts;
4. Evaluate thoroughly possible negative impacts of the application of Bromadiolone in non-target species (pets and wildlife), implementing additional corrective measures if necessary;
5. Collaborate in research programmes aiming to investigate alternatives to Bromadiolone;
6. Support research aiming to: a) provide evidence that rodent control brings beneficial effects to the conservation of the Azores bullfinch; and b) establish scientifically sound thresholds for chemical control of rodents aiming the preservation of the Azores bullfinch;
7. Record annual use of Bromadiolone and total area treated;
8. Record the use of other preventive and control measures and respective area treated.



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Rejection
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	15 th February 2017
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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-30-001 FSC Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Brodifacoum in Portugal

FSC reference code: FSC-DER-30-V1-0 EN Brodifacoum 15022017

Date: 15th February 2017

FSC Board Committee decision:

The Pesticides Committee has **approved** a derogation to use Brodifacoum to control Rat; Ratazana-preta (Portuguese): *Rattus rattus* Linnaeus Mice; Murganho (Portuguese): *Mus musculus* Linnaeus Rat; Ratazana-castanha (Portuguese): *Rattus norvegicus* Berkenhout rodents in Azores, Portugal provided that certificate holders:

1. Continue to monitor regularly the target species densities to early identify the need for control;
2. Give high priority to preventive practices and to alternative control methods (e.g. multi-capture traps), limiting the use of Brodifacoum to the minimum quantity needed;
3. Continue to use the best management practices in order to minimize negative impacts;
4. Evaluate thoroughly possible negative impacts of the application of Brodifacoum in non-target species (pets and wildlife), implementing additional corrective measures if necessary;
5. Collaborate in research programmes aiming to investigate alternatives to Brodifacoum;
6. Support research aiming to: a) provide evidence that rodent control brings beneficial effects to the conservation of the Azores bullfinch; and b) establish scientifically sound thresholds for chemical control of rodents aiming the preservation of the Azores bullfinch;
7. Record annual use of Brodifacoum and total area treated;
8. Record the use of other preventive and control measures and respective area treated.

15. Romania



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	6 th May 2014
Expiration Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	FSC-POL-30-001 FSC Pesticides Policy FSC-GUI-30-001 FSC Pesticides Policy Guidance FSC-PRO-01-004 Processing pesticide derogation applications

Pesticide derogation: Use of Cypermethrin in Romania

FSC reference code: FSC-DER-30-V1-0 EN Cypermethrin Romania 060514

Date: 6th May 2014. Updated 29th May 2019

FSC Board Committee decisions: A) Approves a derogation to use **Cypermethrin** for controlling the pine weevil (*Hylobius abietis*) in coniferous plantations in Romania, provided that the certificate holders:

1. monitors pine weevil regularly to identify population outbreaks early, and limits use of Cypermethrin to the minimum quantity needed to achieve silvicultural objectives in highly infested areas (where critical density of *Hylobius* is exceeded) and where a biological product, bioinsecticide, or protective coating cannot be used;
2. gives high priority to preventive cultural practices, e.g. reduced harvest intensity (continuous cover forestry, shelterwood or mosaic cuts, etc.), planting seedlings long before or after harvest (e.g. fallow period of 2-5 years), and planting large robust seedlings or mixed species forests;
3. aims to reduce direct application of Cypermethrin further during derogation period by preferentially treating seedling roots *prior to planting*,⁷⁷ if feasible, or by using a biological product (e.g. Btt, *Metarhizium*, etc) or bioinsecticide (e.g. Spinosad);
4. collaborates with research institute, private enterprise, or forest companies in trials on effectiveness of using, for example, protective coating based on sand or wax⁷⁸

⁷⁷ FC UK: Weevils: Pre-planting treatment of bare-rooted conifers. www.forestry.gov.uk/forestry/INFD-5TUG8W

⁷⁸ Swedish University of Agricultural Sciences: Pine weevil homepage. www2.ekol.slu.se/snytbagge
Protective coating against *Hylobius*: Conniflex www.bccab.com/conniflex.php; 'Kvaee'

chemical antifeedant (especially Neem, or nonanoic acid, dihydropinidine, cinnamic aldehyde, benzaldehyde),⁷⁹ pathogenic fungi (e.g. *Metarhizium anisopliae* or *Beauveria caledonica*),⁸⁰ *Bacillus thuringiensis* subsp. *tenebrionis* (Btt), parasitic nematodes (*Steinernema* or *Hetero-rhabditis* spp.), Spinosad,⁸¹ or scarification of ground and planting seedlings in bare soil;⁸²

5. collaborates in research on natural enemies of major pest insects, e.g. identifying parasitoids and predators (conducting at least one survey before/after insecticide use on a representative scale), and promotes natural enemies by retaining suitable habitat on part of managed areas, installing nesting boxes for birds and bats, or planting hedges around seed beds in nursery;
6. provides a mid-term report to certifier (which informs FSC IC) until December 2017 on the following: ha treated chemically in recent years; progress in research on alternatives (studies, partners); and minimum of one survey of major natural enemies before/after chemical control;
7. strictly follows all legal requirements in Romania and the EU for risk mitigation during pesticide use, in particular adequate training and use of appropriate personal protective equipment by all workers, maintaining buffer zone near sensitive areas (natural habitat, surface waters or catchment area for water supplies), and inspects/repairs spraying equipment regularly before use;⁸³
8. notifies representatives of local community prior to application and - where managed areas are used by the public - indicates areas treated Cypermethrin (e.g. by putting up notice), and - if area in or next to nature reserve or park - consults with regional conservation agencies.

B) Rejects a derogation to use **Cypermethrin** for controlling ash weevil (*Stereonychus fraxini*) (Coleoptera) and lepidopteran insects, including larvae of poplar moth (*Pygaera anastomosis*) and Eastern nycteoline (*Nycteola asiatica*), in deciduous young forests in Romania, for the following reasons:

1. evidence provided of a need for this pyrethroid did not show that this is the only feasible way of controlling lepidopteran caterpillars or ash weevil and that these pest insects cause severe damage, while outbreaks of these species are reported to occur only occasionally;
2. risk to workers from spraying above head (especially in ash stands over 2m) is unacceptably high;
3. broad-spectrum pyrethroids damage natural enemies of pest insect and more selective options are available, including biological products (e.g. *Bacillus thuringiensis* var. *kurstaki* ('Btk'), other pathogenic fungi, or a specific nuclear

<http://kvaee.com>

⁷⁹ Thacker JR. Effects of neem on feeding activity. 2003.

www.sciencedirect.com/science/article/pii/S0261219403000413

Eriksson C. Antifeedants against *Hylobius*. 2006.

<http://www.divaportal.org/smash/get/diva2:10021/FULLTEXT01.pdf>

⁸⁰ E.g. see 'IMPACT' project. www.impactproject.eu/research-home.php

Canterbury Christ Church University: Pests, Pathogens and Crop Protection.

www.canterbury.ac.uk/social-applied-sciences/geographical-and-life-sciences/Ecology-Research-Group/Pests-Pathogens-and-Crop-Protection.aspx

⁸¹ Brudea V. Lucrări Științifice 2009; 52: 617-622. http://www.revagrois.ro/PDF/2009_1_619.pdf

⁸² Luoranen J, Viiri H. Silva Fennica 2012; 46: 151-161.

<http://www.metla.fi/silvafennica/full/sf46/sf461151.pdf>

⁸³ Ministry of Agriculture, Directia Fitosanitara: Registered products. <https://colt.anfd.ro/> (www.madr.ro)

polyhedrosis virus (NPV)), bioinsecticides (e.g. Spinosad or Neem/Azadirachtin), other insecticides not listed by FSC as 'highly hazardous' (HH), and use of preventive silvicultural practices; most lepidopteran pest insects can be controlled with Btk, a bioinsecticide, an alternative chemical insecticide (non-HH), or an insect growth regulator such as Diflubenzuron/Dimilin (HH - also controls larval stages of ash weevil (*Stereonychus fraxini*), while NPV controls certain lepidopteran species selectively (e.g. Gypchek used on gypsy moth);⁸⁴

4. although certificate holders in Romania have tested several alternatives for *Hylobius* control, it appears that some promising techniques may not have been investigated sufficiently in the past, including use of protective coating (e.g. Conniflex, 'Kvaee') or antifeedant applied to seedling stems, pathogenic fungi (e.g. *Metarhizium anisopliae*, possibly combined with parasitic nematodes), alternative insecticides (non-HH), a fallow period (2-5 years) after harvest, and combinations of these.

⁸⁴ In Eastern Europe, FAO has controlled *Lymantria dispar* on large areas with Btk, a NPV, or Diflubenzuron: Emergency programme for control of *Lymantria dispar* in Romania; 1998. www.fao.org/forestry/49410/en/rom Emergency measures for control of gypsy moth in Bulgarian forests; 1999. www.fao.org/forestry/49410/en/bgr Defoliators in Rep. of Moldova; 2000. www.fao.org/forestry/49410/en/mda; www.fao.org/docrep/007/y5507e/y5507e07.htm **Control of Siberian caterpillar and other major forest pests in Mongolia; 2005. www.fao.org/forestry/49410/en/mng**



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of Diflubenzuron in Romania

FSC reference code: FSC-DER-30-V1-0 EN Diflubenzuron Romania 060514

Date: 6th May 2014. Update 29 May 2019

FSC Board Committee decision: Approves a derogation to use **Diflubenzuron** for controlling gypsy moth (*Lymantria dispar*), European oak leafroller (*Tortrix viridana*), geometer moths (Geometridae), other lepidopteran insects (*Pygaera anastomosis*, *Nycteola asiatica*, *Hyphantria cunea*, *Malacosoma neustria*, *Euproctis chrysorrhoea*, *Drymonia ruficornis*) and ash weevil (*Stereonychus fraxini*, Coleoptera)⁸⁵ in deciduous forests and nurseries in Romania, provided that the certificate holders:

1. monitors distribution and approximate density of major pest insects (with parasitism rate, if possible)⁸⁶, estimates damage, defines a critical insect density (maximum acceptable density for achieving silvicultural objectives), and locates highly infested areas where estimated or predicted insect density exceeds critical density, or where damage is unacceptably large;
2. gives priority to preventive cultural practices, e.g. reduced harvest intensity (shelterwood or mosaic cuts, retention trees, sequential harvesting, etc), planting less susceptible species, optimized spacing of seedlings, rotating tree species and improved irrigation (in nursery);

⁸⁵ Blaga T. *Stereonychus fraxini* in Siret basin stands. 2010. <http://webbut.unitbv.ro/teze/rezumat/2010/rom/BlagaTatiana.pdf>

⁸⁶ 'parasitism rate': ratio between healthy pupae/larvae/eggs of insect and parasitized pupae/larvae/eggs

3. (if insect control is necessary to achieve silvicultural objectives): where feasible gives priority to use of biological products (e.g. Btk, NPV, etc), or a bioinsecticide (e.g. Spinosad, or Neem);
4. limits Diflubenzuron use to minimum quantity needed for effective control in area with high or critical insect density, aims to reduce use and treated area during derogation period, and reports total annual use, treated area, application method and rate (kg/ha) in audit reports to certifier;
5. strives to establish a decision support system for major pest insects (facilitating evaluation of monitoring data to decide if chemical control is necessary and optimize time of application),⁸⁷ and limits *aerial* application to large and highly infested areas where ground application and use of a biological product or bioinsecticide are not feasible;
6. collaborates with research institute or commercial companies in tests on alternatives for controlling lepidopteron pest insects, e.g. microbial products such as *Bacillus thuringiensis* (subspecies *kurstaki* or subsp. *aizawai*), *Beauveriana bassiana*, *Metarhizium anisopliae*, *Trichoderma* species, or a nucleopolyhedrovirus (NPV) or granulovirus specific to gypsy moth (or another pest species)⁸⁸, or a bioinsecticide (e.g. Spinosad or Neem/Azadirachthin);
7. collaborates in research on natural enemies of lepidopteron insects and ash weevil, identifying predators and parasitoids such as wasps (*Chalcidoidea*, *Eulophidae* family and *Ichneumonidae* parasitizing ash weevil, or *Trichogrammatidae* parasitizing Lepidoptera), and promotes natural enemies by maintaining suitable habitat on part of managed area (proportionate to FMU size), installing nesting boxes for birds and bats, and planting hedges around seed beds in nursery;
8. provides a mid-term report to certifier (which informs FSC IC) until December 2017 on the following: ha treated chemically in recent years; progress in research on alternatives (studies, partners); and minimum of one survey of major natural enemies before/after chemical control;
9. strictly follows all legal requirements in Romania and the EU for risk mitigation during pesticide use, in particular safety measures for aerial application, adequate training and use of appropriate personal protective equipment by all workers, maintaining buffer zone required near sensitive areas (natural habitat, surface waters, or catchment area for water supplies), and inspects/repairs spraying equipment regularly before use;⁸⁹
10. notifies neighbours on adjoining land who may be potentially affected, and representatives of local community where aerial use of Diflubenzuron is planned and, especially in or next to nature reserves and parks, consults with regional conservation agencies prior to application.

⁸⁷ CFS. BioSIM: Pest management planning decision support; 2009. <http://cfs-scf.nrcan-mcan.gc.ca/projects/133>

⁸⁸ E.g. see: Thorpe KW, et al. Biological Control 1999; 16: 209-216. <http://dx.doi.org/10.1006/bcon.1999.0758>

Virginia Polytechnic: Gypsy moth program. <http://fubys.ento.vt.edu/vagm/>

⁸⁹ Ministry of Agriculture, Directia Fitosanitara: Registered products. <https://colt.anfd.ro/> (www.madr.ro)



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	6 th May 2014
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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy FSC-GUI-30-001 FSC Pesticides Policy Guidance FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of Lambda Cyhalothrin in Romania

FSC reference code: FSC-DER-30-V1-0 EN Lambda Cyhalothrin Romania 060514

Date: 6th May 2014. Updated 29th May 2019

FSC Board Committee decisions: A) Approves a derogation to use **lambda - Cyhalothrin** for controlling bark beetles (*Ips* species), pine weevil (*Hylobius abietis*), in coniferous plantations in Romania, provided that the certificate holders:

1. monitors pine weevil regularly to identify epidemic population outbreaks early, and limits use of lambda-Cyhalothrin to the minimum quantity needed to achieve silvicultural objectives in highly infested areas (where critical density of *Hylobius* is exceeded) and where a biological product, bioinsecticide, or protective coating cannot be used;
2. gives high priority to preventive cultural practices, e.g. reduced harvest intensity (continuous cover forestry, shelterwood or mosaic cuts, etc), planting seedlings long before or after harvest (e.g. fallow period of 2-5 years), and planting large robust seedlings or mixed species forests;
3. (where chemical control is necessary): aims to reduce direct application of lambda-Cyhalothrin further during derogation period by preferentially treating seedling roots *prior to planting*,⁹⁰ if feasible (treatment with a 'highly hazardous' insecticide in nursery outside FMU requires no derogation), or by using a biological product (e.g. Btt, *Metarhizium*, etc) or bioinsecticide (e.g. Spinosad);
4. aims to prevent outbreaks of bark beetles from spreading by removing wood with potential breeding sites (e.g. fallen tree stems after storms) quickly in affected areas, and – should an infestation of bark beetles occur – establish a monitoring system in the following year, and transporting cut logs out of forest before beetles swarm (storage under dry or wet conditions);

⁹⁰ FC UK: Weevils: Pre-planting treatment of bare-rooted conifers. www.forestry.gov.uk/forestry/INFD-5TUG8W

5. collaborates with research institute, private enterprise, or forest companies in trials on effectiveness of using, for example, protective coating based on sand or wax⁹¹, chemical antifeedant (especially Neem, or nonanoic acid, dihydropinidine, cinnamic aldehyde, benzaldehyde),⁹² pathogenic fungi (e.g. *Metarhizium anisopliae* or *Beauveria caledonica*),⁹³ *Bacillus thuringiensis* subsp. *tenebrionis* (Btt), parasitic nematodes (*Steinernema* or *Hetero-rhabditis* spp.), Spinosad,⁹⁴ or scarification of ground and planting seedlings in bare soil;⁹⁵
6. collaborates in research on natural enemies of major pest insects, e.g. identifying parasitoids and predators (conducting at least one survey before/after insecticide use on a representative scale), and promotes natural enemies by retaining suitable habitat on part of managed areas, installing nesting boxes for birds and bats, or planting hedges around seed beds in nursery;
7. provides a mid-term report to certifier (which informs FSC IC) until end of December 2017 on the following: ha treated chemically in recent years; progress in research on alternatives (studies, partners); and minimum of one survey of major natural enemies before/after chemical control;
8. strictly follows all legal requirements in Romania and the EU for risk mitigation during pesticide use, in particular use of appropriate personal protective equipment by all workers and maintaining buffer zone near sensitive areas (natural habitat, surface waters or catchment area for water supplies), and inspects/repairs spraying equipment regularly before use;⁹⁶
9. notifies representatives of local community prior to application and - where managed areas are used by the public - indicates areas treated with lambda-Cyhalothrin (e.g. by putting up notice), and - if area in or next to nature reserve or park - consults with regional conservation agencies.

B) Rejects a derogation to use **lambda - Cyhalothrin** for controlling ash weevil (*Stereonychus fraxini*) (Coleoptera) and lepidopteran insects, including larvae of poplar moth (*Pygaera anastomosis*) and Eastern nycteoline (*Nycteola asiatica*), in deciduous young forests in Romania, for the following reasons:

1. evidence provided of a need for this pyrethroid did not show that this is the only feasible way of controlling lepidopteran caterpillars or ash weevil and that these pest insects cause severe damage, while outbreaks of these species are reported to occur only occasionally;
2. risk to workers from spraying above head (especially in ash stands over 2m) is unacceptably high;

⁹¹ Swedish University of Agricultural Sciences: Pine weevil homepage. www2.ekol.slu.se/snytbagge
Protective coating against Hylobius: Conniflex www.bccab.com/conniflex.php; 'Kvaee' <http://kvaee.com>

⁹² Thacker JR. Effects of neem on feeding activity. 2003. www.sciencedirect.com/science/article/pii/S0261219403000413
Eriksson C. Antifeedants against *Hylobius*. 2006. <http://www.diva-portal.org/smash/get/diva2:10021/FULLTEXT01.pdf>

⁹³ E.g. see 'IMPACT' project. www.impactproject.eu/research-home.php
Canterbury Christ Church University: Pests, Pathogens and Crop Protection. www.canterbury.ac.uk/social-applied-sciences/geographical-and-life-sciences/Ecology-Research-Group/Pests-Pathogens-and-Crop-Protection.aspx

⁹⁴ Brudea V. Lucrări Științifice 2009; 52: 617-622. http://www.revagrois.ro/PDF/2009_1_619.pdf

⁹⁵ Luoranen J, Viiri H. Silva Fennica 2012; 46: 151-161. <http://www.metla.fi/silvafennica/full/sf46/sf461151.pdf>

⁹⁶ Ministry of Agriculture, Directia Fitosanitara: Registered products. <https://colt.anfd.ro/> (www.madr.ro)

3. broad-spectrum pyrethroids damage natural enemies of pest insect and more selective options are available, including biological products (e.g. *Bacillus thuringiensis var. kurstaki* ('Btk'), other pathogenic fungi, or a specific nuclear polyhedrosis virus (NPV)), bioinsecticides (e.g. Spinosad or Neem/Azadirachtin), other insecticides not listed by FSC as 'highly hazardous' (HH), and use of preventive silvicultural practices; most lepidopteran pest insects can be controlled with Btk, a bioinsecticide, an alternative chemical insecticide (non-HH), or an insect growth regulator such as Diflubenzuron/Dimilin (HH - also controls larval stages of ash weevil (*Stereonychus fraxini*), while NPV controls certain lepidopteran species selectively (e.g. Gypchek used on gypsy moth);⁹⁷
4. although certificate holders in Romania have tested several alternatives for *Hylobius* control, it appears that some promising techniques may not have been investigated sufficiently in the past, including use of protective coating (e.g. Conniflex, 'Kvaee') or antifeedant applied to seedling stems, pathogenic fungi (e.g. *Metarhizium anisopliae*, possibly combined with parasitic nematodes), alternative insecticides (non-HH), a fallow period (2-5 years) after harvest, and combinations of these.

⁹⁷ In Eastern Europe, FAO has controlled *Lym dispar* on large areas with Btk, a NPV, or Diflubenzuron: Emergency programme for control of *Lymantria dispar* in Romania; 1998.

www.fao.org/forestry/49410/en/rom

Emergency measures for control of gypsy moth in Bulgarian forests; 1999.

www.fao.org/forestry/49410/en/bgr

Defoliators in Rep. of Moldova; 2000. www.fao.org/forestry/49410/en/mda;

www.fao.org/docrep/007/y5507e/y5507e07.htm

Control of Siberian caterpillar and other major forest pests in Mongolia; 2005.

www.fao.org/forestry/49410/en/mng

16. Serbia



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	14 October 2015
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Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of Difenacoum in Serbia

FSC reference code: FSC-DER-30-V1-0 EN Difenacoum Serbia 141015

Date: 21st October 2015

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use difenacoum to control mice, rats (*Muridae*) or other rodent species that transmit infectious diseases –in particular hantavirus - **exclusively in warehouses, storage facilities, depots, inhabited buildings and forest camps for workers with the sole purpose of protecting human health** in certified Management Units (MUs) in Serbia, provided that certificate holders:

1. ensure that only trained workers use rodenticides by applying approved bait stations in places that are not accessible to children and domestic animals (inside walls, under heavy appliances, or in enclosed spaces), limit use to sites where an infestation of rodents cannot be controlled by other measures such as traps and preventive or sanitary measures, and remove bait stations promptly once signs of rodents are gone;
2. only use difenacoum inside storage rooms, depots, camps, etc (not outdoors), reduce attractiveness for rodents by collecting food waste, regularly remove dead rodents (workers must wear adequate personal protection including gloves and mask), and disinfect contaminated sites with hypochlorite solution;
3. document all rodent control measures for each site of the MU where chemical control is conducted;

4. consult public health experts and report local infections of hantavirus and other diseases⁹⁸, raise awareness among workers and public regarding prevention of rodents inside inhabited buildings or warehouses, and promote use of physical barriers restricting access (e.g. wire or plastic mesh)⁹⁹;
5. promote predators such as owls and raptors in areas where no rodenticide is applied by providing natural habitat on part of MU (proportionate to scale and intensity of management activities) and by installing nesting boxes or wooden poles, in collaboration with wildlife experts;
6. exchange information with neighbours, municipal authorities, farmers, other forest companies, or scientific experts on local prevalence of infectious diseases and situation regarding rodent density.
7. Limit the use of difenacoum (or preferably an alternative, less hazardous rodenticide) to nurseries and young oak or mixed forests in *years when rodent density is exceptionally high – above a threshold*.



Type of document:	FSC® Pesticide Derogation Approval
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Pesticide derogation: Use of alpha-cypermethrin in Serbia

FSC reference code: FSC-DER-30-V1-0 EN Alpha-cypermethrin in Serbia 141015

Date: 22nd October 2015

⁹⁸ Institut za javno zdravlje Srbije „Dr Milan Jovanović Batut” (Institute for Public Health).
<http://www.batut.org.rs/>

⁹⁹ e.g. see US National Park Service (2015): Rodent-exclusion manual.
<http://nature.nps.gov/biology/ipm/resources.cfm>

U.S. National Park Service. Hantavirus: Worker protection.
http://www.nps.gov/public_health/zed/hanta/hanta.htm

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use alpha-cypermethrin **to protect logs stored in FSC certified forests** from oak pinhole borer (*Platypus cylindrus*) and bark beetles (*Scolytidae*) in Serbia, provided that during the derogation period the certificate holder (CH):

1. only use the insecticide for controlling oak pinhole borer on oak logs or bark beetles on conifer logs (in regions with periodic outbreaks) stored in Management Units (MUs) and limit use to minimum amount needed for effective protection (to achieve silvicultural objectives) in susceptible stands where early transport of logs out of forest is not viable,
2. strive to discontinue chemical wood treatment by improving the logistics (felling during the winter, early transport to a dry storage place outside of forest) and by using non-chemical alternatives (e.g. untreated covers for logs),
3. preferentially use nets treated with alpha-cypermethrin to protect logs stored in the forest, rather than liquid spray solutions,
4. monitor beetles in affected areas to determine optimum time for application and need for treating logs chemically, e.g. in collaboration with local authorities for forest protection or entomologists at universities and if possible, with other forest owners in the region,
5. strictly follow all legal requirements for risk mitigation during pesticide use, in particular use of appropriate personal protective equipment by workers and maintaining a buffer zone near sensitive areas (such as wildlife habitat, surface waters or catchment area for public water supplies),
6. record total annual use of alpha-cypermethrin and include this information in audit reports,
7. notify the public about the wood protection measures in managed areas which are frequented by local residents, farmers, or hunters (e.g. with signs on treated logs).

17. South Africa



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	13 th April 2015
Expiration Date:	30 th April 2018
Extended Date:	1 st August 2020 <i>(In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1st August 2020)</i>
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy FSC-GUI-30-001 FSC Pesticides Policy Guidance FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of paraquat dichloride in South Africa

FSC reference code: FSC-DER-30-V2-0 EN paraquat dichloride South Africa 130415

Date: 13th April 2015. Updated on 27th August 2015, 14th October 2015. Updated on 28 February 2017. Updated on 27 April 2018. Updated on 29th May 2019.

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use paraquat dichloride between the months of February and May¹⁰⁰ to control grassy and broad-leaved plants along firebreaks tracer belts in grasslands in South Africa, provided that the certificate holder:

1. limit paraquat use to steep slopes susceptible to soil erosion (with an inclination greater than 15%-20%) and to the minimum effective application rate, preferentially use the least hazardous herbicide/s available (in accordance with IPM principles), and supplement paraquat with suitable alternative herbicides, mechanical control (hoeing or mower in areas with low erosion risk), use of a mobile gas burner, and/or controlled burning (where the risk to small mammals and other non-target organisms was assessed and is considered to be low);
2. strictly follow safety protocols for pesticide use required by national or regional authorities and equip all workers who handle or spray paraquat with the necessary personal protective equipment, including a respirator with a mist filter, waterproof clothing (coverall) and boots, elbow-length gloves with high chemical

¹⁰⁰ Timeframe extended in October 2015 to accommodate weather conditions

resistance, splash-proof goggles, and (for handling concentrate) a face shield and chemical resistant apron;

3. ensure that only trained workers apply paraquat and only authorized persons have access to paraquat, that storage rooms are locked, and that backpack sprayers are regularly checked for leaks and serviced, instruct all workers involved in spraying of paraquat about the associated dangers and the need of using adequate personal protective equipment and strictly adhering to precautionary measures, acknowledge receipt of this notification, and keep records on training and notifications (available for inspection during annual audits);
4. periodically monitor potential exposure of all workers who handle or spray paraquat (via urine tests), verify if negative health effects among workers are caused by paraquat, and include results in reports to certifier (in particular skin irritation or burn, eye injury, acute poisoning, chronic effects on the lungs);
5. collaborate with other companies, scientific experts or PhD students at research institutions or commercial enterprises in the improvement of GIS mapping and computer models to identify areas with a high risk of fire, trials with mobile liquid petroleum gas burners and less hazardous alternative herbicides, e.g. carfentrazone-ethyl, and uracil herbicides (protox inhibitors) such as butafenacil, saflufenacil, benzfendizone, flupropacil, etc (if registration permits forestry use or if these can be registered for use in afforestation in South Africa);
6. record total annual use of paraquat, include data in audit reports, define quantitative reduction targets for total annual use (e.g. within joint programme for reduced chemical use), and provide a mid-term report to the certifier (which informs FSC IC) until the end of December 2016 on progress with a programme for alternatives;
7. present evidence, as part of the mid-term report, that active outreach to NGOs, local communities and forest workers has been conducted.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	07 November 2017
Expiration Date:	07 November 2020
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of paraquat dichloride in South Africa

FSC reference code: FSC-DER-30-V2-0 EN paraquat dichloride South Africa 07112017

Date: 07 November 2017

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use paraquat dichloride for the preparation of firebreaks in South Africa provided that the certificate holder applies the pesticide with the following conditions:

1. Limit paraquat use to steep slopes susceptible to soil erosion (with an inclination greater than 15%-20%) and to the minimum effective application rate, preferentially use the least hazardous herbicide/s available (in accordance with IPM principles), and supplement paraquat with suitable alternative herbicides, mechanical control (hoeing or mower in areas with low erosion risk), use of a mobile gas burner, and/or controlled burning (where the risk to small mammals and other non-target organisms was assessed and is considered to be low).
2. Personal protective equipment: Despite providing PPE for every worker that either mixes or applies paraquat, the certificate holder shall have a monitoring process in place to ensure that all workers applying paraquat must always be fully clad in their supplied PPE. Any worker found failing this must be removed from the spray operation immediately and disciplined according to company HR protocol. Regular checks shall be done on PPE to ensure all parts are still serviceable and any worn out items such as gloves or boots must be replaced. All PPE must be thoroughly cleaned every day after end of the working session.
3. Personal safety: Before a spray season commences all spray operators shall undergo health checks with full blood analysis. Workers who are immune compromised should not be tasked with handling or applying paraquat. After the spray season, all spray operators must undergo the

same health checks and full blood analysis. Urine tests during the spray season shall be conducted on all spray operators. Spray operators must undergo refresher training at least twice per annum.

4. Cease spraying during windy conditions. Spraying with paraquat shall not commence when the wind velocity exceeds 10 km/hour.
5. Incident management. The certificate holder shall have access to a 24 hour poison information centre for advice on managing personal exposure, spills or fires. Spill containment and management kits must be available in pesticide stores. Clinical staff responsible for health care in the company acquaint themselves with stabilisation and immediate treatment of a person may accidentally or deliberately ingest paraquat or have a large scale dermal contact with the product.
6. Evacuation of people and livestock from the spray area. The certificate holder shall have a system in place to inform local communities that spraying with paraquat will commence and that no person nor any livestock may be present during the application of paraquat and for the first four days after application of paraquat. Checks shall be done in the treated area to ensure no people or livestock enter the treated areas.
7. Program to identify alternatives to paraquat. The certificate holder shall continue collaborating with other companies, scientific experts or PhD students at research institutions or commercial enterprises in the search for alternatives to highly hazardous pesticides.
8. Limited acquisition of paraquat. The certificate holder should only order and acquire sufficient paraquat formulation for total use in one season to prevent accumulation of obsolete pesticide stocks.
9. Empty container management. The certificate holder should ensure that all paraquat containers are triple rinsed according CropLife SA instructions and triple rinsed containers are handed over to, or collected by approved recyclers. No containers, however clean they may be, may be donated or sold to any other persons.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	09 September 2016
Expiration Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	FSC-POL-30-001 FSC Pesticides Policy FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP) FSC-PRO-30-001 Pesticide Derogation Procedure

Pesticide derogation:	Use of Alpha-Cypermethrin, Cypermethrin and Deltamethrin in South Africa
FSC reference code:	FSC-DER-30-V1-0 EN Alpha_Cyper_Delta_South Africa 090916

Date: 09 September 2016. Updated 9 November 2016. Updated 28 February 2017. Updated 29 August 2017. Updated 29 May 2019.

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use **alpha-cypermethrin and cypermethrin** to control Pine tree emperor moth (*Imbrasia cytherea*), Willow tree emperor moth (*Gonimbrasia tyrreha*), Brown wattle mirid (*Lygidolon laevigatum* Reut.), Wattle bagworm (*Chaliopsis (Kotochalia) junodi* (Heyl.)), Brown Tail Moth (*Euproctis terminalis*), Eucalyptus snout beetle (*Gonipterus scutellatus*), and **deltamethrin** to control white grubs, Pine bark beetle (*Hylastes angustatus*) and Cutworm (several indigenous *Agrotis* spp.) for a limited period of **three years** in South Africa, provided that during the derogation period the certificate holders:

1. Develop their own integrated pest management system for forestry pest management. Failure to implement this condition will result in rejection of future renewal applications.
2. Develop monitoring and scouting programmes for the pest species with immediate effect to gauge the level of infestation, the seasonality and the distribution in plantation plots in order to implement preventative measures and to cut down on the size of area to be treated. This will also teach certificate holders more about the biology and breeding of the pest species and assist in making appropriate decisions to manage these pests.
3. Engage the various scientific institutions and grower's association to learn from their studies and experience on monitoring and scouting, use of biological

control agents and entomopathogenic nematodes. They must also engage companies in the business of insect pheromones to discuss development of this technology as a tool in forest pest management including mating disruption.

4. Strive to establish in-house research on the efficacy of biological control agents under different climatic conditions to determine what the optimum conditions are. There are sufficient registered biological agents in South Africa for testing. In addition, certificate holders must strive to establish close collaboration with researchers to test natural insecticides and determine what percentage efficacy can be obtained in field conditions.
5. Consider alternative cultivation practices and test such to prevent a build-up of soil borne pests.
6. Demonstrate participation in research and trials of alternative pesticides and not rely solely on the research of institutions.
7. Engage stakeholders fully and keep them informed of the operations if synthetic insecticides (in this case the pyrethroids) are used. The risks may be negligible, but it is important to do perception management by being totally transparent and keeping stakeholders informed. It is of particular importance to engage neighbours on whose properties open water bodies may be located and offer to do monitoring of aquatic life after aerial application of pyrethroids.

18. Sweden



Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	30 September 2019
Expiration Date:	30 September 2024 (or until replaced by National HHP indicators)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of Cypermethrin in Sweden
FSC reference code:	FSC-DER-30-V1-0 EN cypermethrin Sweden 30092019

Date: 30 September 2019

FSC Board Committee decision:

Approves a derogation to use **cypermethrin** for controlling spruce bark beetle (*Ips typographus*) on roundwood or stacks of roundwood in Sweden provided that the certificate holders:

1. Only use the insecticides for controlling Ips bark beetles on logs stored in FSC certified forests.
2. Continue to monitor closely the multi-level monitoring work that is being carried out by their own organisations and/or the Forest Agency.
3. Continue the co-operative research work with the Swedish Agriculture University, Lund University and the Industry Research Institute and devote resources to this work.
4. Use only the minimum amount of the insecticide needed for effective control and avoid adverse impacts to high conservation values.
5. Maintain up to date records of the amount and location of cypermethrin use to control bark beetles and provide this information to the audit reports.
6. Strictly follow all Swedish legal requirements to protect pesticide users and the environment.
7. Notify the public in areas with public access (e.g. with signs on treated log stacks) about the wood protection measures.
8. Strive to discontinue chemical wood treatment by improving the logistics (e.g. in collaboration with industry/Skogforsk project) and by using non-chemical alternatives (untreated covers)

19. Switzerland



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	07 th August 2014
Expiration Date:	1 st August 2020 (<i>In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1st August 2020</i>)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy FSC-GUI-30-001 FSC Pesticides Policy Guidance FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of alpha-cypermethrin in Switzerland and Liechtenstein
FSC reference code:	FSC-DER-30-V1-0 EN alpha-cypermethrin Switzerland and Liechtenstein 27032014

Date: 27th March 2014. Updated 29th May 2019.

FSC Board Committee decision: Approves a derogation to use **alpha-cypermethrin** for controlling lineate bark beetles (*Xyloterus lineatus* syn. *Trypodendron lineatum*) on logs stored in FSC certified forests in Switzerland and Liechtenstein provided that the certificate holders:

1. only use the insecticides for controlling bark beetles on logs stored in FSC certified forests and limit use to minimum amount needed for effective control in areas where no other alternative is viable,
2. strive to discontinue chemical wood treatment by improving the logistics (e.g. in collaboration with AGFS)¹⁰¹ and by using non-chemical alternatives (untreated covers),
3. use preferentially nets treated with alpha-cypermethrin as method of

¹⁰¹ Arbeitsgemeinschaft Forstschutz (AGFS) - Arbeitsgruppe 'Rundholzlagerung'
www.wsl.ch/forest/wus/pbmd/agfsrhlv.html

- application, rather than liquid spray solutions,
4. monitor bark beetles in affected areas to determine optimum timing and need for treating logs chemically, e.g. in collaboration with other forest owners or authorities for forest protection,
 5. strictly follow all legal requirements in Switzerland and Liechtenstein for risk mitigation during pesticide use, in particular use of appropriate personal protective equipment by workers and maintaining a buffer zone near sensitive areas (such as wildlife habitat, surface waters or catchment area),
 6. record annual use of alpha-cypermethrin and include this information in audit reports,
 7. in case of using nets treated with alpha-cypermethrin, regularly control the protected logs for trapped animals (specifically birds) and damage of nets,
 8. in case of using nets treated with alpha-cypermethrin, consult with the manufacturer about the safe disposal of old nets.
 9. notify the public in areas with frequent public access (e.g. with signs on treated logs) about the wood protection measures.



PESTICIDE DEROGATION

Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	07 th August 2014
Expiration Date:	1 st August 2020 (<i>In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1st August 2020</i>)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of cypermethrin in Switzerland and Liechtenstein
FSC reference code:	FSC-DER-30-V1-0 EN cypermethrin Switzerland and Liechtenstein 27032014

Date: 27th March 2014. Updated 29th May 2019.

FSC Board Committee decision: Approves a derogation to use **cypermethrin** for controlling lineate bark beetles (*Xyloterus lineatus* syn. *Trypodendron lineatum*) on logs stored in FSC certified forests in Switzerland and Liechtenstein provided that the certificate holders:

1. only use the insecticides for controlling bark beetles on logs stored in FSC certified forests and limit use to minimum amount needed for effective control in areas where no other alternative is viable,
2. strive to discontinue chemical wood treatment by improving the logistics (e.g. in collaboration with AGFS)¹⁰² and by using non-chemical alternatives (untreated covers),
3. monitor bark beetles in affected areas to determine optimum timing and need for treating logs chemically, e.g. in collaboration with other forest owners or authorities for forest protection,
4. strictly follow all legal requirements in Switzerland and Liechtenstein for risk mitigation during pesticide use, in particular use of appropriate personal protective equipment by workers and maintaining a buffer zone near sensitive areas (such as wildlife habitat, surface waters or catchment area),
5. record annual use of cypermethrin and include this information in audit reports,
6. notify the public in areas with frequent public access (e.g. with signs on treated logs) about the wood protection measures.

¹⁰² Arbeitsgemeinschaft Forstschutz (AGFS) - Arbeitsgruppe 'Rundholzlagerung'
www.wsl.ch/forest/wus/pbmd/agfsrhlv.html

20. Swaziland



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	23 March 2018
Expiration Date:	23 March 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: **Use of paraquat dichloride in Swaziland**

FSC reference code: **FSC-DER-30-V1-0 EN paraquat dichloride Swaziland 230318**

Date: 23 March 2018

FSC Board Committee decision:

The Pesticides Committee has **approved** a derogation to use **paraquat dichloride** for the preparation of firebreaks in Swaziland for a limited period of three years provided that the certificate holders apply the pesticide with the following conditions:

1. Limit paraquat use to steep slopes susceptible to soil erosion (with an inclination greater than 15%) and to the minimum effective application rate, preferentially use the least hazardous herbicide/s available (in accordance with IPM principles), and supplement paraquat with suitable alternative herbicides, mechanical control (hoeing or mower in areas with low erosion risk), use of a mobile gas burner, and/or controlled burning (where the risk to small mammals and other non-target organisms was assessed and is considered to be low).
2. Personal protective equipment and clothing: Despite providing PPE for every worker that either mixes or applies paraquat, the certificate holder shall have a monitoring process in place to ensure that all workers applying paraquat must always be fully clad in their supplied PPE. Any worker found failing this must be removed from the spray operation immediately and disciplined according to company HR protocol. Regular checks shall be done on PPE to ensure all parts are still serviceable and any worn out items such as gloves or boots must be replaced. All PPE must be thoroughly cleaned every day after end of the working session.
3. Training: All spray operators irrespective of whether they are employed by the applicants or whether they are registered PCOs, must undergo special safety training before the spray season with refreshers during the spray season. Workers who fail to participate in training may not be allowed to spray paraquat.

4. Personal safety: Before a spray season commences all spray operators shall undergo health checks with full blood analysis. Workers who are immune compromised should not be tasked with handling or applying paraquat. After the spray season, all spray operators must undergo the same health checks and full blood analysis. Urine tests during the spray season shall be conducted on all spray operators. Spray operators must undergo refresher training at least twice per annum.
5. Cease spraying during windy conditions. Spraying with paraquat shall not commence when the wind velocity exceeds 10 km/hour.
6. Exposure and spill incident management. The certificate holders shall have access to a 24-hour poison information centre for advice on managing personal exposure, spills or fires. Spill containment and management kits must be available in pesticide stores. Clinical staff responsible for health care in the company acquaint themselves with stabilisation and immediate treatment of a person may accidentally or deliberately ingest paraquat or have a large-scale dermal contact with the product.
7. Spray areas to be declared no-go zones: The certificate holders shall engage local communities in proximity of spray area beforehand and issue warning that the area is a no-go zone during the application of paraquat and for four days after application. There must be systems in place to evict any livestock or people that venture into the areas within the first four days after application.
8. Program to identify alternatives to paraquat: The certificate holder shall continue collaborating with other companies, scientific experts or PhD students at research institutions or commercial enterprises in the search for alternatives to highly hazardous pesticides. In particular, the certificate holders shall strive to be fully informed on the research and participate by actively searching for alternatives.
9. Correct acquisition of paraquat: The certificate holders shall recalculate the true area that is earmarked for paraquat application and order sufficient stocks for only one application and not for successive season. The first-in-first-out principle must be adhered to for stock management to prevent stock reaching expiry date and becoming redundant.
10. Empty container management: The certificate holder shall ensure that all paraquat containers are triple rinsed according CropLife SA103 instructions and triple rinsed containers are handed over to, or collected by approved recyclers. No containers, however clean they may be, may be donated or sold to any other persons.
11. Record keeping: The certificate holders shall keep records of all paraquat volumes used, total area treated with paraquat, health checks on spray operators and any incidents with paraquat (human exposure, animal exposure, spills, accidents and fire).

¹⁰³ CropLife SA www.croplife.co.za



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Pesticides Committee
Effective Date:	23 March 2018
Expiration Date:	23 March 2021
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation:	Use of Cypermethrin in Swaziland
FSC reference code:	FSC-DER-30-V1-0 EN Cypermethrin_Swaziland_230318

Date: 23 March 2018.

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use **cypermethrin** to control Pine tree emperor moth (*Imbrasia cytherea*), Willow tree emperor moth (*Gonimbrasia tyrreha*), Brown wattle mirid (*Lygidolon laevigatum* Reut.), Wattle bagworm (*Chaliopsis (Kotochalia) junodi* (Heyl.)), Brown Tail Moth (*Euproctis terminalis*) and Eucalyptus snout beetle (*Gonipterus scutellatus*) for a limited period of **three years** in pine plantations in Swaziland, provided that during the derogation period the certificate holders:

1. Develop their own integrated pest management system for forestry pest management and provide a detailed plan to the CB within twelve months. Failure to implement this condition will result in rejection of future renewal applications.
2. Adhere to safety measures for aerial applications described in detailed in the SA National Standard on Aerial Application SANS 10118, including but not limited to the following conditions:
 - i. No aerial application shall be done in winds stronger than 15 km/hour.
 - ii. No aerial application shall be done in totally windless conditions as the possibility of temperature inversion is very high with resultant drift and off-target deposit of the insecticide.
 - iii. No application shall be done when temperatures exceed 30 Centigrade as rapid evaporation of the spray mixture will result in reduction in droplet size and cause drift.
 - iv. The applicant shall consider using a special drift retardant (new products are available in South Africa) to prevent drift.
 - v. The applicants must ensure that the spray equipment on the aircraft is serviceable and calibrated with proof of such calibration.
3. Ensure that no cypermethrin is sprayed anywhere close to open water resources as indicated in their application. It is of particular importance to engage neighbours on whose properties open water bodies may be located and offer to do monitoring of aquatic life after aerial application of pyrethroids.

4. Develop monitoring and scouting programmes for the pest species with immediate effect to gauge the level of infestation, the seasonality and the distribution in plantation plots in order to implement preventative measures and to cut down on the size of area to be treated. This will also teach certificate holders more about the biology and breeding of the pest species and assist in making appropriate decisions to manage these pests.
5. Engage the various scientific institutions and grower's association to learn from their studies and experience on monitoring and scouting, use of biological control agents and entomopathogenic nematodes. They must also engage companies in the business of insect pheromones to discuss development of this technology as a tool in forest pest management including mating disruption.
6. Strive to establish in-house research on the efficacy of biological control agents under different climatic conditions to determine what the optimum conditions are. In addition, certificate holders must strive to establish close collaboration with researchers to test natural insecticides and determine what percentage efficacy can be obtained in field conditions.
7. Consider alternative cultivation practices and test such to prevent a build-up of soil borne pests.
8. Demonstrate participation in research and trials of alternative pesticides and not rely solely on the research of institutions.
9. Engage stakeholders fully and keep them informed of the operations if synthetic insecticides (in this case the pyrethroids) are used. The risks may be negligible, but it is important to do perception management by being totally transparent and keeping stakeholders informed.

21. Uruguay



Type of document:	FSC Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	16 th October 2013
Expiration Date:	16 th October 2018
Extended Date:	1 st August 2020 <i>(In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1st August 2020)</i>
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of Brodifacoum in Uruguay
FSC reference code:	FSC-DER-30-V1-1 EN Brodifacoum Uruguay 16102013

Date: 16th October 2013. Updated 12th December 2013. Updated 20th April 2018. Updated 29th May 2019.

FSC Board Committee decision: Approve a derogation to use brodifacoum in nurseries, greenhouses, warehouses and associated buildings in Uruguay for controlling rodents (carriers of hanta virus) provided that during the derogation period the certificate holder ensures to:

1. consult health experts on the regional situation regarding hantavirus infections, assess need for control of colilargos or other rodents species (virus vectors) on locations where contact with humans is probable, and inform workers on measures to prevent contact;
2. assign and train workers who are regularly on site and control colilargos or other rodents (vectors) with traps and rodenticides on locations where contact between humans and colilargos/rodents is probable (in preferred parts of buildings or warehouses, under bushes, piles of wood or waste, etc), or where colilargos/rodents have been detected;
3. collaborate with experts surveying the local distribution of colilargos/rodents, identify areas with high colilargo/rodent numbers (and, if possible, with high prevalence of hantavirus in colilargos or other rodents), and indicate areas with a high risk of contact on plantation maps;

4. take the necessary measures to reduce or minimize risks of brodifacoum to workers and predators, in particular measures for occupational and environmental safety required by national and regional (departmental) laws and company guidelines, limit use to areas frequented by rodents, and use no brodifacoum for colilargo control in areas where predators (owls, raptors, cats, etc) are promoted;
5. verify that only authorized persons have access to brodifacoum and other hazardous pesticides, that storage rooms are locked, and record quantities of brodifacoum used in annual audit reports;
6. report all hantavirus infections identified among forest workers in audit reports;
7. preferentially *use traps* (workers removing dead colilargos/rodents from traps must disinfect the area with hypochlorite solution and use adequate personal protection, including gloves and mask), *preventive measures* to reduce attractiveness of inhabited areas (by removing food rests or clearing bushes around houses), and *hygienic measures* (disinfecting areas with hypochlorite where colilargos/rodents have left urine or excrement);
8. promote owls, raptors, or mammals (cats, dogs) as natural predators of colilargos/rodents *in areas where brodifacoum is not used* – e.g. near forest camps or rural houses – by providing some suitable habitat in the vicinity and installing nesting boxes or wooden poles (for raptors);
9. promote use of plastic nets or wire mesh as physical barriers restricting access of colilargos/rodents to buildings (closing openings in windows and entrances);
10. collaborate with scientific experts at universities, government agencies or commercial enterprises, and other forest companies in tests on alternative rodenticides with low poisoning risk to predators and on *chemical repellents* (applied to frame of windows/doors), in particular extracts of cinnamon (cinnamaldehyde or cinnamyl alcohol deter mice), wood tar (pine resin), rosin (colophony), or chili extract (capsaicin), aluminium ammonium sulfate, denatonium benzoate (Bitrex®), denatonium saccharide (Ro-pel®), and possibly bone oil, fatty acids, garlic extract, pepper dust, plant extracts (volatile oils), putrid egg solids, synthetic predator odors, etc;
11. where brodifacoum is used, consult with directly or potentially affected parties (e.g. neighbours) and, especially near nature reserves (parks) or sensitive areas (wildlife habitats, rivers, lakes), consult with local or regional authorities for environmental protection and experts on wildlife conservation.



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	29 th April 2015
Expiration Date:	1 st August 2020 (In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1 st August 2020)
Related Documents:	FSC-POL-30-001 FSC Pesticides Policy FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides FSC-PRO-01-004 Processing pesticide derogation applications

Pesticide derogation:	Use of Fipronil in Uruguay
FSC reference code:	FSC-DER-30-V1-3 EN Fipronil Uruguay 290415

Date: 12th March 2015;
Updated on 18th June 2015; Updated on 8th October 2015; Updated on 31st May 2016; Updated on 24 June 2016; Updated on 26th November 2018; Updated on 19th December 2018; Updated on 8th April 2019; Updated on 29th May 2019;

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use fipronil for control of leaf-cutting ants (*Atta* and *Acromyrmex* species) in certified forest plantations in Uruguay, provided that during the derogation period the certificate holders:

1. identify ant species causing major damage and susceptible tree species, estimate damage, define a critical density (acceptable maximum for achieving silvicultural objectives), monitor distribution of ant colonies, and locate highly infested areas (where estimated density exceeds critical value);¹⁰⁴
2. limit fipronil use to minimum effective dose (assessed in tests) in highly infested areas and young plantations during establishment (1-2 years after planting), and complement this with alternatives, e.g. *Beauveria bassiana* (possibly combined with diatomaceous earth), plant extracts, etc;
3. reduce risks to mammals, birds, and other animals by applying baits during season and time of day when ants are most active (ensuring maximum collection), limit application to ant nests, gradually reduce total annual use, and

¹⁰⁴ Nickle M.A. (2008) Amostragem de *Acromyrmex crassispinus*. <http://dspace.c3sl.ufpr.br:8080/dspace/handle/1884/16942>
 Reis M. de A., et al. Amostragem de formigas-cortadeiras em eucaliptais. Revista Árvore 2010, 34(6): 1101-8. <http://dx.doi.org/10.1590/S0100-67622010000600016>
 Valle G.M., et al. (2002) Utilización de tecnología SIG/GPS en el manejo integrado de hormigas cortadoras en plantaciones forestal. <http://www.minagri.gob.ar/new/0-0/forestacion/biblos/pdf/2002/posters2002/171%20valle%20trab%20compl.pdf>

- employ dispensers (porta-iscas) or sachets ('MIPIS') where possible;
4. conduct or participate in tests on pathogenic fungi (*Beauveria bassiana*, *Metarhizium anisopliae*, *Paecilomyces* species, *Trichoderma viride*, etc), possibly combined with diatomaceous earth, toxic plant extracts,¹⁰⁵ antagonistic agents (*Trichoderma harzianum*, *T. lignorum*, or *Escovopsis weberi* etc, inhibiting symbiotic fungi),¹⁰⁶ an alternative chemical insecticide (e.g. hydramethylnon), or with a pheromone or botanical product (e.g. *Hovenia dulcis*, *Aleurites fordii*) to increase bait attractiveness;
 5. collaborate with experts and PhD students at universities, commercial enterprises, government agencies, and other forest companies in research on *integrated management* of leaf-cutting ants, for example preventive silvicultural practices (selecting tree species that are well-adapted to local conditions and less susceptible to ants), reduced weed control (retaining part of ground vegetation), growing cover crops (e.g. *Mucuna bracteata*), reduced harvest intensity if feasible (e.g. shelterwood or mosaic cuts, strip clear-cuts, underplanting, retaining shade trees), and preserve natural enemies (birds, predatory or parasitic insects) by abstaining from complete control and providing zones with natural forest on part of FMU ('appropriate to scale and intensity of the management activities');¹⁰⁷
 6. keep records on approximate number of ant colonies per ha, number of colonies treated, total annual use of fipronil (kg bait per ha), level of control (approximate colony density - before and after control), include data in audit reports and set quantitative reduction targets;
 7. strictly follow legislation in Uruguay for pesticide use and internal safety guidelines, in particular use of adequate personal protective equipment and training of workers, and maintaining minimum buffer zone near surface waters, catchment area (for public water supplies), sensitive areas (natural habitat);
 8. consult with directly or potentially affected parties where insecticide baits are used and, especially near nature reserves (parks) and sensitive areas (wildlife habitat or surface waters), consult with local or regional authorities for environmental protection and scientific experts on wild life conservation.

¹⁰⁵ E.g. extract of *Ateleia glazioviana*, *Canavalia ensiformis*, *Centrosema brasilianum*, *Citrus sinensis*, *Helietta puberula*, *Hymenaea courbaril*, *Ipomea batata*, *Manihot esculenta*, *Myroxylon peruiferum*, *Pilocarpus grandiflorus*, *Piper cenocladum*, *Raulinoa echinata*, *Ricinus communis*, *Sesamum indicum*, or *Trichillia glauca*.

Araújo G. (2011) Incremento da eficiência de iscas. <http://uenf.br/pos-graduacao/producao-vegetal/files/2014/08/Gabriela.pdf>

¹⁰⁶ Bettucci L, et al (2014) Hongos entomopatógenos para el control de hormigas cortadoras. Facultad de Ciencias Udelar

<http://www.inia.uy/Documentos/P%C3%BAblicos/INIA%20Tacuaremb%C3%B3/VII%20Jornada%20de%20Proteccion%20Forestal/05%20Lupo%20-%20Hongos%20enotmopat%C3%B3genos%20en%20hormigas%20cortadoras.pdf>

Ortiz Reyes A. (1998) Cepa de *Trichoderma* o *Gliocladium* para el control de *A. cephalotes*. www.bdigital.unal.edu.co/12821/

Silva A., et al. Mycopathologia 2006, 162(2): 115-9.

<http://www.springerlink.com/content/21p71w7135710k60/>

Haeder S., et al. PNAS 2009, 106(12): 4742-6. <http://www.pnas.org/content/106/12/4742.full>

¹⁰⁷ Principle 6.4 and 10.5 of FSC Principles and Criteria V4-0, 2002 (revised Principle 6.4 and 6.5 of P&C V5-1, 2014)



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	13 July 2017
Expiration Date:	13 July 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-STD-30-001 Indicators and thresholds for the identification of 'highly hazardous' pesticides (HHP)</i> <i>FSC-PRO-30-001 Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Oxyfluorfen in Uruguay

FSC reference code: FSC-DER-30-V1 Oxyfluorfen Uruguay 13072017

Date: 13 July 2017

FSC Board Committee decision: The Pesticides Committee has approved a derogation to use oxyfluorfen for control of weeds in certified forest plantations in Uruguay, provided that during the derogation period the certificate holders:

1. By the end of 2019, produce and deliver to the certification body a document describing the results of comparing oxyfluorfen versus isoxaflutole (with or without acetochlor), and oxyfluorfen versus flumioxazim, with data about efficiency of control under different weed population pressure, and the concomitant effect on tree growth to demonstrate that differences in efficiency of control result on tree growth reductions. Statistical analysis is needed to support these results.
2. reduce application rates of Oxyfluorfen to the minimum needed for achieving management goals by using mixed formulations that contain Oxyfluorfen as a (minor) component and supplementing or replacing it with alternatives such as cultural and preventive practices, or less hazardous herbicides, and strive to limit use of Oxyfluorfen to spot or band application and areas under establishment or young stands (e.g. during the first few years);
3. implement and improve risk mitigation measures: document training of staff or contracted labourers and check use/maintenance of personal protective equipment (long water-proof clothing, breathing mask with mist filter, chemical-resistant gloves, eye protection, rubber boots), strictly follow all specified protocols to reduce risk to workers or non-target species, take measures to reduce spray drift and run-off (optimized droplet size, using spray skirts, choosing optimal weather and soil conditions), avoid manual spraying, and maintain or exceed minimum buffer zone required next to rivers, lakes, or sensitive wildlife habitats;

4. continue conducting tests to identify less hazardous alternative herbicides, and improve nonchemical (cultural, mechanical or biological) methods, e.g. within integrated weed management;
5. keep records on Oxyfluorfen use (treated area, application rate/method), and include this information in forest management reports, and define voluntary quantitative targets for reductions in Oxyfluorfen use, e.g. % reduction to be achieved in the derogation period, based on treated area (ha) and/or amount applied (kg/ha);
6. consult and engage with rural communities and local governments in the use and application of oxyfluorfen;
7. define maximum wind speed for oxyfluorfen application to minimize drift and non-target effect.

22. USA



Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	05 th January 2015
Expiration Date:	1 st August 2020 (<i>In March 2019 together with the FSC revised FSC Pesticides Policy, the FSC International Board of Directors has approved an extension of the valid derogations expiring before the end of the one-year transition period of the Policy document until the end of this period, this is until 1st August 2020</i>)
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation:	Use of Diflubenzuron in USA
FSC reference code:	FSC-DER-30-V1-0 EN Diflubenzuron USA 05012015

Date: 9th December 2014. Updated 29th May 2019.

FSC Board Committee decision: Approves a derogation for the use of diflubenzuron to control the redheaded pine sawfly (*Neodiprion lecontei*) and/or web-spinning pine sawflies (*Acantholyda* species or *Cephalcia* species) in certified pine plantations in USA, provided that the certificate holder:

1. monitors distribution and density of pine sawflies (and parasitism rate of major parasitoids, where possible) and evaluates a critical threshold (maximum density for achieving silvicultural objectives);
2. collaborates with scientific experts or PhD students in trials to develop a decision support system for evaluating data on pine sawfly (or other major pest insects), to select ideal method and time of control;¹⁰⁸
3. as the primary option preferentially uses spinosad or another selective and non - 'highly hazardous' insecticide (possibly azadirachthin) wherever feasible or plant oils or insecticidal soap (in nursery);¹⁰⁹
4. limits diflubenzuron application to areas where estimated insect numbers exceed the critical value and to situations where spinosad or other selective alternatives (e.g. azadirachthin / neem) cannot be used or are not

¹⁰⁸ e.g. see BioSIM: pest management planning decision support. <http://cfs-scf.nrcan-rncan.gc.ca/projects/133>

¹⁰⁹ MSU. European pine sawfly. http://msue.anr.msu.edu/news/check_pines_now_for_european_pine_sawfly_larvae

economically feasible (possibly horticultural/plant oil and insecticidal soap may be used in nurseries), uses diflubenzuron at minimum effective rate (as recommended by manufacturer or determined in trials), and if possible analyses each batch of Dimilin® on diflubenzuron content (g/L);

5. participates with universities or commercial companies in research projects on a specific nucleopolyhedrosis virus, pathogenic fungi (e.g. *Metarhizium anisopliae*, *Beauveria bassiana*, *Paecilomyces* or *Lecanicillium* species), *Bacillus thuringiensis* strains active in Hymenoptera, or improved monitoring etc;
6. collaborates with entomologists in surveys of natural enemies of pine sawflies (and possibly other major pest insects), e.g. predators or parasitoids, and promotes natural enemies by protecting or restoring natural forest on part of managed area (proportionate to scale of management activities), reducing weed control, and/or installing nesting boxes for birds and bats;
7. gives high priority to preventive practices, e.g. selecting less vulnerable tree clones, planting more mixed forests where suitable (conifers and deciduous species), optimized stand density, reduced harvest intensity (e.g. shelterwood or mosaic cuts, retention trees, sequential harvest), etc
8. reports total annual use of diflubenzuron, treated area, application method and rate in audit reports, and provides a mid-term report to the certifier (informs FSC IC) until the end of October 2017 on progress with a programme to identify and test alternatives (in collaboration with partners) and at least one survey of relevant natural enemies before/after chemical control;
9. strictly follows all specified protocols to reduce risks to workers, public health, and non-target organisms, in particular prescribed safety measures and use of adequate personal protective equipment by pesticide applicators, limits aerial application to the minimum, implements the necessary measures for mitigating risks of aerial application (including GPS guidance, calibrated outlet, or GPS-controlled spray nozzles),¹¹⁰ and maintains (or exceeds) the minimum buffer zone required along surface waters, catchment areas, and sensitive areas such as natural habitat;
10. where aerial application of diflubenzuron is planned consults with local authorities and notifies the public, particularly near sensitive areas such as catchment areas for water supplies, protected areas, or nature reserves, and engages in a dialogue with directly affected parties (neighboring communities) and concerned stakeholders by informing them about the reason for insecticide use, application method and rate to be used, safety measures to be taken, and geographic boundaries (GIS-based spray plan).

¹¹⁰ US Forest Service. FHP Aviation program. <http://www.fs.fed.us/foresthealth/aviation/>; Aerial application technology.

http://www.fs.fed.us/r8/foresthealth/programs/aerial_application/aerial_application.shtml

US EPA. Reducing pesticide drift. <http://www2.epa.gov/reducing-pesticide-drift>



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Rejection
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	19 May 2017
Expiration Date:	19 May 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-30-001 FSC Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Fipronil in the USA
FSC reference code: FSC-DER-30-V1-0 EN Fipronil 19052017

Date: 19 May 2017

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use Fipronil to control Texas leaf-cutting ants (*Atta texana*) in certified forest plantations provided that during the derogation period the certificate holders:

1. By the end of 2017, produces and delivers to the certification body a document describing future research activities and/or field trials aiming to identify, investigate, and test alternatives to Fipronil. This document shall include: 1) a section describing the state of the art in leaf cutting ants control, containing a synopsis of the certification holder's previous Research and Development efforts and achievements (specifying the activities with FMPC and all the relevant operational trials, as this information is not appropriately demonstrated in the application); 2) a list of specific objectives; and 3) details of the activities (methodologies, participants, expected results, and time schedule). Fipronil application shall be compared with control methods recently developed, such as the use of botanical oils with fungicidal properties that affect the ant-cultivated fungus (see Mafra-Neto et al 2016¹¹¹);
2. Commits with the Research & Development program and provides annual progress reports to the certification body;
3. Gives priority to preventive practices and to control methods that reduce the use of Fipronil to the minimum quantity needed (e.g. planting treated seedlings with PTM instead of performing direct applications into mounds), whenever this is technically, legally, and economically feasible;
4. Continues to use the best management practices already established in order to prevent and minimize negative impacts;
5. Consults with directly or potentially affected parties where Fipronil is used (especially near protected or sensitive areas, such as parks, wildlife habitats, or surface waters), local or regional authorities for environmental protection, and scientific experts on wildlife conservation;

¹¹¹ Mafra-Neto A, Silva RO, Borges R, Oliveira LP (2016). Methods and compositions for controlling leaf-cutting ant populations. US Patent App. 15/143,097

6. Continues to record the distribution and density of the Texas Leaf Cutting Ant as well as the annual use of Fipronil;
7. Records the use of other preventive and control measures, respective area treated, and results.



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Approval
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	19 th March 2015
Expiration Date:	19 th March 2020
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-01-004 Processing pesticide derogation applications</i>

Pesticide derogation: Use of Permethrin in USA
FSC reference code: FSC-DER-30-V1-0 EN Permethrin USA 19032015

Date: 9th December 2014

FSC Board Committee decision: Approves a derogation to use **permethrin** for controlling the western pine shoot borer (WPSB) (*Eucosma sonomana*) in certified pine forests and plantations (*Pinus ponderosa* and other vulnerable species) in USA, provided that during the derogation period the certificate holders:

1. apply the 'attract and kill' technology as described in the application and use permethrin exclusively in this type of formulation;
2. monitor WPSB with pheromone traps and, if possible, monitor its major natural enemies by collaborating with forest entomologists or other experts (e.g. PhD students);
3. reduce the amount of permethrin applied to the absolute minimum needed for effective control, by limiting its use to those times in the year when control is most needed and to highly infested sites, where estimated densities exceed a critical threshold as indicated by the monitoring;
4. take measures to prevent or reduce extent of WPSB infestation, e.g. limiting growth rate of pine trees to minimum considered necessary for achieving silvicultural objectives via reduced weed control. In the long term consider planting susceptible pine species preferentially at higher elevations, on sites which are not too dry, in mixed stands or in areas with less vulnerable habitat.¹¹²
5. take measures to prevent human exposure to the applied substance, by wearing personal protective equipment, in particular gloves.

¹¹² US Forest Service. Management Guide for Western Pine Shoot Borer; 2010.
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5188584.pdf (p. 2)



PESTICIDE DEROGATION

Type of document:	FSC® Pesticide Derogation Rejection
Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	28 February 2017
Expiration Date:	28 February 2022
Related Documents:	<i>FSC-POL-30-001 FSC Pesticides Policy</i> <i>FSC-GUI-30-001 FSC Pesticides Policy Guidance</i> <i>FSC-PRO-30-001 FSC Pesticide Derogation Procedure</i>

Pesticide derogation: Use of Oxyfluorfen in the USA

FSC reference code: FSC-DER-30-V1-0 EN Oxyfluorfen 28022017

Date: 28 February 2017

FSC Board Committee decision: The Pesticides Committee has **approved** a derogation to use Oxyfluorfen to control grasses and broadleaved weeds in certified plantations in USA under the following conditions:

1. Certificate holders shall provide a report to the CB before application of oxyfluorfen (latest by June 2017) including:
 - Planned trials evaluating alternatives to oxyfluorfen. This report should contain details on trial locations, design, funding and collaborators and should give an indication of when results will be available. These trials should examine alternate herbicides and non-herbicide options. The latter should include the use of trailed scarifiers (if available).
 - Stakeholder consultation findings. Consultation shall take place with neighbours and other stakeholders (particularly occupational health inspectors, pesticide operators, unions and NGOs). The report shall include names and details of stakeholders consulted summarizing the comments received. The whole area of consultation and how it should be carried out should be emphasised during company audits.
2. A number of sites should be selected on which water quality assessment is carried out - before, during and after application of oxyfluorfen. The sampling, analysis and reporting of results from these areas should be carried out by an independent third-party organisation with expertise in this area
3. Reduce application rates of oxyfluorfen to the minimum needed for achieving management goals by spraying only areas with confirmed major weed problem, using mixed formulations that contain oxyfluorfen as a (minor) component, and supplementing or replacing it with alternatives such as silvicultural, physical and preventive practices or less hazardous herbicides. Strive to limit use of oxyfluorfen to spot or band application and only treat areas in the establishment phase or young stands (e.g. during the first few years);
4. Implement and improve risk mitigation measures: document training of staff or contracted labor and check use and maintenance of personal protective

equipment. Strictly follow all specified protocols to reduce risk to workers or non-target species, take measures to reduce spray drift and run-off (optimized droplet size, using spray skirts, choosing optimal weather and soil conditions) and maintain or exceed minimum buffer zone required next to rivers, lakes, or sensitive wildlife habitats;

5. Keep records on oxyfluorfen use (treated area, application rate/method), and include this information in forest management reports, and define voluntary quantitative targets for reductions in oxyfluorfen use, e.g. % reduction to be achieved in the derogation period, based on treated area (ha) and/or amount applied (kg/ha).