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Confidentiality:	No restrictions
Approved by:	FSC Board Pesticides Committee
Effective Date:	13 th August 2014
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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 Warfarin in UK

FSC reference code: FSC-DER-30-V2-0 EN Warfarin UK 130814

Date: 13th August 2014

FSC Board Committee decision:

The Pesticides Committee has approved a renewal of the derogation for the use of use warfarin for controlling grey squirrels (*Sciurus carolinensis*) in certified forests/plantations in the United Kingdom, provided that the certificate holders:

1. survey squirrels and damage caused by squirrels periodically with the aim to track its abundance and assess the need for use of warfarin to control grey squirrels in managed areas (e.g. by estimating likely damage or cost if squirrels are controlled with non-chemical methods),¹ and refrain from using warfarin where the red squirrel (*Sciurus vulgaris*) is present and in counties populated by red squirrels where the use of warfarin is prohibited;
2. limit warfarin use to sites close to vulnerable stands where grey squirrel density is intolerably high, only use warfarin if risk of damage seems unacceptable, keep amount used to the minimum needed for achieving silvicultural objectives, use approved product (Grey Squirrel Bait MAPP no. 13020) only during the permitted period (between 15 March and 15 August) and by placing bait in selective access hoppers, and strive to collect dead poisoned squirrels as far as possible to prevent secondary poisoning of predators or scavengers;
3. as a supplementary or stand-alone method deter squirrels from susceptible trees by

¹ [FC. Grey squirrels: Practical techniques for surveying and monitoring squirrels.](http://www.forestry.gov.uk/greysquirrel)
www.forestry.gov.uk/greysquirrel
Controlling grey squirrel damage to woodlands.
[http://www.forestresearch.gov.uk/pdf/fcpn004.pdf/\\$FILE/fcpn004.pdf](http://www.forestresearch.gov.uk/pdf/fcpn004.pdf/$FILE/fcpn004.pdf)

applying a chemical repellent to tree stems, for example dustable pepper, aluminium ammonium sulphate, a protective coating based on quartz sand or calcium carbonate (polymer suspensions), a protein based repellent, or similar products;² and collaborate with research institutions to improve protective coatings (based on minerals or protein), chemical repellents (e.g. denatonium benzoate, or capsaicin spray), or an emetic applied to bark for conditioned taste aversion (causing squirrels to vomit and stop bark stripping), e.g. lithium chloride, cyclophosphamide, red squill,³ and possibly cynarine (extract of artichoke or bitter lupine), and cooperate with the CRD or commercial companies and the Forestry Commission in field trials on, e.g., immuno-contraception or a new toxin to control grey squirrels (possibly cholecalciferol (vitamin D₃), sodium nitrite, or para-aminopropiophenone);⁴

4. in vulnerable stands where grey squirrel density is intolerably high and if the risk of tree damage seems unacceptably high, supplement poison baiting and use of a repellent or protective coating with live trapping (cages must be approved and visited daily), kill trapping (only approved spring traps in areas where red squirrels are absent),⁵ and/or shooting;
5. promote natural enemies, e.g. by putting up perching poles for raptors (buzzard, northern goshawk, golden eagle), nesting boxes for owls, and providing natural habitat for predatory mammals (such as pine marten, Scottish wildcat, stoat, red fox) on part of managed areas (proportionate to FMU size);
6. follow principles of integrated pest management by giving high priority to preventive silvicultural practices, including continuous cover systems, e.g. growing vulnerable species such as beech as an understory, in a small group or tree selection and limiting thinning until these trees are over 35 cm dbh to prevent too fast growth (Mountford 2006),⁶ and in the longer term consider growing a less susceptible tree species in areas where squirrel densities are high on a recurrent basis;

² Defra. Vertebrate pest repellent development with special reference to rabbits, badgers and grey squirrels. 2001.

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=8336>

³ Red squill may eventually be included in an update of FSC's list of 'highly hazardous' pesticides (acute toxicity).

⁴ Expert on rodenticides: Prof. Charles Eason, Department of Ecology, Lincoln University, New Zealand. www.lincoln.ac.nz/staff-profile?staffId=Charles.Eason

⁵ FC. Grey squirrels: Practical techniques for surveying and monitoring squirrels. www.forestry.gov.uk/greysquirrel

The Spring Traps Approval (England) Order 2012.

<http://www.legislation.gov.uk/uksi/2012/13/contents/made>

The Spring Traps Approval (Wales) Order 2012.

<http://www.legislation.gov.uk/wsi/2012/2941/contents/made>

The Spring Traps Approval Order (Scotland) 2011.

<http://www.legislation.gov.uk/ssi/2011/393/contents/made>

The Spring Traps Approval Order (Northern Ireland) 2012.

<http://www.legislation.gov.uk/nisr/2012/25/contents/made>

⁶ Mountford EP. Long-term patterns and impacts of grey squirrel debarking in Lady Park Wood young-growth stands (UK). Forest Ecology and Management 2006; 232: 100-113.

7. ensure that all staff who use warfarin are trained in chemical safety, use adequate personal protective equipment, and maintain buffer zones next to surface waters and sensitive areas (e.g. natural habitat);
8. record total annual use of warfarin and number of treated sites (or area), include this information in audit reports, and provide a mid-term report to the certifier (which informs FSC IC) until the end of January 2015 on progress with the development of alternatives (project partners, trials, resources);
9. strictly follow all statutory requirements in the UK for the use of pesticides (as a minimum), in particular the controls for occupational and environmental safety required by, if appropriate, the Department for Food and Rural Affairs (Defra), Health and Safety Executive, and Welsh Assembly Government; the Scottish Executive Environment and Rural Affairs Department and Health and Safety Commission; the Health and Safety Executive for Northern Ireland; and the UK Woodland Assurance Standard.⁷

List of FSC certified forestry units covered by this derogation:

Derogation applicants	
Company	Certificate Number
Charlton Abbots	SA-FM/COC-001385
Duchy of Cornwall	SA-FM/COC-001073
National Trust	SA-FM/COC-001526
Pryor and Rickett	SA-FM/COC-001446
The Crown Estate	SA-FM/COC-002666
The Woodland Trust	SA-FM/COC-001270
The University of Oxford	SA-FM/COC-002053
OCS Forestry UK Ltd T/A Fountains Forestry	CU-FM/COC-805592

<http://dx.doi.org/10.1016/j.foreco.2006.05.053>

⁷ Defra, HSE, PSD, NAW. Code of Practice for the Use of Plant Protection Products. London 2006.

www.pesticides.gov.uk/guidance/industries/pesticides/topics/using-pesticides/codes-of-practice

Scottish Executive and HSC. Pesticides: Code of Practice for the Use of Plant Protection Products in Scotland. Edinburgh 2007. www.scotland.gov.uk/Publications/2006/12/19110050/0

HSENI. Approved Codes of Practice in Northern Ireland. www.hseni.gov.uk/resources/codes-of-practice.htm

UK Woodland Assurance Standard. <http://ukwas.org.uk/about-the-standard/background-information>

Campaign for Responsible Rodenticide Use. The CRRU Code. www.thinkwildlife.org/crru-code

Derogation applicants	
Company	Certificate Number
Forest Enterprise (FC) Scotland	SGS-FM/COC-000358
Forest Enterprise (FC) England	SGS-FM/COC-000358
Natural Resources Wales (ex Forest Enterprise Wales)	SGS-FM/COC-009668
UPM Tilhill	SGS-FM/COC-000429
Scottish Woodlands	SGS-FM/COC-000260
Andrew Bronwin and Company	SA-FM/COC-001216
UK Forest Certification Ltd	CU-FM/COC-820718
Highfield Forestry Ltd	SGS-FM/COC-002512