

Coillte Forest Department:	CF Operations
Category:	Establishment
Subject:	Environmental and Social Risk Assessment (ESRA) - Glyphosate
Issued By:	Dermot Cunniffe
Issued To:	BAUs
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Background

The FSC^{®1} issued a revised FSC Pesticides Policy in May 2019 [[FSC-POL-30-001 V3-0 EN FSC Pesticides Policy](#)]. This updated policy requires Coillte to complete a comparative environment and social risk assessment (ESRA), as part of integrated pest management, to identify the lowest risk option to control a pest, weed or disease, the conditions for its use and the generic mitigation and monitoring measures to minimise the risks.

ESRAs are intended to inform site operational plans, site specific risks and adoption of appropriate mitigation measures (FSC-POL-30-001 V3-0 EN, 4.12.6).

FSC has classified glyphosate as a Restricted Highly Hazardous Pesticide (HHP). It is included in the hazard group Chronic Toxicity, under indicator 3.1.a, on the basis of the International Agency for Research on Cancer (IARC)'s classification as 'probably carcinogenic to humans' (Group 2A).

Scope

This ESRA covers the use of glyphosate for weed control as part of standard forest operations.

The essential controls on glyphosate usage are summarised below as part of the ESRA.

¹FSC[®] Licence Code: FSC-C005714

Environmental and Social Risk Assessment (ESRA) - Glyphosate

Pesticide: Glyphosate (GLY)

Purpose of use: Weed control

This ESRA is based on the listing of glyphosate as a Highly Hazardous Pesticide as a probable carcinogen, and as such it gives greatest weight to mitigating risks to human health, primarily through the pathway of direct worker exposure. Consideration is also given to the protection of aquatic and terrestrial flora and fauna. Other potential impacts are also taken into account, but the proposed mitigation strategies and indicators are proportionate to the perceived lower level of risk.

This ESRA applies to:

- Glyphosate and not to individual formulations, which may present other hazards.
- Standard forestry uses of glyphosate, i.e. those covered by the certificates of competence mentioned in the ESRA. It does not apply to non-standard uses, which may require additional safeguards.
- The application of glyphosate, including mixing, storage and waste disposal, all of which are covered by the best practice guidance cited in the proposed mitigation strategies and indicators.

The ESRA includes references to:

- [FSC Pesticides Policy \[2019\]](#)
- [FSC Lists of highly hazardous pesticides - FSC-POL-30-001a EN \[2019\]](#)
- [FSC Irish Forest Stewardship Standard \(IFSS\) \[2012\]](#)
- [Forest Service - DAFM, Irish National Forest Standard \[2000\]](#)
- [Forest Service - DAFM, Forestry and Biodiversity Guidelines \[2000\]](#)
- [Forest Service - DAFM, Code of Best Forest Practice \[2000\]](#)
- [Forest Service - DAFM Standards for Felling & Reforestation \[2019\]](#)
- [Safety, Health and Welfare at Work Act \[2005\]](#)
- [Safety, Health and Welfare at Work \(General Application\) Regulations \[2007 and amendments 2010, 2012, 2016\(1\), 2016\(20 and 2016\(3\)\]](#)
- [Safety, Health and Welfare At Work \(Chemical Agents\) Regulations, 2001 and the Safety, Health and Welfare at Work \(Chemical Agents\) \(Amendment\) Regulations \[2015\]](#)
- [Chemical Agents Code of Practice \[2024\]](#)
- [Coillte - SOP-030 Pesticides \[2022\]](#)

Revision #	Revision	Revision By
1	May 2021	Establishment Process Group
2	May 2022	Establishment Process Group
3	May 2023	Establishment Process Group
4	May 2024	Establishment Process Group
5	May 2025	Establishment Process Group

Controls

The following are the essential controls identified in this ESRA. They include new controls (**GLY.x**), but also existing controls in FSC Irish Forest Stewardship Standard. Further site controls will be included in the Activity Site Pack as appropriate, adapting them where necessary to site-specific risks (FSC-POL-30-001 V3-0 EN clause 4.12.6).

Exposure Elements	Minimum list of values	Description of why/why not a risk	Mitigation strategies defined to minimize risk	Controls
			<p>Overview From the descriptions of risk, it is clear that the principal issues are worker safety/welfare and the potential for the contamination of water. Mitigation strategies are focussed on these key risks, but also address the other, lesser risks identified: the potential for soil erosion, effects on non-target vegetation, the potential for the contamination of wild foods, risks to public health, and effects on public access.</p> <p>General strategies While this ESRA comes at a point in the IPM process where it has already been decided that the use of glyphosate is necessary, most of the risks described can be mitigated to some degree by minimising</p>	<p>GLY.1 Operations conform to the 2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)</p> <p>GLY.2 Operators hold NPTC PA1/0216-10 Level 2 in the Principles of Safe Handling and Application of Pesticides PA6 PA6/0216-</p>

			<p>the volume used, both in terms of the total used on a site and the amount applied in individual spots and strips. For this reason, the overarching FSC IFSS requirement is to minimise pesticide use (FSC ISS 6.6.3) as a key general mitigation strategy. This is monitored under FSC IFSS 10.7.1.</p> <p>Mitigation of risks to worker safety and water, as well as risks such as spray drift affecting non-target vegetation, can be achieved largely through conformance with operator training PA1/0216-10 and PA6/0216-54 which addresses the following issues:</p> <ul style="list-style-type: none"> • Certificates of competence, • Personal protective equipment (PPE) and hygiene requirements, • The applicator, • Emergency procedures, • Planning to spray, • Preparing to spray, • Spraying, • After spraying, and • Weather conditions. <p>All risks are mitigated to some degree by appropriate operator training, as evidenced by certificates of competence.</p>	<p>54 City & Guilds Award in Safe Application of Pesticides Using Pedestrian Hand Held Equipment or LANTRA Level 2 Award in Safe use of pesticides Qualification Quartz code – 3006 and Level 2 Award in Safe application of Pesticides using Hand Held Equipment Qualification Quartz code – 3024</p> <p>GLY.3 There is an appropriate risk assessment in place.</p> <p>GLY.4 Operators comply with the requirements and relevant recommendations of the product label.</p> <p>GLY.5 Records of glyphosate usage are maintained, including trade name, active ingredient, quantity of active ingredient used, period of use, number and frequency of applications, location and</p>
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			<p>All risks are also mitigated to some degree by complying with the product label.</p>	<p>area of use, and reason for use. These records are kept for a minimum of five years.</p> <p>GLY.6 There is awareness of research into chemical and non-chemical alternatives to glyphosate carried out by UK Forest Research or other universities both in Ireland and elsewhere in Europe.</p> <p>GLY.7 Coillte, where possible, provides financial or in kind contributions to research into chemical and non-chemical alternatives to glyphosate carried out by forest research bodies.</p> <p><i>Guidance note: In kind contributions may include providing sites for field trials.</i></p> <p><i>While other forest companies and research agencies/universities may consider carrying out their own investigations into chemical and non-chemical</i></p>
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				<p><i>alternatives to glyphosate, they should be coordinated wherever possible to maximise the benefits of such studies.</i></p> <p><i>See also IFSS 6.6.3 and 6.6.5.1 to 6.6.5.9</i></p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Environmental</p>	<p>Soil (erosion, degradation, biota, carbon storage)</p>	<p>Control of vegetation using glyphosate may create bare soil, which may potentially lead to soil erosion or degradation.</p> <p>Standard forestry usage of glyphosate is not known to have significant impacts on soil biota or carbon storage.</p>	<p>The risk of soil erosion or degradation is considered to be relatively minor, and adequately addressed by IFSS 6.1.3 and 6.1.4L</p>	<p><i>See IFSS 6.1.3 and 6.1.4L</i></p>
	<p>Water (ground water, surface waters, water supplies)</p>	<p>Glyphosate is known to be toxic to aquatic life with long lasting effects (CLP H411).</p> <p>Glyphosate usage has the potential to contaminate ground water, surface water and water supplies.</p>	<p>Water protection and buffer setbacks are addresses in Section 13,14 and Section 15 in Standards for Felling and Reforestation. While a wide range of measures, including careful transport and storage, are important in protecting water resources, the principal measure to protect surface waters and water supplies is to identify them and to respect appropriate buffer zones around them, as per Section 14.</p>	<p><i>GLY.8 Operations are obliged to adhere to Standards for Felling & Reforestation, most particularly in regard to requirements and guidelines in relation to buffer zones around watercourses, waterbodies and abstraction points. Subject only to GLY.9, there is no usage, mixing or filling of</i></p>

		<p>The greatest risk of harm comes from mixing and filling undiluted products.</p>	<p>Check the precise location of any domestic water supply, rivers, streams, ditches or ponds. Plan to leave a suitable buffer strip (see product label) to avoid contamination</p> <p>Glyphosate product labels do not specify buffer widths, but various minimum distances between operations and surface water etc. are set out in the Standards for Felling & Reforestation. And S.I.155/2012</p> <p>The application of pesticides on the Coillte estate is detailed in SOP - 030 Pesticides and covers the purchasing, handling, transportation, storage and use in the field.</p> <p>Risks can be reduced by going beyond these minimum requirements and observing the recommended buffer widths in Table 14.1 Water setbacks in the Standards for Felling & Reforestation.</p> <p>Special care is required when mixing, filling and diluting pesticide concentrates ready for application. In forestry, pesticides are usually mixed on or near to the treatment site, so it is extremely important to choose the mixing area carefully, make sure it is outside aquatic buffer zones, and take</p>	<p><i>glyphosate within 10 m of an EPA Stream or relevant watercourse.</i></p> <p><i>Note should be made of S.I. 155/2012, which prescribes setback distances for different types of water abstraction points;</i></p> <table border="1"> <thead> <tr> <th>Water Source</th> <th>Distance</th> </tr> </thead> <tbody> <tr> <td><i>Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 100m³ or more of water per day or serving 500 or more persons,</i></td> <td>200m</td> </tr> <tr> <td><i>Abstraction point of any surface waters, borehole, spring or well used for the</i></td> <td>100m</td> </tr> </tbody> </table>	Water Source	Distance	<i>Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 100m³ or more of water per day or serving 500 or more persons,</i>	200m	<i>Abstraction point of any surface waters, borehole, spring or well used for the</i>	100m
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			<p>precautions to avoid contaminating the wider environment.</p> <p>IFSS 6.7.3 requires that plans and equipment must be in place to deal with accidental spillages of chemicals.</p> <p>Some products containing glyphosate are approved for use on land immediately adjacent to aquatic areas. While the best way to protect surface waters is to respect buffer zones, as described above, there may be circumstances under which it is desirable to use glyphosate near water, for example to control invasive non-native species. In such situations it is essential to consult with the Inland Fisheries Ireland, Local authority and the NPWS to obtain their agreement before using glyphosate to control aquatic weeds.</p>	<p><i>abstraction of water for human consumption in a water scheme supplying 10m3 or more of water per day or serving 50 –500 persons,</i></p> <p><i>Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 1-10m3 of water per day or serving 10-50 persons,</i></p> <p><i>Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human</i></p>	<p>25m</p> <p>5m</p>
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				<p><i>consumption in a water scheme supplying 1m3 or less of water per day or serving 10 or less persons,</i></p> <p><i>GLY.9 Glyphosate is used within buffer zones around watercourses or waterbodies only if such usage will result in demonstrable enhancement of biodiversity, and only following consultation with the, IFI, LA and NPWS.</i></p> <p><i>Glyphosate can also be used to control aquatic weeds only with the agreement of IFI, LA and NPWS .</i></p> <p><i>GLY.10 Impacts on water quality are routinely monitored by the EPA and co-operation is provided in the provision of chemical usage figures</i></p>
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				<p><i>Where possible Coillte will collect own data in response to significant incidents (e.g. spillage of pesticide or dumping of full pesticide containers) where contamination of water supplies or environmental damage is likely to have occurred, in order that any damage can be assessed, and mitigated and/or repaired.</i></p> <p><i>See also IFSS 6.6.5.5 and 6.7.3</i></p>
	<p>Atmosphere (air quality, greenhouse gasses)</p>	<p>Impacts on the atmosphere are likely only if glyphosate is sprayed at height. As this is not the case in standard forestry usage of glyphosate (where application is by spot spraying or low boom), there are not considered to be any significant impacts.</p>	<p>N/A</p>	<p>N/A</p>
	<p>Non-target species (vegetation, wildlife, bees and other pollinators, pets)</p>	<p>Control of vegetation using glyphosate may potentially have impacts on non-target vegetation.</p>	<p>The purpose of glyphosate applications is to control vegetation. Inappropriate damage to vegetation may be avoided, firstly, by correctly identifying environmental values and potential products which should be</p>	<p>GLY.11 Operators take reasonable steps to avoid spray drift as trained through PA6/0216-54 City & Guilds Award in Safe</p>

		<p>Standard forestry usage of glyphosate is not considered to present a hazard to bees.</p> <p>Standard forestry usage of glyphosate may present a potential pathway to affect wildlife and pets, but this is not considered to be a significant issue.</p>	<p>protected and, secondly, by ensuring that applications are targeted as intended by avoiding issues such as spray drift.</p> <p>The identification of environmental receptors, including those outside the management unit and potentially affected by spray drift, is considered to be adequately addressed by IFSS 6.1.3, 6.1.4 and 6.6.3.</p>	<p>Application of Pesticides Using Pedestrian Hand Held Equipment and LANTRA Level 2 Award in Safe application of Pesticides using Hand Held Equipment Qualification Quartz code – 3024</p> <p><i>See also IFSS 6.6.5.1 to 6.6.5.9 and 10.7.1 for general management strategies</i></p>
	<p>Non-timber forest products (as FSC-STD-01-001 V5-2 FSC Principles and Criteria, criterion 5.1)</p>	<p>Control of vegetation using glyphosate may potentially kill moss or berry producing plants, although in the case of bramble (<i>Rubus fruticosus</i> agg.) this may be the purpose of application.</p>	<p>The identification of potential non-timber forest products (NTFPs) is considered to be adequately addressed by IFF 6.4.1</p> <p><i>Note: It is assumed that owners/managers will not without good reason deliberately target NTFPs they intend to harvest. Effects on wild foods which may be harvested by other parties are considered below.</i></p>	<p><i>See IFSS 6.4.1</i></p>
	<p>High Conservation Values (particularly HCV 1 & 3)</p>	<p>As noted previously, there are potential impacts on non-target plant species (HCV 1 & 3).</p>	<p>In extremis, poorly thought out or careless applications of glyphosate have the potential to cause significant damage to HCV 1 or HCV 3 sites, but this risk is considered to be adequately addressed by the strength of IFSS requirements including 6.1.1 to 6.1.4, 6.2.1 to 6.2.4.</p>	<p><i>See also 6.1.1 to 6.1.4, 6.2.1 to 6.2.4 and 9.1.1 to 9.1.3L</i></p>

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		HCV 2, 4 5 & 6 are currently recognised as not present in Ireland.	For HCV 1 & 3 in particular, refer to 9.1.1 to 9.1.3L	
	Landscape (aesthetics, cumulative impacts)	Standard forestry usage of glyphosate is not considered to have any significant impacts.	N/A	N/A
	Ecosystem services (water, soil, carbon sequestration, tourism)	As noted previously, there are potential impacts on water and soil . Standard forestry usage of glyphosate is not considered to have any significant impacts on carbon sequestration or tourism.	See the strategies for water and soil, above.	See the controls for water and soil, above.
Social	High Conservation Values (especially HCV 5-6)	As noted previously, there are potential impacts on water supplies . Standard forestry usage of glyphosate is not considered to have any significant impacts on cultural values.	See the strategies for water, especially in relation to water supplies, above. Appropriate communication and consultation as per IFSS 7.4.1 to 7.4.3L and 9.1.2, 9.1.3, 9.2.1 and 9.2.2 will be important to ensure that neighbours with private water supplies are suitably informed and able to discuss mitigation measures.	See the controls for water, above. <i>See also IFSS 7.4.1 to 7.4.3L.</i>
	Health (fertility, reproductive health, respiratory health, dermatologic, neurological and gastrointestinal)	Glyphosate is a probable carcinogen, with professional users	Worker safety and welfare are addressed primarily in the PPE and hygiene requirements of the certificates PA1/0216-10 Level 2 in the Principles of	GLY.12 Operators have and use adequate personal

	problems, cancer and hormonal imbalance)	<p>potentially at risk through direct contact.</p> <p><i>Note: This risk is considered particularly significant as it is the basis for the listing of glyphosate as a Highly Hazardous Pesticide.</i></p> <p>Glyphosate is also known to cause serious eye irritation (CLP H319).</p>	<p>Safe Handling and Application of Pesticides PA6 PA6/0216-54 City & Guilds Award in Safe Application of Pesticides Using Pedestrian Hand Held Equipment or LANTRA Level 2 Award in Safe use of pesticides Qualification Quartz code – 3006 and Level 2 Award in Safe application of Pesticides using Hand Held Equipment Qualification Quartz code – 3024</p>	<p>protective equipment PPE as follows:</p> <p>Chemical proof spray suit (EN465¹) (wear at all stages of the chemical application process)</p> <p>Chemical proof Nitrile gloves (EN 374) (wear at all stages of the chemical application process)</p> <p>Face shield(Chem.) EN166 (While pouring glyphosate into sprayer and rinsing)</p> <p>Chemical proof steel-toe-capped wellingtons (EN345) (wear at all stages of the chemical application process).</p> <p>GLY.13 Operator exposure to glyphosate is monitored using pesticide application records and site checks of use of personal protective</p>
	Welfare	<p>Standard forestry usage of glyphosate may have indirect effects on worker welfare through the weight of spraying gear or overheating as a result of wearing personal protective equipment.</p> <p>In addition, workers must have access to clean water for both washing and drinking.</p>		

				<p>equipment. There is appropriate follow up action if personal protective equipment is not being used.</p> <p>GLY.14 Operator health concerns are monitored using pesticide application records and site checks. There is appropriate follow up action if health concerns are identified.</p>
	<p>Food and water</p>	<p><i>Note: This value is taken to refer to wild forest foods (rather than agricultural crops) and to drinking water.</i></p> <p>Standard forestry usage of glyphosate may potentially lead to contamination of fruits etc., and contact with residues immediately after treatment may be harmful.</p> <p>As noted previously, there are potential impacts on water supplies.</p>	<p>Coillte are committed to promoting public safety across all of our forests and we remind people that forests contain many different types of plant life and expert advice should always be sought before consuming anything that is growing in the wild.</p> <p>Autumn is peak time for foraging. The risk of members of the public picking fruit or fungi which have been recently contaminated with pesticides can be mitigated through the following measures;</p> <ol style="list-style-type: none"> I. In all cases, if practical, it is preferable to totally exclude forest 	<p>GLY.15 Operations conform to best practice on protecting the public, particularly around recreational infrastructure or where wild foods that are likely to be picked are present.</p>

			<p>users from the work-site, or close the recreation site or footpath/right of way on the work-site margins. The method of exclusion, through barriers or signage, will depend on the type of user identified... The duration of exclusion will depend on the presence or absence of edible fruit or fungi.</p> <p>II. If edible fruit or fungi that are likely to be picked are present, close the site until the produce dies. Alternatively, treat the site at a time of year when no edible produce is present, or trim off the plants to prevent fruiting.</p> <p>III. If no edible fruit or fungi are present, close the site for 48 hours after spraying, or until the pesticide dries and there is no liquid residue that might cause accidental contamination of the public.</p> <p>IV. The risk of members of the public picking fruit or fungi which have been recently contaminated with pesticides can be further mitigated through conformance with Coillte's</p>	
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			EMS Pesticide SOP 5.3 Signage "Erect dated warning signs (as determined by risk assessment) prior to commencement of spraying. Remove warning signs once chemical is dry and there is no further risk of contamination to the public."	
	Social infrastructure; (schools and hospitals, recreational infrastructure, infrastructure adjacent to the management unit)	Glyphosate usage may potentially have impacts on human health through application on and around recreational infrastructure.	Risks to public health can be mitigated by reducing the potential for contact with deliberately or accidentally contaminated surfaces. This can be achieved through a combination of careful control of operations in public areas and also by appropriate signage.	<i>See also GLY.15 under food and water, above.</i>
	Economic viability (agriculture, livestock, tourism)	Glyphosate usage may potentially have impacts on some water-based enterprises (such as fish farming), or on water supplies for enterprises (such as breweries or distilleries).	See the strategies for water, above.	See the controls for water, above.
	Rights (legal and customary)	Standard forestry usage of glyphosate may lead to actual or perceived	Some restrictions to public access, are desirable in order to minimise other risks. However, where such restrictions are imposed, they should be kept to the	GLY.16 Where it is desirable to restrict public access to minimise health and safety risks, such restrictions are

		<p>restrictions on rights of access.</p> <p>Glyphosate usage may potentially have impacts on rights to uncontaminated water.</p>	<p>minimum extent and duration necessary to achieve their aims.</p> <p>In addition to actual restrictions on public access, some forest users may feel excluded because of their uncertainties about operations or their concerns about safety. This risk is best mitigated through appropriate stakeholder engagement.</p> <p>See also the strategies for water, above.</p>	<p>kept to the minimum extent and duration necessary to achieve their aims.</p> <p>See also the controls for water, above.</p>
	<p>Others</p>	<p>No other risks have been identified.</p>	<p>N/A</p>	<p>N/A</p>