ESRA – Cycloxydim

Coillte Forest Department:	CF Operations
Category:	Establishment
Subject:	Environmental and Social Risk Assessment (ESRA) - Cycloxydim (ISO)
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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 not classified cycloxydim as a 'Highly Hazardous' pesticide. Cycloxydim therefore falls under the category of 'other chemical pesticides'.

Scope

This ESRA covers the use of cycloxydim as a herbicide for the control of grass weeds in forestry situations.

[1] FSC® Licence Code: *FSC-C005714*

Environmental and Social Risk Assessment (ESRA) – Cycloxydim

Pesticide: Cycloxydim (ISO)

Purpose of use: Weed control

This ESRA applies to:

- Cycloxydim and not to individual formulations, which may present other hazards.
- Standard forestry uses of cycloxydim , 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 cycloxydim, 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 [2020]
- Coillte - SOP-030 Pesticides [2022]

Revision #	Revision	Revision By
1	**May 2022**	Establishment Process Group
2	**May 2024**	Establishment Process Group
3	**May 2025**	Establishment Process Group

Controls

The following are the essential controls identified in this ESRA. They include new controls (**ISO.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
			Overview From the descriptions of risk in this ESRA, the principal issues are the potential for contamination of water. Mitigation strategies are focussed on this key risk, but also deal with the lesser risks identified such as impacts on non-target rare Compositae species, downstream agricultural enterprises, and effects on public access. **General strategies** While this ESRA comes at a point in the IPM process where it has already been decided that the use of cycloxydim is necessary, most of the risks described can be mitigated to some degree by minimising 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	**ISO.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) **ISO.2** Operators hold NPTC **PA1/0216-10** Level 2 in the Principles of Safe Handling and Application of Pesticides PA6 **PA6/0216-54** City & Guilds Award in Safe Application of

			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. The key strategies to minimise the risk of harm to any environmental or social value are to read and comply with the cycloxydim product label 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: • 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.	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** **ISO.3** There is an appropriate risk assessment in place. **ISO.4** Operators comply with the requirements and relevant recommendations of the product label. **ISO.5** Records of cycloxydim usage are maintained, including trade name, active ingredient, quantity of active ingredient used, period of use, number and frequency of applications, location and area of use, and reason for

			All risks are mitigated to some degree by appropriate operator training, as evidenced by certificates of competence.	use. These records are kept for a minimum of five years.
Environmental	Soil (erosion, degradation, biota, carbon storage)	Standard forestry usage of cycloxydim is not considered to have any significant impacts.	N/A	N/A
	Water (ground water, surface waters, water supplies)	Cycloxydim has a GHS Classification of H411 *"Toxic to aquatic life with long lasting effect".* Cycloxydim usage has the **potential to contaminate ground water, surface water and water supplies**. The greatest risk of harm comes from mixing and filling undiluted products.	Water protection and buffer setbacks are addresses in Section 13, Section 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. 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. Cycloxydim product labels do not specify buffer widths, but various minimum distances between operations and surface	***ISO.6*** *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* ***ISO.7****, there is no usage, mixing or filling of chemicals within 10 m of an EPA Stream or relevant watercourse.* *Note should be made of S.I. 155/2012, which prescribes setback distances for*

			water etc. are set out in the ***Standards for Felling & Reforestation***. And S.I.155/2012 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. 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***. 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 precautions to avoid contaminating the wider environment. IFSS 6.7.3 requires that plans and equipment must be in place to deal with accidental spillages of chemicals.	*different types of water abstraction points;* ***Water Source*** ***Distance*** *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,* *200m* *Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 10m3 or more of water per day or* *100m*

				serving 50 —500 persons,	
				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,	*25m*
				Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 1m3 or less of water per day or serving 10 or less persons,	*5m*

				ISO.8 *Cycloxydim 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.* ***ISO.9*** *Impacts on water quality are routinely monitored by the EPA and co-operation is provided in the provision of chemical usage figures.* *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.*

				See also IFSS 6.6.5.5 and 6.7.3
	Atmosphere (air quality, greenhouse gasses)	Standard forestry usage of cycloxydim is not considered to have any significant impacts.	N/A	N/A
	Non-target species (vegetation, wildlife, bees and other pollinators, pets)	Cycloxydim is highly selective and will only affect certain Compositae species. Rare species from this plant family that need to be conserved could potentially be killed if sprayed with cycloxydim. Standard forestry usage of cycloxydim is not considered to have any significant impacts on other non-target species.	The purpose of cycloxydim applications is to control vegetation by targeted application. Inappropriate damage to vegetation may be avoided, firstly, by correctly identifying environmental values and potential products which should be protected and, secondly, by ensuring that applications are targeted as intended by avoiding issues such as spray drift. 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.	**ISO.10** Operators take reasonable steps to avoid spray drift as trained through **PA6/0216-54** City & Guilds Award in Safe 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** *See also IFSS 6.6.5.1 to 6.6.5.9 and 10.7.1 for general management strategies*

	Non-timber forest products (as FSC-STD-01-001 V5-2 FSC Principles and Criteria, criterion 5.1)	Standard forestry usage of cycloxydim is not considered to have any significant impacts on other non-target species.	The identification of potential non-timber forest products (NTFPs) is considered to be adequately addressed by IFSS 6.4.1 *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.*	*See IFSS 6.4.1*
	High Conservation Values (particularly HCV 1 & 3)	As noted previously, there are **potential impacts on non-target plant species (HCV 1 & 3**). HCV 2, 4 5 & 6 are currently recognised as not present in Ireland.	In extremis, poorly thought out or careless applications of cycloxydim 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. For HCV 1 & 3 in particular, refer to 9.1.1 to 9.1.3L	See *also 6.1.1 to 6.1.4, 6.2.1 to 6.2.4 and 9.1.1 to 9.1.3L*
	Landscape (aesthetics, cumulative impacts)	Standard forestry usage of cycloxydim 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 cycloxydim is **not** considered to have any	See the strategies for water and soil, above.	See the controls for water and soil, above.

		significant impacts on carbon sequestration or tourism.		
Social	High Conservation Values (especially HCV 5-6)	As noted previously, there are **potential impacts on water supplies** . Standard forestry usage of cycloxydim 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. *See also IFSS 7.4.1 to 7.4.3L.*
	Health (fertility, reproductive health, respiratory health, dermatologic, neurological and gastrointestinal problems, cancer and hormonal imbalance)	Cycloxydim has GHS Classifications of H304 *"May be fatal if swallowed and entres airways",* H325 *"Causes Serious irriatation",* H319 *"Causes serious eye irriation"*, H336 *"May Cause drowsiness or dizziness"* & H361d *"suspected of damaging the unborn child"*.	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 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**	**ISO.11** Operators have and use adequate personal protective equipment PPE as follows: Chemical proof spray suit (EN465[1]) (wear at all stages of the chemical application process) Chemical proof Nitrile gloves (EN374) (wear at all stages of the chemical application process)
	Welfare	Standard forestry usage of cycloxydim **may have indirect effects on worker welfare through the weight of spraying gear or overheating as a result**		

		of wearing personal protective equipment. <u>In addition, workers must have access to clean water for both washing and drinking.</u>		Face shield(Chem.) EN166 (While pouring glyphosate into sprayer and rinsing) Chemical proof steel-toe-capped wellingtons (EN345) (wear at all stages of the chemical application process). **ISO.12** Operator exposure to cycloxydim is monitored using pesticide application records and site checks of use of personal protective equipment. There is appropriate follow up action if personal protective equipment is not being used. **ISO.13** Operator health concerns are monitored using pesticide application records and site checks. There is appropriate follow up action if health concerns are identified.
	Food and water	*Note: This value is taken to refer to wild forest foods*	Coillte are committed to promoting public safety across all of our forests and we	**ISO.14** Operations conform to best practice on

		(rather than agricultural crops) and to drinking water. Standard forestry usage of cycloxydim **may potentially lead to contamination of fruits etc**., and contact with residues immediately after treatment may be harmful. As noted previously, there are **potential impacts on water supplies**.	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. 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; I. In all cases, if practical, it is preferable to totally exclude forest 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. 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	protecting the public, particularly around recreational infrastructure or where wild foods that are likely to be picked are present.

			present, or strim off the plants to prevent fruiting. 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. 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 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)	Cycloxydim usage **may potentially have impacts on human health through application on and**	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	*See also ISO.14 under food and water, above.*

		around recreational infrastructure.	in public areas and also by appropriate signage.	
	Economic viability (agriculture, livestock, tourism)	Cycloxydim 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 cycloxydim **may lead to actual or perceived restrictions on rights of access**. Cycloxydim usage **may potentially have impacts on rights to uncontaminated water**.	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 minimum extent and duration necessary to achieve their aims. 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. See also the strategies for water, above.	**ISO.15** Where it is desirable to restrict public access to minimise health and safety risks, such restrictions are kept to the minimum extent and duration necessary to achieve their aims. See also the controls for water, above.
	Others	No other risks have been identified.	N/A	N/A