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Re-evaluation Decision

RVD2019-03

# Fluroxypyr (present as ester) and Its Associated End-use Products

*Final Decision*

*(publié aussi en français)*

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## Re-evaluation Decision

Under the authority of the *Pest Control Products Act*, all registered pesticides must be regularly re-evaluated by Health Canada's Pest Management Regulatory Agency (PMRA) to ensure that they continue to meet current health and environmental safety standards and continue to have value. The re-evaluation considers data and information from pesticide manufacturers, published scientific reports, and other regulatory agencies. The PMRA applies internationally accepted risk assessment methods as well as current risk management approaches and policies.

Fluroxypyr is a post-emergent herbicide that offers control of annual broadleaved weeds in small grain cereals, rangeland, permanent pasture, industrial and other non-cropland areas. It is applied with both ground and aerial equipment. Currently registered products containing fluroxypyr are listed in Appendix I.

This document summarizes the final regulatory decision<sup>1</sup> of fluroxypyr, and all pest control products containing fluroxypyr registered in Canada are subject to this final re-evaluation decision. Prior to finalizing this decision, Health Canada published the Proposed Re-evaluation Decision PRVD2017-11, *Fluroxypyr (present as ester) and Its Associated End-use Products*, for a 90-day consultation.<sup>2</sup> One comment was received during the consultation process, and it was taken into consideration for this final regulatory decision. The comment did not result in changes to the proposed decision of fluroxypyr. Therefore, this final decision is consistent with the proposed re-evaluation decision stated in PRVD2017-11. Appendix II of this document summarizes the comment received during consultation period and provides the PMRA's response.

A reference list of all data used as the basis for the re-evaluation decision is included in Appendix IV.

### Outcome of Science Evaluation

Health risks from the use of fluroxypyr and its associated end-use products have been shown to be acceptable for all uses, when used according to current label directions. The environmental risks associated with the use of fluroxypyr and its associated end-use products are considered to be acceptable when used according to the revised label directions (updated buffer zones). Fluroxypyr has value with respect to weed management program for cereal (wheat, barley, and oats) and seed production of forage grasses, and for the management of pasture, rangeland, and industrial non-crop areas.

### Regulatory Decision for Fluroxypyr

Health Canada has completed the re-evaluation of fluroxypyr. Under the authority of the *Pest Control Products Act*, Health Canada has determined that continued registration of products containing fluroxypyr is considered to be acceptable. An evaluation of available scientific information found that uses of fluroxypyr products meet current standards for protection of

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<sup>1</sup> "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

<sup>2</sup> "Consultation statement" as required by subsection 28(2) of the *Pest Control Products Act*.

human health and/or the environment when used according to the conditions of registration, which include the required label updates summarized below. Refer to Appendix III for details.

### **Human Health Label Updates**

- Updated restricted-entry interval; and
- Updated label statements to minimize bystander exposure from spray drift.

### **Environmental Label Updates**

- Updated buffer zones;
- Updated environmental hazard label statements; and
- Updated storage label statements.

### **Next Steps**

To comply with this decision, the required label updates must be implemented on all product labels sold by registrants no later than 24 months after the publication date of this decision document. Products containing fluroxypyr that are registered under the authority of the *Pest Control Products Act* are listed in Appendix I.

### **Other Information**

Any person may file a notice of objection<sup>3</sup> regarding this decision on fluroxypyr within 60 days from the date of publication of this re-evaluation decision. For more information regarding the basis for objecting (which must be based on scientific grounds), please refer to the Pesticides section of Canada.ca (Request a Reconsideration of Decision) or contact the PMRA's Pest Management Information Service.

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<sup>3</sup> As per subsection 35(1) of the *Pest Control Products Act*

## Appendix I Registered Fluroxypyr Products as of October 2018

Registration Number	Marketing Class	Registrant	Product Name	Formulation	Guarantee
24815	Commercial	Dow AgroSciences Inc.	STARANE HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
24834	Commercial	Dow AgroSciences Inc.	ATTAIN A HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
25465	Commercial	Dow AgroSciences Inc.	PRESTIGE A	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
27246	Commercial	Dow AgroSciences Inc.	TROPHY A EMULSIFIABLE CONCENTRATE HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
28537	Commercial	Dow AgroSciences Inc.	BASELINE B HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
29286	Commercial	Dow AgroSciences Inc.	GF-184 HERBICIDE	Suspension	Florasulam - 2.5 g/L Fluroxypyr - 100 g a.e./L
29450	Commercial	Syngenta Canada Inc.	PULSAR HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 113.3 g a.e./L Dicamba - 86.9 g/L
29462	Commercial	Dow AgroSciences Inc.	PRESTIGE XC A HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
29463	Commercial	Dow AgroSciences Inc.	STARANE II HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
29557	Commercial	Dow AgroSciences Inc.	RETAIN B HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
29586	Commercial	E.I. Du Pont Canada Company	PERIMETER HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
29670	Commercial	Dow AgroSciences Inc.	STARANE GBX HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
29730	Commercial	Dow AgroSciences Inc.	PERIMETER MEGA PRECISIONPAC HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
29761	Commercial	Dow AgroSciences Inc.	NUFARM TROPHY 600 A HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
29953	Commercial	Dow AgroSciences Inc.	STELLAR A HERBICIDE	Suspension	Florasulam - 2.5 g/L Fluroxypyr - 100 g a.e./L
29958	Commercial	Dow AgroSciences Inc.	GBX HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
29965	Commercial	Dow AgroSciences Inc.	TANDEM B HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
29973	Commercial	Dow AgroSciences Inc.	ATTAIN XC A HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
30028	Commercial	Nufarm Agriculture Inc.	NUFARM FLUROXYPYR 180 HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L

Registration Number	Marketing Class	Registrant	Product Name	Formulation	Guarantee
30077	Commercial	Dow AgroSciences Inc.	OCTTAIN XL HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 90 g a.e./L (2,4-Dichlorophenoxy)acetic acid - 360 g/L
30094	Commercial	E.I. Du Pont Canada Company	PERIMETER II HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
30095	Commercial	Dow AgroSciences Inc.	PERIMETER MEGA XC PRECISIONPAC HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
30194	Commercial	Nufarm Agriculture	NUFARM FLUROXYPYR HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
30389	Commercial	Arysta LifeScience North America	FLUROXYPYR EC HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 348 g a.e./L
30391	Commercial	Syngenta Canada	AXIAL XTREME HERBICIDE	Emulsifiable Concentrate	Pinoxaden - 50 g/L Fluroxypyr - 87.5 g a.e./L
30456	Commercial	Loveland Products Canada	MOMENTUM	Emulsifiable Concentrate	Fluroxypyr - 90.0 g a.e./L Clopyralid - 90.0 g/L
30580	Commercial	Arysta LifeScience North America	ARY 0548-019 HERBICIDE	Suspension	Flucarbazone - 36.3 g/L Fluroxypyr - 200 g a.e./L
30667	Commercial	Arysta LifeScience North America	FLUROXYPYR WDG HERBICIDE	Wettable Granules	Fluroxypyr - 27.8%
30690	Commercial	Nufarm Agriculture Inc.	ENFORCER D HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 80 g a.e./L (2,4-Dichlorophenoxy)acetic acid - 240 g/L Bromoxynil - 190 g/L
30691	Commercial	Nufarm Agriculture Inc.	ENFORCER M HERBICIDE	Emulsifiable Concentrate	(2-methyl-4-chlorophenoxy)acetic acid - 200 g/L Fluroxypyr - 80 g a.e./L Bromoxynil - 200 g/L
30795	Commercial	Dow AgroSciences Inc.	SIGHTLINE B HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
30815	Commercial	Adama Agriculture Solutions Canada, LTD.	FLUROXYPYR 180 EC	Emulsifiable Concentrate	Fluroxypyr - 150 g a.e./L
31303	Commercial	Dow AgroSciences Inc.	PIXXARO A HERBICIDE	Emulsifiable Concentrate	Halauxifen - 16.25 g/L Fluroxypyr - 250 g a.e./L
31428	Commercial	Dow AgroSciences Inc.	PRESTIGE XL HERBICIDE	Emulsifiable Concentrate	(2-methyl-4-chlorophenoxy)acetic acid - 239.5 g/L Fluroxypyr - 61.56 g a.e./L Clopyralid - 42.72 g/L
31434	Commercial	Nufarm Agriculture Inc.	SIGNAL F HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 217 g a.e./L; CFP-112 g/L;
31626	Commercial	Dow AgroSciences Inc.	SCUTTLE HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 90 g a.e./L (2,4-Dichlorophenoxy)acetic acid - 360 g/L

Registration Number	Marketing Class	Registrant	Product Name	Formulation	Guarantee
31646	Commercial	Adama Agriculture Solutions Canada, LTD.	OUTSHINE	Suspension	Florasulam - 2.5 g/L Fluroxypyr - 100 g a.e./L
31673	Commercial	Syngenta Canada Inc.	TRAXOS® TWO BROADLEAF COMPONENT	Emulsifiable Concentrate	Fluroxypyr - 90 g a.e./L (2,4-Dichlorophenoxy)acetic acid - 360 g/L
31685	Commercial	E.I. Du Pont Canada Company	DUPONT TRAVALLAS HERBICIDE	Suspension	Thifensulfuron-methyl - 30 g/L Metsulfuron-methyl - 3.0 g/L Fluroxypyr - 150 g a.e./L
31727	Commercial	Loveland Products Canada, Inc.	HAT TRICK HERBICIDE	Emulsifiable Concentrate	(2-methyl-4-chlorophenoxy)acetic acid - 224 g/L Fluroxypyr - 61 g a.e./L Clopyralid - 61 g/L
32006	Commercial	Bayer CropScience Inc.	FX HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g a.e./L
32099	Commercial	Dow AgroSciences Inc.	STELLAR XL HERBICIDE	Emulsifiable Concentrate	(2-methyl-4-chlorophenoxy)acetic acid - 350 g/L Florasulam - 2.5 g/L Fluroxypyr - 100 g a.e./L
32143	Commercial	E.I. Du Pont Canada Company	DUPONT SENTRALLAS HERBICIDE	Suspension	Thifensulfuron-methyl - 30 g/L Fluroxypyr - 150 g a.e./L
32359	Commercial	Dow AgroSciences Inc.	IMPEDE HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 90 g a.e./L Clopyralid - 90 g/L
32565	Commercial	Dow AgroSciences Inc.	STARANE DRY HERBICIDE	Wettable Granules	Fluroxypyr - 35%
32845	Commercial	Dow AgroSciences Inc.	RETAIN B 333 HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
32952	Commercial	NewAgco, Inc.	MPOWER FOXXY HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g/L
33028	Commercial	Dow AgroSciences Inc.	GF-3538 HERBICIDE	Suspension	Fluroxypyr - 113.5 g a.e./L Pyroxsulam - 12.8 g/L
33047	Commercial	Parijat Industries India Pvt. Ltd	IKWIN HERBICIDE	Emulsifiable Concentrate	Fluroxypyr - 180 g/L
29350	Manufacturing	Dow AgroSciences Inc.	STARANE MANUFACTURING CONCENTRATE	Solid	Fluroxypyr - 68%
30193	Manufacturing	Nufarm Agriculture Inc.	NUFARM FLUROXYPYR MANUFACTURING CONCENTRATE	Solid	Fluroxypyr - 68%
31202	Manufacturing	Dow AgroSciences Inc.	GF-1203 MANUFACTURING CONCENTRATE	Emulsifiable Concentrate	Fluroxypyr - 90 g a.e./L Clopyralid - 90 g/L
31933	Manufacturing	E.I. Du Pont Canada Company	DUPONT TRAVALLAS MUP	Suspension	Thifensulfuron-methyl - 30 g/L Metsulfuron-methyl - 3.0 g/L Fluroxypyr - 150 g a.e./L



Registration Number	Marketing Class	Registrant	Product Name	Formulation	Guarantee
31991	Manufacturing	Dow AgroSciences Inc.	GF-1784 MANUFACTURING CONCENTRATE	Emulsifiable Concentrate	Fluroxypyr - 333 g a.e./L
32144	Manufacturing	E.I. Du Pont Canada Company	DUPONT SENTRALLAS MUP	Suspension	Thifensulfuron-methyl - 30 g/L Fluroxypyr - 150 g a.e./L
24814	Technical	Dow AgroSciences Inc.	STARANE F TECHNICAL HERBICIDE	Solid	Fluroxypyr - 68%
30335	Technical	Agrogill Chemicals PTY LTD.	FLUROXYPYR AGROGILL TECHNICAL GRADE ACTIVE INGREDIENT	Solid	Fluroxypyr - 68%
30507	Technical	Adama Agriculture Solutions Canada, LTD.	MANA FLUROXYPYR TECHNICAL	Solid	Fluroxypyr - 68.0%
30955*	Technical	Nufarm Agriculture Inc.	NUFARM FLUROXYPYR-MEPTYL TECHNICAL	Solid	Fluroxypyr - 68%
32951	Technical	NewAgco, Inc.	NEWAGCO FLUROXYPYR TECHNICAL	Solid	Fluroxypyr - 68.5%
33046	Technical	Parijat Industries India Pvt. Ltd	PARIJAT FLUROXYPYR MEPTYL TECHNICAL	Solid	Fluroxypyr - 68.5%

\* IMEP (import for manufacture of exported product): To be used only in the manufacture (formulating, repackaging, repouring) of a pest control product solely for export from Canada. Not subject to re-evaluation.

a.e. – acid equivalent

## **Appendix II Comments and Responses**

The PMRA received the following comment relating to the Proposed Re-evaluation Decision PRVD2017-11, *Fluroxypyr (present as ester) and Its Associated End-use Products*. The comment received is presented below, in conjunction with the PMRA response.

### **Comment Related to Restricted-Entry Interval (REI) Language**

#### **Comment**

The comment supported the requirement of a 12-hour REI for crop uses and requested that the PMRA maintain the current REI of “Until sprays have dried” for all non-crop uses.

#### **PMRA Response**

The PMRA agrees with the comment and clarifies the REI requirement for crop (12-hour REI) and non-crop uses (until sprays have dried). The amended label statements are included in Appendix III.

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## Appendix III Revised Label Amendments for End-use Products Containing Fluroxypyr

The label amendments presented below do not include all label requirements for individual end-use products, such as first aid statements, disposal statements, precautionary statements, and supplementary protective equipment. Information on labels of currently registered products should not be removed unless it contradicts the label statements provided below.

I) Under **PRECAUTIONS**, the following statements must be included:

**“For agricultural/crop scenarios: Do not** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12-hours. **For non-crop areas: Do not** enter or allow worker entry into treated areas until sprays have dried.”

“DO not use in residential areas. Residential areas are defined as any use site where bystanders, including children, could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public, including children, could be exposed.”

“Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.”

II) The following statements must be included in a section entitled **ENVIRONMENTAL PRECAUTIONS**:

“**TOXIC** to non-target terrestrial plants and aquatic organisms. Observe buffer zones specified under **DIRECTIONS FOR USE**.”

“To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.”

“Avoid application when heavy rain is forecast.”

“Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.”

III) For products containing aromatic petroleum distillates, the following statement must be included in a section entitled **ENVIRONMENTAL PRECAUTIONS**:

“This product contains (an) active ingredient(s) and aromatic petroleum distillate(s) which are toxic to aquatic organisms.”

IV) In a section entitled **STORAGE**, the following must be removed:

“Do not contaminate food, feedstuffs or domestic water supplies.”

V) The following statement must be included in a section entitled **STORAGE**:

“To prevent contamination, store this product away from food or feed.”

- VI) The following statements must be included in a section entitled **DIRECTIONS FOR USE**:

“As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.”

“**DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.”

- VII) The following **buffer zone statements** must be included on the label:

**Buffer Zone Related Label Statements Required for End-Use Product ARY 0548-019 Herbicide (PCP# 30580):**

**Add to DIRECTIONS FOR USE:**

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

**DO NOT** apply by air.

**Buffer zones:**

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat (including durum wheat)	1	0	1	1	3

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the [Buffer Zone Calculator](#) on the Pesticides section of the Canada.ca website.

### **Buffer Zone Related Label Statements Required for Fluroxypyr End-Use Products Requiring Applications with Spray Droplets of ASAE Coarse Classification (except for PCP# 30580):**

#### **Add to DIRECTIONS FOR USE:**

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

#### **Buffer zones:**

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:					
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat	
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m		
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, oats, seedling and established fescue and forage grasses for seed, canary seed, foxtail millet	1	0	1	1	1	
Aerial	Wheat, barley, oats, canary seed	Fixed wing	4	0	1	1	70
		Rotary wing	1	0	1	1	55

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the [Buffer Zone Calculator](#) on the Pesticides portion of the Canada.ca website.

### **Buffer Zone Related Label Statements Required for Fluroxypyr End-Use Products Requiring Applications with Spray Droplets of ASAE Medium Classification:**

#### **Add to DIRECTIONS FOR USE:**

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

#### **Buffer zones:**

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies that minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. However, applicators must observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, oats, seedling and established fescue and forage grasses for seed, canary seed, foxtail millet, new & established grass pastures		1	0	1	1	3
	Permanent pasture, rangeland, industrial areas, other non-crop areas		1	1	1	1	5*
Aerial	Wheat, barley, oats	Fixed wing	5	0	1	1	95
		Rotary wing	3	0	1	1	80

\* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements, roads, and training grounds and firing ranges on military bases.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the [Buffer Zone Calculator](#) on the Pesticides portion of the Canada.ca website.

## Appendix IV References

### I) Information Considered in the Re-evaluation not Submitted by the Registrants

#### Published Studies

PMRA Document Number	Reference
2206864	PRD2012-18. Proposed Registration Decision: Fluroxypyr

### II) Information Considered in the Re-evaluation Submitted by the Registrants

#### Published Studies

PMRA Document Number	Reference
2119706	Tolerance of foxtail millet to combinations of bromoxynil, clopyralid, fluroxypyr, and MCPA. Authored by May et al., and published on the journal of Weed Technology, 2009 (23) 94-98. DACO 10.3.2.

#### Unpublished Studies

PMRA Document Number	Reference
2259498	1996, Fluroxypyr 1-methylheptyl ester: the toxicity to <i>Skeletonema costatum</i> , DACO: 9.8.3
2259497	1996, Fluroxypyr 1-methylheptyl ester: acute toxicity to the sheepshead minnow, <i>Cyprinodon variegatus</i> , DACO: 9.5.2.4
2259496	1994, Fluroxypyr: acute toxicity to the silverside, <i>Menidia beryllina</i> , DACO: 9.5.2.4
2076326	2011, Starane II Field Trial Reports, DACO: 10.2.3.3,10.3.2
2078921	2011, Value Summaries - Starane II, Sub no. 2011-2831, aerial application, DACO: 10.1
2034332	2000, BAS 652 04 H - Acute oral toxicity in rats. Report EU-10A0475/991139, Experimental Toxicology and Ecology, BASF AG. DACO: 4.6.1
2034333	2000. BAS 652 04 H - Acute dermal toxicity study in rats. Report EU-11A0475/991138, Experimental Toxicology and Ecology, BASF AG. DACO: 4.6.2
2034334	2000. BAS 652 04 H - Acute inhalation toxicity study in Wistar rats, 4-hour liquid aerosol exposure. Report EU-13I0475/997015, Experimental Toxicology and Ecology, BASF AG. EU-13I0475/997015. DACO: 4.6.3
2034335	2000. Amednment No. 1, BAS 65204 H - Acute eye irritation in rabbits. Project No.: 11H0475/992265, Experimental Toxicology and Ecology, BASF AG. DACO: 4.6.4
2034336	2000. BAS 652 04 H - Acute eye irritation in rabbits. Report EU- 11H0475/992265, Experimental Toxicology and Ecology, BASF AG. DACO: 4.6.4
2034337	2000. BAS 652 04 H - Acute Dermal Irritation/Corrosion in Rabbits. Report EU-18H0475/992263, Experimental Toxicology and Ecology, BASF AG. DACO:4.6.5
2034338	2000. BAS 652 04 H - BUEHLER Test in Guinea Pigs. Report EU- 32H0475/992264, Experimental Toxicology and Ecology, BASF AG. DACO: 4.6.6
2288904	2012, LP6425 Field Trial Reports, DACO: 10.2.3.3.



---

2288880	2013, Product ID, LP6425 Herbicide, DACO: 3.1 CBI
2288881	2013, Formulation Process and Specifications, GF-1681, DACO: 3.2.1,3.2.2,3.3.1 CBI
2288882	2006, Extension of Analytical Method EU-AM-97-005 for the Analysis of Fluroxypyr Meptyl, Clopyralid, and MCPA 2-Ethylhexyl Ester in Formulation GF-1681, DACO: 3.4.1 CBI
2288883	1997, Analytical Method for the analysis of Ariane Herbicide, DACO: 3.4.1 CBI
2288885	2013, Summary - Chemical and Physical Properties, DACO: 3.5 CBI
2288886	2006, Storage Stability and Package Corrosion Characteristics of GF-1681; Two Week Accelerated Study, DACO: 3.5 CBI
2288888	2006, Determination of Explosive Properties and Auto-Ignition Temperature for GF-1681, DACO: 3.5 CBI
2288889	2006, Oxidising properties of GF-1681, DACO: 3.5 CBI
2302225	2013, Physical and Chemical Properties, DACO: 3.5
2361663	2006, Product Chemistry Data for Colt + Sword, DACO: 3.0 CBI
2361664	2013, Description of the formulation process, DACO: 3.2.2 CBI
2361665	2013, Discussion of the formation of impurities of toxicological concern, DACO:3.2.3 CBI
2420669	2014, Storage Stability and Corrosion Characteristics, DACO: 3.5.10,3.5.14 CBI
1672801	2000, Magnitude of Residue of Fluroxypyr in Range and Pasture Grasses, DACO: 7.4.1
2119704	Prestige Herbicide Tank-mix (fluroxypyr + clopyralid + MCPA) for the control of broadleaf weeds and Canada thistle in foxtail millet for animal feed. DACO 10.3.2. pp. 5.
1920755	GF-184 Herbicide Pasture Biological Assessment Dossier, DACO 10.1
1960266	Additional information-Grass pasture, DACO 10.6
2046204	Composition Comparison of GF-184 and EF-1466, DACO 3.0
1672773	2000, Metabolism of Fluroxypyr in Onions (Rijnsburger Hyton), DACO: 6.3
1672776	1996, Determination of Residues of Fluroxypyr in Wheat Processed Fractions Amended Report, DACO: 7.2.1
1672778	1991, Determination of Residues of Fluroxypyr in Processed Fractions of Wheat, DACO: 7.2.1
1672779	1996, Validation Report for the Determination of Residues of Fluroxypyr and Fluroxypyr 1-Methylheptyl Ester as the Acid Equivalent in the Grain, Forage, Straw, and Hay of Wheat, Barley, and Oats by Capillary Gas Chromatography with mass Selective Detection, DACO: 7.2.1,7.2.2
1672780	2000, Residues of Fluroxypyr and Fluroxypyr 1-Methylheptyl Ester as the Acid Equivalent in Grass Forage and Hay by Capillary Gas Chromatography with Mass Selective Detection, DACO: 7.2.1,7.2.2
1672782	1991, Determination of Residues of Fluroxypyr in Corn Forage, Grain and Fodder by Gas Chromatography/Mass Spectrometry, DACO: 7.2.1,7.2.2
1672783	2000, Determination of Residues of Fluroxypyr and Fluroxypyr 1-Methylheptyl Ester as the Acid Equivalent in Sorghum Grain, Forage, and Stover by Capillary Gas Chromatography with Mass Selective Detection, DACO: 7.2.1,7.2.2
1672785	1996, Independent Laboratory Validation of Method GRM 96.02- Determination of

---

- Residues of Fluroxypyr and Fluroxypyr 1-Methylheptyl Ester as the Acid Equivalent in the Grain, Forage, Straw and Hay of Wheat, Barley and Oats by Capillary Gas Chromatography with Mass Selective Detection, DACO: 7.2.3
- 1672791 1990, Determination of Residues of Fluroxypyr in Wheat, Barley and Oat Grain and Straw, DACO: 7.4.1
- 1672792 1990, Determination of Residues of Fluroxypyr in Wheat, Barley and Oat Grain and Straw, DACO: 7.4.1
- 1672793 1996, The Magnitude of Residue of Fluroxypyr in Wheat Following Postemergence Application of XRM-5316 Amended Report, DACO: 7.4.1
- 1672794 1996, The Magnitude of Residue of Fluroxypyr in Oats Following Postemergence Application of XRM-5316 Amended Report, DACO: 7.4.1
- 1672795 1996, The Magnitude of Residue of Fluroxypyr in Barley Following Postemergence Application of XRM-5316 Amended Report, DACO: 7.4.1
- 1672797 2007, Residues of Fluroxypyr in Sweet Corn, DACO: 7.4.1
- 1672798 2000, Magnitude of Residue of Fluroxypyr in Sorghum Forage, Grain and Fodder After Use of Fluroxypyr Methylheptyl Ester Herbicide, DACO: 7.4.1,7.4.6
- 1672802 2006, Fluroxypyr: Magnitude of the Residue on Pear, DACO: 7.4.1
- 1672803 2003, Fluroxypyr: Magnitude of the Residue on Onion (Dry Bulb), DACO: 7.4.1
- 1672804 2006, Fluroxypyr: Magnitude of the Residue on Apple, DACO: 7.4.1
- 1672806 1981, Determination of Residues of Fluroxypyr in Wheat Grain and Straw- A Bridging Study, DACO: 7.4.1
- 1672807 1981, Determination of Residues of Fluroxypyr in Wheat Grain and Straw- A Bridging Study, DACO: 7.4.1
- 1672808 1999, Determination of Residues of Fluroxypyr in Sweet Corn Ears, Forage, and Processed Fractions, DACO: 7.4.1,7.4.5,7.4.6
- 1672809 1999, Magnitude of the Residue of Fluroxypyr in Field Corn and Corn Processed Products, DACO: 7.4.1,7.4.5
- 1166924 Frozen Storage Stability of Fluroxypyr in Winter Wheat Immature Plant, Grain and Straw. (GHE-P-4830;ST94-17;B2A;CEMS-311;CEMR-311;ST94-017).(STARANE F HERBICIDE), DACO: 7.3
- 2418223 2014, AQUATIC VASCULAR PLANTS, DACO 9.8.5
- 2648532 2013, Fluroxypyr-meptyl- Growth Inhibition of *Myriophyllum spicatum* in a Water/Sediment System, DACO 9.8.5
- 2418241 2014, AQUATIC VASCULAR PLANTS, DACO 9.8.5
- 2648536 2012, Fluroxypyr-1- Growth Inhibition of *Myriophyllum spicatum* in a Water/Sediment System, DACO 9.8.5
- 1359526 Chemical and Physical Properties of Technical Pesticide Material, DACO: 2.14.1,2.14.11,2.14.13,2.14.2,2.14.3,2.14.4,2.14.5,2.14.8,2.14.9
- 1359598 1984, Report of the Odour and Taint Potential of Fluroxypyr Acid and 1-methyl heptyl Ester and Haloxyfop Acid and Ethoxy Ethyl Ester, DACO: 2.14.3
- 1359594 Technical Chemistry file FLR-DOW-1, DACO: 2.99
- 1889185 2010, Fluroxypyr Meptyl Physical Chemical tests, DACO: 2.14.1,2.14.10, 2.14.11, 2.14.12,2.14.13,2.14.2,2.14.3,2.14.4,2.14.5,2.14.6,2.14.7,2.14.8,2.14.9 CBI
- 1967929 2007, Validation of Analytical Method M616 for Technical Fluroxypyr Meptyl, DACO:

---

	2.14.12 CBI
1969080	2009, Physical State, Colour and Odour of Fluroxypyr Meptyl Technical, DACO: 2.14.1,2.14.2,2.14.
1969091	Anonymous, 1999, EC-Review report for the active substance fluroxypyr, DACO: 2.14.10,2.14.11,2.14.4,2.14.5,2.14.7,2.14.8,2.14.9
1969086	2009, Relative Density of Fluroxypyr Meptyl Technical, DACO: 2.14.6
1969089	2009, Solubility of Fluroxypyr Meptyl in Organic Solvents, DACO: 2.14.8
1969082	2009, Partition Coefficient of Fluroxypyr Meptyl tech. (CBI Removed), DACO: 2.14.11
1969084	2009, UV/VIS Absorption Spectrum of Fluroxypyr Meptyl tech, DACO: 2.14.12
1809391	DACO: 2.0_DOC
1658169	2008, FOR-08-37 Starane F Fluroxypyr [CBI Removed], DACO: 2.0 CBI
1836483	2009, Cover Letter, Starane F response, 2008-4564, DACO: 0.8
1868576	2010, Detailed response, Starane F Technical Herbicide, Reg. 24814, Clarification response for 2008-4564, DACO: 2.11.3,2.13.1 CBI
1868579	2009, Group A-Product Identity and Composition, Description of Materials Used to Produce the Product, Description of Production Process, Discussion of Formulation [CBI Removed], Preliminary Analysis, Certified Limits, and Enforcement Analytical Method for Starane F, DACO: 2.13.3 CBI
841463	DACO: 2_0
1889161	DACO 2.11.2 Description of starting materials , DACO: 2.11.2 CBI
1889173	2.11.3 Detailed Production Process , DACO: 2.11.3 CBI
1979337	DACO 2.11.3 Revised Production Process STEP D.pdf, DACO: 2.11.3 CBI
1969063	2008, Fluroxypyr-meptyl Manufacturing Process, DACO: 2.11.1,2.11.3,2.11.4 CBI
1969070	2010, Chemistry-2.11.2-Fluroxypyr TGAI-Starting Materials, DACO: 2.11.2 CBI
1969065	2010, Discussion on [CBI Removed] DACO: 2.11.4 CBI
1969068	2010, Fluroxypyr Meptyl Tech Consideration [CBI Removed]
2036307	2011, Spec for [CBI Removed], DACO: 2.11.2 CBI
2036309	2011, Spec-[CBI Removed], DACO: 2.11.2 CBI
2036310	2011, Spec-[CBI Removed], DACO: 2.11.2 CBI
2036311	2011, [CBI Removed] production, DACO: 2.11.2 CBI
2036312	2011, [CBI Removed], DACO: 2.11.2 CBI
2036313	2011, [CBI Removed], DACO: 0.9.2
2036314	2011[CBI Removed] production, DACO: 0.9.2
2036315	2011, Spec-[CBI Removed], DACO: 0.9.2
2036316	2011, Spec-[CBI Removed] source, DACO: 0.9.2
2036318	2011, Spec-[CBI Removed] source, DACO: 0.9.2
1359731	5 Batch Characterization of Starane F Herbicide, [CBI Removed]@ in Part 2 Chemistry dated 1996/05/07, [CBI Removed], vol. # 36, page 5
1359733	Confirmation of Identity and Quantitation of [CBI Removed] in Starane F Herbicide, [CBI Removed] in Part 2 Chemistry dated 1996/05/07, [CBI Removed], vol. # 36, page 7

---

---

1658166	2006, 5 Batch Report FOR-05-061 Starane F [CBI Removed], DACO 2.0 CBI
1658167	2008, 5 Batch Report FOR-08-37 Starane F [CBI Removed] DACO: 2.0 CBI
1658169	2008, FOR-08-37 Starane F Fluroxypyr [CBI Removed], DACO: 2.0 CBI
1868579	2009, Group A-Product Identity and Composition, Description of Materials Used to Produce the Product, Description of Production Process, Discussion of [CBI Removed], Preliminary Analysis, Certified Limits, and Enforcement Analytical Method for Starane F, DACO: 2.13.3 CBI
1889184	2009, Analysis of 5 Batches of Technical Fluroxypyr Meptyl, DACO: 2.13.3 CBI
1967928	Manufacturing dates for the 5Batches used in the Batch analysis, DACO: 2.13.3
1969072	2008, Fluroxypyr Technical 5-Lots Analysis and Method Validation, DACO: 2.13.1,2.13.2,2.13.3 CBI
1969074	2008, Fluroxypyr Technical 5-Lots Analysis and Method Validation, DACO: 2.13.1,2.13.2,2.13.3 CBI
1969076	2008, Date of production of batches [CBI Removed], DACO: 2.13.3 CBI
1969078	2009, Date of production of batches [CBI Removed], DACO: 2.13.3 CBI
1359741	Technical Chemistry File FLR-[CBI Removed], DACO: 2.99
1359594	Technical Chemistry file FLR-[CBI Removed], DACO: 2.99
1359542	1986, Letter from [CBI Removed] re: Starane Herbicidal Products/[CBI Removed], DACO: 2.13.
2680118	2016, Scientific Rationale - Starane F Technical - Fluroxypyr Re-eval 14-5438, DACO: 2.13.4 CBI
2634790	2016, [CBI Removed], DACO: 2.13.4 CBI
2765289	DACO: 2.13.4 CBI
2765290	DACO: 2.13.4 CBI
1889174	2.11.4 Discussion [CBI Removed], DACO: 2.11.4 CBI
1969065	2010, Discussion [CBI Removed]., DACO: 2.11.4 CBI
1969068	2010, Fluroxypyr Meptyl Tech Consideration [CBI Removed], DACO: 2.11.4 CBI
2634790	2016, [CBI Removed], DACO: 2.13.4 CBI
2774747	DACO: Data_Call-in_Letter_to_Registrant_Sec19(1)_Notice_Signed
2778823	Data analysis
2930965	2018, Impurities Of Toxicological Concern, DACO: 2.13.4 CBI
2930966	2018, Impurities Of Toxicological Concern, DACO: 2.13.4 CBI
2926610	2018, Impurities Of Toxicological Concern, DACO: 2.13.4 CBI
2926611	2018, Impurities Of Toxicological Concern, DACO: 2.13.4 CBI