

Evaluation Report for Category B, Subcategory 2.1, 2.3, 2.4, 2.6, 3.1, 3.10, 3.11, 3.12 Application

Application Number: 2014-3091
Application: New EP Product Chemistry - Guarantee, Identify of Formulants, Proportion of Formulants, New Combination of TGAIs
New Product Labels – Application Rate Increase or Decrease, Tank Mixes, New Pests, New Site or Host
Product: GoldWing Herbicide
Registration Number: 32112
Active ingredients (a.i.): MCPA (present as 2-ethylhexyl ester) and pyraflufen-ethyl
PMRA Document Number : 2573600

Purpose of Application

The purpose of this application was to register GoldWing Herbicide containing a new combination of active ingredients, MCPA (present as 2-ethylhexyl ester) and pyraflufen-ethyl, for use as an herbicide on terrestrial food and feed crops.

Chemistry Assessment

GoldWing Herbicide is formulated as an emusifiable concentrate containing pyraflufen-ethyl at 13.5 g/L and MCPA-2-ethylhexyl at 420 g/L. This end-use product has a density of 1.035 – 1.045 g/mL and a pH of 5.8. The chemistry requirements for this product have been fulfilled.

Health Assessments

GoldWing Herbicide is of slight acute oral toxicity and low acute dermal and inhalation toxicity in rats. It is minimally irritating to the eyes and mildly irritating to the skin of rabbits. It is a dermal sensitizer in mice.

The use of the end-use product GoldWing Herbicide on cereals, canola, mustard, corn, field peas, dry beans, chickpeas, lentils, seedling grasses, and canary seed to control broadleaf weeds is not expected to result in potential occupational or bystander exposure over the exposure from the currently registered uses of MCPA.

For pyraflufen-ethyl, the uses did not fit within the currently registered use pattern. Therefore, updated cancer and non-cancer risk assessments for workers mixing, loading and applying the product were conducted as part of this review and resulted in no health risk of concern. For postapplication re-entry workers the exposure to both active ingredients is expected to be minimal based on the pre-emergent timing of application and therefore, quantitative risk

assessments were not required.

No health risks of concern are expected from the use of the product, GoldWing Herbicide, provided that workers wear the appropriate personal protective equipment and follow all label directions.

Residue data for pyraflufen-ethyl from field trials conducted in Canada were submitted to support the use of GoldWing Herbicide on pre-emergent cereals (barley, buckwheat, corn [sweet, field and popcorn], pearl and proso millet, oats, rye [spring and winter], triticale and wheat [spring, durum, winter]), and field peas. Pyraflufen-ethyl was applied to the target crops at the approved rate and harvested according to label directions. Previously reviewed residue data from field trials conducted in/on wheat (spring and winter) and corn were also reassessed in the framework of this petition. In addition, submitted processing studies in treated wheat, corn, and barley were reviewed, and previously reviewed processing studies in corn and wheat were also reassessed to determine the potential for concentration of residues of pyraflufen-ethyl into processed commodities.

No new residue data for MCPA were required since this active ingredient is currently registered in Canada for postemergent (to crops and weeds) control of broadleaf weeds and woody plants on canary seed, field, canning or processing peas, sweet corn, field corn, barley, oats, rye, and wheat at higher rates and shorter preharvest intervals (PHIs).

Maximum Residue Limits

The recommendation for maximum residue limits (MRLs) for pyraflufen-ethyl was based upon the submitted field trial data, and the guidance provided in the [OECD MRL Calculator](#). MRLs to cover combined residues of pyraflufen-ethyl and the E-1 metabolite, expressed as pyraflufen-ethyl equivalents, in/on crops and processed commodities are proposed as shown in Table 1. Residues in processed commodities not listed in Table 1 are covered under the proposed MRLs for the raw agricultural commodities (RACs).

| Commodity | Application Method/ Total Application Rate (g a.i./ha) | PHI (days) | Combined Residues of Pyraflufen-ethyl + the E-1 metabolite (ppm) | | Experimental Processing Factor | Currently Established MRL (ppm) | Recommended MRL (ppm) |
|-----------|--|---------------|---|----------|--------------------------------------|--|--------------------------|
| | | | LAF T | HAF T | | | |

TABLE 1. Summary of Field Trial and Processing Data Used to Support Maximum Residue Limits (MRLs)

| Commodity | Application Method/ Total Application Rate (g a.i./ha) | PHI (days) | Combined Residues of Pyraflufen-ethyl + the E-1 metabolite (ppm) | | Experimental Processing Factor | Currently Established MRL (ppm) | Recommended MRL (ppm) |
|------------------------|--|---------------|---|-------|---|--|---|
| Soybean Seed | Pre-emergent/8.6-9.3 | 129-133 | <0.01 | <0.01 | No quantifiable residues observed when treated at exaggerated rates | 0.01 in/on dry soybeans | 0.01 in/on Crop Group 6 Legume Vegetables (Succulent or Dried) (except dry soybeans) |
| Podded Succulent Pea | | 50-61 | <0.01 | <0.01 | Not applicable | | |
| Shelled Succulent Pea | | 59-75 | <0.01 | <0.01 | | | |
| Dried Pea | | 101-112 | <0.01 | <0.01 | | | |
| Podded Succulent Bean | | 55-60 | <0.01 | <0.01 | | | |
| Shelled Succulent Bean | | 70-81 | <0.01 | <0.01 | | | |
| Dried Bean | | 89-112 | <0.01 | <0.01 | | | |
| K+CWHR | Pre-emergent/8.6-9.4 | 82-94 | <0.01 | <0.01 | No quantifiable residues observed when treated at exaggerated rates | 0.01 in/on wheat and field corn | 0.01 in/on Crop Group 15 Cereal Grains (except rice, wild rice, wheat and field corn) |
| Field Corn Grain | | 135-164 | <0.01 | <0.01 | | | |
| Wheat Grain | | 97-109 | <0.01 | <0.01 | | | |
| Barley Grain | | 97-116 | <0.01 | <0.01 | | | |

LAFT = Lowest Average Field Trial; HAFT = Highest Average Field Trial

Based on this assessment, residues of pyraflufen-ethyl in edible livestock commodities will be covered by the established MRLs of 0.02 ppm in/on eggs, milk, and fat, meat and meat byproducts of cattle, goat, hogs, horses, poultry and sheep.

Maximum Residue Limits (MRLs) for residues of MCPA in/on treated cereals and legumes will be covered by the established MRLs of 0.01 ppm in/on field corn; 0.1 ppm in/on dry field peas, edible-podded peas, succulent shelled peas; 0.04 ppm in/on wheat bran; 0.03 ppm in/on barley, oats, rye and wheat; 0.015 ppm in/on sweet corn kernels plus cob with husks removed. Residues in edible livestock commodities will be covered by the MRLs of 0.01 in/on milk and of 0.05 ppm in/on eggs, fat, meat, and meat byproducts of cattle, goats, hogs, horses, poultry, and sheep. Residues in these commodities resulting from the approved use will not pose an unacceptable risk to any segment of the population, including infants, children, adults and seniors

Following the review of all available data, MRLs as proposed in Table 1 are recommended to cover residues of pyraflufen-ethyl. Residues in these crop commodities at the proposed MRLs will not pose an unacceptable risk to any segment of the population, including infants, children, adults and seniors.

Environmental Assessment

The environmental assessment of GoldWing Herbicide indicates that, due to a higher application rate, there is higher risk to non-target species which were identified at risk during the original review of the active ingredient pyraflufen-ethyl. These species include aquatic organisms, terrestrial plants and beneficial invertebrates. The mitigation measures in place, i.e., buffer zones and hazard statements are adequate for aquatic habitats, while terrestrial buffer zones will be increased up to 2m. New label language and buffer zone table is to be included on the label.

Value Assessment

Value information submitted included data from six efficacy trials conducted in the Prairie Provinces in 2012 and 2013, six crop tolerance trials conducted on canola in Alberta and Saskatchewan in 2014, and scientific rationales.

Data from efficacy trials demonstrated that the efficacy of GoldWing Herbicide was comparable to that of the tank mixture of Pyro Herbicide + MCPA Ester at similar a.i. rates for control of broadleaf weeds. Furthermore, since both pyraflufen-ethyl and MCPA ester are registered as broadleaf herbicides, the efficacy of pyraflufen-ethyl for broadleaf weed control would not be anticipated to be reduced with addition of MCPA ester in the co-formulation. Therefore, weeds listed for Pyro Herbicide are supported for inclusion on the GoldWing Herbicide label.

Given that (1) GoldWing Herbicide at the labelled rate provided acceptable control of mallow in one trial and mustard in two trials and (2) pyraflufen-ethyl herbicide is classified as a contact non-selective herbicide, the inclusion of claims of mallow and mustard control can be supported.

Data from one trial supported the change of each narrow-leaved hawk's-beard and stinkweed claim of suppression to control with GoldWing Herbicide at 4.5 g a.i./ha.

Data from one trial supported the change of each Canada fleabane, flixweed, and stinkweed claim of suppression to control with GoldWing Herbicide at 9.0 g a.i./ha.

Given that (1) MCPA Ester is a broadleaf herbicide for use in grain cereals and grasses, (2) MCPA in tank mix with glyphosate herbicide is registered for pre-seeding or after seeding before crop emergence application to wheat, barley, rye, oats, corn, flax, and field pea, and (3) pyraflufen is supported for pre-emergence use in crops in Crop Group 15 (cereal grains), the inclusion of barley, buckwheat, corn, pear millet, proso millet, oats, popcorn, rye, triticale, wheat, canary seed, and seeding grasses on the GoldWing Herbicide label can be supported.

Given that (1) MCPA in tank mixture with glyphosate herbicide is labelled for pre-emergence use on field pea, lentil, and chickpea and (2) pyraflufen is supported for use in crops in Crop Group 6 (legume vegetables), the inclusion of field pea, lentil, chickpea, and dried bean on the GoldWing Herbicide label can be supported.

Crop tolerance to GoldWing Herbicide was assessed in five acceptable trials for canola. Data from these trials demonstrated that canola can be expected to have an adequate margin of crop tolerance to GoldWing Herbicide. Therefore, the inclusion of canola as a host crop on the GoldWing Herbicide label can be supported. Since mustard seed is closely related to canola, the inclusion of mustard seed on the GoldWing Herbicide label can also be supported.

GoldWing Herbicide is a pre-mix containing two active ingredients, pyraflufen-ethyl and MCPA Ester. The two modes of action (Group 14 and 4) will result in an effective weed control option and an efficient tool for resistance management.

Based on the weight of evidence, the registration of GoldWing Herbicide for control of broadleaf weeds in chickpea, dried bean, field pea, lentil, barley, buckwheat, corn, pearl millet, proso millet, oats, popcorn, rye, triticale, wheat, canola, mustard seed, canary seed, and seedling grasses has value and can be supported.

Conclusion

The Pest Management Regulatory Agency has completed an assessment of the available information and is able to support the registration of Goldwing Herbicide.

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