Pest Management Regulatory Agency
Agence de réglementation de la lutte antiparasitaire

Re-evaluation Decision Document RRD2006-13

Paraquat Dichloride

The purpose of this Re-evaluation Decision Document (RRD) is to notify registrants, pesticide regulatory officials and the Canadian public that Health Canada's Pest Management Regulatory Agency (PMRA) has re-evaluated the active ingredient paraquat dichloride and its associated uses as an herbicide to control many grasses and broad-leaved weeds on a variety of fruit, vegetable, and other field crops, nursery crops, shelterbelts and non-food aquatic sites.

On 22 October 2004, Proposed Acceptability for Continuing Registration (PACR) document PACR2004-41, *Re-evaluation of Paraquat Dichloride*, was published for consultation. The PMRA has reviewed the comments received and provides a response in Appendix I of this RRD. These comments did not result in any changes to the regulatory decision as described in PACR2004-41.

The PMRA has determined that this active ingredient is acceptable for continued registration. Mitigation measures to further protect workers and the environment are specified in Appendix II of this RRD. The registrants have been informed by letter of the specific requirements affecting their product registrations and the regulatory options available to comply with this decision.

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Publications
Pest Management Regulatory Agency
Health Canada
2720 Riverside Drive
A.L. 6605C
Ottawa, Ontario
K1A 0K9

Internet: pmra_publications@hc-sc.gc.ca
www.pmra-arla.gc.ca
Information Service:
1 800 267-6315 or (613) 736-3799
Facsimile: (613) 736-3758

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Appendix I Comments on PACR2004-41 and Responses

1.0 Comments on Some of the Proposed Labelling Statements for Certain Uses

The proposed labelling statement regarding restricted use as well as statements for residential areas, bystanders and non-spot application are not required because the registrant is removing the related uses from the label.

Response
The registrant of technical paraquat dichloride has notified the PMRA that they did not intend to support uses of paraquat dichloride on aquatic non-food sites, forests and woodlots (for conifer control and control of mixed stands of conifers and deciduous brush), industrial and domestic vegetative control for non-food sites (including chemical mowing) and turf. The PMRA agrees that there should no longer be a restricted use on the end-use product label and that the statement regarding residential areas and bystanders is no longer required.

In their review of paraquat dichloride, the United States Environmental Protection Agency included mitigation measures to protect backpack applicators. Backpack application is registered in Canada, specifically for spot treatment for the control of green suckers between filbert and hazelnut trees. In Canada, paraquat dichloride is not registered for **non-spot** application with backpack equipment. The PMRA concurs with the comment that the statement regarding **non-spot** application of paraquat dichloride with backpack equipment is not applicable to the Canadian end-use products.

2.0 Comment on the Cancelling of Uses on Shelterbelts and Nursery Crops

Paraquat dichloride uses on nursery crops and shelterbelts should not be cancelled because of its usefulness in integrated weed management and as an effective alternative to glyphosate.

Response
The uses of paraquat dichloride on shelterbelts and nursery crops are not cancelled. The registrant has notified the PMRA to cancel the use of paraquat dichloride for control of conifers and of mixed stands of conifers and deciduous brush, which are classified as forests and woodlots, but to maintain the uses on shelterbelts and nursery crops.

3.0 Comments on Buffer Zone Calculation and Mitigation

Different use sites may require different buffer zones. The proposed buffer zones could be adjusted if application technologies and environmental conditions that mitigate drift are used. A flexible buffer zone would allow for weeds along field edges to be controlled where appropriate drift mitigation procedures are followed. The PMRA should refine the model and investigate other mitigation measures and product stewardship initiatives that would help reduce the potential excessiveness of the buffer zones.

Response
The PMRA recognizes that paraquat dichloride is not applied by mist blower (airblast sprayer). It was our understanding that herbicide applications in orchards are made using a groundboom sprayer directed to the base of trees in orchards. Thus, the PMRA used a spray drift model for a groundboom sprayer to calculate buffer zones for field crops and orchards.

However, following consultations with the registrant, the PMRA waived the buffer zone requirements for paraquat dichloride uses in fruit crops, shelterbelts and for the purposes of postemergent chemical weeding. The registrant supplied additional information on the type of spray equipment used in these sites, which are specifically designed to prevent any of the herbicide from coming in contact with the neighbouring sensitive crop vegetation. The registrant and the PMRA have agreed on specific label instructions that would require applicators to use low groundboom sprayers fitted with spray drift shields in these areas in order to virtually eliminate all pesticide spray drift.

Buffer zones for all other field crop uses can be modified when drift-reducing shrouds and cones are used on groundboom sprayers. The buffer zones can be reduced by 70% with the use of shrouds and 30% with the use of cones. Thus, the buffer zones to protect terrestrial habitats from paraquat dichloride can be reduced to 10 m (actual recalculated value of 7.5 m rounded off to the nearest 5 m) with the use of shrouds and 20 m with the use of cones. Similarly, the respective buffer zones to protect aquatic habitats with water depths fewer than 1 m, of 1 to 3 m and greater than 3 m can be reduced to 20, 15 and 10 m with the use of shrouds and 40, 35 and 30 m with the use of cones. (See the buffer zone table in Appendix II.)

The PMRA has released Regulatory Proposal PRO2005-06, *Agricultural Buffer Zone Strategy Policy*, for consultation. If implemented, it would allow applicators to reduce their buffer zones based on a variety of site- and equipment-specific factors, including windspeed and spray droplet size.

4.0 Comment on Label Statement Regarding "Gusty Winds"

The term "gusty winds" should be defined, for example "DO NOT apply when wind gusts exceed 16 km/h."

Response
The definition of "gust"as indicated in the PACR does not specify a wind speed. The PMRA has revised the label statement; it now states to "avoid" spraying under gusty conditions ("**DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty").

5.0 Comment on Additional Data Requirements

As the registrant has discontinued forestry and woodlots uses, no further data should be requested by the PMRA for this use.

Response
The PMRA agrees that there should no longer be data requirements with regards to these uses.

Appendix II Label Amendments

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

Canadian end-use product labels must be amended to include the following statements:

1. The following statement must be added to the "**PRECAUTIONS**" section of the label:

   - "Wear coveralls over a long-sleeved shirt and long pants during application with a backpack sprayer."

2. The following statements must be **removed** from the "**PRECAUTIONS**" section of the label:

   - "For **Field Crops**, a buffer zone of 15 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelterbelts, woodlots, hedgerows, and shrublands. A buffer zone of 45 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats, including sloughs, coulees, ponds, prairies potholes, lakes, rivers, streams and wetlands. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers."

   - "For **Conservation-tillage Corn and Conservation-tillage Soybeans**, a buffer zone of 20 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelterbelts, woodlots, hedgerows, and shrublands. A buffer zone of 50 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats, including sloughs, coulees, ponds, prairies potholes, lakes, rivers, streams and wetlands. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers."

   - "Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 16/km/hr at 2 metres above ground at the site of application."

3. The following statement must be added to a section of the label following the "**PRECAUTIONS**" section, entitled "**ENVIRONMENTAL HAZARDS**":

   - "TOXIC to aquatic organisms and terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE."

4. In the "**DIRECTIONS FOR USE**" section pertaining to all uses of paraquat dichloride, the existing text must be replaced with the following:

- "Rate and Method of Application: Apply 5.5 L GRAMOXONE Herbicide in 1100 L of water per sprayed hectare or 75 mL in 10 L of water per 100 m^2. Of this mixture, 550 mL will treat an area l.75 m in diameter around a tree. Application of this product in fruit crops and shelterbelts must be made using low boom sprayers fitted with drift-reducing shrouds or shields. Follow manufacturer's recommendations for use of shrouds or shields with particular attention to maintaining the minimum allowable boom height. Use flat fan nozzles with the highest flow rate and lowest pressure that will provide good coverage, within the manufacturer's recommended range."

and the following statements must be added:

- "To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay). Avoid application of this product 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."

- **"DO NOT** apply this product directly to aquatic areas."

- "DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes."

- "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 ASAE medium classification."

- "**DO NOT** apply by air."

- **"Buffer zones**:

  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, rangelands, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Buffer zones are not required for use on fruit crops and shelterbelts, or for inter-row directed chemical weeding of vegetable, field and established nursery crops because this product must be applied with low boom spray equipment fitted with drift-eliminating shrouds or shields specifically designed to prevent herbicide contact with sensitive vegetation.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Freshwater Habitats of Depths			Terrestrial Habitat
		Less than 1 m	1–3 m	Greater than 3 m	
Field sprayer*	Conservative tillage soybeans	40	30	20	15
	All other field crops	50	40	30	20

* Field sprayers fitted with drift-reducing devices can have their buffer zones reduced by 70% with the use of shrouds or 30% with the use of cones."

"When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture."

5. Registrants are required to remove references to the following use sites from the end-use product labels as these uses have been discontinued:

- Aquatic non-food sites
- Forest and woodlots (for conifer control and control of mixed stands of conifers and deciduous brush)
- Industrial and domestic vegetation control non-food sites (including chemical mowing)
- Turf