Re-evaluation Decision RVD2022-02

# Triticonazole and Its Associated End-use Products

*Final Decision*

*(publié aussi en français)*

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# Re-evaluation decision for triticonazole and associated end-use products

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

Triticonazole is a systemic fungicide registered for control or suppression of foliar, seed-borne and soil-borne diseases on cereals, corn and turf. Currently registered products containing triticonazole can be found in the Pesticide Label Search and in Appendix I. The Proposed Re-evaluation Decision PRVD2021-05, *Triticonazole and Its Associated End-use Products*[1] containing the evaluation of triticonazole and proposed decision, underwent a 90-day consultation period ending on 28 June 2021. PRVD2021-05 proposed continued registration of all uses of triticonazole and associated end-use products with additional mitigation measures and no cancellations of uses.

Health Canada received comments relating to the environmental assessment. Commenters are listed in Appendix II. These comments are summarized in Appendix III along with the responses by Health Canada. These comments did not result in revisions to the environmental risk assessment and did not result in changes to the proposed re-evaluation decision as described in PRVD2021-05.

A reference list of information used as the basis for the proposed re-evaluation decision is included in PRVD2021-05. There was no further additional information used in the re-evaluation decision of this RVD. Therefore, the reference list of all information used in the proposed re-evaluation decision, set out in PRVD2021-05, represents the complete reference of information used in this final re-evaluation decision.

This document presents the final re-evaluation decision[2] for the re-evaluation of triticonazole, including the required amendments (risk mitigation measures) to protect human health and the environment, as well as label amendments required to bring labels to current standards. All products containing triticonazole that are registered in Canada are subject to this re-evaluation decision.

1 "Consultation statement" as required by subsection 28(2) of the *Pest Control Products Act.*

2 "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

## Re-evaluation decision for triticonazole

Health Canada has completed the re-evaluation of triticonazole. Under the authority of the *Pest Control Products Act*, Health Canada has determined that continued registration of products containing triticonazole is acceptable. An evaluation of available scientific information found that the uses of triticonazole products meet current standards for protection of human health and the environment and have acceptable value when used according to revised conditions of registration which includes new mitigation measures.

## Risk mitigation measures

Registered pesticide product labels include specific directions for use. Directions include risk mitigation measures to protect human health and the environment and must be followed by law. The required amendments, including any revised/updated label statements and/or mitigation measures, as a result of the re-evaluation of triticonazole, are summarized below. Refer to Appendix IV for details.

### Human health

**Label improvements to meet current standards:**

**For turf products**

- Update drift and tank mix partner label statements.
- Update re-entry restriction statement for golf courses.
- Update personal protective equipment (PPE) label statements.

**For seed treatment products**

- Update PPE label statements.

**Risk mitigation:**

**Dietary exposure**

To protect the general population from dietary exposure including through drinking water:

- For golf course turf use, reduce the maximum label rate to one application at 420 g a.i./ha
- For crops or seeds not listed on labels, add a rotational plantback interval of 30 days.

**Occupational and non-occupational exposure from seed treatment products**

To protect workers, bystanders, children and animals, the following risk-reduction measures are required for continued registration of triticonazole in Canada:

- Add statements to labels and seed bag/tags to keep products out of reach of children and animals.
- Add drift statements to labels.
- Add/update the standard statements on the label that identify the type of seed treatment facility that can be used for a specific product and seed type.
    - For corn seed treatment, only closed transfer systems in commercial facilities and mobile treaters are permitted. On-farm seed treatment is prohibited.
    - For products used for wheat and other cereal seed treatment that are co-formulated, only closed transfer systems in commercial facilities and mobile treaters are permitted.
    - On-farm seed treatment is permitted.
- Add/update personal protective equipment (PPE) for the following activities:
    - Products for use on wheat and other cereal seeds that are co-formulated.
        - Increased PPE for workers involved in clean-up and repair activities and workers handling and planting treated seed.
    - For planting treated seed (all types) only a closed-cab tractor is permitted.

**Environment**

**Risk mitigation:**

To protect the environment, the following risk-reduction measures are required:

- Precautionary statements and additional application instructions on product labels with foliar applications and seed treatments.
- Terrestrial and aquatic buffer zones to mitigate risk from spray drift.

## Next steps

To comply with this decision, the required amendments (mitigation measures and label updates) must be implemented on all product labels no later than 24 months after the publication date of this decision document. Accordingly, both registrants and retailers will have up to 24 months from the date of this decision document to transition to selling the product with the newly amended labels. Similarly, users will also have the same 24-month period from the date of this decision document to transition to using the newly amended labels, which will be available on the Public Registry.

Refer to Appendix I for details on specific products impacted by this decision.

## Other information

Any person may file a notice of objection[3] regarding this decision on triticonazole and its associated end-use products 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 the Canada.ca website (Request a Reconsideration of Decision) or contact Health Canada's Pest Management Information Service.

The relevant confidential test data on which the decision is based (as referenced in PRVD2021-05) are available for public inspection, upon application, in Health Canada's Reading Room. For more information, please contact Health Canada's Pest Management Information Service.

[3] As per subsection 35(1) of the *Pest Control Products Act*

# List of abbreviations

| | |
|---|---|
| a.i. | active ingredient |
| ASAE | American Society of Agricultural Engineers |
| AR | applied radioactivity |
| cm | centimeter |
| EEC | estimated environmental concentration |
| EXAMS | Exposure-analysis-modeling-system |
| g | Gram |
| GCAF | Golf Course Adjustment Factor |
| ha | Hectare(s) |
| Inc. | Incorporated |
| $K_{oc}$ | Organic carbon-water partition coefficient |
| PCA | percent cropped area |
| PMRA | Pest Management Regulatory Agency |
| PPE | personal protective equipment |
| PRVD | Proposed Re-evaluation Decision |
| PRZM | Pesticide Root Zone Model |
| PWC | Pesticide in Water Calculator |
| RVD | Re-evaluation Decision |
| USEPA | United States Environmental Protection Agency |
| VVWM | Variable Volume Water Model |

# Appendix I Registered products containing triticonazole in Canada

## Table 1 Products containing triticonazole requiring (label) amendments[1]

| Registration number | Marketing class | Registrant | Product name | Formulation type | Active ingredient (%, g/L) |
|---|---|---|---|---|---|
| 26454 | Technical | BASF Canada Inc. | Triticonazole Technical | Solid | Triticonazole 92.5% |
| 30684 | Manufacturing concentrate | BASF Canada Inc. | Insure Cereal Bulk | Suspension | Metalaxyl 10 g/L; Pyraclostrobin 17 g/L; Triticonazole 17 g/L |
| 33211 | Manufacturing concentrate | BASF Canada Inc. | Insure Cereal FX4 Bulk | Suspension | Fluxapyroxad 8.35 g/L; Metalaxyl 10 g/L; Pyraclostrobin 16.7 g/L; Triticonazole 16.7 g/L |
| 28387 | Commercial | BASF Canada Inc. | Premis 200 F Fungicide | Suspension | Triticonazole 200 g/L |
| 29109 | Commercial | Bayer CropScience Inc. | Chipco Triton Fungicide | Suspension | Triticonazole 19.2 % |
| 29400 | Commercial | BASF Canada Inc. | Charter RTU Seed Treatment Fungicide | Suspension | Triticonazole 16.8 g/L |
| 30226 | Commercial | BASF Canada Inc. | Armour RTU | Suspension | Triticonazole 16.8 g/L |
| 30685 | Commercial | BASF Canada Inc. | Insure Cereal | Suspension | MetalaxyL 10 g/L; Pyraclostrobin 17 g/L; Triticonazole 17 g/L |
| 31114 | Commercial | BASF Canada Inc. | Charter HL | Suspension concentrate | Triticonazole 500 g/L |
| 33210 | Commercial | BASF Canada Inc. | Insure Cereal FX4 | Suspension | Fluxapyroxad 8.35 g/L; Metalaxyl 10 g/L; Pyraclostrobin 16.7 g/L; Triticonazole 16.7 g/L |
| 33667 | Commercial | BASF Canada Inc. | Teraxxa F4 | Suspension | Broflanilide 16.7 g/L; Fluxapyroxad 8.35 g/L; Metalaxyl 10 g/L; Pyraclostrobin 16.7 g/L; Triticonazole 16.7 g/L |

[1] as of 28 October 2021, excluding discontinued products or products with a submission for discontinuation

# Appendix II List of commenters to PRVD2021-05

List of commenters' affiliations for comments submitted in response to PRVD2021-05

| Category | Commenter |
|---|---|
| Registrant | BASF Canada Inc. |

# Appendix III Comments and responses

Health Canada received written comments during the public consultation for the triticonazole proposed re-evaluation decision. Commenters' affiliations are listed in Appendix II. These comments were considered during the final decision phase of this re-evaluation. Summarized comments and Health Canada's responses to them are provided below.

## 1.0 Comments related to the environmental risk assessment

**Comment:**

The registrant commented on the groundwater modelling stating that the standard scenarios used by the PMRA are not intended for turf (thatch layer), and that the application to golf courses is only to tees, greens, and fairways, not roughs.

**Health Canada response:**

The standard Level 1 groundwater modelling scenarios are not ideal for the turf scenario as a layer of thatch would certainly have an influence on infiltration into the soil. However, the proposed decision is based on refined estimated environmental concentrations (EECs). Level 2 turf-specific scenario modelling are presented in Table 3.3.2 of PRVD2021-05. The Level 2 modelling includes a modification from the standard scenario to include a 2-cm layer at the surface of the soil with an organic carbon content of 7.5% and a density of 0.37 g/cm$^3$, intended to simulate a layer of thatch.

Despite the layer of thatch on golf greens, consideration must also be given to core aeration (removing thatch cores on greens) and topdressing with sand, which can substantially increase the downward transport of triticonazole through preferential flow. Core aeration of golf greens is performed in order to remove organic matter, decompress the soil, improve the drainage of the soil, and help promote root growth. Holes are typically filled with sand. The number of core holes and their density on green surface can be very high and the operation may be performed as many as 3 times per year on the same green.[4] As core aeration is not considered in the PMRA and the USEPA models, the Level 2 modelling conducted by the PMRA is not considered to be highly conservative.

**Comment:**

The registrant suggests an approach similar to the USEPA's Golf Course Adjustment Factor (GCAF) be used to account for the fact that the use on golf courses is only to tees and greens, a small fraction of the whole area of the course. The GCAF is a fraction applied directly to EECs generated by PRZM/EXAMS, similar to a Percent Cropped Area (PCA) for agriculture, and is, as the registrant acknowledges, applied only to surface water EECs.

[4] O'Brien, P. and Hartwiger, C. 2003. Aerification and sand topdressing for the 21st century. USGA Green Section Record. March/April 2003. Volume 41 (2): p. 1-7. Also available at http://turf.lib.msu.edu/2000s/2003/030301.pdf.

**Health Canada response:**

The PRZM/EXAMS models used by the PMRA and the USEPA have been replaced with a model called Pesticide in Water Calculator (PWC), which is an interface that incorporates PRZM and the Variable Volume Water Model (VVWM). The PWC includes a PCA parameter directly in the interface, so adjustments to EECs after modelling are not needed.

The PCA applies only to model generated runoff EECs. The PCA is not applicable to groundwater EECs because the groundwater portion of PWC is one dimensional, calculating groundwater concentrations directly below the site of application. This simplification ignores groundwater recharge from outside the area of application (which would reduce groundwater concentrations by dilution) and the fact that overland flow into low-lying areas can increase local groundwater concentrations through depression focussed recharge.

**Comment:**

The registrant commented that field dissipation studies give shorter soil half-lives than the laboratory studies used to inform water modelling.

**Health Canada response:**

As field dissipation studies include key processes other than soil metabolism, specifically, wash-out, the resulting half-lives are not suitable for use in modelling, which treats each process separately. For this reason, modelling always relies on laboratory metabolism studies.

**Comment:**

The applicant cites a soil half-life of 1236 days for the combined residue found in PRVD2021-05.

**Health Canada response:**

The 1236 days half-life was used in the Level 1 modelling. Level 2 modelling included a re-consideration of the half-life resulting from one soil degradation study.[5] Data from the last measurement date was removed as an outlier, which reduced the half-life from that study, and a final soil half-life of 729 days was used for the Level 2 modelling. Details of this modification for the Level 2 modelling was inadvertently omitted from the PRVD.

[5] Doble, M.L., Ferreira, E.M. and Hardy, A.J. 1996. 14C-Triazole labelled triticonazole: Rate of degradation in clay soil under aerobic conditions. Rhône-Poulenc, Doc. No. 201171; Study No. P94/156. 87 p. (PMRA# 1180303)

**Comment:**

The $K_{oc}$ chosen to represent a combined residue is the lowest $K_{oc}$ of the components of the residue definition. The registrant suggests the choice of the most mobile of the transformation products in the combined residue ($K_{oc}$ of RPA 406341) is overly conservative, given that this transformation product reaches only 17.6% of applied radioactivity (AR) in laboratory metabolism studies. Furthermore, the registrant points to a maximum concentration of RPA 406341 of only 11% of applied parent, and 0% of applied parent at the end of the study in some field dissipation trials (citation not provided).

**Health Canada response:**

Transformation products found at >10% AR in laboratory studies are considered to be major transformation products. RPA 406341 was selected for inclusion in the residue definition for the human health risk assessment and, therefore, was considered when establishing a $K_{oc}$ for the combined residue.

Data indicates RPA 406341 appears in lower amounts in field trials as compared to laboratory studies. This suggests that RPA 406341 may be migrating towards groundwater as it is formed in soil, which is reinforced by the total absence of RPA 406341 in soil at the end of the field study. This supports the use of the $K_{oc}$ for RPA 406341 to represent the combined residue.

**Comment:**

The registrant argues that of the 2250 groundwater monitoring samples, none were found to contain the parent, and 179 did not find RPA 406341.

**Health Canada response:**

Water monitoring data, particularly for ambient surface water, may miss peak concentrations, as sampling is typically sporadic and peak concentrations can be flushed through a system in a short amount of time after a runoff event. Therefore, particularly for ambient surface water, EECs generated through modelling are typically better suited for use in an acute dietary risk assessment as opposed to surface water monitoring values. Due to the relatively small number of representative samples, a reliable acute or chronic exposure estimate cannot be obtained using the Canadian water monitoring data.

In addition, the residues of concern for the drinking water assessment include a large number of transformation products (RPA 404766, RPA 406203, RPA 406341, RPA 407922, RPA 406780, RPA404886, and an unidentified compound of molecular weight 349). Water monitoring data is lacking for most of these transformation products.

The lack of Canadian data from groundwater and treated water sources and the fact limited surface water data was only available from two provinces, precludes the use of an EEC based on monitoring data for acute and chronic drinking water exposure. The absence of detection in the limited groundwater samples available may not be representative of areas where triticonazole is used (such as golf courses).

According to the recent USEPA review,[6] triticonazole residues in the environment are expected to move to surface and groundwater via run-off and spray drift, and to persist in the water column. To properly characterize potential concentrations in water, robust water monitoring at the same high-risk locations would be needed for several years.

[6] Mastrota, N., Lin, S.L. and Louie-Juzwiak, R. 2019. Draft Ecological Risk Assessment for the Registration Review of Triticonazole. USEPA PC Code: 125620, DP Barcode: 440853. USEPA Office of Chemical Safety and Pollution Prevention, Environmental Fate and Effects Division. Washington, DC. 20460. 91 p.

# Appendix IV Label amendments for products containing triticonazole

Information on approved labels of currently registered products should not be removed unless it contradicts the label statements provided below.

**General label amendments for all products containing triticonazole**

- Replace "guarantee" with "active ingredient".

- The Minor Use Liability statement must be updated to the following:

> The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than [registrant name], under the User Requested Minor Use Label Expansion program. For these uses, [registrant name] has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

**Label amendments relating to the health risk assessment**

**Label amendments for commercial class products containing triticonazole**

1. **Label amendments for end-use products for turf:**

   **Update statement under PRECAUTIONS / RESTRICTED-ENTRY INTERVAL (REI) and/or RE-ENTRY INTERVAL:**

   > **DO NOT** enter or allow entry into treated areas of the golf course until sprays have dried.

   **Update application rates under DIRECTIONS FOR USE:**

   - Remove all label directions related to the maximum seasonal turf rate (3 × 648 g a.i./ha).
   - Modify label directions so that the typical application rate of 420 g a.i./ha becomes the maximum application rate with only 1 application per season.

   **Update statement under PRECAUTIONS:**

   > Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.

**Add to the following statements under PRECAUTIONS:**

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Apply only when the potential for drift to areas of human habitation or other areas of human activity (other than golf courses), such as parks, school grounds, and playing fields, is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

For use on established golf course turf.

**DO NOT** use beyond the course boundary.

**2. Label amendments for end-use products for seed treatment:**

**Add to PRECAUTIONS:**

Apply only in a way that this product will not contact workers or other persons, either directly or through drift. Only workers wearing personal protective equipment may be in the area when seed is being treated or bagged.

**Add to DIRECTIONS FOR USE**:

- Create a new sub-header: CROP ROTATION

**Add to CROP ROTATION:**

A rotational plantback interval of 30 days must be observed for crops not listed on the label.

**2a. On the principal panel**

**For labels with corn seed treatment applications:**

**Add the following statement:**

For use in commercial seed treatment facilities (and mobile treaters) with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. No open transfer is permitted.

**Maintain the following statement:**

No on-farm seed treatment is permitted.

**For labels with use on wheat, oat, barley, rye, triticale, canary seed and canary grass (PCP# 30685 and 33210):**

Update the closed-transfer restriction for commercial seed treatment with the following statement:

For use in commercial seed treatment facilities (and mobile treaters) with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. No open transfer in commercial facilities is permitted.

**2b. For labelled treated seed (seed tags):**

**For all seed tags, add the following statements:**

Keep treated seed out of reach of children and animals.

A rotational plantback interval of 30 days must be observed for crops not listed on the label.

**For seed tags with corn seed treatment applications, add the following statement:**

When handling and planting treated seed, wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during handling and planting treated seeds. Use a closed-cab tractor when planting treated seed. Gloves are not required within a closed cab.

**For seed tags with use on wheats and other cereals:**

The following statement must be added to the seed tag unless the current statement is equivalent or more restrictive:

When handling and planting treated seed, wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during handling and planting treated seeds. Use a closed-cab tractor when planting treated seed. Gloves are not required within a closed cab.

## 3. Updates to personal protective equipment (PPE) statements for seed treatment end-use products

Reference table of updated PPE and engineering control statements for seed treatment products are provided in Table 1. Label statements must be amended (or added to) according the statements found in Table 1.

**Table 1 Proposed label modifications based on the occupational risk assessment for currently registered triticonazole seed treatment end-use products**

| Seed types | Tasks | PPE/Engineering controls |
|---|---|---|
| **For commercial seed treatment** | | |
| Corn | Treating (Closed M/L) | Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading and application.<br><br>For use with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. No open transfer is permitted. |
| | Bagging/Sewing/Stacking, clean-up and repair activities | Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes when handling treated seeds and during clean-up and repair activities. |
| Wheat, Barley, Oat, Rye, Triticale, Canary seed and Canary grass | Treating (Open or Closed M/L), Bagging/Sewing/Stacking | Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, and any other activities involving handling treated seeds. |
| | Clean-up and repair activities[a] | Wear chemical-resistant coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during clean-up and repair activities. |
| **For On-Farm Seed Treatment** | | |
| Wheat, Barley, Oat, Rye, Triticale, Canary seed and Canary grass | Treating + Handling (Open or Closed M/L) | Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up, repair and any other activities involving handling treated seeds. |
| **For Planting Treated Seeds (also include on seed tags)** | | |
| Corn | Handling + Planting[b] | Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during loading and planting treated seeds.<br><br>Use a closed-cab tractor when planting treated seed. Gloves are not required within a closed cab |
| Wheat, Barley, Oat, Rye, Triticale, Canary seed and Canary grass | Handling + Planting[c] | Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during loading and planting treated seeds.<br><br>Use a closed-cab tractor when planting treated seed. Gloves are not required within a closed cab. |

[a] The PPE required from the risk assessment is more restrictive than what is currently on the labels. The labels are proposed to be updated to reflect this change.
[b] The current label does not contain a PPE statement/engineering control for planting treated seed. This direction is proposed to be added to the label.
[c] The PPE and engineering control required from the risk assessment are more restrictive than what is currently on the labels. The labels are proposed to be updated to reflect this change.

## Label amendments relating to the environmental risk assessment

### 1. Label amendments for technical grade active ingredient and manufacturing concentrates

**Add to ENVIRONMENTAL HAZARDS/PRECAUTIONS:**

Toxic to aquatic organisms.

**DO NOT** discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.

**Add to DISPOSAL:**

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean up of spills, contact the manufacturer or the provincial regulatory agency

### 2. Label amendments for commercial class products

**2a. For labels related to seed treatment (except corn) applications:**

**Add to ENVIRONMENTAL PRECAUTIONS:**

Toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

**Add to LABELLING OF TREATED SEED or USE RESTRICTIONS:**

All containers or packages containing treated seed (except corn) for sale or use in Canada must be labeled or tagged as follows:

Toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

**2b. For labels related to corn seed treatment applications:**

**Add to ENVIRONMENTAL PRECAUTIONS:**

Toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

**Add to LABELLING OF TREATED SEED or USE RESTRICTIONS:**

All containers or packages containing corn treated seed for sale or use in Canada must be labeled or tagged as follows:

Toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

**3. For labels related to foliar application on established golf course:**

**Add to ENVIRONMENTAL PRECAUTIONS:**

Toxic to birds and non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.

Toxic to certain beneficial arthropods (soil dwelling beneficials). Minimize spray drift to reduce harmful effects on beneficial arthropods in habitats next to the application site such as hedgerows and woodland.

Toxic to aquatic organisms. Observe spray buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from foliar 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.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

**Add to GENERAL DIRECTIONS FOR USE:**

The following statement is required for all end-use products:

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.

**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.

**DO NOT** apply using aerial application equipment.

**Add to SPRAY BUFFER ZONES:**

Spot treatments using hand-held equipment do not require a spray buffer zone. Use of low-clearance hooded or shielded sprayers that prevent spray contact with foliage.

The spray 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) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

| Method of application | Crop | Spray Buffer Zones (metres) required for the protection of: | | |
|---|---|---|---|---|
| | | Freshwater habitat of depths: | | Terrestrial habitat: |
| | | Less than 1 m | Greater than 1 m | |
| Field sprayer (groundboom) | Established golf course (turf) | 3 | 1 | 4 |

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray 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 spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

**Add to DISPOSAL:**

The following statements should be used for commercial and restricted class products other than agriculture and non-crop land, where non-recyclable, non-returnable or non-refillable containers are used:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.

3. Make the empty container unsuitable for further use.

4. Dispose of the container in accordance with provincial requirements.

5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

**Label amendments relating to the value assessment**

**1. Label amendments for commercial class products**

**General label statement revisions:**

- Update the resistance management statements on each end-use product label as per Regulatory Directive DIR2013-04, *Pesticide Resistance Management Labelling Based on Target Site / Mode of Action*.

**2. For labels of specific end-use products (PCP# 28387, 29109, 29400, 30226 and 33210):**

- Clarify claims with respect to level of control (control or suppression) in general, and clarify the level of control for certain claims when product is applied alone and not applied in a tank mix.

- It is not clear for certain uses if it is control or suppression of the listed disease. Therefore, before the Directions for Use Table indicate that the product will control the listed diseases, unless otherwise indicated as suppression.

- Remove the following disease claims from labels and use directions;
    - Gray snow mold (*Typhula incarnata, T. ishikariensis*)
    - Fusarium patch and pink snow mold (*Microdochium nivale*)
    - Brown Patch (*Rhizoctonia solani*)
    - Summer Patch (*Magnaporthe poae*)

**3. Label amendments for end-use products for turf:**

- Tank mix partners must be registered and clearly indicated by product name on triticonazole product labels. Remove any reference to tank mix partners that are no longer registered (for example, Rovral Green; Rovral Green GT).