

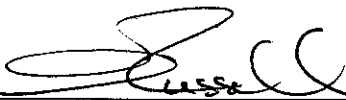
Corn Gluten Meal

Value and Sustainability Assessment Directorate Input to Agency Documentation

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Overview

What Is Corn Gluten Meal?

Corn gluten meal (CGM) is a biopesticide that inhibits the root formation of germinating seeds by releasing organic dipeptides into the soil. Corn gluten meal is a by-product of the wet milling process of corn for starch. It is also produced as a by-product during the conversion of starch from dry-milled corn to corn syrup.

Prairie Gold 60% Corn Gluten Meal (Reg. No. 24790) is a technical grade active ingredient that contains 100% CGM. TurfMaize (Reg. No. 27491) is a Domestic Class product containing 98% CGM for use on established residential lawns where Kentucky bluegrass is predominant. TurfMaize Pro (Reg. No. 27865) is a Commercial Class product containing 98% CGM for use on established residential lawns, parks, municipal and commercial properties where Kentucky bluegrass is predominant.

Corn gluten meal has been sold in Canada as a natural fertilizer since the mid 1990's. The United States Environmental Protection Agency (USEPA) listed CGM on the USEPA's 25(b) list of least toxic pesticides and waived all environmental fate and toxicology data requirements for the registration of CGM. The registration of CGM as a pre-emergent herbicide in the U.S. has been exempt by the USEPA since 1994 (Reg. No. 56872-1 and USEPA EST 56872-IN-1) and California EPA (Reg. No. 1051098-3001-AA).

Value Considerations

What Is the Value of TurfMaize and TurfMaize Pro?

TurfMaize and TurfMaize Pro are one in the same product that differ only in their marketing class. TurfMaize is a Domestic Class product that is available to the homeowner for use on established residential lawns where Kentucky bluegrass is predominant. TurfMaize Pro is a Commercial Class product for use on established residential lawns, parks, municipal and commercial properties where Kentucky bluegrass is predominant.

TurfMaize and TurfMaize Pro are pre-emergence weed seed germination inhibitors which may inhibit dandelion (*Taraxacum officinale*) and smooth crabgrass (*Digitaria ischaemum*) seed germination when used in conjunction with a sound lawn maintenance program.

Science Evaluation

Corn Gluten Meal

1.0 The Active Ingredient, Its Properties and Uses

1.3 Directions for Use

TurfMaize and TurfMaize Pro are applied to established grass where the Kentucky bluegrass is predominant. Best results are achieved when the product is applied as an early spring application and again as a late summer or early fall application. The early spring treatment must be made before the smooth crabgrass and dandelion seeds germinate as established weeds will not be controlled. The late summer or early fall treatment must be made after the heat stress to grass has passed.

The application rate for both spring and fall applications is 9.7 kg/100 m² (20 lbs./1,000 ft²) using a rotary spreader for large areas and hand spreader for smaller areas. Application should be made when the soil is moist and when rain is forecasted within two days of treatment. If rainfall does not occur within two days of treatment, irrigation is required

1.4 Mode of Action

Corn gluten meal is a plant growth regulator which inhibits the root growth of germinating seeds by releasing organic dipeptides into the soil.

5.0 Value

5.1 Effectiveness Against Pests

Conditional registration was granted to TurfMaize in 2003 and to TurfMaize Pro in 2005 on the condition that additional efficacy data would be submitted to confirm the herbicidal effect of the product.

In accordance with the condition of registration, efficacy data from published and unpublished trial reports were submitted from research conducted by the Prairie Turfgrass Research Centre and from the Guelph Turfgrass Institute. Trials were conducted at four locations in western Canada (Kelowna and Penticton, B.C., Calgary, AB and Regina, SK) and from one location in eastern Canada (Guelph, ON).

The level of dandelion control was assessed following applications of CGM at all trial locations over a study period that ranged from one to six years. The level of crabgrass control was assessed following applications of CGM at the Guelph location over a study period that ranged from one to three years. The level of crabgrass control was only reported in the Guelph trial as the weed is

not an indigenous to western Canada with the exception for the lower mainland of British Columbia.

Based on the information made available to convert the conditional registration of TurfMaize and TurfMaize Pro to full registration status, the weight of evidence supports the conclusion that CGM may inhibit dandelion and smooth crabgrass seed germination in lawns.

7.0 Summary

7.3 Value

Based on the evidence provided, the claim that TurfMaize and TurfMaize Pro may inhibit dandelion and smooth crabgrass seed germination when used in conjunction with a sound lawn maintenance program is supported and no further efficacy data are required.

The conversion of TurfMaize (Reg. No. 27491) and TurfMaize Pro (Reg. No. 27865) from conditional registration to full registration status can be supported.

7.4 Unsupported Uses

8.0 Regulatory Decision

Value

The conversion of TurfMaize (Reg. No. 27491) and TurfMaize Pro (Reg. No. 27865) from conditional registration to full registration status can be supported.

List of Abbreviations

CGM - corn gluten meal

Reg. No. - Registration number under the Pest Control Products Act

Appendix I Tables and Figures

Table 10 Alternative.....

Table 11 Use (label) Claims Proposed by Applicant and Whether Acceptable or Unsupported

References

A. List of Studies/Information Submitted by Registrant

5.0 Value

- PMRA 1512364 & 1512422 Mr Jon Barnes, 2007, Efficacy Small Scale Trials - Dandelions, Smooth or Large Crabgrass, Guelph Turfgrass Institute, DACO: 10.2.3.3(B).
- PMRA 1512365 & 1512423 Mr Jon Barnes, 2007, Efficacy Small Scale Trials - Dandelions, Prairie Turfgrass Research Institute, DACO: 10.2.3.3(B).
- PMRA 1512366 & 1512424 Mr Jon Barnes, 2007, Efficacy Small Scale Trials - Dandelions, Prairie Turfgrass Research Institute, DACO: 10.2.3.3(B).
- PMRA 1512367 & 1512425 K. Carey and E. Gunn, 2001, Crabgrass and broadleaf weed control in turf using corn gluten meal based fertilizer, Guelph Turfgrass Institute, 2001 Annual Research Report, DACO: 10.2.3.3(B).
- PMRA 1512369 & 1512427 K. Carey and C. Stroud, 2003, Broadleaf and grass weed control in turf and bare soil using corn gluten meal based fertilizer, Guelph Turfgrass Institute, 2003 Annual Research Report, DACO: 10.2.3.3(B).
- PMRA 1512370 & 1512428 J.B. Ross and M.A. Anderson, 2005, Effects of Long Term Use of Corn Gluten and Soybean Meal on Dandelion in Turf, Prairie Turfgrass Research Institute, DACO: 10.2.3.3(B).
- PMRA 1512371 & 1512429 J.B. Ross and M.A. Anderson, 2006, Effects of Long Term Use of Corn Gluten and Soybean Meal on Dandelion in Turf, Prairie Turfgrass Research Institute, DACO: 10.2.3.3(B).
- PMRA 1512372 & 1512430 J.B. Ross and M.A. Anderson, 2005, The Evaluation of Two Agricultural Byproducts as a Control of Dandelion in Turf,

- Prairie Turfgrass Research Institute, DACO: 10.2.3.3(B).
- PMRA 1512373 & 1512431 J.B. Ross and M.A. Anderson, 2006, Evaluation of Two Agricultural By-products for Control of Dandelion in Turf, Prairie Turfgrass Research Institute, DACO: 10.2.3.3(B).
- PMRA 1512374 & 1512432 J.B. Ross, 2005, CGM Trials for EFI by PTRC: Field Notes 2005, DACO: 10.2.3.3(B), unpublished.
- PMRA 1512375 & 1512433 J.B. Ross, 2005, CGM Trials for EFI by PTRC: Turf Maize Product Trial 2005, DACO: 10.2.3.3(B), unpublished.
- PMRA 1512376 & 1512434 J.B. Ross, 2005, CGM Trials for EFI by PTRC: TurfMaize Data 2005, DACO: 10.2.3.3(B), unpublished.
- PMRA 1512377 & 1512435 J.B. Ross, 2005, CGM Trials for EFI by PTRC: TurfMaize Trial ANOVA 2005, DACO: 10.2.3.3(B), unpublished.
- PMRA 1512378 & 1512436 J.B. Ross, 2006, CGM Trials for EFI by PTRC: TurfMaize Data 2006, N/A, MRID: N/A, DACO: 10.2.3.3(B), unpublished.
- PMRA 1512379 & 1512437 J.B. Ross, 2006, CGM Trials for EFI by PTRC: TurfMaize Trial ANOVA May 2006, N/A, MRID: N/A, DACO: 10.2.3.3(B), unpublished.

B. Additional Information Considered

i) Published Information

5.0 Value

ii) Unpublished Information

5.0 Value