



Propazine

Interim Registration Review Decision Case Number 0230

September 2020

Approved by: _____

A handwritten signature in blue ink, appearing to read "Elissa Reaves".

Elissa Reaves, Ph.D.
Acting Director
Pesticide Re-evaluation Division

Date: _____ 09-2-2020 _____

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I. INTRODUCTION

This document is the Environmental Protection Agency's (EPA or the Agency) Interim Registration Review Decision (ID) for propazine (PC Code 080808, case 0230) and is being issued pursuant to 40 CFR §§ 155.56 and 155.58. A registration review decision is the Agency's determination whether a pesticide continues to meet, or does not meet, the standard for registration in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The Agency may issue, when it determines it to be appropriate, an interim registration review decision before completing a registration review. Among other things, the interim registration review decision may determine that new risk mitigation measures are necessary, identify data or information required to complete the review, and include schedules for submitting the required data, conducting the new risk assessment and completing the registration review. Additional information on propazine can be found in EPA's public docket (EPA-HQ-OPP-2013-0250) at www.regulations.gov.

FIFRA, as amended by the Food Quality Protection Act (FQPA) of 1996, mandates the continuous review of existing pesticides. All pesticides distributed or sold in the United States must be registered by EPA based on scientific data showing that they will not cause unreasonable risks to human health or to the environment when used as directed on product labeling. The registration review program is intended to make sure that, as the ability to assess and reduce risk evolves and as policies and practices change, all registered pesticides continue to meet the statutory standard of no unreasonable adverse effects. Changes in science, public policy, and pesticide use practices will occur over time. Through the registration review program, the Agency periodically re-evaluates pesticides to make sure that as these changes occur, products in the marketplace can continue to be used safely. Information on this program is provided at <http://www.epa.gov/pesticide-reevaluation>. In 2006, the Agency implemented the registration review program pursuant to FIFRA § 3(g) and will review each registered pesticide every 15 years to determine whether it continues to meet the FIFRA standard for registration.

EPA is issuing an ID for propazine so that it can (1) move forward with aspects of the registration review that are complete and (2) implement interim risk mitigation (see Appendices A and B). The Agency is currently working with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (collectively referred to as, "the Services") to improve the consultation process for threatened and endangered (listed) species for pesticides in accordance with the Endangered Species Act (ESA) § 7. The Agency will complete its listed species assessment and any necessary consultation with the Services for propazine prior to completing the propazine registration review. Likewise, the Agency will complete endocrine screening for propazine, pursuant to the Federal Food, Drug, and Cosmetic Act (FFDCA) § 408(p), before completing registration review.

Propazine is an herbicide with products registered for use in sorghum to control broadleaf and grass weeds. It is a member of the triazine chemical class, which includes atrazine and simazine and the three major chloro-metabolites: desethyl-s-atrazine (DEA), desisopropyl-s-atrazine (DIA), and diaminochlorotriazine (DACT). Of the three major triazine chloro metabolites, only DEA and DACT are metabolites of propazine. EPA has determined that the triazines and their degradates share a common mechanism of toxicity, and as such, human health risks were

assessed together through a triazine cumulative risk assessment.¹ Each of the triazines produces a hydroxy degradate (i.e. hydroxypropazine) that has a different mode of action from the parent and major chloro-metabolites. One pesticide product containing propazine is registered for use on grain sorghum. The previously registered use on containerized ornamental plants grown in greenhouses was cancelled in January 2020 and subsequently removed from labels.² There are no registered residential uses of propazine. The first product containing propazine was registered in 1998, and therefore propazine was not subject to reregistration under FIFRA section 4, which was the process to re-evaluate pesticides registered prior to November 1, 1984. There is one technical and end-use registrant for propazine: Albaugh, LLC.

This document is organized in five sections: *Introduction*, which includes this summary and a summary of public comments and EPA's responses; *Use and Usage*, which describes how and why propazine is used and summarizes data on its use; *Scientific Assessments*, which summarizes EPA's risk and benefits assessments, updates or revisions to previous risk assessments, and provides broader context with a discussion of risk characterization; *Interim Registration Review Decision*, which describes the mitigation measures necessary to address risks of concern and the regulatory rationale for EPA's ID; and, lastly, *Next Steps and Timeline* for completion of this registration review case.

A. Update Since the Proposed Interim Decision

In January 2020, EPA published the Proposed Interim Registration Review Decision (PID) for propazine. In this ID, there is no update to the mitigation that was proposed in the PID.

Endangered Species Assessment

Propazine is one of the chemicals mentioned in a stipulated partial settlement agreement in the case of Center for Biological Diversity et. al., v. United States Environmental Protection Agency et al., No. 3:11 cv 0293 (N.D. Cal.). Among other provisions, this agreement sets a September 28, 2021 deadline for EPA to complete nationwide ESA section 7(a)(2) effects determination for atrazine and simazine and, as appropriate, request initiation of any ESA section 7(a)(2) consultations with the Services that EPA may determine to be necessary as a result of those effects determinations. EPA also stated in this settlement that the Agency would also include propazine in this group of effects determinations. Prior to completing the effects determination, the Agency plans to issue a draft biological evaluation for atrazine, simazine, and propazine for a 60-day public comment period by the end of November 2020.

In an effort to streamline and improve the biological evaluation and any subsequent consultations with the Services, as appropriate, Albaugh LLC, the sole propazine registrant, voluntarily committed to modifying propazine product labels and registrations.³ Albaugh has committed to limit the use of propazine on sorghum to the states of Texas, Oklahoma, and Kansas only. This label change is expected to reduce the extent of exposure and risk to both listed and non-listed

¹ Chlorotriazines: Cumulative Risk Assessment – Atrazine, Propazine, and Simazine; on regulations.com at <https://www.regulations.gov/document?D=EPA-HQ-OPP-2013-0250-0069>.

² Federal Register Notice (Cancellation Order for Certain Pesticide Registrations and Amendments to Terminate Uses; Volume 85, No. 2; January 3, 2020; EPA-HQ-OPP-2018-0014; FRL-10002-91)

³ See registrant commitment letter located in the propazine docket at EPA-HQ-OPP-2013-0250.

species whose range and/or habitat co-occur with the use of propazine. EPA will work with Albaugh to implement these voluntary label changes on the same timeframe as the necessary mitigation measures described in Section IV of this ID.

Along with the ID, the following documents are also posted to the propazine registration review docket (EPA-HQ-OPP-2013-0250):

- *Atrazine, Simazine, and Propazine —Environmental Fate and Effects Division's Response to Public Comments on Preliminary Interim Decision (PID)*, August 24, 2020
- *Biological and Economic Analysis Division's (BEAD) Response to Comments on the Benefit Assessments for Triazine Use on Field Corn, Sorghum, Fallow, Sweet Corn, Sugarcane, Orchards, Vineyards, Caneberries, Strawberries, Christmas Trees, Forestry, Rights-of-Way, Turfgrass, and Nurseries*, September 10, 2020
- *Atrazine, Simazine, Propazine: Human Health Response to Public Comments on Proposed Interim Decision*, September 9, 2020

B. Summary of Propazine Registration Review

Pursuant to 40 CFR § 155.50, EPA formally initiated registration review for propazine with the opening of the registration review docket for the case (EPA-HQ-OPP-2013-0250). The following summary highlights the docket opening and other significant milestones that have occurred thus far during the registration review of propazine.

- June 2013 - The *Propazine Preliminary Work Plan (PWP)* (June 2013); *Atrazine, Propazine, and Simazine. Human Health Risk Scoping Document in Support of Registration Review* (June 2013), and *Registration Review: Problem Formulation for Environmental Fate and Ecological Risk, Endangered Species, and Drinking Water Assessments for Propazine* (May 2013) were posted to the docket for a 60-day public comment period.
- January 2014 - The *Propazine Final Work Plan (FWP)* was issued. The Agency received two sets of public comments concerning the PWP from the technical registrant for propazine, Albaugh, Inc., and the FIFRA Endangered Species Task Force (FESTF). The comments did not result in a change to the schedule, risk assessment needs, or anticipated data requirements in the FWP. In the PWP, EPA also solicited comments about the specific topics of environmental justice, water quality concerns, and trade irritants, but no comments or information were received concerning those issues.
- April 2014 – A Generic Data Call-In (GDCI) for propazine was issued for data needed to conduct the registration review risk assessments (GDCI-080808-1371). All data were submitted, and the GDCI is satisfied. A subsequent GDCI was issued on December 2018 requiring multiresidue testing (OSCPP 860.1360) for propazine and its chloro metabolites: DEA and DACT. This study was determined to be acceptable, and the GDCI is satisfied.

- June 2016 and July 2018 - The Agency announced the availability of *Preliminary Ecological Risk Assessment for Registration Review of Propazine*; *Propazine. Draft Human Health Risk Assessment for Registration Review*; and *Chlorotriazines: Cumulative Risk Assessment – Atrazine, Propazine, and Simazine*; respectively for public comment periods. 1,225 comments specific to propazine were received during the comment periods.
- January 2020 - EPA announced the availability of the PID in the propazine docket and opened a 60-day public comment period. Along with the PID, the following documents were posted to the propazine docket:
 - *Atrazine, Simazine, Propazine: Response to Public Comments on Registration Review Human Health Risk Assessments*, November 21, 2019
 - *Propazine – EFED Response to Public Comments Received on the Preliminary Risk Assessment for Registration Review*, November 21, 2019
 - *Atrazine and Propazine Use on Grain Sorghum and Fallow Areas: Response to Comments, Usage, Benefits, and Impacts of Potential Mitigation*, November 25, 2019

Fifteen public comments were received on the PID. These comments and the Agency's responses are summarized below. The comments did not change the risk mitigation or registration review timeline for propazine.

- September 2020 - EPA has completed the ID for propazine. Along with the ID, the following documents will be posted to the propazine docket:
 - *Atrazine, Simazine, and Propazine —Environmental Fate and Effects Division's Response to Public Comments on Preliminary Interim Decision (PID)*, August 24, 2020
 - *Atrazine, Simazine, Propazine: Human Health Response to Public Comments on Proposed Interim Decision*, September 9, 2020
 - *Biological and Economic Analysis Division's (BEAD) Response to Comments on the Benefit Assessments for Triazine Use on Field Corn, Sorghum, Fallow, Sweet Corn, Sugarcane, Orchards, Vineyards, Caneberries, Strawberries, Christmas Trees, Forestry, Rights-of-Way, Turfgrass, and Nurseries*, September 10, 2020

C. Summary of Public Comments on the Proposed Interim Decision

During the 60-day public comment period for the propazine PID, which opened on January 2, 2020, and closed on March 2, 2020, the Agency received 15 public comments. Comments were submitted by the U.S. Department of Agriculture (USDA), National Agricultural Aviation Association (NAAA), Natural Resources Defense Council (NRDC), farmers, and citizens. The USDA provided supportive comments of propazine use and EPA's mitigation along with some spray drift mitigation concerns as well as provided information about its use and usage. The NAAA supports aerial applications of propazine and recommended new temperature inversion label language. The NRDC provided comments of a technical nature about the triazines as well

as comments questioning whether EPA was using its regulatory authority to prevent unsafe exposures of propazine to humans and the environment. The remaining comments submitted to the propazine docket included comments for or against triazine use (some of which mention propazine; others were specific to simazine and atrazine only), and a generic comment about pesticides not specific to the triazines or propazine.

Comments of a technical nature concerning the propazine PID are summarized and addressed in the *Atrazine, Simazine, and Propazine —Environmental Fate and Effects Division's Response to Public Comments on Preliminary Interim Decision (PID), Atrazine, Simazine, Propazine: Human Health Response to Public Comments on Proposed Interim Decision, and Biological and Economic Analysis Division's (BEAD) Response to Comments on the Benefit Assessments for Triazine Use on Field Corn, Sorghum, Fallow, Sweet Corn, Sugarcane, Orchards, Vineyards, Caneberries, Strawberries, Christmas Trees, Forestry, Rights-of-Way, Turfgrass, and Nurseries*. For additional details, please refer to these documents which will be posted on the propazine registration review docket (EPA-HQ-OPP-2013-0250 on www.regulations.gov). Substantive comments, comments of a broader regulatory nature, and the Agency's responses to those comments are summarized below. The Agency thanks all commenters for their comments and has considered them in developing this ID.

Comments Submitted by USDA (Docket ID: EPA-HQ-OPP-2013-0250-0097)

Comment: USDA supports the standardization of the proposed label changes related to spray drift mitigation, but encourages EPA to allow growers some flexibility with application timing and droplet sizes, especially in circumstances in which applications are made prior to crop emergence to bare soil. USDA expresses concern that such restrictions may lead growers to use alternative herbicides with less favorable ecological toxicity profiles and weaker residual control, resulting in increased weed management efforts required later in the growing season when injury to crops may be more likely to occur.

EPA Response: EPA thanks USDA for its comments. EPA has determined that the spray drift mitigation is necessary to reduce potential risks to birds, mammals, and non-target plants.

Comments Submitted by NAAA (Docket ID: EPA-HQ-OPP-2013-0250-0105)

Comment: NAAA supports the spray drift mitigation language for propazine. NAAA supports label language of not applying during temperature inversions but suggests amending it to “do not apply during low-level temperature inversions.”

EPA Response: EPA believes that the phrase “do not apply during low-level temperature inversions” does not provide adequate clarification due to the difficulty of defining the altitude where inversion conditions may not impact drift. Thus, the Agency is not specifying “low-level.”

Comments Submitted by NRDC (Docket ID: EPA-HQ-OPP-2013-0250-0106)

Comment: NRDC states that EPA has failed to use its regulatory authority to prevent unsafe exposures of triazines, such as propazine. NRDC argues that the proposed label warnings as well

as mandatory and advisory label language will not ensure protection of human health and the environment.

EPA Response: EPA has performed risks assessments to ascertain where propazine exposure might cause potential risks in human health and the environment. No risk was determined for humans, but some risks were determined for birds, mammals, and non-target plants. EPA is requiring mitigation measures to reduce these risks. Although advisory language is not enforceable, the combination of mandatory and advisory label language provides knowledge of how to safely and legally handle and apply propazine.

II. USE AND USAGE

Propazine is a selective herbicide that is grouped by the Weed Science Society of America with other triazines in Class 5. Propazine has residual activity and can prevent weeds from emerging for several weeks. The primary target pests based on data from Kynetec AgroTrak and extension literature are pigweed species.

Sorghum is the only crop that has recorded propazine usage. Based on the available pesticide usage data, growers apply propazine to 4% of the sorghum crop and treat a total of 309,000 acres per year. The average number of applications per year is slightly over one application and the average single application rate is 0.71 pounds of active ingredient per acre.

Most sorghum growers apply propazine before crop emergence (80% of acres treated). Propazine can be applied by ground equipment or by air. Annually, propazine was applied by air to an average of 1,200 acres over the years 2013-2017 in Texas and Kansas only. All aerial applications were done with liquid formulations.⁴

III. SCIENTIFIC ASSESSMENTS

A. Human Health Risk

A summary of the Agency's human health risk assessment is presented below. The Agency used the most current science policies and risk assessment methodologies to prepare a risk assessment in support of the registration review of propazine. The EPA has made a determination of a common mechanism of toxicity for propazine, atrazine, and simazine (the triazines) and their chlorinated metabolites. Therefore, in addition to assessing potential risk from propazine, the EPA evaluated the potential cumulative risk from combined exposure to the triazines and their metabolites. For additional details on the human health assessments, see the *Propazine Draft Human Health Risk Assessment for Registration Review* and the *Chlorotriazines: Cumulative Risk Assessment: Atrazine, Propazine, and Simazine*, which are available in the public docket.

⁴ Kynetec USA, Inc. 2019, The AgroTrak Study, Database Subset: 2013-2017.

1. Risk Summary and Characterization

There are no dietary, residential (handler and post-application), aggregate, non-occupational spray drift, or occupational post-application risk estimates of concern for the registered uses of propazine. Occupational handler (combined dermal and inhalation exposure) risk estimates of concern with baseline attire and label-specified PPE (chemical resistant gloves) were identified for some worker scenarios for the greenhouse ornamental use; however, the greenhouse ornamental use has been voluntarily cancelled.⁵ See below for details.

Dietary (Food + Water) Risks

Anticipated food exposures to propazine is negligible. Based on available food consumption survey data and pesticide field trial residue studies, human exposure to propazine residues from sorghum use is considered negligible.⁶ With insignificant exposure to propazine in food expected from the current uses, the total dietary exposure to propazine and its metabolites is through drinking water. A drinking water level of comparison (DWLOC) approach was used to calculate potential drinking water exposure and risk to propazine and its major chloro metabolites, as well as hydroxypropazine residues of concern. No dietary (drinking water) risks of concern were identified. For propazine and its major chloro metabolites, the acute and 4-day DWLOCs are greater than estimated drinking water concentrations (EDWCs). For propazine, the 4-day dietary risk estimates are protective for chronic dietary exposures since the point of departure and endpoint used for the 4-day assessment are the most sensitive for any exposure duration. For hydroxypropazine, the chronic DWLOCs are greater than the EDWCs. Therefore, there are no dietary (drinking water) risks of concern for propazine and its major chloro metabolites or hydroxypropazine.

Residential Handler and Post-Application Risks

There are no registered residential uses of propazine. Consequently, no risk assessment was performed for these scenarios.

Aggregate Risks

Aggregate risk assessment considers combined risks from food, drinking water, and residential exposures. There are no residential uses of propazine, and exposures from food are not expected. Exposures are only expected from drinking water, and there are no risks of concern for this pathway. Therefore, there are no aggregate risks of concern for propazine.

Non-Occupational Spray Drift Risks

A quantitative non-occupational spray drift assessment was conducted for propazine use on sorghum (1.2 lb ai/A) to assess potential exposure from off-target movement and deposition of

⁵ Federal Register Notice (Cancellation Order for Certain Pesticide Registrations and Amendments to Terminate Uses; Volume 85, No. 2; January 3, 2020; EPA-HQ-OPP-2018-0014; FRL-10002-91)

⁶ *What We Eat in America* (WWEIA/NHANES). 2003-2010. USDA and DHHS surveys report no human consumption for sorghum grain. In addition, field trial studies have demonstrated that residues of propazine and its metabolites are less than the limit of quantification (LOQ) of the analytical test method in sorghum grain.

propazine (i.e., spray drift); spray drift is not an issue for the now cancelled use on greenhouse ornamentals. Adult dermal and children's (1 to < 2 years old) dermal and incidental oral risk estimates from spray drift exposure to propazine from use on sorghum were not of concern at the edge of the field assuming screening-level nozzle types and droplet sizes (MOEs > the level of concern (LOC) of 30).

Cumulative Risks

The EPA has determined that propazine shares a common mechanism of toxicity (neuroendocrine effects in rats that can cause developmental and reproductive toxicity) with the other triazine herbicides, atrazine and simazine, and their chlorinated metabolites (DEA, DIA, and DACT). The EPA assessed cumulative risk from the triazines and their chlorinated metabolites in the July 10, 2018 document titled *Chlorotriazines: Cumulative Risk Assessment - Atrazine, Propazine, and Simazine* which is available in the public docket.

There were no risks of concern identified for the chlorotriazine 4-day cumulative dietary (food only) exposure and risk assessment or for the 4-day dietary cumulative aggregate (food + drinking water) exposure and risk assessment. There were also no cumulative risks of concern for the chronic dietary (food only) or screening-level aggregate (food + drinking water) assessment for the hydroxytriazines.

There were some 4-day cumulative aggregate (food + drinking water + residential) exposures; however, these risks of concern were driven by residential uses of simazine and atrazine. Propazine did not contribute to the aforementioned 4-day cumulative aggregate (food + drinking water + residential) exposures as there are no registered residential uses of propazine. Further information regarding these cumulative aggregate risks of concern can be found in *Chlorotriazines: Cumulative Risk Assessment - Atrazine, Propazine, and Simazine*.

Occupational Handler Risks

Occupational handler dermal and inhalation exposure and risk estimates were calculated for the registered uses of propazine on sorghum and greenhouse ornamentals. The occupational handler exposure and risk estimates indicate that some of the combined dermal and inhalation risk estimates are not of concern (MOEs > 30) with baseline attire + label specified PPE (chemical resistant gloves) for greenhouse ornamental use. Mixing/loading/applying liquids via backpack spray equipment to greenhouse ornamentals is not of concern with the addition of a double layer of clothing. Mixing/loading/applying liquids with a mechanically pressurized handgun to greenhouse ornamentals remains of concern when assuming label-specified PPE, a double layer of clothing, and a respirator with a protection factor of 10 (PF10 respirator). Dermal exposures are the highest contributors to the combined dermal + inhalation risk estimates. The propazine registrant has voluntarily cancelled the greenhouse use which nullifies these risks.⁷ Occupational handler risks of concern were not identified from use on sorghum.

⁷ Federal Register Notice (Cancellation Order for Certain Pesticide Registrations and Amendments to Terminate Uses; Volume 85, No. 2; January 3, 2020; EPA-HQ-OPP-2018-0014; FRL-10002-91)

Occupational Post-Application Risks

Occupational post-application dermal exposure and risk estimates were assessed for registered uses of propazine (sorghum and greenhouse-grown ornamentals). Although there are no chemical-specific dislodgeable foliar residue (DFR) data available for propazine, DFR data are available on field corn treated with liquid and dry flowable formulations of atrazine which are considered protective of propazine use. Using atrazine-specific DFR data, the occupational post-application MOEs (range from 120 to 2,500) are not of concern for the registered uses of propazine on the day of application (LOC = 30, where MOEs below the LOC are of concern).

2. Human Incidents and Epidemiology

The Agency performed an updated Tier I review of human incidents from 2010-2017 for the triazine herbicides (atrazine, propazine and simazine) using the following sources: OPP Incident Data System (IDS); the National Pesticide Information Center (NPIC); the California Pesticide Illness Surveillance Program (CA PISP); and the Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (CDC/NIOSH) Sentinel Event Notification System for Occupational Risk-Pesticides (SENSOR) databases (S. Recore *et. al.*, D444041, 11/01/2017). The Agricultural Health Study (AHS) findings and epidemiological investigations for the triazines are reviewed in separate documents (the *Atrazine: Tier II Epidemiology Report* and the *Simazine: Tier II Epidemiology Report*).

No propazine incidents were reported to IDS, NPIC, CA PISP, or SENSOR-Pesticides and there does not appear to be a concern at this time. The Agency will continue to monitor the incident information and additional analyses will be conducted if ongoing incident monitoring indicates a concern.

The Agency recently conducted an updated epidemiology systematic literature review to investigate evidence about the human health effects associated with exposure to atrazine, simazine, and/or propazine. Ninety-three publications from 1990 – 2017 were identified for inclusion in the epidemiology literature review. Of these 93 publications, 90% reported an estimate of effect for atrazine and 14% reported an estimate of effect for simazine (not mutually exclusive). No epidemiology studies were found for propazine. However, since atrazine, simazine and propazine share a common mechanism of toxicity, refer to the *Atrazine Draft Human Health Risk Assessment for Registration Review* (docket EPA-HQ-OPP-2013-0266) and the *Simazine Human Health Risk Assessment for Registration Review and to Support the Registration of Proposed Uses on Citrus Fruit (Crop Group 10-10), Pome Fruit (Crop Group 11-10), Stone Fruit (Crop Group 12-12), Tree Nuts (Crop Group 14-12), and Tolerance Amendment for Almond Hulls* (docket EPA-HQ-OPP-2013-0251) for additional information regarding the human health effects associated with certain triazines.

3. Tolerances

Tolerances are established under 40 CFR §180.243 for residues of propazine in/on sorghum commodities. In a separate action, EPA will use its Federal Food, Drug, and Cosmetic Act

(FFDCA) rulemaking authority to require tolerance changes which will have a public comment period. The Agency intends to require that the residue definition for the tolerance expression for propazine be modified in accordance with current policy on tolerance definitions, to read:

“Tolerances are established for residues of the herbicide propazine, including its metabolites and degradates, in or on the commodities in the table below. Compliance with the tolerance levels specified below is to be determined by measuring only the sum of propazine, 6-chloro-N,N'-bis(1-methylethyl)-1,3,5-triazine-2,4-diamine, its desisopropyl metabolite 2-amino-4-chloro-6-isopropylamino-s-triazine (G-30033) (DEA), and its diamino metabolite 2,4-diamino-6-chloro-s-triazine (G-28273) (DACT), calculated as the stoichiometric equivalent of propazine, in or on the commodity.”

The Agency intends to revise the propazine tolerances for sorghum commodities. The anticipated revised tolerances are lower than the established tolerances and are based on limit of quantification (LOQ) considerations. Table 1 lists the anticipated tolerance revisions for propazine.

No Codex or Canada Pest Management Regulatory Agency (PMRA) maximum residue levels (MRLs) have been established for propazine. There are no harmonization issues at this time.

Commodity/ Correct Commodity Definition	Established Tolerance (ppm)	Anticipated Revised Tolerance (ppm)	Comments
Sorghum, grain, forage	0.25	0.2	Sum of LOQs for propazine and DEA plus maximum level of DACT in forage
Sorghum, grain, grain	0.25	0.15	Sum of LOQs: no detects in grain
Sorghum, grain, stover	0.25	0.15	Sum of LOQs: no detects in stover

B. Ecological Risk Summary and Characterization

A summary of EPA’s ecological risk assessment was originally presented in the propazine PID; there have been no changes in the Agency’s ecological risk assessment since the publication of the propazine PID. The only current registered use of propazine is on sorghum.

The EPA calculated risk estimates associated with propazine use to non-target mammals; birds, reptiles and terrestrial-phase amphibians; terrestrial invertebrates; terrestrial plants; fish, amphibians, and aquatic invertebrates; and aquatic vascular and nonvascular plants. Risk estimates (risk quotients, or RQs) were compared with the EPA’s LOC. For ecological risk, RQ’s below the LOC are not of concern to the Agency. For all taxa in the terrestrial assessment, except for plants, the LOC for acute exposure is 0.5, and the LOC for chronic exposure is 1.0. The LOC for plants is 1.0. In the draft risk assessment, the Agency identified potential chronic risk concerns for mammals, birds, reptiles, and terrestrial-phase amphibians. Risks from spray drift were identified for terrestrial and aquatic nonvascular plants. In addition, available information suggests potential risk to terrestrial invertebrates. The draft risk assessment assessed

the maximum label number of applications and maximum application rate (1.2 lb. a.i./A/application).

Terrestrial Risks

Mammals

Propazine has no known acute effect on mammals, and the likelihood of acute risk is low. The chronic risk estimates exceed the Agency's LOC of 1 for most scenarios modeled for all uses. Chronic RQs range from 0.16 – 25, compared to the LOC of 1.0, based on on-field exposure estimates.

Birds, Reptiles, and Terrestrial-Phase Amphibians

Acute RQs were calculated using the the highest concentration tested, because the avian endpoints were non-definitive (i.e., greater than values). The highest acute RQ value is 0.28, and acute risks to birds are expected to be low. Chronic risk estimates minimally exceed the Agency's LOC of 1 (chronic RQ = 1.1, LOC = 1). The adverse effect upon which the chronic endpoint is based is adult female body weight gain.

Terrestrial Invertebrates (honeybees)

No effects on adult honeybees were observed in the available acute contact study, and therefore no RQs are calculated. The potential risk to larval honeybees is not defined at this time based on current information.

Although the EPA identified the need for certain data to evaluate potential ecological effects to non-target organisms when initially scoping the registration review for propazine, the ecological effects problem formulation and the May 2014 registration review DCI were both issued prior to the EPA's issuance of the June 2014 *Guidance for Assessing Pesticide Risks to Bees*⁸. The EPA is currently determining whether additional pollinator data are needed for propazine. If the Agency determines that additional pollinator exposure and effects data are necessary to help make a final registration review decision for propazine, then the EPA will issue a DCI to obtain these data. The pollinator studies that could be necessary are listed in Table 2 below and based on the EPA's June 2014 *Guidance for Assessing Pesticide Risks to Bees*.

Table 1: Potential Pollinator Data Requirements	
Guideline #	Study
Tier 1	
850.3020	Acute contact toxicity study with adult honey bees
850.3030	Honey bee toxicity of residues on foliage
Non-Guideline (OECD 213)	Honey bee adult acute oral toxicity
Non-Guideline (OECD 237)	Honey bee larvae acute oral toxicity
Non-Guideline	Honey bee adult chronic oral toxicity
Non-Guideline	Honey bee larvae chronic oral toxicity
Tier 2 [†]	

⁸ Available at https://www.epa.gov/sites/production/files/2014-06/documents/pollinator_risk_assessment_guidance_06_19_14.pdf

Table 1: Potential Pollinator Data Requirements	
Guideline #	Study
Non-Guideline	Field trial of residues in pollen and nectar
Non-Guideline (OECD 75)	Semi-field testing for pollinators (tunnel or colony feeding study)
	Tier 3 [†]
850.3040	Full-Field testing for pollinators

[†] The need for higher tier tests for pollinators will be determined based upon the results of lower tiered tests and/or other lines of evidence and the need for a refined pollinator risk assessment.

Terrestrial Plants

There were risks of concern for terrestrial plants. Effects were seen in both seedling emergence and vegetative vigor studies in both monocots and dicots, more so for dicots. The EPA used a 25% inhibition of growth endpoint focusing on either biomass or emergence. For aerial applications, RQs ranged from 1.71 to 11.25 for non-listed plants, which exceeded the LOC of 1. Aerial spray drift RQs ranged from 1.71 to 3.75, where the LOC is 1.

For ground applications, RQs ranged from 0.69 to 8.25 for non-listed plants. Ground spray drift RQs were not of concern for non-listed terrestrial plants. RQ numbers exceeding the LOC indicate a potential for risk to that plant group.

Aquatic Risks

Fish, Amphibians, and Aquatic Invertebrates

There are no risks of concern for fish, amphibians, and aquatic invertebrates.

Aquatic Vascular and Nonvascular Plants

There is no risk of concern for aquatic vascular plants from the propazine use on sorghum (RQ = 0.32 – 0.43; LOC = 1). There is a risk of concern for aquatic nonvascular plants from the propazine use on sorghum via aerial and ground spray drift with RQs (1.3 – 1.7) exceeding the LOC of 1.

For additional details on the ecological assessment for propazine, see the *Preliminary Risk Assessment for Registration Review of Propazine* and *Propazine: Addendum to “Preliminary Risk Assessment for Registration Review of Propazine” for Update on ECOTOX Database Query* which are available in the public docket.

1. Ecological Incidents

The last search for ecological incidents was conducted in 2015 in support of risk assessment. The Ecological Incident Information System (EIIS) and the Avian Incident Monitoring System (AIMS) were searched. When available, ecological incident reports include data and location of an incident, type and magnitude of effects observed in various species, use(s) of pesticides known or suspected of contributing to the incident, and results of any chemical residue analysis or other analyses conducted during incident investigation. Ecological incidents are categorized

according to the certainty that the incident resulted from pesticide exposure. The 2015 incident search did not identify any incidents attributed to propazine.

EIIS and AIMS were later combined into the Incident Data System (IDS). An updated search for new incidents was conducted in IDS in October 2019, and there are no reported incidents for propazine .

The absence of reported incidents should not be interpreted as an absence of incidents. Incident reports for non-target organisms typically provide information only on mortality events and plant damage. Sublethal effects in organisms such as abnormal behavior, reduced growth and/or impaired reproduction are rarely reported, except for phytotoxic effects in terrestrial plants.

The Agency will continue to monitor ecological incident information as it is reported to the Agency. Detailed analyses of these incidents are conducted if reported information indicates concerns for risk to non-target organisms.

C. Benefits Assessment

Flexible Use Pattern

Propazine can be applied either before or after the crop emerges. Additionally, propazine has residual activity and can prevent weeds from emerging for several weeks.

Crop Safety

Propazine is one of three herbicides registered for use on sorghum that do not require a seed safener to prevent injury to the emerging crop. Saflufenacil and atrazine are the other sorghum use herbicides that do not require a safener. Generally, propazine offers better crop safety to grain sorghum than atrazine.

Inexpensive

Propazine is a relatively inexpensive herbicide, at approximately \$4/acre to apply, on average; as compared to a commonly used preemergence active ingredient, metolachlor-S, at \$10/acre. Propazine is mostly used before crop emergence when control of weed pests is paramount to establishing a crop which significantly reduces the probability of incurring some yield and financial loss.

IV. INTERIM REGISTRATION REVIEW DECISION

A. Required Risk Mitigation and Regulatory Rationale

The Agency has reviewed the risks, benefits, and uses of propazine and has determined that risk mitigation is necessary. EPA identified potential human health risks of concern for occupational handlers from dermal and inhalation exposure scenarios, such as mixing/loading/applying using backpack sprayers and mechanically pressurized handgun application equipment for greenhouse ornamental use; however, this use was voluntarily cancelled (see below). EPA identified

cumulative risks for the triazines which stem from atrazine and simazine uses, but not propazine use. EPA has also identified potential ecological risks of concern for mammals, birds, terrestrial plants, and non-vascular aquatic plants. The Agency weighed the benefits against the potential ecological risks and determined that mandatory spray drift language will reduce ecological exposure of propazine in the environment. EPA determined with this reduction in exposure that the benefits of the use of propazine on sorghum outweigh the remaining ecological risks of concern. In addition to the need for updated mandatory spray drift management language, EPA has determined that updating the herbicide resistance management language, personal protective equipment (gloves), and some label clarification on the propazine label are necessary. The registrant has agreed to all of the necessary label changes for propazine. Therefore, EPA has determined that with the mitigation measures noted here, the benefits of the use of propazine on sorghum outweigh any risks of concern.

1. Cancellation of Greenhouse Use

The registrant voluntarily cancelled the greenhouse use, and the cancellation order was published in the Federal Register Notice (Cancellation Order for Certain Pesticide Registrations and Amendments to Terminate Uses; Volume 85, No. 2; January 3, 2020; EPA-HQ-OPP-2018-0014; FRL-10002-91). This nullifies the occupational handler risks of concern for dermal and inhalation exposures that were identified for greenhouse uses.

2. Mandatory Spray Drift Reduction

The Agency determined that label changes are necessary to reduce off-target spray drift and establish a baseline level of protection against spray drift that is consistent across propazine products. Reducing spray drift is expected to minimize the extent of environmental exposure and potential risk to non-target plants and animals, including listed species whose range and/or critical habitat co-occur with the use of propazine. These spray drift reduction measures will also be considered in EPA's forthcoming effects determination, and consultation with the Services, as appropriate. Although the Agency is not making a complete endangered species finding at this time, these label changes are expected to reduce the extent of exposure and may reduce risk to listed species whose range and/or critical habitat co-occur with the use of propazine.

EPA determined that the following spray drift mitigation language to be included on all propazine product labels for products applied by liquid spray application is necessary. These additional restrictions include mandatory, enforceable statements and supersede any existing language already on product labels (either advisory or mandatory) covering the same topics. The Agency also determined that standardizing all advisory language on propazine product labels is necessary. When requesting label amendments to add these new statements, registrants must ensure that any existing advisory language left on labels does not contradict or modify the new mandatory spray drift statements required in this ID, once effective.

- Applicators must not spray during temperature inversions.
- For aerial applications, do not apply when wind speeds exceed 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters.

Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.

- For aerial applications, if the windspeed is 10 miles per hour or less, applicators must use ½ swath displacement upwind at the downwind edge of the field. When the windspeed is between 11-15 miles per hour, applicators must use ¾ swath displacement upwind at the downwind edge of the field.
- For aerial applications, the release height must be no higher than 10 feet from the top of the crop canopy or ground, unless a greater application height is required for pilot safety.
- For groundboom applications, do not apply when wind speeds exceed 15 mph at the application site.
- For ground boom applications, apply with the release height no more than 4 feet above the ground or crop canopy.
- For ground and/or aerial applications, select nozzle and pressure that deliver medium or courser droplets as indicated in nozzle manufacturers' catalogues and in accordance with the most recent version of American Society of Agricultural & Biological Engineers Standard 572 (ASABE S572).

In addition to including the spray drift restrictions on propazine labels, all references to volumetric mean diameter (VMD) information for spray droplets need to be removed from all propazine labels where such information currently appears. The proposed new language above, which cites ASABE S572, eliminates the need for VMD information.

Expected Impacts of the Mandatory Spray Drift Mitigation

The agency assessed the impact of the mandatory spray drift reduction measures outlined previously. Spray drift reduction requirements might impact sorghum growers in the following manner:

- inversion restriction (reducing amount of time to apply propazine, consumer might switch to product with only advisory language),
- percent of usable boom length and wind speed restrictions (increasing flexibility of applications),
- mandatory maximum spray release height requirement for ground applications (no negative impact),
- windspeed restrictions for ground applications (reducing amount of time to apply propazine,
- grower adopting other more costly control strategy, potential yield losses),
- droplet size (potential reducing efficacy, increasing potential for herbicide resistance, increasing application rates used by growers, increasing costs associated with reduced yield, more herbicide applications, purchasing of alternative products, or not being able to use tank mix or premix products), and
- interaction of individual components of spray drift mitigation (reducing amount of time to apply propazine).

For additional details on the impacts to sorghum growers from required spray drift reduction language, please see Section IV.6 of the PID and *Atrazine and Propazine Use on Grain Sorghum*

and Fallow Areas: Response to Comments, Usage, Benefits, and Impacts of Potential Mitigation; PC Codes (080803 and 080808) which are available on the public docket (EPA-HQ-OPP-2013-0250).

3. Non-target Advisory

EPA has determined that a non-target organism advisory is necessary label language for propazine. The protection of pollinating organisms is a priority for the Agency. Propazine may negatively impact forage and habitat of pollinators and other non-target organisms. It is the Agency's goal to reduce spray drift whenever possible and to educate growers on the potential for indirect effects on the forage and habitat of pollinators and other non-target organisms. Therefore, EPA determined that a non-target organism advisory language is necessary on propazine labels to address this potential concern.

4. Herbicide Resistance Management

On August 24, 2017, EPA finalized a Pesticide Registration Notice (PRN) on herbicide resistance management.⁹ Consistent with the Notice, EPA has determined that the implementation of herbicide resistance measures for existing chemicals during registration review is necessary. In registration review, herbicide resistance elements will be considered and addressed in every herbicide PID.

The development and spread of herbicide resistant weeds in agriculture is a widespread problem that has the potential to fundamentally change production practices in U.S. agriculture. While herbicide resistant weeds have been known since the 1950s, the number of species and their geographical extent, has been increasing rapidly. Currently there are over 250 weed species worldwide with confirmed herbicide resistance. In the United States, there are over 155 weed species with confirmed resistance to one or more herbicides.

Management of herbicide resistant weeds, both in mitigating established herbicide resistant weeds and in slowing or preventing the development of new herbicide resistant weeds, is a complex problem without a simple solution. Coordinated efforts of growers, agricultural extension, academic researcher, scientific societies, pesticide registrants, and state and federal agencies are required to address this problem.

EPA determined that labeling statements are necessary to provide growers and users with detailed information and recommendations to slow the development and spread of herbicide resistant weeds. This is part of a more holistic, proactive approach recommended by crop consultants, commodity organizations, professional/scientific societies, researchers, and the registrants themselves.

⁹ PRN 2017-2, "Guidance for Herbicide Resistance Management Labeling, Education, Training, and Stewardship". Available at <https://www.epa.gov/pesticide-registration/pesticide-registration-notices-year>

5. Label Cleanup

The Agency determined that three items for label cleanup as stated below are necessary.

- The Agency has determined that an update to the glove statement currently on labels to be consistent with the Label Review Manual is necessary.¹⁰ The new mandatory glove language does not fundamentally change the personal protective equipment that workers need to use, and therefore should impose no impacts on users.
- The Agency has determined that the standardization of the following information on product labels near application rate tables is necessary: “Do not apply propazine if atrazine has been or will be applied to the same acreage in the same growing season.” This text already appears in the end use product, but not the technical product.

B. Tolerance Actions

EPA anticipates revising the tolerance expression and tolerances for several commodities. Refer to Section III.A.3 for details. The Agency will use its FFDCA rulemaking authority to address these needed changes to the tolerances.

C. Interim Registration Review Decision

In accordance with 40 CFR §§ 155.56 and 155.58, the Agency is issuing this ID. Except for the Endocrine Disruptor Screening Program (EDSP) and the Endangered Species Act (ESA) components of this case, the Agency has made the following interim decision: (1) no additional data are required at this time; and (2) changes to the affected registrations and their labeling are needed at this time, as described in Section IV. A and Appendices A and B.

In this ID, the Agency is making no human health or environmental safety findings associated with the EDSP screening of propazine, nor is it making a final endangered species finding. Although the Agency is not making a final endangered species finding at this time, the required mitigation described in this document, when implemented on labels, is expected to reduce the extent of environmental exposure and may reduce risk to listed species whose range and/or critical habitat co-occur with the use of propazine. The Agency’s final registration review decision for propazine will be dependent upon the result of the Agency’s ESA assessment and any needed § 7 consultation with the Services and an EDSP FFDCA § 408(p) determination.

There are no human health risks of concern for registered uses of propazine. EPA identified cumulative risks for the triazines which stem from atrazine and simazine uses but not propazine use. EPA has also identified potential ecological risks of concern for mammals, birds, terrestrial plants, and non-vascular aquatic plants. The Agency weighed the benefits against the potential ecological risks and determined that mandatory spray drift language will reduce ecological exposure of propazine in the environment. EPA determined with this reduction in exposure that

¹⁰ See <https://www.epa.gov/sites/production/files/2016-02/documents/chap-10-feb-2016.pdf>

the benefits of the use of propazine on sorghum (i.e. flexible use pattern, crop safety, and inexpensive) outweigh the remaining ecological risks of concern. Besides mandatory spray drift management language, EPA has determined that updating the herbicide resistance management language, revising the personal protective equipment (gloves) statement, and adding some label clarification on the propazine label are necessary to follow best management practices.

D. Data Requirements

The propazine registration review generic data call-in issued in 2014 (GDCI-080808-1371) has been satisfied. EPA issued a second propazine registration review DCI in 2018 (GDCI-080808-1776) requiring multiresidue testing (OSCPP 860.1360) for propazine and its chloro metabolites: DEA and DACT. These data have been submitted and found to be acceptable, therefore this data call-in has been satisfied. No additional pollinator data are anticipated to be needed to be called-in for this registration review at this time. EPA will consider if submission of pollinator data is necessary as a separate action.

The analytical reference standard for propazine's chloro metabolite DACT has expired and must be submitted to EPA's National Pesticide Standards Repository (see <https://www.epa.gov/pesticide-analytical-methods/national-pesticide-standard-repository>).

V. NEXT STEPS AND TIMELINE

A. Interim Registration Review Decision

A Federal Register Notice will announce the availability of this ID for propazine. A final decision for propazine will occur after: (1) an EDSP FFDC A § 408(p) determination and (2) an endangered species determination under the ESA and any needed § 7 consultation with the Services.

B. Implementation of Mitigation Measures

Once the Interim Registration Review Decision is issued, the propazine registrants must submit amended labels that include the label changes described in Appendices A and B. The revised labels and requests for amendment of registrations must be submitted to the Agency for review within 60 days following issuance of the Interim Registration Review Decision in the docket.

Registrants must submit a cover letter, a completed Application for Registration (EPA form 8570-1) and electronic copies of the amended product labels. Two copies for each label must be submitted, a clean copy and an annotated copy with changes. In order for the application to be processed, registrants must include the following statement on the Application for Registration (EPA form 8570-1):

“I certify that this amendment satisfies the requirements of the Propazine Interim Registration Review Decision and EPA regulations at 40 CFR Section 152.44, and no other changes have

been made to the labeling of this product. I understand that it is a violation of 18 U.S.C. Section 1001 to willfully make any false statement to EPA. I further understand that if this amendment is found not to satisfy the requirements of the Propazine Interim Registration Review Decision and 40 CFR Section 152.44, this product may be in violation of FIFRA and may be subject to regulatory and/or enforcement action and penalties under FIFRA.”

Within the required timeframe, registrants must submit the required documents to the Re-evaluation section of EPA’s Pesticide Submission Portal (PSP), which can be accessed through EPA’s Central Data Exchange (CDX) using the following link: <https://cdx.epa.gov/>. Registrants may instead send paper copies of their amended product labels, with an application for a fast-track, Agency-initiated non-PRIA label amendment to Carolyn Smith at one of the following addresses, so long as the labels and application are submitted within the required timeframe:

VIA US Mail

USEPA Office of Pesticide Programs
Pesticide Re-evaluation Division
Mail Code 7508P
1200 Pennsylvania Ave NW
Washington, DC 20460-0001

VIA Courier

Pesticide Re-evaluation Division
c/o Front End Processing
Room S-4910, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Appendix A: Summary of Required Actions for Propazine

Registration Review Case#: 0230 PC Code: 080808 Chemical Type: herbicide Chemical Family: triazine Mechanism of Action: inhibiting photosynthesis in photosystem II (PSII)						
Affected Population(s)	Source of Exposure	Route of Exposure	Duration of Exposure	Potential Risk(s) of Concern	Required Actions	Comment (use to briefly clarify or elaborate on risk or mitigation)
Occupational handler (for greenhouse ornamentals)	Dermal and inhalation	Dermal and inhalation	Short and intermediate term	Neurological, reproductive, developmental effects	Cancel greenhouse ornamental use and remove use from labels	Greenhouse use was voluntarily cancelled
Avian	Dietary and spray drift	Ingestion	Chronic	Growth	Enforceable spray drift management measures	Chronic dietary RQ = 1.1 which marginally exceeds the LOC of 1
Mammals	Dietary and spray drift	Ingestion	Chronic	Reproductive and Growth	Enforceable spray drift management measures	
Terrestrial Plants	Spray drift	Direct contact	Acute Chronic	Growth	Enforceable spray drift management measures	Aerial spray drift modeling showed RQs from 1.71 – 3.75 which exceed the LOC of 1
Aquatic plants (nonvascular)	Spray drift and runoff	Direct contact	Acute Chronic	Growth	Enforceable spray drift management measures	Aerial and ground spray modeling showed RQs from 1.3 – 1.7 which exceed the LOC of 1

Appendix B: Required Labeling Changes for Propazine Products

Description	Required Label Language for Propazine Products				Placement on Label
Technical Product					
Removal of Greenhouse Use Pattern and Use Site	Remove “greenhouse weeds” / “in greenhouses” wording ⁱ				Title/Directions for Use
Do not apply in same acreage and same growing season as atrazine	“Do not apply propazine if atrazine has been or will be applied to the same acreage in the same growing season.”				Directions for Use
End Use Product					
Removal of Greenhouse Use	Remove wording referring to container grown ornamentals in greenhouses use ⁱⁱ				Title, Greenhouse Application Instructions
Mechanism of Action Group Number	<p>Note to registrant:</p> <ul style="list-style-type: none"> • Include the name of the ACTIVE INGREDIENT in the first column • Include the word “GROUP” in the second column • Include the MODE/MECHANISM/SITE OF ACTION CODE in the third column (for herbicides this is the Mechanism of Action, for fungicides this is the FRAC Code, and for insecticides this is the Primary Site of Action) • Include the type of pesticide (<i>i.e.</i>, HERBICIDE or FUNGICIDE or INSECTICIDE) in the fourth column. 				Front Panel, upper right quadrant. All text should be black, bold face and all caps on a white background, except the mode of action code, which should be white, bold face and all caps on a black background; all text and columns should be surrounded by a black rectangle.
	PROPАЗINE	GROUP	5	HERBICIDE	
Updated Gloves Statement	Update the glove statements to be consistent with Chapter 10 of the Label Review Manual. The propazine end-use product contains outdated glove statements. All appropriate glove types must be identified on the label (not named as				In the Personal Protective Equipment (PPE) within the

Description	Required Label Language for Propazine Products	Placement on Label
	examples). Registrants are no longer allowed to reference solvent categories (A-H) or category charts on the product labels.	Precautionary Statements and Agricultural Use Requirements, if applicable
Non-target Organism Advisory	“NON-TARGET ORGANISM ADVISORY: This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.”	Environmental Hazards
HERBICIDE RESISTANCE MANAGEMENT: Weed Resistance Management	Include resistance management label language for herbicides from PRN 2017-1 and PRN 2017-2 (https://www.epa.gov/pesticide-registration/pesticide-registration-notice-year)	Directions for Use, prior to directions for specific crops under the heading “WEED RESISTANCE-MANAGEMENT”
Additional Required Labelling Action Applies to all products delivered via liquid spray applications	Remove information about volumetric mean diameter from all labels where such information currently appears.	Directions for Use
Spray Drift Management Application Restrictions for all products delivered via liquid spray application and allow aerial application	<p>“MANDATORY SPRAY DRIFT MANAGEMENT</p> <p><u>Aerial Applications:</u></p> <ul style="list-style-type: none"> Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety. Applicators are required to use a medium or coarser droplet size (ASABE S572 and S641). If the windspeed is 10 miles per hour or less, applicators must use ½ swath displacement upwind at the downwind edge of the field. When the windspeed is between 11-15 miles per hour, applicators must use ¾ swath displacement upwind at the downwind edge of the field. Do not apply when wind speeds exceed 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for 	Directions for Use, in a box titled “Mandatory Spray Drift Management” under the heading “Aerial Applications”

Description	Required Label Language for Propazine Products	Placement on Label
	<p>helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.</p> <ul style="list-style-type: none"> Do not apply during temperature inversions.” 	
<p>Spray Drift Management Application Restrictions for products that are applied as liquids and allow ground boom applications</p>	<p>“MANDATORY SPRAY DRIFT MANAGEMENT Ground Boom Applications:</p> <ul style="list-style-type: none"> User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy. Applicators are required to use a medium or coarser droplet size (ASABE S572). Do not apply when wind speeds exceed 15 miles per hour at the application site. Do not apply during temperature inversions.” 	<p>Directions for Use, in a box titled “Mandatory Spray Drift Management” under the heading “Ground Boom Applications”</p>
<p>Advisory Spray Drift Management Language for all products delivered via liquid spray application</p>	<p>“SPRAY DRIFT ADVISORIES THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.</p> <p>IMPORTANCE OF DROPLET SIZE An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.</p> <p>Controlling Droplet Size – Ground Boom (note to registrants: remove if ground boom is prohibited on product labels)</p> <ul style="list-style-type: none"> Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate. Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size. Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift. <p>Controlling Droplet Size – Aircraft (note to registrants: remove if aerial application is prohibited on product labels)</p> <ul style="list-style-type: none"> Adjust Nozzles - Follow nozzle manufacturers’ recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight. <p>BOOM HEIGHT – Ground Boom (note to registrants: remove if ground boom is prohibited on product labels)</p>	<p>Directions for Use, just below the Spray Drift box, under the heading “Spray Drift Advisories”</p>

Description	Required Label Language for Propazine Products	Placement on Label
	<p>For ground equipment, the boom should remain level with the crop and have minimal bounce.</p> <p>RELEASE HEIGHT - Aircraft (note to registrants: remove if aerial application is prohibited on product labels) Higher release heights increase the potential for spray drift.</p> <p>SHIELDED SPRAYERS Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.</p> <p>TEMPERATURE AND HUMIDITY When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.</p> <p>TEMPERATURE INVERSIONS Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.</p> <p>WIND Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.”</p>	

ⁱ Label for 42750-149 has already been amended to incorporate this change; label stamped 5/14/20

ⁱⁱ Label for 42750-148 has already been amended to incorporate this change; label stamped 6/11/20