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July 2, 2014

Environmental Protection Agency
Docket Center (EPA/DC), (28221T)
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001

Re: Propazine; Receipt of Application for Emergency Exemption.
Docket No: EPA-HQ-OPP-2014-0419

Dear Sir/Madam,

We are writing to urge the U.S. Environmental Protection Agency (EPA) to deny the petition from the Texas Department of Agriculture (TDA) seeking an exemption to use the pesticide propazine to treat up to 3 million acres of cotton to control glyphosate-resistant Palmer amaranth (Pigweed). According to TDA, propazine is needed to control glyphosate-resistant Palmer amaranth due to the lack of suitable alternatives and effective control practices. TDA also asserts that significant economic losses will occur if this pest is not controlled. However, the risks posed by propazine on such a wide area far outweigh any short-term benefits. According to EPA, under Section 18 of the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA), a federal or state agency may be exempted from any provision of FIFRA if EPA determines that emergency conditions exist which require the exemption. According to regulations, an emergency condition is defined generally as "an urgent, non-routine situation…"[1] Unfortunately, glyphosate-resistant weeds such as resistant Palmer amaranth have been documented for several years with increasing frequency and cannot be considered "non-routine," a pest outbreak, nor an unusual environmental condition. Since 1996, several emergency exemptions for propazine have been requested on sorghum, with roughly half being denied.[2] Just as with these denials, EPA must again issue a denial of this latest request.

I. Legal Standards & Criteria

A number of legal standards and criteria must be met before EPA can consider granting an emergency condition exemption.

[1] 40 C.F.R. § 166.
[2] EPA. Pesticide Emergency Exemptions. http://www.epa.gov/opprd001/section18/

A. "Emergency Condition" Under FIFRA Section 18

Section 18 of FIFRA authorizes the agency to allow a new use of a registered pesticide or the use of a pesticide whose registration is pending (and making progress toward registration) for a limited time if the agency determines that an emergency condition exists.[3] In order to grant an emergency exemption, EPA must meet the stringent criteria outlined in the accompanying federal regulations, and these regulations state the following:

> Emergency condition means an urgent, non-routine situation that requires the use of a pesticide(s) and shall be deemed to exist when:
> (1) No effective pesticides are available under the Act that have labeled uses registered for control of the pest under the conditions of the emergency; and
> (2) No economically or environmentally feasible alternative practices which provide adequate control are available; and
> (3) The situation:
> (i) Involves the introduction or dissemination of an invasive species or a pest new to or not theretofore known to be widely prevalent or distributed within or throughout the United States and its territories; or
> (ii) Will present significant risks to human health; or
> (iii) Will present significant risks to threatened or endangered species, beneficial organisms, or the environment; or
> (iv) Will cause significant economic loss due to:
> (A) An outbreak or an expected outbreak of a pest; or
> (B) A change in plant growth or development caused by unusual environmental conditions where such change can be rectified by the use of a pesticide(s).[4]

The current emergency condition application fails to meet all of these standards. Alternative pesticides and practices exist that could more than adequately address glyphosate-resistance problems. Even under the less stringent definition of emergency under the economic loss provision,[5] applicants do not present facts or data sufficient to demonstrate an outbreak of a pest or a change in plant growth caused by unusual environmental conditions. As explained in depth below, glyphosate-resistant weeds, including Palmer amaranth, is a recurring, acknowledged, and now common environmental condition brought on by over-application of glyphosate and the continued treadmill of pesticide-reliant agricultural practices. Introduction of a more dangerous pesticide into the environment to combat a problem brought on by the overuse of pesticides will not remedy the problem, only exacerbate it.

But beyond these blatant application failures, other important legal standards and criteria are not met. EPA must perform a multi-disciplinary evaluation of the request that addresses

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[3] 7 U.S.C. § 136p.
[4] 40 C.F.R. § 166.3.
[5] *See* Washington Toxics coalition v. U.S. Dept. of Interior, Fish and Wildlife Service, 457 F.Supp.2d 1158 (W.D. Wa. 2006) (holding the Endangered Species Act (ESA)'s definition of emergency as overlapping in meaning but not equivalent to the less-protective FIFRA section 18 definition of emergency).

universal safety standards and requirements for all pesticide use including (1) assessment of the validity of the emergency claim and economic loss; (2) human dietary risk assessment; (3) occupational risk assessment; and (4) ecological and environmental risk assessment.[6] The agency must deny an exemption request if the pesticide does not meet safety standards, or if emergency criteria are not met.[7] Without strict adherence to Section 18 criteria and other legal standards, allowance of unregistered pesticide uses places the public and the environment at risk.

B. Food Quality Protection Act (FQPA): Aggregate Tolerances

Even though cotton is not a food crop, EPA must still meet the aggregate tolerance-assessment standards under the Food Quality Protection Act (FQPA).[8] Indeed, a major concern with Section 18 exemptions is the effect that it will have on aggregate pesticide exposures. These emergency exemptions must not ignore aggregate risks or improperly dismiss risks where data are lacking. Doing so would thereby increase pesticide exposures to levels that would exceed risk calculations and be deemed unsafe. Yet, there is concern that a Section 18 approval for the use of propazine, would significantly increase the levels of propazine, a triazine herbicide, in the environment, even with one-time application of this toxic pesticide, as well as increase aggregate and cumulative risks from the triazine class of herbicides.

C. Endangered Species Act: Impacts on Endangered Species

Emergency condition exemptions for pesticide use still require Endangered Species Act (ESA) consultations and evaluation of ecological impacts on endangered species.[9] Under the ESA, federal agencies must ensure that any action it authorizes, funds, or carries out, does not "adversely impact" any listed species, or "destroy or adversely modify" any critical habitat for that species.[10]

Based on these legal standards, the environmental, ecological, and health risks discussed throughout these comments, and the inadequate evaluation and review on the part of TDA, propazine should not be considered for a Section 18 exemption since the pesticide does not meet safety standards for human and environmental use. Additionally, propazine is currently undergoing registration review, and its uses should not be expanded before more recent and thorough information is available on which to base an emergency condition exception.

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[6] U.S. Envt'l Prot. Agency, *Pesticide Emergency Exemption*, http://www.epa.gov/opprd001/section18/.
[7] *Id.*
[8] 21 U.S.C. § 346a; *see also* 40 C.F.R. § 176.5 ("EPA will establish a time-limited tolerance for pesticide chemical residues in or on raw or processed food or feed resulting from the use of a pesticide chemical, if EPA authorizes an emergency exemption or a crisis exemption. EPA will consider establishing such a tolerance only if an applicant acting under authority of FIFRA section 18 either has requested an emergency exemption, has stated its intention to issue a crisis exemption, or has issued a crisis exemption for a use that may result, *directly or indirectly*, in pesticide chemical residues in food or feed.")(emphasis added).
[9] *See* 16 U.S.C. § 1536; see also U.S. Envt'l Prot. Agency, Basic Information About ESSP, http://www.epa.gov/oppfead1/endanger/basic-info.htm#speciesact.
[10] *Id.*

II. Effective Pesticides and Alternative Practices Exist

Effective pesticides and alternative practices exist to address the weed problem caused by Palmer amaranth. And given that pesticide over-reliance gave rise to the issue of glyphosate-resistant weeds, alternatives, such as organic farming practices, provide the most effective and assured solution to the problem.

Organic cotton farming has wide-ranging success across Texas, the United States, and the world. A continuously growing industry necessitating increasing supplies to meet demands,[11] every opportunity should be taken to encourage and support organic cotton expansion, especially when it provides needed alternatives to pesticide-induced problems.

Glyphosate-resistant pigweed is not a problem in organic cotton because organic cotton producers do not rely on glyphosate for weed control. If TDA is to make a successful case for an emergency situation, it must demonstrate that the practices used by organic cotton growers are not effective.

III. Weed Resistance Is Routine and Not Unusual

Glyphosate-resistant weeds have ballooned in recent years due to the expansion of Roundup Ready crops, including soybeans and corn. Increased selection pressure from widespread use and reliance on glyphosate, and the simultaneous reductions in the use of sustainable weed management practices, have resulted in glyphosate-resistant weeds.[12] It is well-established that herbicide resistance will evolve fastest where herbicide selection intensity is most persistent. Many of these genetically diverse weed species under intense glyphosate selection have also demonstrated the ability to evolve resistance to a number of other herbicide modes of action (multiple-resistant weeds).

Palmer amaranth (*Amaranthus palmeri*), for instance, once successfully controlled by glyphosate, was first noticed to have developed glyphosate resistance in 2005.[13] By 2012, resistant palmer amaranth had been identified in Alabama, Arizona, Arkansas, California, Delaware, Georgia, Illinois, Kansas, Louisiana, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Ohio, Tennessee, and Virginia.[14] It has evolved resistance to multiple herbicide modes of action, including acetolactate synthase (ALS) inhibitors, triazines, 4-hydroxyphenylpyruvate dioxygenase (HPPD) inhibitors, and dinitroanilines. The development of multiple resistances is due to its ability to adapt and quickly spread herbicide resistance genes when selection pressure is applied, via abundant seed production and the movement of

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[11] Textile Exchange, *2011 Organic Cotton Market Report*, http://textileexchange.org/sites/default/files/te_pdfs/2011_Organic_Cotton_Market_Report_websize.pdf.

[12] APHIS. 2011. Plant Pest Risk Assessment for DAS-40278-9 Corn. US Department of Agriculture.

[13] Whitaker, J, et al. 2013. Physiology of Glyphosate-Resistant and Glyphosate-Susceptible Palmer Amaranth (Amaranthus palmeri) Biotypes Collected from North Carolina. International Journal of Agronomy. Vol. 2013.

[14] Whitaker, J, et al. 2013. Physiology of Glyphosate-Resistant and Glyphosate-Susceptible Palmer Amaranth (Amaranthus palmeri) Biotypes Collected from North Carolina. International Journal of Agronomy. Vol. 2013.

resistant genes through seed and pollen.[15,16] Given this, it is very likely that Palmer amaranth may also quickly develop resistance to propazine.

According to researchers, Palmer amaranth's emergence period can extend well into the typical crop season and can, at times, occur after crop harvest. Palmer amaranth emergence has been observed from early May until mid-September. This emergence period has forced farmers to manage the weed throughout the year. Farmers have been confronted with this resistant weed since 2005, and since 2012, various university extension services have issued various conservation and chemical control technique recommendations to battle resistant palmer amaranth.[17,18] Since the challenge of controlling glyphosate-resistant palmer amaranth has been routine since 2005, and in Texas since at least 2012, it does not meet the requirements that satisfy a Section 18 exemption.

IV. Propazine's Toxicological Profile: Risks to Humans, Other Species, and the Environment

Propazine is a toxic herbicide that belongs to the triazine class of herbicides that has been linked to developmental and reproductive toxicity. In the environment, propazine has a high potential to leach to ground water or runoff to surface waters. It is also moderately persistent under aerobic soil conditions, with half-lives of 12 to 24 weeks.[19] Even though propazine is currently registered for non-food uses (greenhouse ornamentals and sorghum), its propensity to leach to groundwater and runoff to surface waters poses a risk to human health and the environment.[20]

In the 2006 cumulative risk assessment for triazines, propazine was excluded from the cumulative assessment group and thus from the cumulative assessment because exposures to propazine were not anticipated via any of the relevant exposure pathways.[21] According to EPA documents, subchronic and chronic exposure studies found that a variety of species exhibit neuroendocrine effects when exposed to propazine. Propazine impacts the central nervous system leading to changes to hormone levels and developmental delays, resulting in both reproductive and developmental consequences that are considered relevant to humans. Propazine's two chlorinated degradates, DEA and DACT, are considered to have toxicity equal to the parent compound.[22]

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[15] Legleiter, T and Johnson, B. 2013. Palmer Amaranth Biology, Identification, and Management. Purdue University Cooperative Extension Service.

[16] McCloskey, W, Mostafa, A, and Ellsworth, P. 2012. An Impending Disaster for Arizona Cotton? Glyphosate Resistant Palmer Amaranth. University of Arizona, Cooperative Extension.

[17] Morgan, G, Baumann, P and Dotray, P. 2013. 4-step Program for Managing Glyphosate Resistant Pigweeds in Texas Cotton. Texas A&M AgriLife Extension.

[18] Legleiter, T and Johnson, B. 2013. Palmer Amaranth Biology, Identification, and Management. Purdue University Cooperative Extension Service.

[19] USEPA. 1998. Pesticide Factsheet. Propazine. Office of Pesticide Programs. Washington DC.

[20] USEPA. 1998. Pesticide Factsheet. Propazine. Office of Pesticide Programs. Washington DC.

[21] USEPA. 2006. Triazine Cumulative Risk Assessment. Office of Pesticide Programs. Washington DC.

[22] USEPA. 2006. Report of the Food Quality Protection Act (FQPA) Tolerance Reassessment Progress and Risk Management Decision (TRED) for Propazine. Office of Pesticide Programs.

A. Related Risks: Atrazine

As a triazine herbicide with the same mechanism of toxicity as atrazine and simazine, atrazine's toxicological profile is typically used to bridge data gaps for propazine. For instance, propazine was originally classified in 1989 as a Group C carcinogen –possible human carcinogen, based on having a non-threshold mechanism for tumor formation, and was reclassified based on atrazine's data in 2005 as "not likely to be carcinogenic to humans" based on weight-of-evidence that it is not genotoxic, and that the mode of action for the development of mammary and pituitary tumors in female rats is "not operative in humans."[23] The same principle of bridging informational gaps by looking to atrazine should apply in this scenario.

Atrazine is a hormone disruptor with well-documented scientific data on its impacts on amphibians and other wildlife.[24,25,26] Atrazine is linked to birth defects[27,28] and increases the risk for mammary cancer.[29,30] According to EPA, "Some people who drink water containing atrazine in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties."[31] Additionally, women who drink atrazine contaminated water may be more likely to have irregular menstrual cycles and low estrogen levels.[32] Like simazine, propazine's toxicological profile most likely mirrors that of atrazine, given that its carcinogenic assessment was based on atrazine's. Since propazine's own profile has been sidelined due to its limited use patterns, there is concern that increased use of another member of the toxic triazine family would place human and environmental health at risk.

B. Risks to Surface and Drinking Water

Triazines, like atrazine and simazine, have a well-documented presence in ground and surface waters. These chemicals are highly soluble in water and are the most frequently detected

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[23] USEPA. 2006. Report of the Food Quality Protection Act (FQPA) Tolerance Reassessment Progress and Risk Management Decision (TRED) for Propazine. Office of Pesticide Programs.

[24] Hayes, T., et al. 2011. Demasculinization and feminization of male gonads by atrazine: Consistent effects across vertebrate classes. *J. Steroid Biochem and Molecular Bio*. 127(1-2):64-73.

[25] Rohr, J and McCoy, K. 2010. A Qualitative Meta-Analysis Reveals Consistent Effects of Atrazine on Freshwater Fish and Amphibians. Environ Health Perspect; 118(1): 20–32.

[26] Hayes, T., et al. 2010. Atrazine induces complete feminization and chemical castration in male African clawed frogs (*Xenopus laevis*). *PNAS*, doi: 10.1073/pnas.0909519107.

[27] Agopian AJ, Lupo PJ, et al. 2013. Case-control study of maternal residential atrazine exposure and male genital malformations. *Am J Med Genet A*.161A(5):977-82.

[28] Agopian AJ, Langlois PH, Cai Y, et al. 2012. Maternal Residential Atrazine Exposure and Gastroschisis by Maternal Age. Matern Child Health J. doi 10.1007/s10995-012-1196-3.

[29] [29] Rayner, J and Fenton, S. 2010. Atrazine- An Environmental Endocrine Disruptor That Alters Mammary Gland Development and Tumor Susceptibility. In a J. Russo (Ed.), *Environment and Breast Cancer*, (pp 167-183). New York, NY: Springer.

[30] Rudel RA, Fenton SE, et al. 2011. Environmental Exposures and Mammary Gland Development: State of the Science, Public Health Implications, and Research Recommendations. *Environ Health Perspect.* 119:1053-1061.

[31] USEPA. 2011. Basic Information about Atrazine in Drinking Water. Retrieved from http://water.epa.gov/drink/contaminants/basicinformation/atrazine.cfm#four.

[32] Cragin LA, Kesner JS, Bachand AM, et al. 2011. Menstrual cycle characteristics and reproductive hormone levels in women exposed to atrazine in drinking water. *Environ Res.* 111(8):1293-301.

pesticides found at concentrations at or above one or more benchmarks in over half of sites sampled,[33] and also frequently detected in shallow ground water in agricultural areas, and in urban streams.[34] Atrazine has resulted in MCL violations and impaired streams in Texas.[35] Increasing propazine use over 3 million acres in Texas will undoubtedly increase propazine movement into waterways, potentially threatening the safety of Texas' surface and drinking water. According to some estimates, local governments and water utilities face over $150 billion over a 20-year period to ensure clean and safe drinking water.[36]

In a recent class action settlement with water utilities across the country to clean up atrazine in drinking water supplies, *City of Greenville, Ill. v. Syngenta Crop Protection, Inc.*,[37] the manufacturer Syngenta was made to bear the cost of removing atrazine from water systems. The suit claimed that atrazine at any level injures water supply systems. Since pesticide removal from drinking water is costly, and the burden is borne disproportionately by water utilities, introducing propazine into the environment can place undue hardships on water utilities and already strained local budgets.

Since previous assessments of propazine did not anticipate propazine residues to occur in water due to limited uses, an emergency use on such a widespread area warrants an ecological and dietary assessment. Additionally, there is a potential for the co-occurrence of atrazine, simazine, and propazine residues in Texas, due to the existing uses of atrazine and simazine in the state, thus an aggregate and cumulative assessment is also needed. A section 18 exemption cannot be granted without this ecological and environmental risk assessment.

V. Conclusion

There is an emerging trend of utilizing the Section 18 exemption provision under FIFRA to resort to highly toxic pesticides to control glyphosate-resistant weeds. Glyphosate-resistant weeds have unfortunately become a routine phenomenon in American agriculture, due to an over-reliance on Roundup on genetically engineered (GE) crops across the U.S. Since these resistant weeds are here to stay, a focus on finding sustainable alternatives to prevent the continuing pesticide treadmill that has resulted from the overuse of GE crops is desperately needed. Integrated pest management strategies, organic practices, and solutions that are not chemical-intensive are working alternatives that would be the most appropriate and long-term solution to battling palmer amaranth and other resistant weeds. Propazine should not be viewed as a solution to control resistant weeds in cotton in Texas. Like its cousins, propazine can contaminate water and impact human and ecological health. A one-time use of propazine on 3 million acres of cotton will inevitably pose risks that have not been considered by TDA or EPA.

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[33] USGS. 2013. Quality of Our Nation's Waters: Ecological Health in the Nation's Streams, 1993-2005. Water-Quality Assessment Program. Circular 1391.

[34] Gilliom, R, Barbash, J., et al. 2006. Pesticides in the Nation's Streams and Ground Water, 1992–2001. U.S. Geological Survey.

[35] USEPA, 2002. Summary of Atrazine in EPA Region 6 Surface Waters. http://www.epa.gov/region6/water/ecopro/watershd/monitrng/studies/atrazine.pdf.

[36] USEPA. 2009. Water on tap: what you need to know. Office of Water (4601) www.epa.gov/safewater

[37] City of Greenville, Ill. v. Syngenta Crop Prot., Inc., 756 F. Supp. 2d 1001 (S.D. Ill. 2010).

EPA must not expand the uses of the triazine class of chemicals and reject this request to use propazine on cotton.

Thank you for your consideration of our comments.

Sincerely,

Jay Feldman
Executive Director