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Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001

Re: Public Participation for Proposed New Use on Dicamba-tolerant cotton and Dicamba-tolerant soybean. [EPA-HQ-OPP-2024-0154]

Dear Madam/Sir,

These comments are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers, and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

We are writing regarding the U.S. Environmental Protection Agency's (EPA) proposed registration for three end-use dicamba products intended for broadleaf weed control in dicamba-tolerant cotton and dicamba-tolerant soybeans. EPA's announcement of the proposed decision to approve the registrations from Bayer CropScience LP, BASF Corporation, and Syngenta Crop Protection, LLC states: "These proposed dicamba products would allow postemergence applications to dicamba-tolerant cotton and soybean, commonly referred to as 'over-the-top' (OTT) use. OTT dicamba applications aim to remove emerged broadleaf weed species, particularly those resistant to other herbicides that compete with cotton and soybean plants and potentially reduce crop yield. OTT dicamba products have high benefits in both cotton and soybean for controlling these herbicide-resistant weeds and managing resistance to herbicides in the future."[1]

Beyond Pesticides finds the 'high benefits' of dicamba are overstated and improperly considered, as EPA's benefit and risk assessments rely heavily on unenforceable mitigation measures and do not adequately consider acute impacts on aquatic species and ecosystem services from impaired habitats.[2,3] Any benefits of use are also very much diminished if the agency were to properly calculate the availability of alternative weed and land management.

Although pesticides are by definition harmful, what makes dicamba's adverse effects "unreasonable" is the existence of an alternative—a productive and profitable organic production system—that does not harm human health, other species, or ecosystems and, in addition, helps to mitigate climate change. In its registration decisions, EPA must use organic production as a yardstick, denying any use with associated adverse effects for which organic production is successful. This includes the proposed uses of dicamba.

Ecosystem Effects

In the 'Draft Ecological Risk Assessment and Biological Evaluation,' risks to various organisms with dicamba exposure are listed.[2] While acute toxicity for marine fish, freshwater invertebrates, and marine invertebrates was not included (as an assumption of "likelihood of mortality is considered low" was attributed to species within those groups), acute and chronic risks to honey bees and other terrestrial invertebrates, aquatic and terrestrial plants, birds, and mammals is evidenced.[2]

As EPA states, "Chronic effects from a relatively high dicamba exposure have been observed in laboratory studies in mammals (reduced weight and delayed sexual maturation), birds (reduced number of offspring), and honey bees (reduced weight, survival, and adult emergence)."[2] The risks to other plants, as dicamba mimics auxins (a type of plant growth hormone) and causes abnormal cell growth, impacts both terrestrial plant species and aquatic vascular and non-vascular plant species.

Regarding the effects determinations for federally listed and proposed for listing threatened and endangered ("listed") species and designated critical habitat (CH) under the *Endangered Species Act* (ESA), dicamba is likely to adversely affect (LAA) 329 listed species and 81 CHs. EPA notes: "For the CHs with LAA determinations, adverse effects on essential physical and biological features (PBFs; or inferred PBFs) related to invertebrates, habitat quality for the listed species, and water quality were the primary factors leading to the determinations. With the EPA proposed mitigations which have been identified (see below), EPA is predicting no potential likelihood of future jeopardy (J) or adverse modification (AM) for listed species or designated critical habitat."

As stated in previous comments to EPA regarding the Draft Herbicide Strategy Framework, we are in the midst of a crisis in biodiversity—some call it the "sixth extinction," and others highlight an insect apocalypse.[4] Marine ecosystems are crashing. Bird populations are dramatically declining, with 29% of 1970's abundance in North America lost over the last 50 years. Pesticides are an essential contributor to these declines. Yet, habitat destruction, development, and widespread use of toxic chemicals continues.

The ESA has been our most important tool for slowing the decline in biodiversity. We assert that as a part of every ESA analysis—indeed, as part of every pesticide registration—the

agency must ask whether there are practices that can eliminate the harm, not reduce risk with high degrees of uncertainty.

If EPA is serious about protecting biodiversity, it must look first to the ways it has created the crisis in the first place. A major reason that species are endangered is that EPA has registered pesticides that harm them. If EPA is to adequately protect endangered species in compliance with ESA, it must seriously consider production practices that do not require the use of the chemical under review, in this case dicamba.

Mitigation Deficiencies

The above agency predictions that no future jeopardy or adverse modification will occur for listed species or designated critical habitats rely on the successful implementation of mitigation measures intended to reduce exposure from spray drift, runoff/erosion, and volatility. However, EPA's strategy does not properly ensure that the use of these OTT dicamba products will not cause further adverse environmental effects, as there is no enforcement or accountability required.

To reduce ecological risks, including to the identified listed species, the mitigation measures include: wind directional spray buffers; the inclusion of a drift reduction adjuvant; the implementation of land modifications (e.g., terracing, retention ponds, vegetative filter strips), production practices (e.g., cover cropping, mulching), and application practices (e.g., reduced rates, banded applications); the use of a volatility reducing agent (VRA); prohibiting tank mixing with other herbicides; limiting the area of a field that can be treated; and temperature restrictions.[3]

These mitigations would be outlined on EPA's mitigation menu website, however the navigation of the site is a process so cumbersome and convoluted that the agency cannot ensure that it cannot be taught, implemented, or enforced.[5] The expectation is placed on applicators, who may not be fully versed in math or English, to use a point system to determine if enough mitigation measures can be applied to allow for the use of the pesticide. Users complain of technological problems with the website, while also commenting on the complexities involved in the process.[5]

Advocates of organic agriculture argue that instead of spending millions of dollars and many years creating mitigation programs that are unenforceable and ineffective, EPA should spend the same amount of time and money supporting farmers in the transition to organic agriculture and in exiting the toxic pesticide treadmill. Even if the mitigation menu was easier to navigate, these proposed mitigation measures only lessen the chance of harmful impacts of pesticide use and, more concerning, are entirely voluntary. There is no enforcement mechanism and no way to ensure that the pesticides are used as directed or that mitigation measures are implemented properly. The only way to truly protect all species, as well as the environment, is to stop the use of pesticides completely.

Drift Exposure

The three new proposed uses of dicamba further subsequent harm from pesticide drift and should be denied for failure to meet the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA) requirement of no unreasonable adverse effects on the environment.[6] Pesticide drift harms people, crops, and wildlife. The term "drift" applies to airborne movement off the target site—though pesticides may also move as runoff and in soil carried by water or wind. Drift may consist of particles or droplets of pesticide as it is applied or vapors that evaporate and are carried in the air. Farmers and applicators may take steps to avoid drift—including buffer zones, thickening agents, and attention to wind direction—but drift-prone pesticides like dicamba are not always controlled by these actions.

Dicamba has been the focus of many court cases for this reason, as it is responsible for millions of acres of crop damage and harm to numerous organisms including endangered species. In February of 2024, the U.S. District Court for the District of Arizona struck down EPA's 2021 approval of three dicamba-based herbicides, which was the second lawsuit since 2020 to call out EPA's violation of both ESA and FIFRA in authorizing the use of OTT dicamba-based herbicide products from Bayer and other petrochemical pesticide companies.[7] The judge's ruling, deferring to EPA's interpretation of the existing stock allowance being consistent with the provisions of FIFRA, continues a pattern of "existing stock" allowances that permit hazards to continue well after a finding of harm or noncompliance.

New problems with nontarget dicamba drift, contamination, and crop damage were identified in 2016 when EPA registered a new formulation of dicamba to control weeds in cotton and soybean crops that have been genetically engineered (GE) to tolerate the chemical. In 2020, the Ninth Circuit nullified "EPA's 2018 conditional registration of three dicamba weed killer products for use on an estimated 60 million acres of DT (dicamba-tolerant through genetic modification/engineering) soybeans and cotton."[8] The previous court case found that EPA did not adequately consider adverse effects from OTT dicamba in approving the conditional registration.

Health Effects and Drift Damage

Numerous studies show direct negative impacts on the environment from dicamba application due to its high propensity for leaching through soil into groundwater, as it is extremely mobile and has high water solubility. Toxicity to birds and aquatic organisms has also been documented, as well as harm to plants and pollinators.[9] Impacts on human health have also been demonstrated. Unreasonable adverse effects that range from developmental and reproductive toxicity to skin irritation, neurotoxicity, kidney/liver damage, and potential cancer are linked to dicamba exposure.[10]

There is a "strong association between dicamba use and an increased risk of developing various cancers, including liver and intrahepatic bile duct cancer, chronic lymphocytic leukemia, and acute myeloid leukemia."[11] Additional research suggests that dicamba causes DNA damage

(causing DNA mutations and inducing oxidative stress – two pathways known to cause cancer) and is also linked to antibiotic resistance.[12]

Soy crops are particularly sensitive to pesticide drift from dicamba, and use of dicamba increased even after GE soy crops began being utilized. As the Center for Biological Diversity states: "Since dicamba was approved for 'over-the-top' spraying its use has increased twentyfold. The EPA estimates 65 million acres (two-thirds of soybeans and three-fourths of cotton) are dicamba-resistant, with roughly half that acreage sprayed with dicamba, an area nearly the size of Alabama. Much of the unsprayed crops are planted 'defensively' by farmers to avoid dicamba drift damage."[13]

With the documentation of drift damage for off-target crops, new formulations of dicamba were created to attempt to prevent drift damage, but still proved too drift-prone and problematic to be used without incident. Damage to habitats and food sources for various organisms, most notably birds and insects, occurs as a result of dicamba drift. Multiple studies and court filings show dicamba's ability to drift well over a mile off-site after an application.[14]

Dicamba creates "an 'ecological disaster' in the name of profit" and damages other crops such as fruit trees.[15] Despite a court ruling in 2022 that "EPA failed to account for how 'dicamba use would tear the social fabric of farming communities'… EPA sided with moneyed interests over the well-being of average Americans in farming communities."[15] Farmers rely on their crop production to make a living, and yet continued use of dicamba occurs despite "4 percent of soybean fields [being] damaged by off-target dicamba movement in 2018" and "damage from dicamba [being] reported on approximately 1 in every 13 fields [about 8%]" in some states.[16]

Climate Considerations

The mitigation measures to attempt to reduce pesticide drift from the proposed dicamba products require no application above 95° F and the use of a volatility reducing agent (VRA) in the application if the temperature is between 85°-95° F.[3] These temperatures are as a result of a study that shows "the rate of change in air concentration increases exponentially, such that at 85° F, the air concentrations were twice as high as those predicted at 75° F, at 95° F concentrations were 3.5 times higher and at 100° F the concentrations 4.5 times higher than at 75° F."[2]

This is of further concern, as increasing global temperatures needs to also be factored into the decision-making process. All dicamba formulations have the potential to volatilize since dicamba has a high vapor pressure, with increases in air temperature causing dicamba to turn into a gas even after successful application on target surfaces.[17]

Since volatilization increases as temperatures increase, this is more and more concerning as temperatures are rising higher each year. The length, intensity, and onset of seasons has changed, which can be attributed to climate change.[18] The longer and hotter

summers will exacerbate dicamba volatilization and lead to more drift--especially for post-emergent and OTT applications.

From an economic perspective, drift—like other contamination—is an externality that is never calculated in the true cost of chemical-intensive farming, it is simply ignored or not realistically restricted. The proposed mitigation measures are insufficient to protect public health, as well as the health of wildlife and the environment. The adverse effects associated with dicamba exposure are unreasonable and avoidable, thus the proposed dicamba products are unnecessary and should not be registered for use.

Conclusion

The inadequacy of restrictions in place for dicamba is justification for rejecting the new proposed uses of dicamba on dicamba-tolerant cotton and soybeans. Violations involving current products containing dicamba continue, as damage persists and EPA ignores the well-documented and overwhelming scientific evidence of the consequences of dicamba usage.[7] Consistent with FIFRA, cancellation of dicamba is needed to prevent further harmful effects.

Beyond Pesticides urges that dicamba be banned from all products, and no new products should be approved for use containing this active ingredient. With a holistic strategy, such as transition to certified organic land management under the *Organic Foods Production Act* (OFPA), the government must consider "cradle-to-grave" effects from production through use to disposal and require that systems are put in place to prevent the need for use of synthetic materials. In this context, the goal is to eliminate the use of petrochemical substances that are contributing to daily health threats, biodiversity collapse, and the climate emergency.[19]

Organic agriculture offers a long-term solution to pesticide contamination. Under OFPA, organic producers are prohibited from using petrochemical pesticides, fertilizers, and biosolids (sewage sludge). The law defaults against synthetic pesticides, requiring a rigorous review of exceptions under the National List of Allowed and Prohibited Substances provision, a review framework overseen by the National Organic Standards Board (NOSB).

As the only agricultural system with a requirement for a farm plan, inspections, and certification for compliance with organic standards, and rigorous public oversight, organic farming promotes sustainable, cost competitive, and profitable practices that enhance soil health and biodiversity. Organic is successfully mitigating the escalating public health, environmental, and climate crises, while EPA inaction on identifying, remediating, and preventing pesticide contamination throughout the country contributes to a growing problem.

In summary, EPA should deny the new proposed uses of dicamba due to the adverse effects on the environment, risks to health, and given the availability of cost-effective alternatives and the statutory duty of the agency to comply with the "unreasonable risk to man or the environment" standard under FIFRA.[6] The proposed new uses of dicamba do nothing to address concerns from the public and courts regarding the detrimental effects of dicamba and

will cause further harm to farmers who use this product, but also to those who experience rampant drift, elevated adverse effects, and economic loss. Allowing the use of dicamba fails to comply with ESA and protect endangered species and critical habitats, threatening overall biodiversity and ecosystem functioning. EPA must consider the alternative management practices and materials that are available, such as those used in organic agriculture, to make an accurate assessment of the hazards associated with continued and expanded dicamba use.

Thank you for your consideration of our comments.

Respectfully,

Sara Grantham
Science, Regulatory, and Advocacy Manager

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