February 14, 2023

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Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001

Submitted via regulations.gov

RE: ESA WORKPLAN UPDATE: Nontarget Species Mitigation for Registration Review and Other FIFRA Actions EPA-HQ-OPP-2022-0908

Dear Ms. Biscoe:

Established in 1933, CropLife America (CLA) represents the developers, manufacturers, formulators, and distributors of pesticides and plant-science solutions for agriculture and pest management in the United States. CLA's member companies produce, sell, and distribute nearly all the pesticide and biotechnology products used by American farmers. CLA appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's (EPA's or the Agency's) Endangered Species Act (ESA) Workplan Update (Workplan Update or Update).

The Workplan Update is a major step in the Agency's strategy to improve the ESA review process and reflects EPA's new direction of using ESA mitigations in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)-portion of pesticide review (FIFRA Interim Ecological Mitigations),[1] and in particular, in EPA's interim decisions (IDs) during the FIFRA registration review process. The Workplan Update is complex and uses a new approach for introducing measures to reduce offsite movement of pesticides, which would reduce pesticide exposure to all non-target species, before the evaluation and consultation process is complete. It also requires the consideration and review of experts and stakeholders familiar with the subject matter, including the US Department of Agriculture (USDA) and the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) (collectively, the Services). Furthermore, the Update presents mitigations specifically to protect ESA-listed species and their habitat that, taken together, may disrupt how farming is done today. Thus, it is incumbent upon the Agency to ensure that all parties can understand the proposed changes and how they will affect all stakeholders, including those stakeholders who will be required to implement any new mitigation measures added to product labels.

While CLA recognizes EPA's efforts to provide upfront protections for species while the Agency discharges its duties under both FIFRA and ESA, EPA must be able to justify the proposed mitigation

[1] CLA's use of the term "interim" in this document reflects EPA's use of the term, not an endorsement of how EPA interprets "interim." Throughout the substantive comments below we refer to mitigations intended to be applied at the PID stage as "early" or "upfront," to describe them more accurately.

measures with the best available science and must make plain the link between the measures required and benefits to species. Importantly, EPA must also be open to feedback on whether some measures included in the Update might be more conservative than the science supports, and to refining, modifying, or removing those measures at later stages of the consultation process, and as supported by the best available science. Although the Agency only invites public comment on the Appendix to the Update, the Workplan Update informs the Appendix; therefore, comments on the Update itself may inform any necessary changes to the Appendix.

General Policy Recommendations

The following broadly applicable principles provide the foundation for CLA's more detailed comments:

Broad mitigation measures should not supplant appropriate risk assessment.

While early mitigation measures are proposed as a bridge to full ESA compliance, they should not supplant product-specific risk assessments that could confirm the need for a particular measure or reveal that less stringent mitigations are necessary. As such, broad mitigation measures should not automatically be incorporated into risk assessments as baseline conditions, which appears to be under consideration, such as where EPA states: "Another way to view these measures is that EPA is raising the baseline for ecological mitigation measures…." Workplan Update at 9. While EPA is correct that "if early mitigation significantly reduces or eliminates the probability of a future jeopardy or adverse modification finding, formal consultation is simplified *and* listed species receive earlier protection," *id.* at 6, EPA must be able to demonstrate that mitigation efforts are required to avoid a no-jeopardy or adverse modification (J/AM) finding at the conclusion of the consultation process, rather than assume that whatever early mitigation is adopted is necessary.

Relatedly, it is imperative that EPA right-size mitigations early on in this proposed ID (PID)/ID process and remain open to adjusting the default mitigations as the Agency proceeds through the stages of the registration process. Adopting an overly conservative approach early on can hinder the eventual development of more appropriate and product-specific mitigations. Indeed, EPA states that finalizing ESA obligations associated with registration review might include "incorporating any additional mitigation the Services deem necessary," Workplan Update at 7, suggesting that EPA might not intend to revisit measures required in a PID or ID, even if they prove to be unnecessary. Instead of automatically building upon the early mitigations, EPA needs to acknowledge that full consultation with the Services may reveal that removing unnecessary mitigations may be an appropriate result.

Consider advances in chemical and application technology when grouping pesticides.

EPA should clarify what information the Agency plans to consider in determining whether pesticides have "similar exposure pathways, uses, and ecological risk profiles." *Id.* at 9. If EPA has already developed a methodology in this regard, it should make such methodology publicly available so that all stakeholders may comment on it. If EPA has not yet developed a methodology, it should include all stakeholders in that process. When evaluating whether to group certain pesticides together, it cannot be assumed that the entire class of pesticides is expected to have uniform effects on listed species. Different chemistries, even if in the same class or with similar modes of action, may behave very differently, both at the molecular level and depending upon the application method employed. Grouping, therefore, should be based on the relevant properties of the molecules and their effects,

considering application technologies, and supported by appropriate risk assessments. EPA must not group pesticides together without evaluating and accounting for these distinctions. CLA looks forward to working with the agency on developing a grouping methodology that is both supported by the science and that supports further development of knowledge of the products.

On the other hand, CLA fully supports and would encourage attempts to develop groups of ESA-listed species that may respond in similar ways to chemical exposure, or that are more likely to be found near agricultural landscapes, so that they can be addressed at the outset and narrow the range of listed species for which individual consultation is required.

Findings from prior EPA and Service regulatory analyses need to be applied at the early mitigation stage.

EPA and the Services have put much time and effort into preparing science-supported ESA analyses, *e.g.*, Biological Evaluations (BEs), and have developed a new approach to evaluating effects on species, *e.g.*, whether J/AM may occur. This process has revealed, for example, that county-level bans are inefficient, overly broad measures that discourage growers from proactively engaging on avoiding exposure to nontarget species. Thus, they should not be an option going forward; taking them off the table will allow all parties to focus on appropriate and effective solutions. Likewise, other lessons learned from preexisting analyses and evaluations—and feedback from on-the-ground implementation—must be reflected in any label revisions going forward. In short, EPA should recognize that it is not starting from scratch each time it enters registration review.

Incorporate stakeholder input to determine feasibility of mitigation measures along with providing flexibility to growers.

When EPA considers mitigations, growers must be involved. Without specific education on what the new provisions are, why they are being implemented, and how to comply with the label mitigations (leveraging other resources such as the USDA), grower support is unlikely to be robust. EPA must ensure that engagement occurs. For example, discussions with growers about technological advances should be iterative and continuous, so that EPA can incorporate these advances, many of which are already implemented by growers, into the mitigation evaluation and risk assessment processes. CLA is well positioned to provide scientific expertise, novel tools (*e.g.*, models), agricultural knowledge, farmer/applicator interaction information, and other relevant information to help EPA establish the scientific foundation for Agency findings during the entire registration and consultation process. Relevant stakeholders should have meaningful opportunities to participate in a manageable, efficient, defensible, and transparent process to share information to protect vulnerable species, provide regulatory certainty, and support agriculture and pest control.

EPA must engage in robust training and outreach to grower groups so that upfront mitigation practices can be successfully adopted.

Implementation of upfront mitigations requires grower training, education, and engagement. In this regard, EPA can and should leverage USDA's depth of knowledge and experience, along with the university extension system, to translate EPA's pick list requirements into on-the-ground specifications.

EPA and the Services must establish efficient and predictable procedures to complete the entire registration/consultation process.

CLA agrees that "EPA must adopt more efficient approaches to meeting its ESA obligation," Workplan Update at 5, but the agency cannot do that alone. While upfront mitigation may be one way to achieve some efficiencies, the process is expedited only if registrants provide input on how best to refine upfront mitigation measures that modify the proposed action based on their knowledge of the product, its use patterns, and field practices. It is important for EPA and the Services to keep in mind that, as ESA applicants, registrants must be involved every step of the way. *See, e.g.*, 50 C.F.R. § 402.10-.14. EPA cannot simply add mitigation measures to a label without consulting registrants because such changes alter the action under consultation—the registration request that the applicant has put forward. EPA is correct that "[e]ach round of label amendment submission, review, and approval creates additional work for both EPA, pesticide registrants, and state agencies to register amended pesticide products." Workplan Update at 14. That is precisely why it is so important that the Services and the registrants be included in discussions with EPA at Steps 1 and 2 of the 3-Step ESA consultation process[2] to come to agreement on mitigations *before* finalizing labels.

Comments on Additional Strategies to Expedite Progress on ESA Workplan Initiatives

Herbicide & Rodenticide Strategy

CLA appreciates the additional information EPA has provided regarding its approach to developing an herbicide strategy—including developing multiple suites of mitigation measures and applying criteria to determine when mitigation is needed based on physical-chemical-fate properties and potential effects. EPA should not wait until summer 2023, however, to take suggestions from stakeholders. Rather, EPA should be open to receiving feedback leading up to the proposal, so that the proposal can be better-informed from the start. EPA can also incorporate what it is learning as it prepares the rodenticide PIDs where they may translate to herbicides.

Using EPA's Vulnerable Species Pilot to Extend Mitigation from One Chemical to a Similar One or from One Vulnerable Species to Other Vulnerable Species

CLA supports the efficiencies that may be gained by bridging mitigation strategies across chemistries and species. It is critical as EPA takes that approach, though, that the Agency establish clear guidelines to determine when such bridging is appropriate. It also goes without saying that stakeholder input is necessary every step of the way.

Regional Strategies

As a general matter, CLA supports EPA's efforts to achieve more no effect determinations for species and appreciates that the Hawaii strategy is one way the Agency is attempting to streamline the process.

In that regard, CLA has developed a pre-processing "step zero," i.e., a path for "off-ramping" certain species and pesticide reviews through a shorter more efficient review where repeated analyses of the same species aren't needed. (*See* CLA Step-Zero White Paper, previously shared with the Agency.) For example, EPA could incorporate existing site-specific and species-specific use protection measures and

[2] *See* "Revised Method for National Level Endangered Species Risk Assessment Process for Biological Evaluations of Pesticides" (EPA, 2020), *available at* https://www3.epa.gov/pesticides/nas/revised/revised-method-march2020.pdf.

safeguards previously developed through Federal and State land and resource management plans to rule out the potential for exposure for certain species. EPA could also identify areas where pesticides are unlikely to be used, or areas where the species are not present—as EPA recognizes is already the case in Hawaii. This approach should be employed at the problem-formulation phase, as an initial triage step to remove species if there's a reasonable certainty of no exposure or clear evidence of no anticipable adverse effects. To the extent EPA continues to evaluate strategies on a geographic basis, updated pesticide use and usage data—including from a methodology CLA has developed to quantify pesticide usage at the county level—will be key. In sum, the combination of off-ramping and more refined, granular use and usage data would go a long way to streamlining the consultation process, allowing EPA and the Services to focus resources where they are most needed, i.e., on the species where exposure and potential effect are most possible.[3]

Programmatic Approaches to Consultation

CLA supports the development of programmatic approaches to pesticide registration consultation and believes that programmatic approaches to consultation should have as broad a reach as the science can support to maximize the efficiency of front-loading ESA analyses. Such consultations must have clear goals and objectives defined so that the results are useful for individual pesticide registrations, and must involve all stakeholders, from registrants to regulators to end users. We look forward to learning more about various strategies EPA is developing in this regard. Broad stakeholder input, particularly from the product user community, will be important in developing this approach, and we look forward to working with EPA in the future.

Offsets

CLA strongly supports EPA and the Services developing one or more programs to offset any impacts to listed species that may be anticipated even after the implementation of reasonable, scientifically supported avoidance, minimization, and mitigation measures. CLA recommends that EPA and the Services focus efforts on offset programs that "function as a programmatic approach to mitigation that cover[] multiple pesticides and even multiple species," Workplan Update at 19, instead of expending resources on a species-by-species basis. CLA looks forward to collaborating with EPA and the Services to achieve programs that provide predictable, consistent results for all stakeholders while also benefitting the environment.

Comments on Early Mitigation Approaches and Proposed Label Language Changes/Workplan Appendix

CLA recognizes EPA's position that proceeding on a chemical-by-chemical and species-by-species basis when it comes to product registration and ESA consultation "creates an unmanageable workload." Workplan Update at 8. CLA believes that EPA's attempt to make progress in addressing ESA obligations through the PID/ID process is directionally correct.

However, all stakeholders would benefit from additional explanation about the "menu of FIFRA Interim Ecological Mitigation measures" EPA has developed. Workplan Update at 8. EPA states that its risk managers will consider the risks and benefits of a pesticide in determining which measures are

[3] The Step-Zero White Paper also includes a case study concerning aquatic species risk assessment, which may aid the development of a standard operating procedure for EPA biological evaluations under the ESA.

appropriate but has not identified what assumptions and risk assessments will be used to justify a specific mitigation. Whether the Agency is developing criteria or is proceeding on an ad hoc basis, all stakeholders must be able to understand the connection between mitigation measures and effects on species. Additionally, EPA must give meaning to its promise to consider the benefits of a pesticide's use in the mitigation analysis.[4] This process must be predictable and science-based, so that all stakeholders can plan accordingly.

CLA is also concerned with the lack of detail surrounding EPA's intent "to adapt this process to FIFRA decisions not covered by this workplan update, in particular conventional pesticide new use registrations." Workplan Update at 8. Because the Workplan Update is directed specifically at the registration review process, EPA must make clear precisely how EPA proposes to adapt this process to other actions under FIFRA, including, importantly, how EPA will involve registrants. EPA should consider carefully whether it should focus first on applying this process to registration review and learning from the process and results before incorporating this early mitigation framework into other FIFRA decisions.

Finding an appropriate balance between efficacious pesticide use and effective mitigation strategies is critical to government regulators, growers, and industry. Mitigations aim for avoidance, minimization, and/or offsets in general, but must be practical and operational so that growers have access to a robust toolkit that allows them to appropriately address pest pressures. From a practical perspective, the easier mitigations are to communicate and to put into place, the more species and habitat protection will occur. In this regard, some of the mitigations proposed are general agronomic practices beyond pesticide applications that have the support of and are promoted by USDA. As such, close coordination with USDA will be imperative.

Additionally, CLA supports proactive mitigations that are supported by ecological risk assessments with sufficient detail and data refinement as to permit evaluation of the need for, and positive impact of, mitigations without being unduly conservative. Proposing mitigations in the absence of a detailed analysis has the potential to greatly diminish transparency with stakeholders, and EPA must avoid that to the greatest extent possible. Additionally, mitigations to support reduced exposure potential are already in place in many product labels (*e.g.*, buffer zones from adjacent waterbodies and other spray drift prevention measures). In this regard, EPA must keep in mind that reaching a no-jeopardy or adverse modification finding need not be an entirely quantitative exercise. EPA can consider qualitative mitigations that are directionally correct in reaching no J/AM conclusions.

CLA also understands that upfront mitigations associated with regulatory actions may provide a more efficient evaluation process for the Agency. However, there remains a clear need to direct resources into assessments that are well supported, reduce uncertainty, and link the outcome of an assessment to specific mitigations. The value and implications of upfront mitigations should also be clearly trackable in EPA decisions so that registrants can directly evaluate the merits of proactively volunteering those mitigations in other contexts. CLA believes that registrant-submitted data and information continues to

[4] EPA emphasizes in the Update (e.g., at 5, 7) that the ESA does not involve a risk-benefit analysis vis-à-vis mitigation measures. This is an overgeneralization that creates a false dichotomy between FIFRA mitigation and ESA mitigation. Mitigation analysis under the ESA—for example, when identifying reasonable and prudent alternatives—requires consideration of economic and technical feasibility. *E.g.*, *Dow Agrosciences, Inc. v. NMFS*, 707 F.3d 462, 473-75 (4th Cir. 2013); 50 C.F.R. § 402.02. While such consideration is not the same as the risk-benefit analysis incorporated into FIFRA, EPA should not be operating under the presumption that the potential negative effects or externalities of a particular alternative or mitigation measure are irrelevant to the ESA analysis.

play an essential role in supporting this effort to develop robust risk assessments, as well as manageable and meaningful mitigations.

Overall, EPA should strive to provide growers with predictability and flexibility to ensure that they are able to make the most efficient use of their land and continue to provide food, fuel, and fiber that is so essential for our economy and our nation, while also taking appropriate steps to protect species. Below we provide some feedback regarding the feasibility of EPA's proposed mitigation options. In addition, please refer to Attachment-1 (ESAWorkplanComments spreadsheet) for specific comments on the Agency's proposed mitigations.

1. Bulletins Live! Two (BLT)

CLA appreciates EPA's efforts to limit certain pesticide use restrictions to particular geographic areas where they are found necessary and acknowledges that BLT is EPA's chosen method to convey these restrictions. However, as EPA recognizes, "there may be applicators who are unfamiliar with this system." Workplan Update at 13. EPA does not explain how it plans to familiarize applicators with this system beyond including language on labels directing them to BLT. While of course applicators know that they must carefully review all label requirements, it is important that EPA educate applicators on any label changes that may be unfamiliar to applicators. EPA should also invest in solutions to make BLT more user-friendly and supported by best-in-class information technology infrastructure. CLA recommends that EPA provide additional explanation regarding how it intends to announce these changes and that EPA involve stakeholders such as USDA in determining what will be most effective.

Also critical to this location-specific approach is EPA's use of the best available data on overlap between pesticide use and species location to generate a relevant and reliable representation of risk that effectively justifies a need for mitigation. This should include using the most up-to-date Services-endorsed pesticide use limitation areas (PULAs), species range maps, regional and landscape relevant product use, species natural history, and spatial relationships between likely habitats and potential product use sites. Refining this data will also help develop practical and implementable mitigations in BLT.

EPA has recognized in prior ESA consultations (*e.g.*, methomyl) that large portions of many defined ranges include areas within which species are highly unlikely to occur (*e.g.*, waterbodies for land-dwelling species, urbanized areas for most species, elevation/climate preferences, etc.). As a result, further refinement to identify specific areas requiring protection is necessary. CLA supports EPA and the Services using potentially suitable habitat as one determinant in identifying where listed species are mostly likely to occur, and therefore to inform specific mitigations in those areas.

As with other aspects of the Workplan Update, though, additional detail regarding how EPA will determine appropriate language for BLT would be useful. EPA suggests that stakeholders should comment on future Bulletins through EPA's pilot chemicals project; additional information regarding methodology for how it will evaluate what language is most relevant and effective would facilitate such comments.

Finally, while CLA appreciates EPA's concern that "[a] physical label cannot feasibly accommodate … lengthy mitigation instructions," Workplan Update at 12, if EPA nevertheless "expects that including Bulletins language is necessary for most outdoor use pesticide labels," *id.* at 13, EPA may want to

consider whether an alternative approach to notifying applicators of these requirements may be more effective and efficient. For instance, electronic digital label updates and other emerging technologies, which are being explored in other aspects of the program, may also be worth exploring here.

2. Interim Ecological Mitigation #1: Surface Water Protection Statements and Conservation Measure Pick List to Reduce Ecological Risks from Surface Water Runoff

CLA agrees that surface water runoff should be avoided where possible and recognizes that growers may be able to take reasonable measures to help avoid such runoff. However, some specific elements of EPA's surface water protection requirements merit further consideration:

Precipitation

While a directive not to apply product when it is raining is commonsense, easily implemented mitigation, not applying "when a storm event likely to produce runoff from the treated area is forecasted … to occur within 48 hours following application" is not. Several issues are readily apparent: What qualifies as a "storm event"? How are applicators supposed to determine when is a storm event "likely to produce runoff"? The 48-hour time constraint is unreasonable, as it could rule out application during critical growing windows, even if no precipitation occurs. EPA cites one of its own studies regarding the effectiveness of a 48-hour rain restriction (at 26) but does not provide any explanation regarding whether EPA considered or evaluated a different length of time or why specifically 48 hours are necessary. EPA should not force stakeholders to look elsewhere for the support for EPA's action. Rather, EPA should leverage existing resources, including USDA research, to support any precipitation-related mitigations identified in a pick list.

Runoff Mitigation Pick List

As with the 48-hour restriction, where EPA provides some data regarding efficacy, CLA encourages EPA to provide additional information regarding how the different pick list measures work, including the scientific basis for and data regarding efficacy overall and in different regional contexts. CLA also suggests that EPA provide more flexibility regarding the pick list, accommodating distinctions among geographies and crops. For example, in some instances growers may not own or control the land that would be necessary to implement these measures, and so may not have all necessary rights to do so. Additionally, some of the approaches included in the Appendix are already well-understood, and consistently applied, and it will be important for EPA to build on these examples and maximize consistency as growers apply new practices to their farms.

Finally, EPA should provide more clarity regarding how it intends to apply a risk/benefit analysis to these measures. EPA states that it will propose less stringent measures when benefits are higher, and vice versa, but more detail would provide stakeholders with a better understanding of how this approach will work in practice.

3. Interim Ecological Mitigation #2: Surface Water Protection Statements and Conservation Measure Pick List to Reduce Ecological Risks from Soil Erosion

Like Mitigation #1, EPA could provide more specificity regarding how it will engage in a risk/benefit analysis for these measures. Likewise, in addition to describing general attributes of pick list measures,

EPA should also provide data regarding efficacy and necessity. CLA's comments for the prior mitigation apply equally here.

4. Interim Ecological Mitigation #1 and #2: Runoff and Erosion Mitigation Pick List Descriptions

As a general matter, CLA supports a pick list approach to provide upfront mitigations for the PID process while maintaining a certain level of flexibility for growers. However, some of the practices suggested on the pick list may not be viable in certain parts of the country or with certain agronomic practices. For example, the Update explains that "[t]he cover crop must be planted and remain on the field up to the field preparation for planting the crop." Workplan Update at 31. EPA should acknowledge that cover crops might not be appropriate for certain crops and growing regions.

EPA should also document the benefits from these mitigations with respect to the species and habitat protection goal(s). Mitigation evaluation should be based on reasonable and realistic assumptions, conducted using refined methods, and thus provide the means to focus on the most effective forms of mitigation. The focus should also be on operationalizing these practices and including what is already being accomplished by growers.

CLA has recently invested in the Mitigation Strategy Tool (MiST, https://mitigationstrategytool.org) which was developed as a research guide to identifying mitigation practices and providing the best available practice data to help the user evaluate the effectiveness and potential application of various mitigations. The MiST is continuously being updated with new research to include additional mitigation approaches. To allow the Agency to provide growers with more flexibility, we have also conducted a gap analysis between mitigations suggested in the Workplan Update document and MiST (Appendix-I). The Agency can add these strategies during a future update to the Workplan document.

5. Interim Ecological Mitigation #3: Reducing Ecological Risks from Spray Drift

Many growers and other pesticide applicators are accustomed to implementing measures to reduce spray drift, up to and including aerial application prohibitions. As above, EPA should build on approaches already being successfully implemented to enhance consistency and efficacy for all growers. Typically, however, such measures are only implemented on labels after a full FIFRA registration process with interaction between registrants and EPA. It is no less important that, in the context of PIDs and IDs, registrants, growers, and all other stakeholders understand the justification for spray drift measures. It is also incumbent on EPA to document why it may make sense to apply these measures more broadly than it already has. While we recognize that timeliness and efficiency in decision making may not always allow for quantitative certainty, mitigations that are familiar, consistent and that qualitatively make sense to growers and other stakeholders are best placed to avoid jeopardy and adverse modification under the law and in practice.

6. Pesticide-Treated Seed: Proposed Label Language and Considerations for Future Ecological Mitigation

Stewardship

CLA, in collaboration with the American Seed Trade Association (ASTA), published a comprehensive, widely distributed seed treatment stewardship guide with best practices for handling treated seed.[5] CLA recommends that EPA strive for consistency with this and other resources of proven, industry-adopted standards.

Pesticide Dust-Off

The entire seed treatment value chain is invested in developing, promoting, and using new seed-planting technologies to reduce nontarget organisms' exposure to dust from treated seed. EPA has recognized these technologies, including methods for cleaning and de-dusting treated seed and enhancements in polymer coatings and other seed-flow lubricants. At this time, CLA respectfully suggests that EPA avoid additional regulatory action that would increase regulatory burdens or cause confusion among end users.

Ingestion Avoidance

EPA proffers suggestions to reduce exposure to nontarget organisms through ingestion of treated seed, including burial and disposal. However, it is not clear that EPA has sufficiently grounded such proposals in the science. For example, EPA cites 7 C.F.R. § 301.89-12 to support requiring burying seeds at 2', but that requirement was imposed not in response to species concerns, but rather a fungal pathogen. Moreover, given the cost of treated seed, and the ability to return full bags for credit, EPA should reconsider or, at a minimum, provide more flexibility surrounding, any burial or disposal requirements.

In sum, EPA should carefully weigh any additional regulatory burdens against the protections already being provided by current seed-treatment practices.

7. Promoting Pollinator Stewardship: Proposed Advisory Language

Including pollinators as a general group rather than bees specifically, as on the current labels, can mean that label advisory language includes a large list of insects (flies, beetles, moths, wasps, etc.), causing more confusion. Instead of casting the net too widely, EPA should limit advisory language to managed pollinators such as honeybees. Even though the language is advisory, it can be difficult to distinguish between advisory and mandatory language, such that overly broad advisory language can unnecessarily dissuade growers from appropriate product use.

8. Ecological Incident Reporting Label Language

CLA understands the desire to have an effective incident reporting system. But it is a mistake to assume that all ecological incident reports necessarily involve pesticide applications, and that no specific finding of cause points to a pesticide incident by default. As such, mere reporting is not sufficient; rather, it is necessary that ecological incidents be investigated to determine causes and develop appropriate responses. Anecdotal evidence without corroborating data should not be conflated with actual

[5] *See* ASTA & CropLife America, "The Guide to Seed Treatment Stewardship: Handling, Planting and Disposal of Treated Seed," *available at* https://seed-treatment-guide.com/wp-content/uploads/2021/02/ASTA_SeedGuide_Farmers_Update2021.pdf.

scientifically vetted and supported research. Rather, EPA should be providing guidance to their reviewers for minimum quality standards before incident reports can be deemed a reliable source of information. Moreover, when EPA is reviewing and aggregating information received from multiple sources, it is imperative that the Agency carefully evaluate the potential for duplication among reports, to prevent one incident from being counted multiple times. Finally, transparency is key: independent reviewers should be able to reproduce EPA's analysis and conclusions, instead of being left guessing why EPA made certain findings.

CONCLUSION

CLA and its members remain engaged in the ESA assessment process with views representative of developers, manufacturers, formulators, and distributors of pesticides and plant science solutions for agriculture and pest management in the United States. We look forward to continuing to work with our federal partners on ESA issues, participating in the implementation of the Workplan and its updates, and helping facilitate more engagement with a broad range of stakeholders (*e.g.*, industry, grower groups, other agricultural groups, applicator partners, and non-governmental organizations). The input from these stakeholders and organizations is crucial to achieving a process that is protective of species, efficient, transparent, and scientifically defensible. From the outset of the registration and consultation processes, pesticide registrants have a major role to play in developing pragmatic proactive mitigations. CLA thanks EPA for considering these comments and looks forward to reviewing and commenting on future updates.

Thank you for consideration of these comments. If you have any questions, please feel free to contact me at mbasu@croplifeamerica.org or (202) 296-1585.

Respectfully,

Manojit Basu
Vice President, Science Policy
CropLife America

APPENDIX-I: Mitigation Strategy Tool

EPA has requested feedback on each of their mitigation language appendices. The mitigation strategy tool (MiST, www.mitigationstrategytool.org) is a publicly available tool housing a suite of pesticide mitigation measures and supporting documentation for these practices. The tool is sponsored by Crop Life America and is:

- actively maintained by Compliance Services International,
- available for any public user to upload supporting resources associated with a given practice at any time after creating a free account,
- continuously expanding with monthly literature searches and new resources.

For these reasons, CLA believes the tool can be used by EPA and interested stakeholders now and into the future to continue using the best available data to support the pick-list measures identified in the workplan update. CLA intends to assist stakeholders in utilizing the platform to streamline delivery of supporting data for mitigation measure effectiveness.

CLA is happy to discuss with EPA how the tool can be better adapted to their needs (ex: data and citation export options, additional query options to search the database, etc.). The tool identifies two available mitigation categories: label language changes and landscape practices changes. The selection of practices is then filtered for different loss pathways: solution runoff, adsorbed runoff, drift, and leaching (Figure 1). A definition is provided for each practice and a description of the practice is included in the hyperlinked practice name. For each practice, we have compiled available best management practices (BMPs) that mention the practice and literature resources (Literature) that have evaluated, reviewed, or studied the benefits of the practice, including but not limited to, pesticide specific efficacy studies.

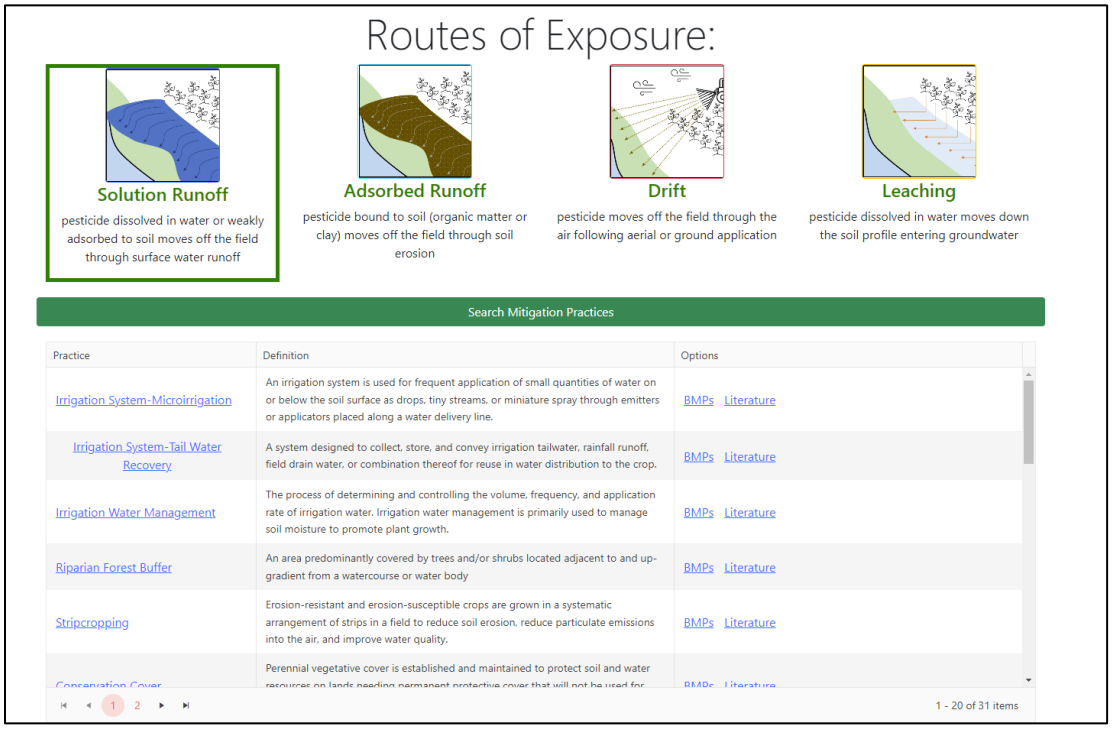

Figure 1. Screenshot of the mitigation strategy tool and example output table.

CLA has used the mitigation strategy tool to answer the following questions in the workplan for which EPA is soliciting comments:

Are the descriptions of the pick list mitigation measures in Section 4 clear? If not, please suggest alternative language.

The pick list mitigation measure descriptions are aligned in most cases with the definitions in the Mitigation Strategy Tool; however, there are some mitigation measures that, while similar, have different terminology used for the same practice. We have generated a comparison of the descriptions and practices that are included in the Mitigation Strategy Tool; however, we would encourage EPA to visit the Mitigation Strategy Tool as new data sources are added regularly.

Are there other measures that are effective in controlling dissolved runoff that should be included in the pick list? Please include supporting data with any suggestions.

Soil Amendments – Biochar:

Biochar has demonstrated high efficacy at increasing sorption of pesticides, particularly polar or aromatic compounds. It is currently recommended in climate smart agriculture practices for its various benefits to water holding capacity, carbon capture, and sorption. Recognizing its role in reducing pesticide runoff and bioavailability will provide growers greater flexibility for meeting pick-list requirements that are compatible with other conservation initiatives they are already addressing. A select number of sources from the Mitigation Strategy Tool are provided here but additional sources will continue to be uploaded into the tool:

- Aldana, Gerardo Ofelio. "Biochar Use for Reducing Agrochemical Leaching in Tropical Agricultural Soils." Newcastle University, 2020. http://theses.ncl.ac.uk/jspui/handle/10443/5050
- Ali, Neelum, Sardar Khan, Huaiying Yao, and Juan Wang. "Biochars Reduced the Bioaccessibility and (Bio)Uptake of Organochlorine Pesticides and Changed the Microbial Community Dynamics in Agricultural Soils." *Chemosphere* 224 (June 1, 2019): 805–15. https://doi.org/10.1016/j.chemosphere.2019.02.163.
- Liu, Yuxue, Linson Lonappan, Satinder Kaur Brar, and Shengmao Yang. "Impact of Biochar Amendment in Agricultural Soils on the Sorption, Desorption, and Degradation of Pesticides: A Review." *Science of The Total Environment* 645 (December 15, 2018): 60–70. https://doi.org/10.1016/j.scitotenv.2018.07.099.
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Irrigation Water Management:

Irrigation water management is the process of determining and controlling the volume, frequency, and application rate of irrigation water. Irrigation water management including timing pesticide application in relation to soil moisture, anticipated weather conditions, and irrigation schedules to achieve the greatest efficiency and reduce the potential for off-site transport through dissolved runoff. Avoiding pesticide application when soil moisture status or scheduled irrigation increases the possibility of runoff or deep percolation. Additionally, after application, managing irrigation to reduce the possibility of erosion or leaching which may transport pesticide from the target site. When an irrigation water

management plan is developed with conservation experts, significant reductions in off-site transport can be achieved. A select number of sources from the Mitigation Strategy Tool are provided here but additional sources will continue to be uploaded into the tool:

- Abdi, Damon E., James S. Owen, P. Christopher Wilson, Francisca O. Hinz, Bert Cregg, and R. Thomas Fernandez. "Reducing Pesticide Transport in Surface and Subsurface Irrigation Return Flow in Specialty Crop Production." *Agricultural Water Management* 256 (October 1, 2021): 107124. https://doi.org/10.1016/j.agwat.2021.107124.
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- "Irrigation Water Management Plan - An Overview — The Webinar Portal." Accessed February 13, 2023. https://conservationwebinars.net/webinars/irrigation-water-management-plan-an-overview/.
- Peralta, R. C., M. A. Hegazy, and G. R. Musharrafieh. "Preventing Pesticide Contamination of Groundwater While Maximizing Irrigated Crop Yield." *Water Resources Research* 30, no. 11 (1994): 3183–93. https://doi.org/10.1029/94WR01724.
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- USDA Conservation of Natural Resources Training Portal: https://conservationwebinars.net/webinars/irrigation-water-management-plan-an-overview/
- Watanabe, Hirozumi, My Hoang Tra Nguyen, Komany Souphasay, Son Hong Vu, Thai Khanh Phong, Julien Tournebize, and Satoru Ishihara. "Effect of Water Management Practice on Pesticide Behavior in Paddy Water." *Agricultural Water Management* 88, no. 1 (March 16, 2007): 132–40. https://doi.org/10.1016/j.agwat.2006.10.009.

Are there other measures that are effective in controlling erosion that should be considered?

Soil Amendments – Anionic Polyacrylamide (PAM) Erosion Control:

PAM has been studied since 1996 as an additive to irrigation water for erosion control. There are a large number of studies that demonstrate the effectiveness of PAM with significant reductions in soil erosion and a number of studies further addressing changes to the environmental fate of pesticides, particularly in vegetable cropping systems. Several BMPs also site the practice. A select number of sources from the Mitigation Strategy Tool are provided here but additional sources will continue to be uploaded into the tool:

- Bahr, G. L., T. D. Stieber, and K. Campbell. "Reduction of nutrient and pesticide losses through the application of polyacrylamide in surface irrigated crops." *Proceedings: Managing Irrigation-induced Erosion and Infiltration with PAM* (1996): 6-8. http://stormwater.ucf.edu/fileRepository/docs/chemicaltreatment/documents/rdct_of_losses_app_pam_irr_crops.pdf
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- Long, Rachael, Allan Fulton, and Blaine Hanson. *Protecting Surface Water from Sediment-Associated Pesticides in Furrow-Irrigated Crops*. University of California, Agriculture and Natural Resources, 2010. https://doi.org/10.3733/ucanr.8403.
- Oliver, Danielle P., Rai S. Kookana, Danielle P. Oliver, and Rai S. Kookana. "Minimising Off-Site Movement of Contaminants in Furrow Irrigation Using Polyacrylamide (PAM). I. Pesticides." *Soil Research* 44, no. 6 (September 15, 2006): 551–60. https://doi.org/10.1071/SR05197.
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- Watwood, Mary E., and Jeanine L. Kay-Shoemake. "Impact of Polyacrylamide Treatment on Sorptive Dynamics and Degradation of 2,4-D and Atrazine in Agricultural Soil." *Journal of Soil Contamination* 9, no. 2 (January 1, 2000): 133–47. https://doi.org/10.1080/10588330008984180.

Although artificial mulches are commonly used in agriculture, EPA is limiting mulches to natural materials. Should EPA also consider artificial mulches as a pick list measure? If so, to what extent do artificial mulches reduce erosion? Please provide references for supporting data.

The Mitigation Strategy Tool includes references for both natural and artificial mulch:

- Chalker-Scott, Linda. "Impact of Mulches on Landscape Plants and the Environment — A Review." *Journal of Environmental Horticulture* 25, no. 4 (December 1, 2007): 239–49. https://doi.org/10.24266/0738-2898-25.4.239.
- Gan, J., Y. Zhu, C. Wilen, D. Pittenger, and D. Crowley. "Effect of Planting Covers on Herbicide Persistence in Landscape Soils." *Environmental Science & Technology* 37, no. 12 (June 1, 2003): 2775–79. https://doi.org/10.1021/es026259u.
- Rice, Pamela J., Cathleen J. Hapeman, Laura L. McConnell, Ali M. Sadeghi, John R. Teasdale, C. Benjamin Coffman, Gregory W. McCarty, Aref A. Abdul-Baki, and James L. Starr. "Evaluation of Vegetable Production Management Practices to Reduce the Ecological Risk of Pesticides." *Environmental Toxicology and Chemistry* 26, no. 11 (2007): 2455–64. https://doi.org/10.1897/06-656R.1.
- Rice, Pamela J., Laura L. McConnell, Lynne P. Heighton, Ali M. Sadeghi, Allan R. Isensee, John R. Teasdale, Aref A. Abdul-Baki, Jennifer A. Harman-Fetcho, and Cathleen J. Hapeman. "Runoff Loss of Pesticides and Soil: A Comparison between Vegetative Mulch and Plastic Mulch in Vegetable Production Systems." *Journal of Environmental Quality* 30, no. 5 (2001): 1808–21. https://doi.org/10.2134/jeq2001.3051808x.
- Siedt, Martin, Andreas Schäffer, Kilian E. C. Smith, Moritz Nabel, Martina Roß-Nickoll, and Joost T. van Dongen. "Comparing Straw, Compost, and Biochar Regarding Their Suitability as Agricultural Soil Amendments to Affect Soil Structure, Nutrient Leaching, Microbial Communities, and the Fate of Pesticides." *Science of The Total Environment* 751 (January 10, 2021): 141607. https://doi.org/10.1016/j.scitotenv.2020.141607.

Should EPA consider reduced distances for spray drift buffers when other drift reduction technology is used (e.g., drift reducing agents/adjuvants)? If so, to what extent do other drift reduction technologies reduce spray drift such that buffer distances can be reduced? Please provide references for supporting data.

There are a number of drift reducing technologies included in the Mitigation Strategy Tool including, but not limited to, the use of hooded sprayers and spray drift reducing adjuvants. A select number of sources from the Mitigation Strategy Tool are provided here but additional sources will continue to be uploaded into the tool:

Hooded Sprayers:

- Canella Vieira, Bruno, Maxwel Coura Oliveira, Guilherme Sousa Alves, Jeffrey A Golus, Kasey Schroeder, Reid J Smeda, Ryan J Rector, Greg R Kruger, and Rodrigo Werle. "Hooded Broadcast Sprayer for Particle Drift Reduction." *Pest Management Science* 78, no. 4 (2022): 1519–28. https://doi.org/10.1002/ps.6770.
- Chen, Shengde, et al. "Research advances of the drift reducing technologies in application of agricultural aviation spraying." *International Journal of Agricultural and Biological Engineering* 14.5 (2021): 1-10. http://www.ijabe.org/index.php/ijabe/article/view/6225

- Foster, Henry C., Benjamin P. Sperry, Daniel B. Reynolds, Greg R. Kruger, and Steve Claussen. “Reducing Herbicide Particle Drift: Effect of Hooded Sprayer and Spray Quality.” *Weed Technology* 32, no. 6 (December 2018): 714–21. https://doi.org/10.1017/wet.2018.84.
- S. Henry, Ryan, S. Claussen, and Greg R. Kruger. “A Comparison of an Unhooded and Hooded Sprayer for Pesticide Drift Reduction.” *GSTF Journal on Agricultural Engineering* 1, no. 1 (February 1, 2014). https://doi.org/10.5176/2345-7848_1.1.6.

Spray Drift Reducing Adjuvants:

- Chapple, Andrew C., Roger A. Downer, and Franklin R. Hall. “Effects of Spray Adjuvants on Swath Patterns and Droplet Spectra for a Flat-Fan Hydraulic Nozzle.” *Crop Protection* 12, no. 8 (December 1, 1993): 579–90. https://doi.org/10.1016/0261-2194(93)90120-8.
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- Preftakes, Collin J., Jerome J. Schleier Iii, Greg R. Kruger, David K. Weaver, and Robert K. D. Peterson. “Effect of Insecticide Formulation and Adjuvant Combination on Agricultural Spray Drift.” *PeerJ* 7 (June 19, 2019): e7136. https://doi.org/10.7717/peerj.7136.
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