

## Draft Fungicide Strategy Stakeholder Webinar May 20, 2026 at 2 PM ET

### Introduction

Hello, everyone, and welcome to EPA's Draft Fungicide Strategy Webinar. My name is Alex McKee and I am in the Pesticide Re-evaluation Division in the Office of Pesticide Programs at EPA, and I will be moderating today's webinar.

We have great speakers and panelists here today to tell you about EPA's Draft Fungicide Strategy. Holly Rogers from the Environmental Fate and Effects Division will be leading the first part of the presentation, and I will be leading the second part that is focused on implementation. After the presentation, we will have a question and answer session that includes all of our speakers and additional panelists, including Vanessa Wuerthner, Kris Garber, and Andrew Shelby from the Environmental Fate and Effects Division, Mark Suarez from the Biological and Economic Analysis Division, Manjula Unnikrishnan from the Registration Division, and Natalie Bray from the Pesticide Re-evaluation Division.

We also want to acknowledge the entire fungicide strategy team who worked with us on the webinar and on all the materials related to the strategy.

Before we get started today, we want to reiterate that this presentation covers a draft of the Fungicide Strategy, and that once it is finalized, the Strategy is not self-implementing, meaning it doesn't automatically apply to pesticide products without further action. Instead, application of the Strategy would occur through registration and registration review actions.

### Tips for Participants

Before we start, here are some tips for participants in the webinar. Please note that the chat feature is not available, and all participant microphones will remain muted during this event.

All questions must be posed through the Q&A feature, which is located in the options toolbar in the top center of the Microsoft Teams screen.

We will hold questions until the end of the presentation, but the moderators may pause the presentation if there is a major technical issue or disruption. We also may not have time to get to everyone's questions. If that happens, EPA staff will follow up with participants at a later time.

There are also different view options available for the slides and captions. To translate the slides into another language or view them in high contrast, click on the "change view" icon under the slides as pictured here. To show live captions, click the "more" icon in the top center of the screen and select "language and speech" from the drop-down menu as shown here.

The slides and the recording of this presentation will be posted to EPA's Endangered Species Act (or ESA) webpage and in EPA's Pesticides and Endangered Species Educational Resources Toolbox linked on the resources slide at the end of this presentation.

### Purpose and Scope of Today's Webinar

The purpose of today's webinar is to provide a high-level overview of the draft fungicide strategy on which EPA is requesting public comment. The draft fungicide strategy was posted to the public docket

on April 30th and is open for public comment for 60 days until June 29<sup>th</sup> 2026. There will not be a comment period extension available for the draft strategy.

There is a link to the docket on this slide. We encourage you to review the materials in the docket and submit your comments on the draft Fungicide Strategy. The Strategy is not self-implementing, meaning that once it is finalized, it does not automatically apply to pesticide products without further action. Instead application would occur through registration and registration review actions.

I will now hand the presentation off to Holly to discuss the specifics of the draft Strategy.

## Presentation Outline

Thanks, Alex. We're going to start today with an introduction of the goals and scope of the draft Fungicide Strategy, which we'll sometimes refer to as just the draft Strategy.

Then, we'll discuss some similarities and differences between the draft Fungicide Strategy and the previously published Herbicide Strategy, Insecticide Strategy, Rodenticide Strategy, and Vulnerable Species Action Plan.

Then we'll move on to the three-step framework EPA proposes in the draft Strategy that identifies the likelihood of potential population-level impacts to listed species and the extent of and locations where mitigation could be needed such that population-level impacts to listed species are not likely when mitigation is implemented. This three-step framework is the same framework used in the Herbicide and Insecticide Strategies. This draft Strategy also includes an update on adjuvants as a mitigation measure to reduce spray drift buffer distances and consideration of exposure from ingestion of treated seeds.

Finally, we'll discuss implementation, requests for stakeholder input, and next steps for the draft Fungicide Strategy.

## Draft Fungicide Strategy Introduction

We will start with an introduction to the Draft Fungicide Strategy

### Draft Fungicide Strategy-Goal and Scope

Similar to the Herbicide and Insecticide Strategies, the goal of the Fungicide Strategy is to develop a broad approach to reduce potential population-level impacts to over 1,000 federally listed threatened or endangered plants and animals from agricultural uses of conventional fungicides in the conterminous United States (or CONUS).

The Strategy focuses on reducing the potential for direct impacts to all listed species of plants and animals from on-field exposure and off-field spray drift, runoff, and erosion exposure. For on-field exposure, we are proposing to evaluate impacts from spray applications as well as from consumption of fungicide-treated seeds. Because the Herbicide and Insecticide Strategies focused on plants and invertebrates, respectively, we are focused on impacts to listed vertebrates and species that depend on vertebrates in this draft Strategy. We are also proposing to address listed species that obligately depend on one or a very small number of species of vertebrates, as well as listed mussels that broadly depend on a variety of fish species for larval mussel development. During implementation of the Fungicide Strategy, we will leverage the Herbicide and Insecticide Strategies to address any impacts to plants and

invertebrates, as well as listed species that depend on plants and/or invertebrates for their diet, habitat, pollination, or dispersal.

## Listed Species Protection for Conventional Pesticides

This slide displays actions taken and in progress by EPA to protect listed species. The Final Herbicide and Insecticide Strategies are intended to reduce potential population-level impacts to listed plants and invertebrates, respectively, and species that depend on them from agricultural uses of pesticides in the conterminous United States. The Vulnerable Species Action Plan is intended to reduce potential population-level impacts to 27 listed species, including 4 listed vertebrates, that are identified as particularly vulnerable to pesticides. We won't discuss all these efforts in detail, but the slides will be made available after the presentation as a reference and all of the previous Strategies can be found in the EPA's Pesticides and Endangered Species Educational Resources Toolbox which is linked at the end of this presentation. Additionally, while the Rodenticide and Hawaii Strategies are included on this slide for completeness, those Strategies will not be discussed further because of the different scopes compared to the draft Fungicide Strategy.

## Draft Fungicide Strategy vs. IS, HS, VSAP

The draft Fungicide Strategy has similarities to and differences from the efforts described in the previous slide. The draft Fungicide Strategy follows the same three-step framework and the same mitigation options for off-field spray drift, runoff, and erosion exposure from agricultural uses of pesticides in the conterminous United States as outlined in the final Herbicide and Insecticide Strategies. Where possible, the draft Fungicide Strategy leverages methodologies and approaches from the Herbicide and Insecticide Strategies.

The draft Fungicide Strategy is more complex than previous Strategies since it evaluates potential impacts on many different taxonomic groups, because there are no consistently affected taxa or risk drivers for fungicides. Additionally, the draft Fungicide Strategy evaluated treated seed consumption by listed vertebrates, whereas the Herbicide Strategy did not assess treated seeds, and the Insecticide Strategy only assessed the potential for runoff/erosion exposure from treated seeds.

EPA incorporated fungicide-specific usage data in the draft Fungicide Strategy, which showed that fungicides are applied unequally across the conterminous US with the highest usage in the wettest areas. Therefore, the listed species that need mitigation for a fungicide may differ from the previous strategies based on usage data but also because the Fungicide Strategy considers direct impacts to all listed species.

EPA opted to not create case studies to support the draft Fungicide Strategy as the draft Strategy is based on the well-established methodology and mitigation approach from previously published efforts. These earlier efforts gathered and incorporated feedback from several rounds of public comments. Instead of case studies, the draft Fungicide Strategy contains an appendix with hypothetical examples of how EPA would identify the potential for population-level impacts and the geographic extent of mitigation.

## Draft Strategy Process

The next set of slides provides an overview of the draft Fungicide Strategy process.

## Fungicide Strategy Framework 3-Step Process

At the heart of the strategy is a framework consisting of a 3-step process that was previously established in the Herbicide and Insecticide Strategies. In the first step, we identify the potential for population-level impacts by comparing exposure and toxicity data and evaluating other lines of evidence. Step 1 establishes the potential for population-level impacts to the listed species as not likely, low, medium, or high.

In Step 2, we identify mitigation that when applied, would reduce the potential for these population-level impacts. Step 2 involves identifying mitigation to reduce on-field exposure or exposure via spray drift or runoff/erosion to address any potential impacts identified in Step 1. We would identify a greater level of mitigation where the potential for impacts is higher and less mitigation where there is a lower potential for population-level impacts.

Finally, in Step 3, EPA identifies where in the conterminous U.S. the mitigation identified in Step 2 would apply. Next, we'll cover these 3 steps in more detail in the following slides.

### Step 1: Identify Potential for Population-Level Impacts using Magnitude of Difference

Let's zoom in to step 1: identifying the potential for population-level impacts. To determine the potential for population-level impacts, we start with concept of the Magnitude of Difference (or MoD). The MoD is the ratio of the fungicide exposure to its corresponding toxicity threshold value. This concept is similar to the risk quotient approach EPA has historically used in ecological risk assessments for pesticides. One difference is that instead of looking at impacts to individuals, we are evaluating potential impacts to populations. EPA calculates different MoDs for different types of exposures, different types of habitats, and different groupings of species.

#### Magnitude of Difference: Estimated Exposure

As outlined in the final Herbicide and Insecticide Strategies, we developed the draft Fungicide Strategy while thinking about the diversity of habitats where listed species occur. For aquatic species, we know listed species occur in a wide variety of habitats such as seasonal vernal pools, prairie potholes, larger wetlands, and larger waterbodies including rivers and large lakes. Similarly, on the terrestrial side, we know we can have suitable habitat in places like meadows right next to treated fields, but also in forests and mountains. Using this habitat information, we considered how well our existing exposure modeling describes these different habitats.

#### Magnitude of Difference: Population-Level Toxicity

On the toxicity side, we know there is a broad diversity of listed species. As is consistent with the methodology in the Herbicide and Insecticide Strategies, when data are available that show meaningful differences in sensitivity to a fungicide across species, EPA incorporates this variability in sensitivity when considering toxicity thresholds for estimating the potential for population-level impacts.

### Step 1: Identifying Potential for Population-Level Impacts

As the magnitude of difference increases, the potential for population-level impacts also increases. The MoD categories in this strategy as shown on this slide are the same as in the Herbicide and Insecticide Strategies. When the MoD is less than 1 (meaning exposures are lower than the population-level toxicity

estimates), we determine that the potential for population-level impacts is not likely. Generally, when exposures are within 10 times greater than the toxicity estimates, we determine that there is low potential for population-level impacts. When exposures exceed toxicity estimates by more than 10 times, we determine that there is a medium to high potential for population-level impacts.

## Step 2: Identifying the Level of Mitigation to Prevent Population-Level Impacts

Now we are moving to Step 2, where we identify the level and type of mitigation needed to reduce exposure to address any potential population-level impacts identified. The approach here is same as in the Herbicide and Insecticide Strategies. When the potential for impacts is not likely, EPA would not identify mitigation. When the potential for impacts is low, a low level of mitigation is identified, while when the potential for impacts is medium or high, a medium or high level of mitigation is identified. In the following slides, we will discuss mitigation to address impacts from runoff/erosion and spray drift.

### Runoff/Erosion Mitigation Based on Population-Level Impacts

To address impacts from runoff/erosion, EPA would identify mitigation points, and the point levels for each category of potential impacts for this strategy are the same as in the Herbicide and Insecticide Strategies. The number of mitigation points reflects the potential for impacts and whether a chemical is runoff- or erosion-prone. For runoff-prone chemicals, EPA would identify 3 points of mitigation for low impacts, 6 points for medium impacts, and 9 points for high impacts. For erosion-prone chemicals, the corresponding points would be 2, 4, and 6 points, respectively. Less points are required for erosion-prone chemicals due to the lower mobility of soil particles relative to water and the increased effectiveness of mitigation practices in reducing offsite movement of soil.

As previously established in the Herbicide and Insecticide Strategies, we determined that certain application methods, such as spot treatments and soil injections, would have limited runoff/erosion exposure. Therefore, the potential for impacts from these methods is not likely and runoff/erosion mitigation would not be identified.

### Runoff/Erosion Mitigation Options

On the EPA's Mitigation Menu there are more than 35 runoff/erosion mitigation measures that growers and applicators can select from to achieve the appropriate level of mitigation. To address different amounts of runoff and erosion transport across the conterminous U.S. due to differences in frequency and amount of rainfall, EPA created a county-level runoff vulnerability map, which allows for 2 to 6 relief points for counties with medium, low, or very low pesticide runoff vulnerability. These relief points functionally reduce the amount of runoff/erosion mitigation needed in areas that are less vulnerable to pesticide runoff exposure. The runoff vulnerability map as shown here and runoff/erosion mitigation menu have not changed since the release of the final Insecticide Strategy, and the same measures are available for mitigating impacts from herbicides, insecticides, and fungicides. These resources can be accessed online or found in documentation associated with the previous Strategies.

### Spray Drift Buffers Based on Population-Level Impacts

Moving from runoff/erosion to spray drift. In the draft Fungicide Strategy, as was done in the Herbicide and Insecticide Strategies, we identify a spray drift buffer distance, which would represent the distance downwind from the application where exposure is such that population-level impacts are not likely. When there is a low potential for impacts, we are looking for a level of mitigation that typically corresponds to a minimum spray drift buffer distance. When we identify high potential for impacts, we

identify a maximum buffer distance, which is the distance downwind from the fungicide application beyond which exposures are not appreciably reduced. This slide gives the maximum spray drift buffer distances that EPA would identify for aerial, ground boom, and airblast applications depending on the application parameters (such as droplet size and boom height). Please note that the minimum and maximum spray drift buffer distances were identified in the Insecticide Strategy and have not changed for this draft Strategy.

### Mitigation Measures to Reduce the Spray Drift Buffer: Update on Adjuvants

The draft Fungicide Strategy provides an update on options to reduce spray drift buffer distances. At this time, this is the only update to the mitigation menu. The Herbicide Strategy allowed for 15 to 30% spray drift buffer reductions for herbicides when oil emulsion drift reduction adjuvants are used with specific conditions. Based on additional data that EPA has analyzed, the draft Fungicide Strategy proposes expanding spray drift adjuvants as a mitigation option from herbicides only with a single adjuvant type to include: insecticides and fungicides and the use of guar gum as an additional type of spray drift adjuvant.

### Identifying Potential Impacts from Treated Seeds

The draft Fungicide Strategy evaluates direct impacts to listed vertebrates, such as birds and mammals, that may be on agricultural fields and eat contaminated items, including fungicide-treated seeds. When seeds can be treated with a registered fungicide, EPA would evaluate whether there could be potential population-level impacts via runoff/erosion from the treated seeds or from consumption of treated seed by listed birds and mammals. As proposed in the draft Fungicide Strategy, the evaluation of potential impacts via runoff/erosion from treated seeds is consistent with the Insecticide Strategy. Evaluation of impacts from treated seeds and any necessary mitigation would be applied when evaluating a FIFRA action for a fungicide for which a new seed treatment use is being sought or reevaluating a fungicide already registered for seed treatments through registration review.

### Step 3: Identifying Spatial Extent of Potential Mitigation – Listed Generalists

Now we are moving into describing step 3 of the framework where the spatial extent of potential mitigation is determined, which depends on whether only populations of listed species are affected or communities are also affected. Impacts to a community are indicated when there are potential impacts to multiple species' populations.

In Step 3, EPA expects to implement mitigation broadly across the entire conterminous United States when it identifies mitigation for plant and invertebrate communities. This is because most listed species broadly depend on plants and/or invertebrates for their diet, habitat, pollination, or dispersal and listed species occur throughout the entire country. These widespread impacts necessitate widespread mitigation that will be conveyed on the pesticide product label and will apply to all areas where the product is registered for use. Generally lower levels of mitigation will be needed across wide geographic areas for community-level impacts.

Although the draft Fungicide Strategy proposes to evaluate impacts to listed vertebrates, there are relatively few listed species that are broadly dependent on birds, reptiles, mammals, or amphibians for food, habitat, pollination, or dispersal. Therefore, as part of this draft Strategy, EPA is not currently proposing widespread mitigation to avoid impacts to listed species that broadly depend on vertebrates. Any potential indirect impacts to populations of such species are expected to be covered by mitigation

for direct impacts as will be discussed next. Additionally, EPA will address the remaining impacts to these taxa in chemical-specific biological evaluations, as appropriate.

### Step 3: Identifying Spatial Extent of Potential Mitigation – PULAs

EPA proposes to use the Bulletins Live! Two (BLT) website when mitigation is identified in geographically-specific areas called Pesticide Use Limitation Areas or PULAs. As proposed in the draft Fungicide Strategy, mitigation in PULAs may be identified because of direct impacts on listed plants and animals. Additionally, because mussels depend on fish hosts for larval development and due to the relatively high number of listed mussel species in the United States, EPA is proposing to use the draft Fungicide Strategy to identify potential impacts to populations of listed mussels via impacts on their fish hosts. EPA proposes to include mitigation for listed mussels in species-specific PULAs.

In Step 3, when evaluating whether mitigation is needed, EPA considers the degree of overlap of each species' range with cultivated land, fungicide usage data, and species-specific factors to evaluate if there may be potential for population-level impacts. EPA identified 85 listed vertebrates, 39 listed invertebrates and 136 listed plants that may need mitigation in species-specific PULAs.

Listed species are grouped for the purposes of mitigation because all species within a group are expected to need the same type and level of mitigation. These groupings are based on the concepts in Step 1 where EPA identifies the potential for population-level impacts based on different considerations of exposure, species' habitat, and taxonomy. For example, all other things being equal, we would expect lower exposure (and a lower level of potential mitigation) for species that live in larger flowing waterbodies like rivers with high dilution or dispersion of the chemical compared to those living in smaller, static wetlands. In this way, we are trying to target any potential mitigation to the types of species that need it most, either because of their sensitivity or habitat differences.

EPA is working with the U.S. Fish and Wildlife Service and others to create refined maps of the species' locations and habitats, which could result in smaller geographic areas within PULAs.

### Draft Fungicide Strategy Species Groups

For the draft Fungicide Strategy, there are 85 listed vertebrate species and 15 listed mussel species that may need mitigation in PULAs. We are proposing to group these listed vertebrates and mussels into 18 species groups as shown in this table. There are 14 species groups that include listed vertebrates. The listed mussels that may be impacted via impacts on their host fish are grouped into 8 groups depending on whether the mussel obligately depends on one or very few fish species or more broadly on multiple fish species. Mussels that obligately depend on fish are grouped with their obligate fish species.

It is possible that the number of species groups may be fewer in the final Fungicide Strategy if no listed species are identified for a particular group once we can fully consider each species' specific biological information. Although not shown on this slide, if a fungicide has direct impacts on plants or invertebrates, EPA plans to use the species groups previously established in the Herbicide and Insecticide Strategies.

### Step 3: Identifying Spatial Extent of Potential Mitigation in PULAs

The ranges and critical habitats of the 15 listed mussels are shown in the map on the left. Similarly, the ranges and critical habitats of listed vertebrates are shown in the map on the right. While these maps

indicate where species included in the draft Fungicide Strategy species groups occur, these maps do **not** show species-specific PULAs, which would be a refined subset of these areas. We expect the species-specific PULAs that correspond to the 18 species groups from the previous slide will cover a smaller area than what these two maps show.

We will now discuss EPA's implementation plan and next steps for the draft Fungicide Strategy. I will hand it back to Alex from the Pesticide Re-evaluation Division.

## Implementation of the Fungicide Strategy

Thank you, Holly, for the overview of the draft Fungicide Strategy. We will now discuss the implementation of the strategy. The strategy itself, once finalized, would not be self-implementing. EPA plans to consider the applicability of the final strategy to inform conventional new active ingredient registration actions and conventional fungicide registration review actions. EPA will continue to provide opportunities for public input on proposed decisions, including mitigation that may come from application of a final strategy to an active ingredient. As part of the registration review process, EPA will issue Proposed Interim Decisions with proposed mitigations before issuing an Interim Decision. Similarly, proposed decisions with proposed mitigations for new active ingredients will be issued before the final decision. When label language on products is being updated, it may also include directions to access Bulletins Live! Two and the Mitigation Menu website. To assist with implementation, EPA will continue to provide educational materials and support to stakeholders.

After finalization of the draft Fungicide Strategy and as it is implemented in registration review decisions, EPA will also work to ensure that the mitigations across the strategies and Action Plans are aligned. For example, the runoff/erosion mitigation options are consistent across the Strategies and projects so that a grower's investment in one mitigation measure is assured to receive credit across pesticides. The level of mitigation needed across EPA's actions is likely to vary based on the potential for impacts to listed species and the goals of actions. To the extent possible, EPA expects to align label language for mitigation measures across the Strategies.

## EPA's Mitigation Menu

EPA's mitigation menu offers flexibility to select mitigation measures. There are currently more than 35 runoff/erosion mitigation options and about 20 spray drift buffer mitigation options. We now also have the mobile-friendly tool, the Pesticide App for Label Mitigations, also known as the PALM app, that helps users calculate points and buffer reduction credits.

## PALM Example Screenshots

This slide depicts screenshots of the Runoff/Erosion Mitigation Calculator on the left and the Ecological Spray Drift Buffer Reduction Calculator on the right from PALM, along with a link to an EPA webinar which includes a demonstration of the PALM app. Both of these screenshots summarize what mitigation a grower or applicator would need based on inputs into PALM including label requirements and existing mitigation they already have on their field.

## Bulletins Live! Two

Now, we'll move to discuss Bulletins Live! Two, or BLT. When directed by a product label, pesticide applicators are required to visit the BLT website and follow any mitigation specified for the intended

application area and product. BLT allows for location-specific protections for listed species. The PDF from the Bulletins Live! Two application provides limitation information for your treatment location and month. Advanced resources for BLT are now available, including information about the application programming interface or API so users can access BLT information.

## Stakeholder Resources

Since 2022, EPA has implemented various education and outreach efforts to inform the public of its efforts to meet its obligations under the Endangered Species Act. This slide lists links to resources and webinar recordings that provide information on the listed species mitigation efforts under FIFRA, Vulnerable Species Action Plan, Draft Herbicide Strategy, the BLT system, EPA's Mitigation Menu website, Draft Insecticide Strategy, runoff points and mitigation calculators, PULA refinements, and a demonstration of the PALM app.

## Requests for Stakeholder Input

We've highlighted throughout this webinar that the draft Fungicide Strategy shares many similarities with the Herbicide and Insecticide Strategies. During the public comment period, in addition to comments on the overall strategy, we are specifically requesting feedback on the unique aspects of the draft Fungicide Strategy. This includes the update on adjuvants as a way to reduce spray drift buffer distances, considerations regarding seed treatments, and the identified on-field species, including mitigation for these on-field species. These topics are also highlighted in the draft Strategy currently available on regulations.gov.

## Next Steps

As a quick reminder, the draft Strategy and associated documents are open for public comment for 60 days. The public comment period closes on June 29<sup>th</sup> 2026. This webinar is intended to help potential commenters better understand the draft Strategy. EPA will consider and respond to submitted public comments. EPA expects to finalize the Fungicide Strategy no later than November 2026.

## Sign Up for OPP Updates

To get updates on EPA's major decisions as well as its ESA strategies, please sign up for OPP updates on OPP's main website. The slide identifies a few different ways to sign up. And we'll pause here for a minute to allow everyone to review and sign up.

## Questions

Thank you again for attending this webinar. Now we would like to open the floor for feedback and questions. Serving as EPA panelists to respond to questions, we have Mark Suarez from the Biological and Economic Analysis Division, Manjula Unnikrishnan from the Registration Division, Natalie Bray from the Pesticide Re-evaluation Division, and Vanessa Wuerthner, Kristina Garber and Andrew Shelby from the Environmental Fate and Effects Division. I will continue to serve as moderator during this question and answer period.

The graphic on the slide shows you how to navigate to ask a question. For the question and answer portion of this webinar, I'd like to remind everyone that we have a panel of experts here to address your questions. We also may not have time to get to everyone's questions. If we do not get to your question, please submit it to the docket during the comment period.

A few reminders while our panelists get ready. Documents are available in the public docket for the draft Fungicide Strategy. The comment period will close on June 29th. The slides as well as the recording of this presentation will be posted to EPA's ESA webpage and Pesticides and Endangered Species Education Resources Toolbox linked on the resources slide of this presentation. All right, just give me a minute as I switch over to see what questions have come in.

So our first question is for Vanessa, and the question is, what are the differences between the draft fungicide strategy and the other strategies for insecticides and herbicides?

Thanks, Alex. So generally, the draft fungicide strategy builds on concepts and analyses that EPA included in both the Final Herbicide and Insecticide Strategies. But the Draft Fungicide Strategy also incorporates improvements based on public comments that EPA received on the Draft Herbicide and Insecticide Strategies, including ways to better protect non-target species, like federally listed species, while increasing flexibility and improving ease of implementation for applicators. Now, there are also several key differences between the strategies. So the Draft Fungicide Strategy considers direct impacts to all taxonomic groups, so this includes listed plants, listed invertebrates, and listed vertebrates, whereas the Herbicide Strategy focused on direct impacts on plants, and the Insecticide Strategy focused on direct impacts on invertebrates like insects and snails. There are also some differences in on-field considerations. In the Final Herbicide Strategy, EPA assumed that listed plants didn't need on-field mitigations because the majority of species are not likely to occur on those highly managed agricultural areas. In the Final Insecticide Strategy, EPA identified 4 on-field terrestrial insects. Then for the Draft Fungicide Strategy, EPA identified terrestrial vertebrates that may be on field and may have potential population level impacts from on field exposure. However, we are still working with the US Fish and Wildlife Service to refine this list of on-field vertebrates for the Final Fungicide Strategy. And we will also incorporate any substantive public comments in the process of determining the final list.

Thanks, Vanessa. Our next question is going to be for Natalie and Manju. And the question is, when will we see updated labels incorporating mitigation for specific fungicides?

Thanks, Alex. I'll take that question. FIFRA actions and resulting product labels will not incorporate mitigations from the Fungicide Strategy until after it's finalized in November 2026. For registration of new active ingredients, the agency reviews public comments on proposed registration decisions and announces a final registration decision in the Federal Register. Labeling at the time of final registration decision will include any mitigation identified by implementation of any of the ESA strategies. In registration review, once the agency reviews the public comments on proposed interim decision, an interim decision or final decision will be announced in the Federal Register. The registrants will have 60 days to submit labels after the interim or final decision is announced. Once the Agency reviews and stamps the label, the registrants will have some time to prepare the labeling before it appears on all product labels with a new revised labeling. The timing depends on the existing stocks provisions indicated in label approval letters. After EPA review, the product labels will go through the state registration process and that timing varies by state. We recommend checking the registration review schedule, checking specific chemical dockets, and signing up for OPP updates to get the latest information. And just a reminder, always follow the label for the specific version of the product that you are using.

Thank you, Manju. Our next question is for Mark. The runoff and erosion and drift mitigations are complex. How do pesticide users know how to meet their requirements?

Yeah, that's a great question, Alex. So stakeholder comments and feedback on previous strategies indicated that growers and other applicators preferred flexibility over a rigid system in which everyone had to take the same measures to protect listed species. Inherent in that flexibility is having many different options for mitigation that may reduce runoff, erosion, and spray drift buffer distance. So the mitigation has to be more complex to give users sufficient options that best fit their individual needs. EPA is making tools available to help growers and other applicators work through the complexity, including the PALM app, runoff erosion points, and spray drift buffer calculators, and a document with the example scenarios that's available in the herbicide strategy docket. That scenarios document explains how a grower or other applicator in a field or specialty crop can one, accrue points for active ingredients that require runoff erosion mitigation; two, reduce spray drift buffer distances; and three, think about simultaneous integration of both mitigation for runoff erosion and spray drift. In addition to these documents, EPA intends to help growers understand their obligations and options through continuing outreach efforts like this webinar. And this continued outreach will also allow EPA to learn about and share additional mitigation options over time.

Thanks, Mark. We'll go back to Vanessa for the next question. Did EPA consider any refinements in the draft fungicide strategy?

Excellent question. So yes, EPA incorporated several refinements to the strategy, similar to the refinements that were in the Final Herbicide and Insecticide Strategies. So at step one, EPA incorporated population level toxicity values instead of relying on individual level toxicity values. And those population level toxicity values are typically less sensitive than the individual level values are. EPA also evaluated the potential for differences in sensitivity to a chemical by listed taxa and the representativeness of EPA's modeling when applied to the different habitats where listed species live. Then for step 2, EPA considered the variability in aquatic exposures from runoff based on climatic and soil factors, so that the identified runoff and erosion mitigation is spatially refined at the county level. And then finally, in step 3, EPA used usage data from the US Department of Agriculture's National Agricultural Statistics Service, Census of Agriculture, and California Department of Pesticide Regulations to identify where there was low overlap between fungicide usage and listed species ranges and critical habitats, which focuses the geographic extent of mitigation on the species where mitigation is most needed.

Thanks, Vanessa. Our next question is for Andrew. Can you explain in more detail the spray drift buffer reduction options for adjuvants?

EPA has previously proposed spray drift buffer reductions of 15 to 30% for oil emulsions for herbicides. A similar buffer reduction is now proposed for insecticides and fungicides. Additionally, spray drift buffer reductions are now proposed for a new category of drifter using adjuvants, guar gums, which expands the applicability of the buffer reduction to ground boom and aerial applications of herbicides, insecticides, and fungicides. Guar gum is a polysaccharide naturally derived from guar beans and is widely used in the food industry as a stabilizer and thickener. The data made available to EPA indicates increased reduction of spray drift by guar gums relative to the oil emulsion adjuvants previously credited. Therefore, EPA is proposing that applicators and growers' use of guar gums at specified rates allows for a 50% reduction of the spray drift buffer. Proposed guar gum rates are expressed as percentage of adjuvant product rate relative to spray tank volume. However, EPA may consider other rate expressions if they are received in public comments.

Thanks, Andrew. Next question will go back to Vanessa. How did EPA identify the species that are listed as potentially on field in the draft fungicide strategy?

Because on-field listed plants and invertebrates have already been addressed in the Vulnerable Species Action Plan, the Final Insecticide Strategy, and through recent pesticide consultations with the US Fish and Wildlife Service, we focused on other taxa, including terrestrial mammals, birds, reptiles, and amphibians that may be on agricultural fields for the draft fungicide strategy. EPA worked with the US Fish and Wildlife Service to identify the listed species included in the draft strategy, which are known to use cultivated agricultural fields. EPA plans to continue working with the species experts at the US Fish and Wildlife Service and to incorporate public feedback on these species to refine this list as appropriate for the final fungicide strategy. Additionally, EPA plans to work with the US Department of Agriculture as well as the US Fish and Wildlife Service to identify on-field mitigation options for species included in the Final Fungicide Strategy. We do welcome public feedback on these species and any potential mitigation options that are effective to protect these species and reasonable for growers and applicators to implement.

Thanks, Vanessa. We actually have another one for you. Is EPA planning to update the mitigation measures on the mitigation menu? How can commenters submit information to propose new mitigations?

Another really good question. So version 2.0 of the Ecological Mitigation Support Document that was released with the Final Insecticide Strategy in April of 2025, so that describes mitigation measures in detail, is the most recent version that we have available. As outlined in recent registration decisions, and response to public comment documents, EPA is continuing to work with a broad range of stakeholders, both domestically and internationally, to identify suitable mitigation measures and better understand the efficacy of such measures. EPA designed the Ecological Mitigation Support Document and the associated mitigation support tools, so that includes the mitigation menu, to be updated over time as more data become available and are evaluated by the agency. The timing of updates to the Ecological Mitigation Support Document has not been pre-scheduled, so updates will not be on a chemical by chemical basis, but rather represent a more holistic analysis of data in the future. EPA will continue to review literature that's provided during public comment periods for various new active ingredients, re-review literature as needed, and review other information available through open literature studies that have been published since the agency released version 2.0 of the Ecological Mitigation Support Document. EPA may update the mitigation measures if appropriate, following a more comprehensive review of relevant literature. In the past, stakeholders have submitted information regarding mitigation measures on the menu as part of the public comment period for registration and registration review actions, and we do anticipate them continuing to do so.

Thanks, Vanessa. All right. Okay, we have a question. Can I get a copy of the slides and a recording of this presentation? And the slides and the recording will be posted to EPA's ESA webpage. I will navigate to that slide real quick so we can get the link. All right, moving on to our next question. Sorry, just give me one minute while I pull up this next one. Next question is going to be for Kris. What about non-agricultural uses? When will EPA address those?

Just as a reminder, the Fungicide Strategy is focused on agricultural uses. So non-ag is out of the scope of this particular strategy, but we do have plans to address non-ag uses. And examples of that are rangeland forestry, rights of way, turf, they're pretty diverse. And we have found that, they have a lot of different considerations in order to determine what the risk picture might look like or what kind of

mitigations would be appropriate. So what we're basically doing at this point is working through non-agricultural uses as irrelevant to specific actions that we're working through or consultations. For example, recently we worked with the US Fish and Wildlife Service on consultations for carbaryl and atrazine and worked through turf kind of specific to those particular chemicals. We are currently working with the US Fish and Wildlife Service on a variety of non-agricultural uses that are relevant to the herbicide glyphosate. So we expect that stakeholders will have the opportunity to provide comment on draft mitigations that will be proposed for glyphosate during that public comment period for the US Fish and Wildlife Service's draft biological opinion. So we're expecting to apply lessons learned on non-agricultural uses through the specific actions and consultations to future efforts where it's applicable. So mitigations that are identified for glyphosate can inform mitigations for future actions for other pesticides that may include fungicides for similar uses.

Thanks, Kris. We've got another question for Andrew. Have air induction nozzles been assessed or considered by EPA as a possible mitigation measure for drift management?

Sure. Spray drift buffer reductions are already available in a way that give credit for air induction nozzles, though the way that the spray drift buffer reduction is communicated gives more flexibility for different types of application equipment. Available spray drift buffer reductions include a buffer reduction for ground application with coarse or coarser droplet size distributions. And this droplet size distribution is most easily achieved with air induction nozzles, but can also be achieved with other equipment like flat fan nozzles. So I hope that answers the question.

All right, the next question is for Natalie. What is EPA doing about treated seeds and mitigating impacts from exposure to pesticide treated seeds?

Thanks, Alex. I'll start answering this and then I will call on my colleague Kris to finish up the answer to make sure we give comprehensive coverage here. So when we're identifying mitigations to address population level impacts related to treated seed, EPA would evaluate where there would be potential for population level impacts via runoff and erosion exposure from the treated seed or from seed consumption when a pesticide treated seed is planted or buried. So these considerations would be applied when evaluating a FIFRA action for a pesticide for a new seed treatment or for reevaluating a pesticide that's already been registered and is going through registration review. I do want to note that in 2023, EPA issued an Advanced Notice of Proposed Rulemaking seeking public comments for additional information on the use of pesticide-treated seed and paint products. EPA is still considering the different options, including proposing a rule and taking other regulatory or administrative actions related to the treated articles. Please submit your comments if you're able to on the Draft Fungicide Strategy related to seed treatments as this will help us inform risk characterization and future mitigations to mitigate exposure. That's my part of the answer, and I'll turn it over to Kris to see if you would like to add more.

I'll just say, on the assessment side for runoff and erosion, we would use some of our standard modeling approaches from the pesticide and water calculator model. And then for on-field species that actually consume seeds. We've got some kind of standard methods that we would use to assess exposure and likelihood that different species are going to eat different types of seeds. So there's a number of different methods that we have available to us that we can rely on that we've used in past assessments and we can bring in some of the species-specific considerations that come with ESA where we can look at, well, what does the species eat and when does it eat seeds and what size seeds and things like that. So that's another area where if folks have public comment on some of those methods or dietary considerations, it's something that would be helpful. Usage is a part of the kind of typical assessment

methodology we would use to identify which species are even in. And we're limited in that, in that for seed treatment. And so that's an area where, there's some opportunities for other information on likelihood of treated seeds based on usage that we'd be open to comments on as well.

Thanks, Natalie. Thanks, Kris. We've got time for, I think, just one more question and then we'll wrap it up. So this last one is for Natalie. How often should we be checking bulletins and how often is it uploaded? I'm sorry, updated.

Thanks, Alex. Relevant question, both of them, if it's uploaded or updated. But I'll start by reminding everyone that bulletins are good for six months. So once you check the BLT and your bulletin, you'll have six months to use that bulletin as it is in that moment. I will start by answering the question with a little bit of the enforcement part of that, and then I'll turn it over to Kris again to talk more about the details of the bulletins. But I do want to highlight here that State-Lead Agencies have primary enforcement authority for FIFRA use violations. and the bulletins. So they would determine whether a use violation has occurred and the appropriate next steps. And so we encourage everyone, growers and applicators, to use all of our materials that are available online for assistance and support. And Alex has shown the slide a few times where we have all of our resources and how we keep a lot of relevant information in our ESA resources toolbox on our website. Then I'll turn it to Kris to continue answering this question.

So on the side of how often do we update BLT or maybe another way to look at it is how often do we change the maps or the PULAs that are available or the bulletins that are available. At this point, we don't have a standard updating schedule for BLT. It's done on an as needed basis based on particular actions or consultation schedules, when mitigations are identified that involve bulletins for a specific AI or set of products, then those would be updated on a schedule according to that particular action. So, you know, it happens kind of often, but we don't have an explicit schedule at this point for the changes to the contents of what's in BLT.

Thanks again, Natalie and Kris. All right. This is not the slide I'm supposed to be on. Sorry. Just going to wrap up our presentation. I'd like to thank everyone for listening into the presentation and participating in our Q&A session. If we did not get to your question, we encourage you to submit your comments to the docket during the comment period. This is also a final reminder to comment on the Draft Strategy before the comment period closes on June 29th. Thank you so much to all of our speakers and panelists for joining us today, as well as the entire fungicide strategy team at EPA for their efforts. Thanks again for joining our webinar and have a great day.