



NATIONAL POTATO COUNCIL

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October 22, 2023

Ms. Jan Matuszko
Director
U.S. Environmental Protection Agency
Environmental Fate and Effects Division
Office of Pesticide Programs
1200 Pennsylvania Ave. NW.
Washington, D.C. 20460-0001

Via Electronic Docket Submission <http://www.regulations.gov>

Re: **Comments of the National Potato Council Regarding the Draft Herbicide Strategy Framework to Reduce Exposure of Federally Listed Endangered and Threatened Species and Designated Critical Habitats from the Use of Conventional Agricultural Herbicides; Docket Identification Number EPA-HQ-OPP-2023-0365**

Dear Ms. Matuszko:

The grower members of the National Potato Council (NPC) and the listed affiliated organizations are responsible for the production of more than 95 percent of the potatoes grown in the United States. The economic contribution to the U.S. of that production is more than \$10.8 billion dollars at farm gate. Further processing, distribution, domestic and international sales and related activities increase that [economic contribution](#) for the U.S. economy to \$100.9 billion annually, supporting over 714,000 domestic jobs. We appreciate this opportunity to comment on the U.S. Environmental Protection Agency's (EPA's or Agency's) draft herbicide strategy.

We appreciate the Agency's consideration of our extension request for comments and providing industry with a 30-day extension to further understand the potential benefits and impacts associated with implementation of the draft Herbicide Strategy Framework (Strategy).

NPC's members are extremely interested in the development and safe use of pest management tools including crop protection chemicals that are environmentally sound, safe for applicators, workers and the public, and do not represent an unreasonable adverse risk to the environment, including humans and non-target organisms such as pollinators.

Unfortunately, this proposed Strategy does not meet those overarching goals. Instead, it reflects an approach that will have potential widespread negative impacts on potato production, as herbicides are widely used by growers.

Major Shift in U.S. Pesticide Regulation to Mirror European Overreach

If finalized as proposed, this Strategy will result in a significant shift in EPA's pesticide regulation policy. Similar to the European Union's "precautionary principle", this proposal ignores the actual risk of a pesticide product to listed species in the real world. Instead, it replaces it with a hazard-based approach that is highly restrictive and unreasonable.

Much as European farmers have experienced previously with a similar policy error, this overreach will result in significant burdens for U.S. growers. The likely result will be increasing the burden on growers to use herbicides, and in some cases, an inability for growers to even use the herbicide tools they need to address their pest problems. Obviously, this will have significant negative economic consequences for their farm operations, consumers and the U.S. economy as a whole.

As this unwise Strategy is precautionary based, the alleged risk or harm to listed species has not been sufficiently identified by the Agency. A FIFRA risk-benefit analysis should be conducted prior to any implementation of restrictions that could result from the Strategy.

The Agency has not provided adequate time for stakeholders to review all the documents that were released as part of its Strategy. It is unreasonable to expect stakeholders to read the Strategy and its supporting documents, consult within the industry and draft substantive comments in only 90 days.

We also note that the herbicide strategy was announced on July 24th which was nearly two weeks before stakeholders were required to submit comments on EPA's Vulnerable Species Pilot Project. While we understand that EPA wants to quickly implement its new endangered species workplan, the Agency's haste to implement the new strategy is compromising its stakeholders and the important public comment process. The proposals are complex, and growers will need time to comprehend the proposed new requirements and understand how they will affect their pest control decision making to comprehensively comment.

Chaotic Proposal Creates Regulatory Jeopardy

Beyond the overriding policy shift to the precautionary principle and the unreasonable timelines, this proposal is characterized by its chaotic nature and the potential jeopardy it places upon growers. For example, it is our understanding that the Agency will regulate herbicides differently depending on a crop's location within or outside of designated areas (Pesticide Use Limitation Areas or "PULAs"). These areas may change over time and may incorporate all or a portion of certain farms.

Under the Strategy, a farmer is mandated to apply a point-based system that may add up to a level that may or may not trigger significant restrictions on their use of the herbicide in question. However, those points are product based, application based, and the aforementioned geography based. Each of these variables enhances the likelihood of well-meaning growers being tripped up by this complexity and ultimately having to address enforcement issues.

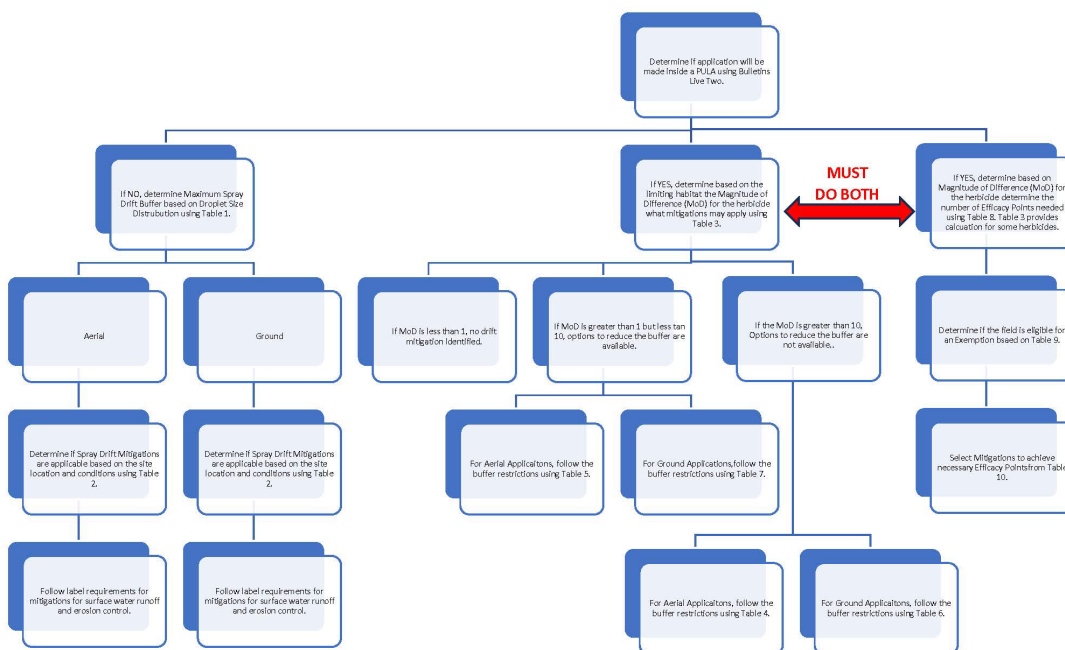
As an example of a complex new variable that requires significant analysis, this new Magnitude of Difference (MoD) is a parameter that no one in the grower industry has seen prior to the proposed Strategy being released. It appears it will be a key component throughout the Strategy's implementation if finalized.

While the Agency has included 12 representative herbicides in its case studies to demonstrate how the herbicide Strategy would be implemented, it is difficult for growers to understand the full impact of the

proposal without knowing how many points are required for the industry’s most important herbicides. This information is also critical in growers understanding whether they will be able to secure enough points to use important herbicides and how those use conditions affect resistance management plans.

While the Strategy provides some decision tree examples for how growers will need to assess potential impacts, we believe the following decision tree is a more accurate example of the burden that will be placed on growers by the agency. The Tables referenced in the Decision Tree can be found in Appendix A.

Decision Tree for establishing Spray Drift Buffers and Surface Water Runoff/Erosion Control Mitigations



The potato industry’s most important herbicides include rimsulfuron (Matrix®), EPTC (Eptam®) metribuzin (Tricor®), S-Metolachlor (Dual II®), pendimethalin (Prowl®), flumioxazin (Tuscany®), clethodim (Intensity®), pyrazosulfone (Zidua®), linuron (Linex®), diquat dibromide (Reglone®), sethoxydim (Poast®), and glyphosate (Roundup®).

However, only two of these twelve herbicides are listed among the case study herbicides (metribuzin and pendimethalin). It is important to know if all, some, or none of the listed herbicides would require nine mitigation points, especially since many U.S. potato growers would likely need to undertake costly changes in their farm operations to achieve nine mitigation points. The absence of this information places growers in jeopardy.

The Agency has requested feedback on the exemption for following the recommendations from Conservation Specialist or Certified Expert to reduce runoff/erosion. Specifically, the Agency is

interested in receiving comments on the types of experts, conservation programs, and appropriate criteria that could be relied upon to ensure that this is an effective measure, including for pesticides that need a high level of reduction of offsite transport to be protective of listed species.

This process needs to be as practical and accessible as possible to ensure that growers across the nation have equal access to achieve the exemption regardless of programs offered in their state.

Participation in a recognized state or industry program that provides assurance of good stewardship of the resources on the farm/field. Programs like the California Irrigated Lands Regulatory Program and the Michigan Agricultural Environmental Assurance Program are examples of programs that provide various levels of certainty that farm operations are achieving various levels of environmental standards and protections.

More closely aligned with understanding the individual farms are Certified Crop Advisers (CCAs) that are working with producers on their farm on pest management, nutrient management, soil health, organics, comprehensive nutrient management and grazing management. They are recognized through a memorandum of understanding by USDA-NRCS as Technical Service Providers and are already working with growers on their Integrated Pest Management (IPM) and Soil and Water Management plans.

As mentioned in previous comments, there are few mitigation measures listed in the current menu of mitigations that are applicable to potato production. Under the current proposal, many growers will need to change their operations to establish enough points if they are not exempt from the mitigations by participating in the approved programs. Below is a table which reflects the questions and concerns that have surfaced regarding the current mitigation menu.

Mitigation	Notes	Possible Points
Western Agriculture (west of Interstate 35 and east of U.S. Route 395)		0,1
Application area is predominantly sand, loamy sand, or sandy loam without restrictive layer that impedes the movement of water through the soil	Will a list of USDA Soil Survey types be included to ensure growers have clarity if the points are to be awarded and that they are not held liable?	0,1
The application area has a slope of less than 2%.	Why isn't the acceptable slope 3% or less as defined by USDA NRCS as essentially flat land? Will a list of USDA Soil Survey types be included to ensure growers have clarity if the points are to be awarded and that they are not held liable? For calculation purposes applied to examples for SC, IL, NC and Tuscola MI.	0,1
Percent reduction in application rate as a result of a partial field treatment, banded application, spot treatment, precision agriculture system.	This varied by product from 0-9 points based on the 90 applications evaluated across the country.	0,1,2,3,4,5,6,7,8,9

Soil incorporation within a few hours of application where not required on the label.	If a product is part of a tank mix, and another product in the tank requires incorporation, are the points still awarded?	0,2
Contour Farming (2 Points for contour farming or tillage, 3 Points for contour buffer strips, strip cropping, prairie strip or alley cropping.	Not a practice typically seen in potato production.	0,2,3
Cover Crop/ continuous cropping (cover, double or relay cropping)	The agency needs to clarify if the points are awarded if there is cover on the field at the time of application, such as when a desiccant is used.	0,1
Grassed waterway	Not a practice typically seen in potato production.	0,1
In-field vegetative filter strip - inter-row vegetated strips, strip cropping, alley cropping	Not a practice typically seen in potato production.	0,3
Irrigation water management	While there are potato production areas that do not use irrigation, this is a common practice used in most potato production.	0,1
Mulch amendment with natural materials	Not a practice typically seen in potato production.	0,3
Residue tillage management	The Agency needs to consider the use of Reservoir Tillage and Potato Hillers as tillage management practices.	0,2
Terrace farming	Not a practice typically seen in potato production.	0,2
Riparian area - riparian forest buffer, field border, vegetative border	Will vary by geography and climate if this is a workable mitigation.	0,3
Water Retention systems (constructed wetland, irrigation and drainage tailwater recovery, retention pond, sediment basins). (2 points)	Use of practice in potato production will vary by location.	0,2
Mitigation measures from multiple categories (In-field, Adjacent, Water Retention) are utilized. (1 point)	The Agency needs to provide clarity related to what are considered as multiple categories. The description provided only notes in-field, adjacent to the field, or water retention systems as categories. It is easy to assume, based on <i>Table 6-9. -Potential Mitigation Measures and Efficacy Points</i>, that there are five categories 1.) Field Characteristics, 2.) Application Parameters, 3.) In-	0,1

	field Management Mitigation Measures, 4.) Adjacent to the Field, and 5.) Other Mitigation Measures.	
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Real World Assessment Indicates Huge Failure Rate

To assess the real world impact of the proposed strategy on growers, we evaluated data on the components of 90 different standard herbicide applications. This analysis involved 18 different locations across the country in 15 different states, and included the 14 major active ingredients used in potato production.

More than 80 percent of the applications failed to achieve the 9 points needed based on the proposed Herbicide Strategy.

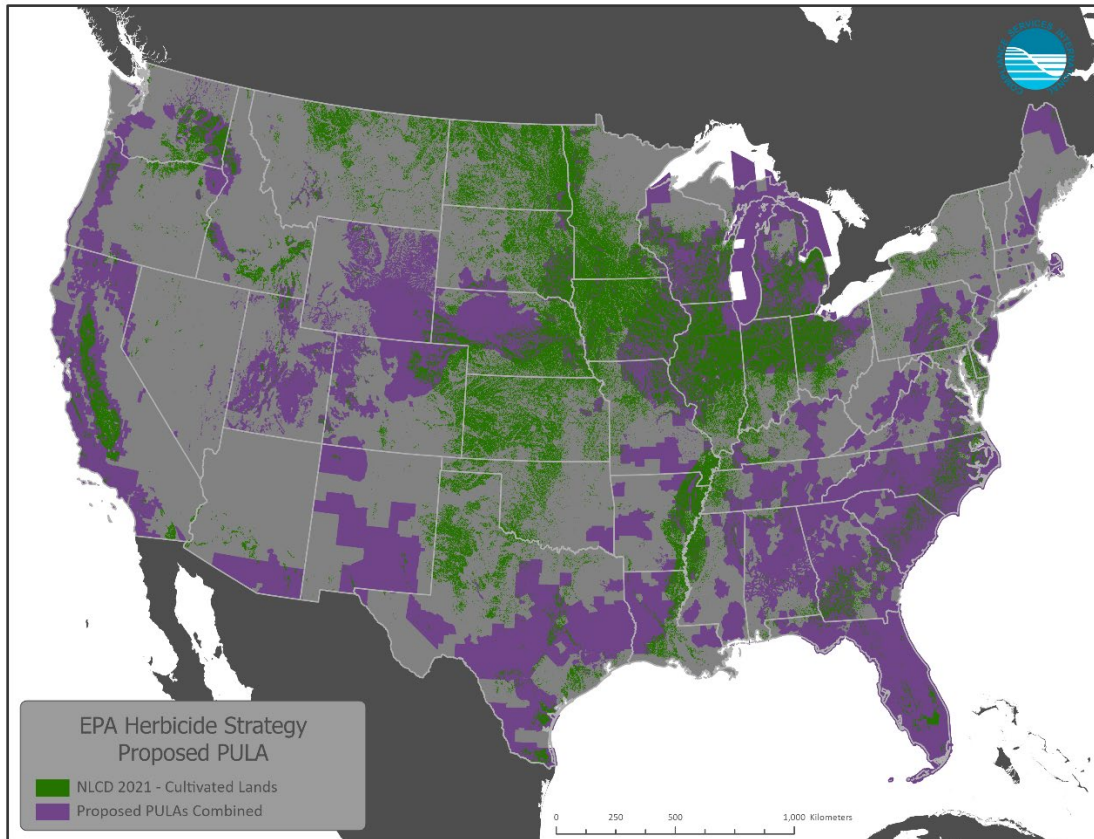
The following table provides a summary of the results based on each active ingredient included in the evaluation.

Active Ingredient	Number of Scenarios Evaluated	Range of Mitigation Points Achieved					Range of Total Points
		Field Characteristics	Application Parameters	In-Field Mitigations	Adjacent to Field Mitigations	Other Mitigations	
Clethodim	9	1-2	2-10	1	0	1	5-14
Dimethenamid-P	3	2-3	0-8	1	0	1	4-13
Diquat dibromide	7	1-2	0	1	0	1	3-4
EPTC	3	1-3	3-8	1	0	1	8-11
Flumioxazin	5	2-3	1-4	1	0	1	6-9
Fomesafen	1	2	3	1	0	1	7
Glyphosate	1	1	3	1	0	1	6
Linuron	4	1-2	3-5	1	0	1	7-9
Metribuzin	26	1-3	2-8	1	0	1	5-12
Pendimethalin	7	1-3	2-5	1	0	1	6-8
Pyrozasulfone	3	1-2	2	1	0	1	5-6
Rimsulfuron	12	1-2	2-10	1	0	1	5-14
Sethoxydim	1	1	8	1	0	1	11
S-Metolachlor	16	1-3	0-6	1	0	1	3-11

In all situations, the following assumptions were made for all fields:

1. Based on the complexity and lack of information provided around the MoD, the safest assumption to make was that all applications of all products needed to achieve nine points to be made.
2. All areas where applications are being made are assumed to be within a PULA. This assumption is being made because (1) based on the following map that provides an overlay of all proposed PULAs combined with cultivated lands, most potato production areas appear to be within or close to a PULA and (2) the Bulletins Live Two website was not able to provide information for any of the products based on the month of application.

We believe the PULAs and maps need substantial refinement. They are overly broad, thereby unnecessarily impacting growers whose farm operations are not reasonably likely to affect listed species or their designated critical habitats.



3. Application area is predominantly sand, loamy sand, or sandy loam soil without restrictive layer that impedes the movement of water through the soil. (1 point was awarded under Application Parameters)
4. Soil incorporation was made within a few hours of application when not required by label. (2 points were awarded under In-Field Management Mitigation Measures). There are products that the label does not allow incorporation. In these cases, no points were awarded.

NOTE: The Agency needs to clarify in cases where the products are part of a tank mix that may include chemistries that require incorporation if points are still awarded for individual products. It is likely that the tank mix application will need to default to the active ingredient with the highest percentage of active ingredient being applied where there are incorporation restrictions.

5. Irrigation water management as most potato production occurs under irrigation. (1 point was awarded under In-Field Management Mitigation Measures)

- Mitigation measures from multiple categories are utilized. (1 point was awarded under Other Measures)

NOTE: The Agency needs to provide clarity related to #4 above on what are considered as multiple categories. The description provided only notes in-field, adjacent to the field, or water retention systems as categories. It is easy to assume, based on Table 6-9. Potential Mitigation Measures and Efficacy Points, that there are five categories 1.) Field Characteristics, 2.) Application Parameters, 3.) In-field Management Mitigation Measures, 4.) Adjacent to the Field, and 5.) Other Mitigation Measures.

If the clarity requested above results in there being less than five categories, 1 point would need to be deducted from all the below herbicide specific scenarios.

- In no situations were points awarded for Mulch Amendments (3 points) or Residue Tillage Management (2 points) as they do not align with potato production.

The following are details associated with applying the Strategy to several herbicides particularly important to potato production reflecting the input of potato growers across the country.

Clethodim was included in sample herbicide programs in Kansas, Michigan, Nebraska, New Mexico, North Carolina, and Illinois under the tradenames of Intensity, Volunteer and Clethodim.

In the various programs the targeted application rate varied from 5.3% - 86.4% of the maximum active ingredient. These rates provided growers with a range of 0-8 points related to the percent reduction in application.

In the states of Kansas, Nebraska, and New Mexico, 1 point was awarded for being west of I-35 and east of U.S. 395.

In four scenarios (SW Michigan, mid-Michigan, North Carolina and Illinois), 1 point was awarded for slopes less than 2 percent.

Applying these assumptions, applications ranged from 5-14 points awarded with four of the nine scenarios not achieving 9 mitigation points, representing 45% of the scenarios.

Depending on location, growers would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points. However, this would then trigger additional costs to the grower in implementing these measures.

Dimethenamid-P was included in three sample herbicide strategies in southeast Idaho and Colorado under the tradename of Outlook.

The product was applied at various rates ranging from 11.11% to 99.53% if the maximum rate, therefore, awarding from 8 points to no points for rate reduction.

Because the product label requires incorporation, no points were awarded.

Since Colorado and SE Idaho are west of I-35 and east of U.S. 395, 1 point was awarded.

In total, these applications received between 4-13 points with the variable factor being the application rate.

Being this herbicide Strategy is for Colorado and SE Idaho, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave vegetated ditches (1 point), and Water Retention Systems (2 points) as the only remaining mitigation options to achieve the remaining 6 points.

Diquat dibromide under the tradename Reglone was applied as a plant desiccant in six of the herbicide strategies provided for production in Michigan, Nebraska, New Mexico, and Wisconsin.

The applications are made at the full labeled rate and because the applications are made on the potato plants, they cannot be incorporated.

In the six strategies evaluated, points available ranged between 2-3 total points. The variable was if the application was made on a field located west of I-35 and east of U.S. 395.

It is unclear whether a point could be awarded for the Cover Crop/Continuous Cropping area in this situation as the fields are often at 75-100% canopy when applied. If so, the field could achieve 3-4 points.

Depending on location, growers would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

EPTC under the tradename Eptam 7E was a part of three herbicide strategies provided in Colorado and Washington.

EPTC is required to be incorporated, therefore no points were awarded for incorporation.

The application rates ranged from 12.2%, 44.4% and 63.63%, providing between 3-8 points.

The strategies in Washington's Columbia Basin, they were not eligible for the 1 point for being west of I-35 and east of U.S. 395, while the strategy in Colorado was eligible for 1 point.

The Colorado strategy was awarded 1 point for slopes under 2%.

At the 12.2% application rate the application exceeded the 9-point threshold. For the other two strategies, with higher application rates, applied in Colorado, both received a total of 8 points.

A grower using the 44.4% or 63.6% application rate strategy would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

However, being these herbicide strategies are for SE Washington, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to limited water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave installing vegetated ditches (1 point), or Water Retention Systems (2 points) as the only remaining mitigation options to achieve the remaining 2 points.

Flumioxazin under the tradename Tuscany SC appeared in herbicide management strategies used in Kansas, Colorado, Nebraska and New Mexico.

Because all strategies were west of I-35 and east of U.S. 395, 1 point was awarded.

In all four of the five strategies flumioxazin was applied at a rate of 72.34% of the maximum labeled rate, allowing for 2 points to be awarded. In the other strategy, it was applied at the 100% labeled rate, resulting in no points being awarded.

In total, 6-8 points were achieved for each of these strategies.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

However, being these herbicide strategies are for SE Washington, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to limited water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave installing vegetated ditches (1 point), or Water Retention Systems (2 points) as the only remaining options to achieve the remaining 2 points.

Fomesafen under the tradename Reflex was used in one herbicide strategy in Illinois.

The application was made at the maximum allowable rate; therefore, no points were awarded for reductions.

The application did receive 1 point for the field having a slope of less than 2%.

In total, 6 points were awarded.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice), or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

Glyphosate under the tradename Envy Intense was used in one herbicide strategy for potato production in southeast Washington.

The product was applied at 90% of the label rate providing 1 point for a reduction from the label rate.

It was incorporated which also provided 2 points.

The application achieved a total of 5 points.

Because the strategy was in Washington's Columbia Basin, they were not eligible for the 1 point for being west of I-35 and east of U.S. 395.

A grower using this approach to secure the mitigation points needed, would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

However, applying the Strategy to SE Washington, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave installing vegetated ditches (1 point), or Water Retention Systems (2 points) as the only remaining mitigation options available to achieve the remaining 4 points.

Linuron under the tradename Linex 4L was used in herbicide strategies in Michigan and Illinois.

Applications of linuron were made at rates ranging from 66.7 to 83.3% of the maximum labeled rate. These application rates resulted in 1-3 points being awarded.

However, growers in Michigan and Illinois were not eligible for the 1 point for being west of I-35 and east of U.S. 395.

In the scenarios evaluated, 1 point was awarded in two of the locations for slopes less than 2%.

With the products in all scenarios being incorporated, 1 point was awarded to each strategy.

In all, the mitigation credit for applications ranged from 6-8 points.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

Metribuzin under the tradenames of Tricor DF, Rancor 75 DF and Derive 75 DF, was used in 26 of the scenarios evaluated. The use of metribuzin was included in evaluating the Strategy on potato production in Georgia, Colorado, South Carolina, Kansas, Michigan, Nebraska, New Mexico, Wisconsin, Idaho, Washington, North Dakota, North Carolina and Illinois.

In six of the 13 states a mitigation point was awarded for the location being west of I-35 and east of U.S. 395.

Two points were awarded to each scenario for the application being incorporated.

The rates ranged from 34.32% to 100% of the maximum label rate. This provided between 0-6 points for the application.

Sixteen of the 26 scenarios (61.5%) fell short of nine mitigation points, with several situations only achieving 4-5 points.

A grower wanting to use this herbicide would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

However, for the herbicide strategies in many of these states, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to limited water availability. Similarly, Terrace farming (2 points) is likely not an option to many of these operations.

This would leave installing vegetated ditches (1 point), or Water Retention Systems (2 points) as the only remaining mitigation options to achieve the remaining potential 4-5 points.

Pendimethalin under the tradename Prowl 3.3 H2O was used in scenarios in Georgia, South Carolina, Colorado, Michigan, Texas and Idaho.

In the Texas, Colorado and Idaho strategies, 1 point was awarded for the location being west of I-35 and east of U.S. 395.

With the applications all being incorporated, 2 points were awarded for each scenario.

Pendimethalin was applied at rates between 61.1% or the maximum label rate, generating 0-3 mitigation points to the respective scenarios.

Total mitigation points ranged from 6-9 points.

It appears, based on the data provided, pendimethalin would have a MoD of 6 if location is prone to runoff and a MoD of 5 if the location is prone to erosion.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

However, being this herbicide scenario is for SE Washington, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to limited water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave installing vegetated ditches (1 point), or Water Retention Systems (2 points) as the only remaining mitigation options to achieve the remaining needed 1-4 points.

Pyrozasulfone under the tradename Zidua SC was evaluated in herbicide scenarios in Michigan and North Dakota.

In North Dakota strategy, 1 point was awarded for the location being west of I-35 and east of U.S. 395.

With the applications all being incorporated, 2 points were awarded to each scenario.

In two scenarios, pendimethalin was applied at 94.34% of the maximum label rate, providing 0 points to both strategies.

Total mitigation points received ranged from 4-5 points, with all scenarios below 9 points.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional mitigation points.

Rimsulfuron under the tradenames Matrix SG and Tetris SG were included in 12 herbicide scenarios in Washington, Kansas, Michigan, Nebraska, Wisconsin, North Dakota, North Carolina and Illinois.

The scenarios for Kansas, Nebraska and North Dakota all received 1 point for being west of I-35 and east of U.S. 395.

With the applications all being incorporated, 2 points were awarded to each scenario.

Application rates ranged from 17.1% to the maximum labeled rate, providing from 0-8 points depending on the scenario.

Eight of the twelve scenarios, representing 75%, had total mitigation points ranging between 4-7.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

However, for SE Washington, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to limited water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave installing vegetated ditches (1 point), or Water Retention Systems (2 points) as the only remaining mitigation options to achieve the remaining 2-5 points.

Sethoxydim under the tradename Poast was included in one herbicide scenario in Wisconsin.

No points were awarded as the location was not west of I-35 and east of U.S. 395.

With the application being incorporated, 2 points were awarded.

The product was applied at a rate equivalent to 19.1% of the maximum labeled rate, providing 8 points.

In all, the product exceeded 9 points, therefore no additional mitigations would be needed.

S-Metolachlor under the tradenames Dual II Magnum and StrelousS II was included in 12 of the scenarios evaluated. It was evaluated for use in Georgia, Colorado, South Carolina, Kansas, Michigan, Nebraska, New Mexico, Texas, Wisconsin, North Carolina and Illinois.

One point was awarded for scenarios involving Colorado, Kansas, Nebraska, New Mexico and Texas as the treatment took place west of I-35 and east of U.S. 395. No similar points were awarded for scenarios in Georgia, South Carolina, Michigan, Wisconsin, North Carolina or Illinois.

Because the label requires incorporation, the two points for incorporating were not awarded.

The application rates of S-Metolachlor ranged from 33.5% to the maximum labeled rate. This provided, depending on the location from 0-6 mitigation points.

Total points awarded ranged from 2-11 points, with only one of the scenarios achieving 9 points.

A grower would likely look to using an In-field Cover Crop/continuous cropping (although demand for water usage may limit this practice) or rely on mitigations Adjacent to the Field including Riparian areas, vegetated ditches or vegetative filter strips to achieve the necessary additional points.

For Kansas, Nebraska, New Mexico and Texas, the ability to maintain a cover crop/continuous cropping (1 point), Grassed Waterways (1 point), In-field vegetative filter strip (3 points) and 30-foot vegetative filter strips adjacent to the field (2 points) are all very unlikely due to limited water availability. Similarly, Terrace farming (2 points) is likely not an option in this scenario.

This would leave installing vegetated ditches (1 point), and Water Retention Systems (2 points) as the only remaining options to achieve the necessary remaining 3-7 points.

We would like to reinforce with the Agency, as submitted in our comments on the **Vulnerable Listed (Endangered and Threatened) Species Pilot Project: Proposed Mitigations, Implementation Plan, and Possible Expansion (EPA-HQ-OPP-2023-0327)**, our belief that the following practices should be included in Section 7.3.7, Other Mitigation Practices, as they are known to reduce soil and water movement in the field.

1. Use of Reservoir Tillage

Reservoir tillage is a common practice in potato production, along with many other row crops. The reservoir tillage implements (examples include the [Dammer Diker®](#) and [Culti-Dikers](#)) create water retaining pockets between the rows (hills in the case of potatoes) that prevent runoff.

Quotes on the Dammer Diker® website state:



“They do something drastic to the soil,” says R.J. Hanks, soils physicist, Utah State University. “You get more infiltration than you can compute. The hydraulic properties of the soil are changed. In our trials, **reservoir tillage reduced runoff almost entirely. We had to apply 4 to 5 inches of water per hour under a center pivot to get it to run off. Conventionally-tilled fields lost 66% of the water applied.**”

“We call it Reservoir Tillage,” says Tom Longley, University of Idaho-Aberdeen Station. “It stops runoff cold. **Where we lost 10% to 60% of the water from conventional tillage, there was no runoff with reservoir tillage.**”

2. Use of Potato Hillers

Potato hillers create hills across a field of a potato field that are up to 14 inches deep. While the purpose of the hillers is to ensure that the potato tubers, which grow above the seed piece, have adequate soil coverage they also minimize soil and water movement outside of the production area.



From a surface water runoff perspective, the hills minimize surface and irrigation water from moving perpendicular to the rows. In effect, this reduces the chance of surface water runoff and erosion on half of the field.

We believe that the Agency needs to look at opportunities to **incorporate precision agriculture technology into mitigation measures**. The use of technologies like John Deere's See & Spray™, Prospera's Pivot Irrigation Insights, and the use of drone technology for scouting and spot treatments of fields all offer the ability to effectively manage a sustainable crop while minimizing inputs.

Chaotic Proposal Guarantees Compliance Difficulties for Well-Intended Growers

NPC's members are extremely concerned that the proposed strategy guarantees widespread negative impacts on potato production, as herbicides are necessary and widely used by growers.

We believe it is self-evident that a proposal that delivers an 80% failure rate to growers is unreasonable and should be withdrawn. As our analysis validates, if finalized as proposed, this complex and conflicting approach will result in growers, who are faithfully attempting to comply, failing and being subjected to enforcement actions. Eventually, growers will be unable to use the herbicide tools they need to address their pest problems.

These foreseeable outcomes are entirely unnecessary, as these tools are currently highly-regulated by the Agency. They remain accessible today because they have been generally regulated by the Agency using real world risk-based models, rather than the fanciful European Union overreach approach reflected in the Strategy.

The National Potato Council strongly encourages the Agency to rethink the Strategy. Producers need clarity from regulators on practices that are grounded in science and achievable on family farms across the U.S. This proposal does not meet that standard and thereby threatens the economic contribution of this industry to the country, while failing to achieve the Agency's intended goals.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael R. Wenkel".

Michael R. Wenkel
Chief Operating Officer
National Potato Council

Joining affiliated organizations:

Colorado Potato Legislative Association
Empire State Potato Growers Association
Idaho Potato Commission
Maine Potato Board
North Carolina Potato Association
Northland Potato Growers Association
Oregon Potato Commission
Pennsylvania Cooperative Potato Growers
Potato Growers of Michigan
United Potato Growers of America
Washington State Potato Commission
Wisconsin Potato & Vegetable Growers Association

Appendix A

Table 1 -Maximum Spray Drift Buffer based on Droplet Size Distribution (DSD) from proposed strategy.

Type of Application	Application Parameters Assumed in Modeling	Maximum Buffer Distance in Feet
Aerial Application	Very fine to fine DSD	500
	Fine to medium DSD	300
	Medium to coarse DSD	300
	Coarse to very coarse DSD	200
Ground Application	Very fine to fine DSD, high boom	200
	Very fine to fine DSD, low boom	100
	Fine to medium-course DSD, high boom	100
	Fine to medium-course DSD, low boom	100

Table 2 - Spray Drift Mitigation Options That Could Result in Reducing the Spray Drift Buffer from proposed strategy.

Mitigation Considerations	Application Type	
	Aerial	Ground
Downwind Windbreak/ Hedgerow	Buffer Reduced by 50%	Buffer Reduced by 50%
Hooded Sprayer	N/C	Buffer Reduced by 50%
App. Rate Reduction	Buffer calculated using app. Rate and AgDrift	Buffer calculated using app. Rate and AgDrift
Temperature	N/A	N/A
Relative Humidity	With RH greater than 70%, 25 ft buffer reduction when recommended buffers is greater than 250 ft*	With RH greater than 60%, 25 ft buffer reduction when recommended buffers is greater than 100 ft**
Change from Fine to Course DSD	Buffer derived from available deposition curves	25 ft buffer reduction when recommended buffer is greater than 75 ft**
Crop on Field	25 ft buffer reduction for buffers greater than 200 ft*	N/A
Windspeed: 3 to 7 MPH	25 ft buffer reduction at 75-175 ft	N/A

Notes:

N/A – Not applicable currently because impact is not substantial enough to change spray drift buffer by 25 ft or greater.

N/C – Not considered in the current effort

N/R – Not Relevant

* In order to use both the greater than 70% RH and the crop on field reductions together, the recommended buffer must be greater than 275 ft.

** In order to use both the greater than 60% RH and the crop on field reductions together, the recommended buffer must be greater than 125 ft.

Table 3: Calculated Magnitude of Difference (MoD) for two products used in potatoes from proposed strategy.

Active Ingredient	Common Name	Limiting Habitat	Highest MoD	Spray Drift Mitigation	Runoff & Erosion Mitigation
Metribuzin	Sencor	Aquatic Wetland	120.51	Maximum spray drift buffer would apply, and additional mitigation may also be applicable. Options to reduce the buffer would not be available. See Table 4.	Runoff Prone – 9 Erosion Prone - 7
Pendmethalin	Prowl	Terrestrial	19.75	Maximum spray drift buffer would apply, and additional mitigation may also be applicable. Options to reduce the buffer would not be available. See Table 4.	Runoff Prone – 6 Erosion Prone - 5

Table 4. - Aerial Restrictions for situations where the MoD is greater than 10 from proposed strategy.

Single Maximum Application Rate	Downwind Spray Drift Buffer Between the Application and Terrestrial or Aquatic Habitat (feet)		
	Fine-Medium DSD	Medium-Coarse DSD	Coarse-Very Coarse DSD
1.0	Not applicable	300 + windbreak would apply	200 + windbreak would apply
0.8	Not applicable	300 + windbreak would apply	Not applicable
0.6	300 + windbreak would apply	Not applicable	Not applicable

Table 5. - Aerial Restrictions for situations where the MoD is less than 10 from proposed strategy.

Single Maximum Application Rate	Downwind Spray Drift Buffer Between the Application and Terrestrial or Aquatic Habitat (feet)		
	Fine-Medium DSD	Medium-Coarse DSD	Coarse-Very Coarse DSD
1.0	Not applicable	Not applicable	Not applicable
0.8	Not applicable	Not applicable	200
0.6	Not applicable	275 ^{a,b,c}	200 ^{a,b}
Options to Reduce Buffer Distance	a. Windbreaks could be utilized to reduce the buffer distance by half. b. Buffers greater than 175 ft can be reduced by 25 ft if on field vegetation height at application is greater than 1 ft. c. Buffers greater than 250 ft can be reduced by 25 ft if relative humidity at time of application is greater than 70%.		

Table 6 – Ground Boom Restrictions for situations where the MoD is greater than 10 from proposed strategy.

Single Maximum Application Rate	Downwind Spray Drift Buffer Between the Application and Terrestrial or Aquatic Habitat (feet)			
	Very Fine – Fine High Boom	Very Fine – Fine Low Boom	Fine – Medium/Coarse High Boom	Fine – Medium/Coarse Low Boom
1.0	200 + windbreak or hooded sprayer would apply	Not applicable	Not applicable	Not applicable

Table 7 – Ground Boom Restrictions for situations where the MoD is between 1 and 10 from proposed strategy.

Single Maximum Application Rate	Downwind Spray Drift Buffer Between the Application and Terrestrial or Aquatic Habitat (feet)			
	Very Fine – Fine High Boom	Very Fine – Fine Low Boom	Fine – Medium/Coarse High Boom	Fine – Medium/Coarse Low Boom
1.0	Not applicable	100 ^{a,b,c}	75 ^{b,c}	50 ^c
0.8	200 ^{a,b,c}	75 ^{b,c}	50 ^c	25 ^c
0.6	150 ^{a,b,c}	75 ^{b,c}	50 ^c	25 ^c
Options to Reduce Buffer Distance	a. Buffers less than 100 ft can be reduced by 25 ft if relative humidity is greater than 60% at the time of application. b. Buffers greater than 75 ft can be reduced by 25 ft with coarse or coarser droplets c. Buffers can be reduced by half with Windbreak/Hedgerow or Hooded Sprayers. If original buffer is less than 25 ft, no buffer would be applicable			

Table 8 – Potential Number of Points Identified to Reduce Exposure via Runoff and Erosion from proposed strategy.

Magnitude of Difference (MoD) ¹	Points Identified ²	
	Runoff Prone (K _{oc} <1000 L/Kg-oc or K _d <50 L/Kg-soil) ⁴	Erosion Prone (K _{oc} ≥1000 L/Kg-oc or K _d ≥50 L/Kg-soil) ⁴
Less than 1	No mitigation	No mitigation
Between 1 and 10	1 if lines of evidence indicate population level impacts ³ may occur at an MoD of 10 3 if lines of evidence indicate population level impacts ³ may occur at an MoD of 1	
Between 10 and 100	6	5
Between 100 and 1,000	9	7
Greater than 1,000	9 plus other mitigations	

¹ The MoD is the ratio of the exposure estimate to the relevant toxicity endpoint for population-level impacts in Section 5.1 of the Herbicide Strategy, pg. 26.

² if the 48-hour rain restriction is on the label and the aerobic soil metabolism half-life for parent and residues of concern is less than 10-days, the number of mitigation points could be reduced by one point. The 48-hour rain restriction states, “Do not apply when soil in the area to be treated is saturated or if NOAA/National Weather Service (available at weather.gov) predicts a 50% chance or greater of 1 or more inches of rainfall to occur within 48 hours following application.”

³ Section 5.3 of the Herbicide Strategy, pg. 32, describes the lines of evidence considered to determine whether population-level impacts may occur.

⁴ The solid-water distribution coefficient (K_d) and organic-carbon normalized solid-water distribution coefficient (K_{oc}) are measures of the propensity of an herbicide to be dissolved in water or sorbed to soil or sediment. These are measured in OCSPP Guideline 835.1230 (USEPA, 2008).

Table 9 – Potential Exemptions for Needing to Follow the Mitigation Menu from proposed strategy.

Exemption	Justification
Follow recommendations from Conservation Specialist or Certified Expert to Reduce Runoff/erosion ¹	Growers may work with an expert to develop mitigation plans that are designed for their field and are efficacious in reducing offsite transport of pesticides substantially. While conservation programs are not specifically designed for reduction of offsite transport of pesticides, the same types of measures used for reducing offsite transport of nutrients and erosion of soil from the field also reduce offsite transport of pesticides. Evaluating a field for ways to reduce nutrient runoff and erosion are likely to result in similar recommended measures as those in the proposed runoff/erosion mitigation menu. EPA is currently developing criteria where this option would be considered functionally equivalent to relying on the mitigation menu. EPA requests feedback on the types of experts, conservation programs, and appropriate criteria that could be relied upon to ensure that this is an effective measure, including for pesticides that need a high level of reduction of offsite transport to be protective of listed species. EPA will develop specific definitions and criteria for programs and experts based on feedback received on this exemption. Preliminarily, if the expert/conservation program evaluated a field for potential areas where runoff/erosion could occur and supported the grower in the development of those conservation practices in the field to reduce that offsite transport, those mitigations may be more likely to be effective and well maintained.
Field is more than 1000 feet away from a terrestrial or aquatic habitat for listed species	Off-site transport adjacent to the field is highest when the field is adjacent to the habitat for listed species. Maximum overland flow distances are commonly assumed to be near 1000 to 1200 feet in engineering handbooks (TXDOT, 2019; USDA, 2010; VADEQ, 1992) and 1000 feet is on the high-end of the overland flow distances observed for wetlands in the prairie pothole region (Wu and Lane, 2017).
Field has subsurface drainage or tile drains installed	If the field has subsurface drainage installed, the mitigation measures are not applicable. The subsurface must release the effluent (water) into controlled drainage (such as release into a retention pond) or saturation buffer ¹ zones that do not release water into downstream off-farm aquatic areas. Runoff from the entire field would need to be controlled and directed into a pond or saturation zone. ²

¹A saturated buffer is a conservation measure designed to remove nitrate from agricultural tile water by modifying the outlet so that water is diverted to a vegetated filter strip.

Table 10 – Potential Mitigation Measures and Efficacy Points from proposed strategy.

Mitigation Menu Item ¹	Measures that qualify ²	Efficacy Points
Field Characteristics (one field may rely on multiple field characteristics if they are applicable)		
Application area is to the west of the Interstate-35 and east of U.S. Route 395 ³	Not applicable	1
Application area has predominantly sand, loamy sand, or sandy loam soil without a restrictive layer that impedes the movement of water through the soil. See USDA’s Web Soil Survey tool to determine soil texture: https://websoilsurvey.nrcs.usda.gov/app/ .	Not applicable	1
The application area has a slope of less than 2%.	Naturally low slope or flat fields/Flat laser leveled	1
Application Parameters		
The maximum single application rate (lbs active ingredient/acre/application) allowed on the label for the specific crop is reduced or only a partial area in the acre is treated. Considered on a per application basis. The percent reduction is calculated as the applied lbs active ingredient applied per acre divided by the maximum single application rate in lbs active ingredient per acre allowed on the label for the crop and application equipment. If only a spot or portion of the entire field is treated, the reduction in the application over the entire field is considered in the calculation provided the field is draining to the same area. Follow all label requirements related to application rate including not making applications at a lower rate than the minimum required on the label to avoid resistance issues and to avoid no control of the weed/pest.	Reduced application rate, partial treatment of the field, banded application, spot treatment, precision agriculture or sprayers	Percent reduction = Applied application rate in lbs a.i./A divided by the maximum application rate allowed for the label or for the crop in lbs a.i./A 90% reduction; 9 80% reduction; 8 70% reduction; 7 60% reduction; 6 50% reduction; 5 40% reduction; 4 30% reduction; 3 20% reduction; 2 10% reduction; 1
Soil incorporation within a few hours of application. If soil incorporation is required on the label for the crop where the application is being utilized, these points are not applicable.	Watering-in or via discing before runoff producing event	2
In-Field Management Mitigation Measures⁴		
Contour Farming	Contour farming, contour tillage	2
	Contour buffer strips, contour strip cropping, prairie strip, alley cropping	3
Cover Crop/continuous cropping	Cover Crop, double cropping, relay cropping	1
Grassed waterway	Grassed waterway	1
In-field vegetative filter strip (not occurring on a contoured field)	Inter-row vegetated strips, strip cropping,	3

	alley cropping, strip	
Mitigation Menu Item ¹	Measures that qualify ²	Efficacy Points
Irrigation water management	Not applicable	1
Mulch amendment with natural materials	Mulching	3
Residue tillage management	No till, reduced till	2
Terrace farming	Terrace farming, terracing, field terracing	2
Adjacent to the Field ⁴		
Riparian area	Riparian forest buffer, field border, vegetative border	3
Vegetated ditch	Vegetated ditch	1
30-foot Vegetative filter strips – adjacent to the field	Vegetated filter strip, field border, vegetative barrier	2
Other Mitigation Measures ⁴		
Water retention systems	Constructed wetland, irrigation and drainage tailwater recovery, retention pond, sediment basins	2
Mitigation measures from multiple categories (i.e., in-field, adjacent to field, or water retention systems) are utilized ⁵	See options in categories above.	1

¹Proposed mitigation measure descriptions specific to pesticides were published with the ESA Workplan update: Nontarget Species Mitigation for Registration Review and Other FIFRA Actions (USEPA, 2022b). These will be updated based on comments received on the workplan update. If the state law has a more restrictive requirement, that may be followed instead. Not all measures are applicable to all fields and crops. If a mitigation measure results in an increase in the amount of pesticides applied to the area, it is recommended that an alternative mitigation measure be selected.

²Only one of the ‘measures that qualify’ from a ‘mitigation menu item’ can be used for points at a time. For example, credit is given for contour farming or contour buffer strips but not both. Some of the measures that involve in-field VFS may occur in a contoured field or on a flat field without contours. The measure would only qualify for points once in a field.

³See Section 6.3 and Appendix C in the Technical Support for Mitigation document for additional details.

⁴Voluntary programs implemented by the Natural Resource Conservation Service, and state programs help farmers with implementation of some of these mitigation measures. These are voluntary and not linked to label mitigation requirements. Participation in these programs may allow for exemptions from following the runoff/erosion mitigation menu or support the development of the mitigation measures. EPA is considering specifications for the programs such that if the program were followed, the reduction in runoff/erosion would be functionally equivalent to following the mitigation menu.

⁵For example, if a grassed waterway an in-field mitigation measure and an adjacent to the field VFS are both utilized, the efficacy of the mitigation measures in combination may be increased and a point is provided when both are being utilized in the same field.