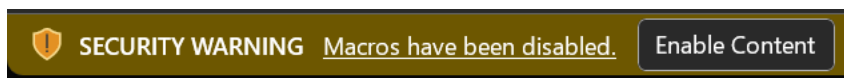


USER GUIDE: SPRAY DRIFT MITIGATION CALCULATOR TOOL

Background: EPA has created a Spray Drift Mitigation Calculator to assist applicators with calculating spray drift buffers as required on pesticide product labels. The calculator is a tool for informational purposes to assist the user in determining whether the necessary level of mitigation has been met before applying a pesticide product. The calculator can help determine the assess the potential spray drift buffer for the mitigation measures entered by the user. The actual spray drift buffer is dependent on design and implementation of mitigation measures in accordance with their descriptions on EPA's Mitigation Menu Website (<https://www.epa.gov/pesticides/mitigation-menu>). Note that each measure in the calculator includes a link that directs you to its detailed description on this website. This quick guide uses an example to demonstrate how users can calculate the adjusted spray drift buffer required for a planned application.

Downloading the Calculator: Users are strongly recommended to download a copy of the calculator and work in a version of Excel from 2017 or newer. Some aspects of the calculator may not function properly in an online or browser format, or with Excel versions 2016 or older. After you download the calculator, you may need to “enable macros” (see screenshot below).



For All Application Types:

Step 1) The calculator can be used to track information at a field level. The “General Field/Management Unit Information” section allows the user to enter basic information about the field (name, date, and farm/operator field identification).

General Field/Management Unit Information (Optional Section)		
Name	Jane Doe	CLEAR ALL USER INPUTS
Date	1/1/2025	
Field/Management Unit Identification	Field A	CREATE NEW WORKSHEET FOR ANOTHER

Step 2) “Conditions Not Requiring Ecological Spray Drift Buffers”: This section asks whether the planned application meets a list of conditions determined to sufficiently reduce the risk of drift so that no ecological spray drift buffer is required and whether managed areas are the only landscapes downwind for at least the length of the label required buffer. The definition of “managed area” is provided in the calculator and is also on EPA's Mitigation Menu Website. This application does not include any of the listed conditions and the field has an unmanaged area downwind within the buffer distance, so we select “no” for both and continue to the next section.

Conditions Not Requiring Ecological Spray Drift Buffers. Note: Spray buffers may be required for other reasons (e.g., protection of human health).	Hyperlink to EPA Description	Select Value	Reduction in Spray Buffer
Do the planned application conditions fit any of these descriptions: -Chemigation methods, including: micro-sprinklers, drip-tape, drip emitters, subsurface or flood, and under non-permeable plastic surfaces -In-furrow sprays when nozzle height is <8 inches above soil surface; -Tree trunk drench, tree trunk paint, tree injection; -Soil injection; -Solid formulations that are used as a solid; and -Less than 1/10 acre (<4356 square feet) treated and Spot treatment: <1000 square feet treated (e.g., when applied with backpack or hand held sprayers).	Hyperlink	no	See Spray Buffer Distance Requirements on Label
Are managed areas the only landscapes downwind for at least the length of the label required buffer? Managed areas are defined as: • Agricultural fields, pastures, forage fields, and private rangelands, including untreated portions of the treated field; • Roads, paved or gravel surfaces, mowed grassy/fallowed areas adjacent to field, and areas of bare ground from recent plowing or grading that are contiguous with the treated area; • Buildings and their perimeters, silos, or other man-made structures with walls and/or roof; • Areas present and/or maintained as a runoff/erosion measure as listed on EPA's Mitigation Menu website. Examples include vegetative filter strips (VFS), field borders, grassed waterways, vegetated ditches, riparian areas, managed/constructed wetlands, or other areas of intentional habitat improvement; • Areas present and/or maintained as a drift buffer reduction measure as listed on EPA's Mitigation Menu website. Examples include vegetative windbreaks, hedgerows, shelterbelts, riparian areas, private forests, woodlots, and shrublands; • Conservation Reserve Program (CRP) and Agricultural Conservation Easement Program (ACEP) lands (applicators may need to ensure that pesticide use does not cause degradation of the CRP habitat). • On-farm contained irrigation water resources that are not connected to adjacent water bodies, including on-farm irrigation canals and ditches, water conveyances, managed irrigation/runoff retention basins, farm ponds, and tailwater collection ponds.	Hyperlink	no	These areas may be included in the spray buffer distance

The user should now scroll down to the relevant mitigation section for the intended application type: ground, aerial, or airblast.

A) Ground Boom Application Ecological Spray Buffer Mitigation:

The example application: ground application with a high boom of an insecticide to a you-pick blueberry field not in a PULA. The applicator is planning a ground application of an insecticide with a single maximum application rate of 0.6 lbs active ingredient (ai)/ acre. The maximum required buffer specified on the label is 100 ft. The adjusted buffer size is reduced because the total treated area is 3.5 acres and the application uses an over-the-top hooded sprayer.

Step 3) “Product Specific Application Information”: The left two columns of the calculator ask about application parameters including droplet size, boom height, and application rate. Enter the spray drift buffer distances specified on the product label. The example insecticide’s label specifies a ground application buffer of 100 ft. If the field is in a Pesticide Use Limitation Area (PULA), a different buffer size may be specified on Bulletins Live! Two. This application will use a fine droplet size (which is the minimum labeled droplet size) and an application rate of 0.6 lbs a.i. per acre (which is the maximum labeled application rate).

Step 4) “Ground Application Ecological Drift Buffer Reduction Options:” The right two columns ask about different buffer reduction options the applicator may use which reduce the required buffer size. The applicator will go through and select from each drop-down menu the relevant mitigations. For this application, the total treated area is between 1-4 acres (3.5 acres total), so the buffer size is reduced by 35% to 65 ft. The application will use an over-the-top hooded sprayer, which reduces the buffer size by an additional 50% to 15 ft (rounded). The final adjusted aerial spray drift buffer size is 15 ft, displayed in the green box.

Ground Boom Application Ecological Spray Buffer Mitigation					
Product Specific Application Information	Select or Enter Value	Ground Application Ecological Drift Buffer Reduction Options	Select or Enter Value	Percent Reduction in Ecological Spray Buffer Distance	Hyperlink to EPA Description
Enter Ecological Spray Drift Buffer Distance from Product Label or Bulletins Live!Two (ft) as Applicable	100	Reduced Single Application Rate (automatically calculated based on product entry information in cells B16, B17, B20 and B21)	0%	0	Hyperlink
Select Minimum Spray Droplet Size Indicated on Product Label	Fine	Select the width of the application area or number of acres to be applied	Width of treated area 80ft up to 200ft or area treated 1 acre up to 4 acres	35	Hyperlink
Select Spray Droplet Size for Planned Application	Fine	Low Boom Application (24 inches or less above ground or crop canopy; applicable only for fine droplets)	make selection	0	Hyperlink
		Droplet Size Reduction (automatically calculated based on product entry information in cells B16 and B17)	Only applicable if product label allows medium or finer droplets, and intended application droplet is coarser than the label	Only applicable if product label allows medium or finer droplets, and intended application droplet is coarser than the label	Hyperlink
For Ground Sprays Select Required Boom Height Stated on the Label (Select High Boom (greater than 24 inches above ground or crop canopy) or Low Boom (24 inches or less above ground or crop canopy))	High Boom	For Herbicide Application ONLY Use of Drift Reducing Agents (select droplet size)	make selection	0	Hyperlink
Enter Required Maximum Labeled Application Rate for Planned Use (keep units of application the same; e.g., oz product/A)	0.600	Hooded Sprayers, Layby Nozzles, Drop Nozzles	Over-the-top Hooded Sprayer	50	Hyperlink
Enter Planned Application Rate for this Application (keep units of application the same; e.g., oz product/A)	0.600	Select Applicable Downwind windbreak/hedgerow/ riparian/forest/ woodlots/shrubland	make selection	0	Hyperlink
		Relative humidity is 60% or more at time of application? (select "yes" or "no")	make selection	0	Hyperlink
		Adjusted Ground Spray Drift Buffer (ft)		15	

B) Aerial Application Ecological Spray Buffer Mitigation:

The example application: aerial application of an insecticide to corn not in a PULA. The applicator is planning an aerial application of an insecticide with a single maximum application rate of 0.6 lbs active ingredient (ai)/ acre. The maximum required buffer specified on the label is 300 ft. Their adjusted buffer size is reduced by using a larger droplet size (coarse instead of medium) and a basic windbreak.

Step 3) “Product Specific Application Information”: The left two columns of the calculator ask about application parameters including droplet size, boom height, and application rate. Enter the spray drift buffer distances specified on the product label. The example insecticide’s label specifies an aerial application buffer of 400 ft. If the field is in a Pesticide Use Limitation Area (PULA), a different buffer size may be specified on Bulletins Live! Two. This application will use a coarse droplet size (the minimum size indicated on the label is medium) and an application rate of 0.6 lbs a.i. per acre (which is the maximum labeled application rate).

Step 4) “Aerial Application Ecological Drift Buffer Reduction Options:” The right two columns ask about different buffer reduction options the applicator may use which reduce the required buffer size. The applicator will go through and select from each drop-down menu the relevant mitigations. For this application, a larger droplet size is being used than the minimum allowed on the label (coarse vs. medium), so the buffer size is reduced by 40% to 170 ft (rounded). The field has a basic windbreak downwind, so the buffer size is reduced by an additional 50% to 85 ft. The final adjusted aerial spray drift buffer size is 85 ft, displayed in the green box.

Aerial Application Ecological Spray Buffer Mitigation					
Product Specific Application Information	Select or Enter Value	Aerial Application Ecological Drift Buffer Reduction Options	Select or Enter Value	Percent Reduction in Ecological Spray Buffer Distance	Hyperlink to EPA Description
Enter Ecological Spray Drift Buffer Distance from Product Label or Bulletins Live!Two (ft) as Applicable	300	Reduced Single Application Rate (automatically calculated based on product entry information in cells B31 and B32)	0%	0	Hyperlink
Select Minimum Spray Droplet Size Indicated on Product Label	Medium	Reduced Buffer For Larger Droplet Size Applied (automatically calculated based on product entry information in Cells B28 and B29)	Maximum Buffer identified, coarse droplet buffer is 170ft and is used in calculation in cell F34	Maximum Buffer identified Droplet Specific Maximum Buffer Used in cell F34	Hyperlink
Select Spray Droplet Size for Planned Application	Coarse	Select the width of the application area or number of acres to be applied	make selection	0	Hyperlink
		For Herbicide Application ONLY Use of Drift Reducing Agents (select droplet size)	make selection	0	Hyperlink
Enter Required Maximum Labeled Application Rate for Planned Use (keep units of application the same; e.g., oz product/A)	0.600	50% reduced boom length during application (select windspeed at time of application)	make selection	0	Hyperlink
Enter Planned Application Rate for this Application (keep units of application the same; e.g., oz product/A)	0.600	Select Applicable Downwind windbreak/hedgerow/ riparian/forest/ woodlots/shrubland	basic windbreak/hedgerow/artificial screen	50	Hyperlink
		Relative humidity is 60% or more at time of application? (select “yes” or “no”)	make selection	0	Hyperlink
		Adjusted Aerial Spray Drift Buffer (ft)		85	

C) Airblast Application Ecological Spray Buffer Mitigation:

The example application: airblast application to a single row in peach orchards. The applicator is planning an airblast application of an insecticide with a single maximum application rate of 0.2 lbs active ingredient (ai)/ acre. Only a single row will be treated because the pest is expected to move into the field from an unmanaged area adjacent to a single upwind field border. This means that the last downwind row will not be treated. The maximum required buffer specified on the label is 85 ft.

Step 3) “Product Specific Application Information”: The left two columns of the calculator ask about application parameters including droplet size, boom height, and application rate. Enter the spray drift buffer distances specified on the product label. The example insecticide’s label specifies an aerial application buffer of 400 ft. If the field is in a Pesticide Use Limitation Area (PULA), a different buffer size may be specified on Bulletins Live! Two. Droplet size is not

USER GUIDE: SPRAY DRIFT MITIGATION CALCULATOR TOOL

applicable for airblast applications at this time. This application will use an application rate of 0.2 lbs a.i. per acre (which is the maximum labeled application rate).

Step 4) “Airblast Application Ecological Drift Buffer Reduction Options:” The right two columns ask about different buffer reduction options the applicator may use which reduce the required buffer size. The applicator will go through and select from each drop-down menu the relevant mitigations. For this application, only 1 row is being treated which reduces the buffer size by 70% to 25 ft (rounded). The last downwind row is not being treated (is “skipped”), which reduces the buffer size by an additional 50% to 10 ft (rounded). The minimum required ecological spray drift buffer size is 10 ft, so for this application no ecological spray drift buffer is needed, as displayed in the green box.

Airblast Application Ecological Spray Buffer Mitigation					
Product Specific Application Information	Select or Enter Value	Airblast Application Ecological Drift Buffer Reduction Options	Select Spray Equipment	Percent Reduction in Ecological Spray Buffer Distance	Hyperlink to EPA Description
Enter Ecological Spray Drift Buffer Distance from Product Label or Bulletins Live!Two as Applicable (units are in feet)	85	Reduced Single Application Rate (automatically calculated based on product entry information in cells B40 and B41)	Typical Spray Equipment	0	Hyperlink
Enter Required Maximum Labeled Application Rate for Planned Use (keep units of application the same; e.g., oz product/A)	0.200	Number of Rows Upwind Treated (Select from dropdown in cell E40)	1 row treated	70	Hyperlink
Enter Planned Application Rate for this Application (keep units of application the same; e.g., oz product/A)	0.200	Skipping the last downwind row?	yes	50	Hyperlink
		Select Applicable Downwind windbreak/hedgerow/ riparian/forest/ woodlots/shrubland	make selection	0	Hyperlink
		Adjusted Airblast Spray Drift Buffer (ft)		No Ecological Spray Drift Buffer Needed	

Repeat the above process for each planned application as needed. The calculator includes a “Clear All User Inputs” button, or the “Create New Worksheet for Another Field/Management Unit” button to create a new separate tab for each field. You can also save or print the filled-out calculator to aid in mitigation tracking.