## APPENDIX 3-3: Spray Drift Considerations for Chlorpyrifos

In June of 2012, EPA finalized its evaluation of the potential risks from spray drift of chlorpyrifos.[[1]](#footnote-1) Results of this assessment indicated spray drift from application of chlorpyrifos using current (in 2012) label requirements generally resulted in risk estimates of concern for locations immediately adjacent to treated fields. To address these risks, prohibition of chlorpyrifos use within buffer zones and drift reduction technologies (*i.e.*, larger droplet sizes) for sensitive sites[[2]](#footnote-2) were implemented, in addition to restricting all aerial applications to 2.0 lb a.i./A or less except when chlorpyrifos is used to treat Asian citrus psyllid. In this situation, chlorpyrifos application may be applied at a rate of up to 2.3 lb a.i./A by aerial equipment.

The buffer zones and drift reduction technologies only apply to sensitive sites and do not protect aquatic environments; therefore, were not considered as part of the aquatic exposure modeling for this assessment. Nevertheless, the aerial application rate restriction of 2.0 lb a.i./A (2.3 lb a.i./A for Asian citrus psyllid) is an across the board restriction and; therefore, was considered as part of this update and is reflected in the Chlorpyrifos Master Use Summary Document (**APPENDIX 1-3**).

Spray drift estimates were updated to reflect the most recent offsite deposition guidance[[3]](#footnote-3),[[4]](#footnote-4) and considered the currently labeled buffer restrictions [25 ft. (ground), 50 ft. (air-blast), and 150 ft. (aerial)] for aquatic water bodies included on all agricultural chlorpyrifos labels.

Using Tier 1 AgDRIFT (version 2.2.1), drift fractions were calculated for each aquatic bin for each application method, corresponding buffer distance, and droplet size distribution. The results of this analysis are presented in **Table B 3-3.1**. These results are used in deriving aquatic estimate environmental concentrations (EECs).

**Table B 3-3.1. Spray drift estimates for aquatic bins and various aquatic buffer combinations**

|  |  |
| --- | --- |
| **Bin** | **Spray drift fraction (unitless)****Application Method and Buffer** |
| **Generic Habitat** | **Depth (m, ft)** | **Width (m, ft)** | **Grounda** | **Air-blastb** | **Aerialc** |
| **Aquatic Spray Drift Buffer Distance** |  **25 ft** |  **50 ft** |  **150 ft** |
| 2- low-flow | 0.1, 0.33 | 2, 6.6 | 0.02 | 0.03 | 0.06 |
| 3- Moderate-flow | 1, 3.3 | 8, 26.2 | 0.02 | 0.03 | 0.06 |
| 4- High-flow | 2, 6.6 | 40, 131.2 | 0.009 | 0.01 | 0.04 |
| 5 -Low-volume | 0.1, 0.33 | 1, 3.3 | 0.02 | 0.04 | 0.06 |
| 6- Moderate-volume | 1, 3.3 | 10, 32.8 | 0.01 | 0.02 | 0.06 |
| 7-High-volume | 2, 6.6 | 100, 328.1 | 0.006 | 0.005 | 0.03 |
| 1. Ground: ASAE Fine to medium/course [dv0.5 = 341 µm; labels specify 255-340 µm which is larger than ASAE very fine to fine (dv0.5 = 175 µm); high-boom; 90th percentile
2. Air-blast: droplet size not specified; sparse (young, dormant)
3. Aerial: ASAE fine to medium (dv0.5 = 255 µm; labels specify 255-340 µm)
 |

Adulticide applications for chlorpyrifos are unique in that the pesticide is applied as an ultra-low volume (ULV) spray designed to target the flying adult mosquito vector. The spray droplets must be small enough to be produced in sufficient numbers for probability of contact and large enough to impact or impinge readily on the surface of adult mosquitos (Mount, 1970). As a result, the purpose of adulticide applications is for the pesticide to reside in the air, causing the pesticide to drift.

Spray drift for adulticide applications (*e.g.*, aerial ultra-low volume applications at release heights of > 75 ft) are evaluated using the AGDISP version 8.26 model. The input parameters provided in **Table B 3-3.2** are used to model estimated environmental concentrations (EECs) for chlorpyrifos.

**Table B 3-3.2. Input Parameters for Modeling ULV Adulticide Applications in AGDISP**.

| **Parameter** | **Value** |
| --- | --- |
| Product | MOSQUITOMIST TWO U.L.V. (Reg. No. 8329-18) |
| Aircraft type | Air Tractor AT-401 |
| Aircraft speed (mph) | 120 |
| Percent active ingredient | 24.6 |
| Pounds active ingredient per gallon of product | 1.98 |
| Application rate (lbs ai/A) | 0.01 |
| Minimum release height (ft) | 75 |
| Minimum wind speed (mph) | 1 |
| Temperature (°F) / Relative humidity (%) | 65 / 50 |
| Canopy | None |
| Surface roughness length (ft) | 0.0246 |
| Stability | Overcast |
| Number of nozzles | 1, oriented along center of craft |
| Volume, diameter, 50th percentile DV50 (µm) | 60 |
| Volume, diameter, 90th percentile DV90 (µm) | 115 |
| Spray volume (gal/A) | 0.005 (0.01 lbs ai/A ÷ 1.98 lbs ai/gallon product)  |
| Active fraction | 0.246 |
| Nonvolatile fraction | 1.0 |
| Specific gravity, carrier and active+additive | 0.96 (1.98 lbs ai/gallon product ÷ 0.246 lbs ai/lb product ÷ 8.34 lbs water/gallon water) |
| Number of swaths | 1 |
| Swath width (ft) | 112 |
| Swath displacement (ft) | 0 |
| Swath offset | 0 swath |

Typical aerial ULV adulticide applications employ a 500-1500 ft swath width (Florida Coordinating Council on Mosquito control, 2009). For the aquatic and terrestrial modeling, an initial swath width of 500 ft was selected in order to generate conservative application efficiencies (*e.g.*, a measure of how much active material lands on the spray block) and spray drift fractions to nearby waterbodies. When running the AGDISP model, point deposition fractions (*e.g.*, the fraction of the amount applied that deposits at a specific location) much greater than 1 (approximately 3-4) were estimated when a 500 ft swath was used. Believing this to be an error, swath widths were adjusted to 112 ft for chlorpyrifos, in order to generate a maximum deposition fraction close to 1 and then the deposition versus distance calculations were adjusted for a 500 ft swath. Deposition fractions starting from the edge of the treatment block (*e.g.*, the area immediately below the application swath) are generated by using linear interpolation between the adjusted values. For instance, for chlorpyrfios the deposition fraction at the edge of the treatment block (0 ft) is estimated using linear interpolation between the deposition value at -0.8656 ft (0.02397) and the deposition value at 5.696 ft (0.02297) (slope of -0.00015 and intercept of 0.023834). The deposition values are then averaged over the width of the 500 ft swath to estimate an application efficiency and averaged over the width of the waterbody bins to estimate aquatic deposition values. Deposition values and the application efficiency from the AGDISP model are provided in **Supplement B 3.3-1**.

Chlorpyrifos can also be applied via ground application. Labeled specifications for drop size distributions for ground applications require a DV50 of 30 µm and DV90 of 50 µm. The labels also indicate an effective swath width for ground applications of 300 ft. EPA has yet to approve the use of the ground modeling algorithm, available in the AGDISP model, for use in assessing ground applications of pesticides. Therefore modeling of ground applied adulticides could not be conducted. However, in 2013, EPA (DP Barcode 407817, 3/28/2013) conducted a comparison of ground and aerial applications of adulticides using open literature information and other modeling and concluded that the maximum deposition was similar between the two methods of application. Based on this analysis, aerial deposition fractions are considered to be the same as those expected for ground applications.

Subsequent to the development of these estimates and late in the BE development process, discussions with AGDISP developers at the US Forestry Service indicated that point deposition fractions indeed could exceed 1. As a result, application efficiency and deposition values will be revised prior to the finalization of the BE. Recommendations for improving the AGDISP model values used to derive deposition and application efficiency values (see **Table B 3-3.2**) and appropriate, protective estimates of the deposition in terrestrial and aquatic environments for use in exposure estimations from stakeholders, the scientific community, and the public are welcomed and encouraged.

**Table B 3-3.3** provides the spray drift deposition estimates for the aquatic bins for chlorpyrifos and the application efficiency for associated ULV applications. The spray drift deposition values reflect waterbodies at the edge of the treatment block and reflect the average deposition across the width of the waterbody. Unlike agricultural applications of chlorpyrifos, there are no buffer zones for adulticide applications.

**Table B 3-3.3. Spray Drift Deposition and Application Efficiency Estimates for ULV Adulticide Applications**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Aquatic bin | 2 | 3 | 4 | 5 | 6 | 7 | Application Efficiency |
| Width (m) | 2 | 8 | 40 | 1 | 10 | 100 |
| Width (ft) | 6.56 | 26.24 | 131.2 | 3.28 | 32.8 | 328 |
| Chemical | Deposition Fraction |
| Chlorpyrifos | 0.023 | 0.022 | 0.017 | 0.024 | 0.022 | 0.011 | 0.21 |

In order to determine terrestrial exposure in the TED tool due to offsite deposition resulting from ULV applications, deposition data were fitted to the following curve equation, similar to what is done for ground applications in AgDRIFT:

$Deposition fraction= \frac{c}{\left(1+ax\right)^{b}}$

where x is distance in feet.

Using the adjusted distance and deposition parameters provided in **Supplement 1**, the following parameters were developed:

|  |  |  |  |
| --- | --- | --- | --- |
| Active Ingredient | a | b | c |
| Chlorpyrifos | 5.19E-05 | 94 | 0.024 |

**Figure B 3-3.1** below depicts the fit of the curve for chlorpyrifos. While there is not perfect agreement between the estimated deposition curve based on the regression analysis and the deposition data generated using AGDISP, the curve provides conservative estimates for use in the TED tool (*i.e.*, does not underestimate the contribution of drift).



**Figure B 3-3.1. Deposition Curve Fit for Chlorpyrifos ULV Applications**

**References**

1. Florida Coordinating Council on Mosquito Control. 2009. Florida Mosquito Control 2009. <http://mosquito.ifas.ufl.edu/Documents/Florida_Mosquito_Control_White_Paper.pdf>
2. Mount, G.A. 1970. Optimum droplet size for adult mosquito control with space sprays or aerosols of insecticides. Mosquito News, 30, 70–75.
3. USEPA. 2013. Spray Drift Analysis for the Etofenprox Label Amendment (Petition No. 1E7925). DP Barcode 407817. March 28, 2013.

**Supplement B 3-3.1. AGDISP Deposition Estimates**

AGDISP Results - Deposition Data, Chlorpyrifos

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Distance (ft) | Dep Frac | Dist Dif | Adj Distance (ft) | Dep Frac |  |  |  |  |
| -112 | 0 | 388 | -500 | 0 |  |  |  |  |
| -105.7778 | 0 |  | -493.7778 | 0 |  |  |  |  |
| -99.55555 | 0 |  | -487.55555 | 0 |  |  |  |  |
| -93.33335 | 0 |  | -481.33335 | 0 |  |  |  |  |
| -87.11111 | 0 |  | -475.11111 | 0 |  |  |  |  |
| -80.88888 | 0 |  | -468.88888 | 0 |  |  |  |  |
| -74.66668 | 0 |  | -462.66668 | 0 |  |  |  |  |
| -68.44444 | 0 |  | -456.44444 | 0 |  |  |  |  |
| -62.22221 | 3.96E-18 |  | -450.22221 | 3.96E-18 |  |  |  |  |
| -56.00001 | 7.65E-17 |  | -444.00001 | 7.65E-17 |  |  |  |  |
| -49.77777 | 1.98E-13 |  | -437.77777 | 1.98E-13 |  |  |  |  |
| -43.55557 | 2.00E-12 |  | -431.55557 | 2E-12 |  |  |  |  |
| -37.33334 | 1.62E-08 |  | -425.33334 | 1.62E-08 |  |  |  |  |
| -31.11111 | 3.47E-05 |  | -419.11111 | 3.47E-05 |  |  |  |  |
| -24.88889 | 4.30E-03 |  | -412.88889 | 0.004305 |  |  |  |  |
| -18.66667 | 4.48E-02 |  | -406.66667 | 0.044826 |  |  |  |  |
| -12.44444 | 0.149973 |  | -400.44444 | 0.149973 |  |  |  |  |
| -6.222221 | 0.324797 |  | -394.222221 | 0.324797 |  |  |  |  |
| 0 | 5.45E-01 |  | -388 | 0.54538 |  |  |  |  |
| 6.5616 | 7.69E-01 |  | -381.4384 | 0.768939 |  |  |  |  |
| 13.1232 | 9.22E-01 |  | -374.8768 | 0.921846 |  |  |  |  |
| 19.6848 | 9.91E-01 |  | -368.3152 | 0.991084 |  |  |  |  |
| 26.2464 | 9.92E-01 |  | -361.7536 | 0.992492 |  |  |  |  |
| 32.808 | 9.50E-01 |  | -355.192 | 0.949807 |  |  |  |  |
| 39.3696 | 8.87E-01 |  | -348.6304 | 0.887136 |  |  |  |  |
| 45.9312 | 0.81614 |  | -342.0688 | 0.81614 |  |  |  |  |
| 52.4928 | 0.743041 |  | -335.5072 | 0.743041 |  |  |  |  |
| 59.0544 | 0.67229 |  | -328.9456 | 0.67229 |  |  |  |  |
| 65.616 | 0.6059 |  | -322.384 | 0.6059 |  |  |  |  |
| 72.1776 | 0.546104 |  | -315.8224 | 0.546104 |  |  |  |  |
| 78.7392 | 0.492114 |  | -309.2608 | 0.492114 |  |  |  |  |
| 85.3008 | 0.443971 |  | -302.6992 | 0.443971 |  |  |  |  |
| 91.8624 | 0.403586 |  | -296.1376 | 0.403586 |  |  |  |  |
| 98.424 | 0.367081 |  | -289.576 | 0.367081 |  |  |  |  |
| 104.9856 | 0.332567 |  | -283.0144 | 0.332567 |  |  |  |  |
| 111.5472 | 0.303072 |  | -276.4528 | 0.303072 |  |  |  |  |
| 118.1088 | 0.277953 |  | -269.8912 | 0.277953 |  |  |  |  |
| 124.6704 | 0.254016 |  | -263.3296 | 0.254016 |  |  |  |  |
| 131.232 | 0.231451 |  | -256.768 | 0.231451 |  |  |  |  |
| 137.7936 | 0.212354 |  | -250.2064 | 0.212354 |  |  |  |  |
| 144.3552 | 0.196563 |  | -243.6448 | 0.196563 |  |  |  |  |
| 150.9168 | 0.182037 |  | -237.0832 | 0.182037 |  |  |  |  |
| 157.4784 | 0.167694 |  | -230.5216 | 0.167694 |  |  |  |  |
| 164.04 | 0.154062 |  | -223.96 | 0.154062 |  |  |  |  |
| 170.6016 | 0.14203 |  | -217.3984 | 0.14203 |  |  |  |  |
| 177.1632 | 0.132008 |  | -210.8368 | 0.132008 |  |  |  |  |
| 183.7248 | 0.123652 |  | -204.2752 | 0.123652 |  |  |  |  |
| 190.2864 | 0.116066 |  | -197.7136 | 0.116066 |  |  |  |  |
| 196.848 | 0.108541 |  | -191.152 | 0.108541 |  |  |  |  |
| 203.4096 | 0.10104 |  | -184.5904 | 0.10104 |  |  |  |  |
| 209.9712 | 9.39E-02 |  | -178.0288 | 0.093903 |  |  |  |  |
| 216.5328 | 8.74E-02 |  | -171.4672 | 0.087378 |  |  |  |  |
| 223.0944 | 8.15E-02 |  | -164.9056 | 0.08155 |  |  |  |  |
| 229.656 | 7.65E-02 |  | -158.344 | 0.076459 |  |  |  |  |
| 236.2176 | 7.21E-02 |  | -151.7824 | 0.072121 |  |  |  |  |
| 242.7792 | 6.84E-02 |  | -145.2208 | 0.068413 |  |  |  |  |
| 249.3408 | 6.51E-02 |  | -138.6592 | 0.065052 |  |  |  |  |
| 255.9024 | 6.18E-02 |  | -132.0976 | 0.061774 |  |  |  |  |
| 262.464 | 5.85E-02 |  | -125.536 | 0.058488 |  |  |  |  |
| 269.0256 | 5.53E-02 |  | -118.9744 | 0.055253 |  |  |  |  |
| 275.5872 | 5.22E-02 |  | -112.4128 | 0.052152 |  |  |  |  |
| 282.1488 | 4.92E-02 |  | -105.8512 | 0.049229 |  |  |  |  |
| 288.7104 | 4.66E-02 |  | -99.2896 | 0.046636 |  |  |  |  |
| 295.272 | 4.42E-02 |  | -92.728 | 0.044244 |  |  |  |  |
| 301.8336 | 4.21E-02 |  | -86.1664 | 0.042053 |  |  |  |  |
| 308.3952 | 4.01E-02 |  | -79.6048 | 0.040052 |  |  |  |  |
| 314.9568 | 3.83E-02 |  | -73.0432 | 0.038265 |  |  |  |  |
| 321.5184 | 3.67E-02 |  | -66.4816 | 0.036708 |  |  |  |  |
| 328.08 | 3.53E-02 |  | -59.92 | 0.03529 |  |  |  |  |
| 334.6416 | 3.39E-02 |  | -53.3584 | 0.033891 |  |  |  |  |
| 341.2032 | 3.25E-02 |  | -46.7968 | 0.032488 |  |  |  |  |
| 347.7648 | 3.11E-02 |  | -40.2352 | 0.031117 |  |  |  |  |
| 354.3264 | 2.98E-02 |  | -33.6736 | 0.029786 |  |  |  |  |
| 360.888 | 2.85E-02 |  | -27.112 | 0.028512 |  |  |  |  |
| 367.4496 | 2.73E-02 |  | -20.5504 | 0.027321 |  |  |  |  |
| 374.0112 | 0.026186 |  | -13.9888 | 0.026186 |  |  |  |  |
| 380.5728 | 0.025056 |  | -7.4272 | 0.025056 |  |  |  |  |
| 387.1344 | 2.40E-02 |  | -0.8656 | 0.023966 | Dist (ft) | Dep Frac | Slope | Intercept |
| 393.696 | 0.022972 |  | 5.696 | 0.022972 | 0 | 0.023834 | -0.00015 | 0.023834 |
| 400.2576 | 2.21E-02 |  | 12.2576 | 0.022104 | 6.5616 | 0.022857 | -0.00013 | 0.023725 |
| 406.8192 | 0.021339 |  | 18.8192 | 0.021339 | 13.1232 | 0.022003 | -0.00012 | 0.023531 |
| 413.3808 | 2.06E-02 |  | 25.3808 | 0.020635 | 19.6848 | 0.021247 | -0.00011 | 0.023359 |
| 419.9424 | 1.99E-02 |  | 31.9424 | 0.019943 | 26.2464 | 0.020544 | -0.00011 | 0.023315 |
| 426.504 | 1.92E-02 |  | 38.504 | 0.019219 | 32.808 | 0.019847 | -0.00011 | 0.023463 |
| 433.0656 | 1.84E-02 |  | 45.0656 | 0.018442 | 39.3696 | 0.019117 | -0.00012 | 0.023784 |
| 439.6272 | 1.76E-02 |  | 51.6272 | 0.017618 | 45.9312 | 0.018333 | -0.00013 | 0.0241 |
| 446.1888 | 1.68E-02 |  | 58.1888 | 0.016796 | 52.4928 | 0.017509 | -0.00013 | 0.024082 |
| 452.7504 | 1.60E-02 |  | 64.7504 | 0.016043 | 59.0544 | 0.016697 | -0.00011 | 0.023476 |
| 459.312 | 1.54E-02 |  | 71.312 | 0.015402 | 65.616 | 0.015958 | -9.8E-05 | 0.022371 |
| 465.8736 | 1.49E-02 |  | 77.8736 | 0.014878 | 72.1776 | 0.015332 | -8E-05 | 0.02109 |
| 472.4352 | 1.45E-02 |  | 84.4352 | 0.014452 | 78.7392 | 0.014822 | -6.5E-05 | 0.019932 |
| 478.9968 | 1.41E-02 |  | 90.9968 | 0.01409 | 85.3008 | 0.014404 | -5.5E-05 | 0.019117 |
| 485.5584 | 1.38E-02 |  | 97.5584 | 0.013752 | 91.8624 | 0.014045 | -5.1E-05 | 0.018768 |
| 492.12 | 1.34E-02 |  | 104.12 | 0.013407 | 98.424 | 0.013707 | -5.3E-05 | 0.018892 |
| 498.6816 | 1.30E-02 |  | 110.6816 | 0.013028 | 104.9856 | 0.013357 | -5.8E-05 | 0.019416 |
| 505.2432 | 1.26E-02 |  | 117.2432 | 0.012597 | 111.5472 | 0.012971 | -6.6E-05 | 0.020301 |
| 511.8048 | 1.21E-02 |  | 123.8048 | 0.012097 | 118.1088 | 0.012531 | -7.6E-05 | 0.021535 |
| 518.3664 | 1.15E-02 |  | 130.3664 | 0.011522 | 124.6704 | 0.012021 | -8.8E-05 | 0.022942 |
| 524.928 | 1.09E-02 |  | 136.928 | 0.010894 | 131.232 | 0.011439 | -9.6E-05 | 0.023992 |
| 531.4896 | 1.03E-02 |  | 143.4896 | 0.010268 | 137.7936 | 0.010812 | -9.5E-05 | 0.023959 |
| 538.0512 | 9.71E-03 |  | 150.0512 | 0.009709 | 144.3552 | 0.010194 | -8.5E-05 | 0.022501 |
| 544.6128 | 9.26E-03 |  | 156.6128 | 0.009256 | 150.9168 | 0.009649 | -6.9E-05 | 0.020056 |
| 551.1744 | 8.91E-03 |  | 163.1744 | 0.008912 | 157.4784 | 0.009211 | -5.2E-05 | 0.017462 |
| 557.736 | 8.65E-03 |  | 169.736 | 0.008654 | 164.04 | 0.008878 | -3.9E-05 | 0.015341 |
| 564.2976 | 8.45E-03 |  | 176.2976 | 0.008454 | 170.6016 | 0.008628 | -3.1E-05 | 0.013835 |
| 570.8592 | 8.29E-03 |  | 182.8592 | 0.008294 | 177.1632 | 0.008433 | -2.4E-05 | 0.012748 |
| 577.4208 | 8.17E-03 |  | 189.4208 | 0.008166 | 183.7248 | 0.008277 | -1.9E-05 | 0.011851 |
| 583.9824 | 8.07E-03 |  | 195.9824 | 0.008066 | 190.2864 | 0.008153 | -1.5E-05 | 0.011062 |
| 590.544 | 7.98E-03 |  | 202.544 | 0.007984 | 196.848 | 0.008055 | -1.2E-05 | 0.010501 |
| 597.1056 | 7.90E-03 |  | 209.1056 | 0.007903 | 203.4096 | 0.007974 | -1.2E-05 | 0.010498 |
| 603.6672 | 7.79E-03 |  | 215.6672 | 0.007792 | 209.9712 | 0.007888 | -1.7E-05 | 0.011442 |
| 610.2288 | 7.62E-03 |  | 222.2288 | 0.00762 | 216.5328 | 0.007769 | -2.6E-05 | 0.013427 |
| 616.7904 | 7.37E-03 |  | 228.7904 | 0.007371 | 223.0944 | 0.007588 | -3.8E-05 | 0.016061 |
| 623.352 | 7.05E-03 |  | 235.352 | 0.007046 | 229.656 | 0.007328 | -5E-05 | 0.018724 |
| 629.9136 | 6.66E-03 |  | 241.9136 | 0.00666 | 236.2176 | 0.006995 | -5.9E-05 | 0.020878 |
| 636.4752 | 6.24E-03 |  | 248.4752 | 0.00624 | 242.7792 | 0.006605 | -6.4E-05 | 0.022155 |
| 643.0368 | 5.81E-03 |  | 255.0368 | 0.005814 | 249.3408 | 0.006183 | -6.5E-05 | 0.022365 |
| 649.5984 | 5.41E-03 |  | 261.5984 | 0.005409 | 255.9024 | 0.00576 | -6.2E-05 | 0.02153 |
| 656.16 | 5.04E-03 |  | 268.16 | 0.005045 | 262.464 | 0.005361 | -5.6E-05 | 0.019958 |
| 662.7216 | 4.72E-03 |  | 274.7216 | 0.004723 | 269.0256 | 0.005002 | -4.9E-05 | 0.018176 |
| 669.2832 | 4.44E-03 |  | 281.2832 | 0.00444 | 275.5872 | 0.004686 | -4.3E-05 | 0.016584 |
| 675.8448 | 4.19E-03 |  | 287.8448 | 0.00419 | 282.1488 | 0.004407 | -3.8E-05 | 0.015175 |
| 682.4064 | 3.97E-03 |  | 294.4064 | 0.003971 | 288.7104 | 0.004161 | -3.3E-05 | 0.013757 |
| 688.968 | 3.79E-03 |  | 300.968 | 0.003788 | 295.272 | 0.003947 | -2.8E-05 | 0.012222 |
| 695.5296 | 3.64E-03 |  | 307.5296 | 0.00364 | 301.8336 | 0.003768 | -2.3E-05 | 0.010572 |
| 702.0912 | 3.53E-03 |  | 314.0912 | 0.003529 | 308.3952 | 0.003625 | -1.7E-05 | 0.008838 |
| 708.6528 | 3.46E-03 |  | 320.6528 | 0.003455 | 314.9568 | 0.003519 | -1.1E-05 | 0.007041 |
| 715.2144 | 3.42E-03 |  | 327.2144 | 0.00342 | 321.5184 | 0.003451 | -5.4E-06 | 0.005189 |
| 721.776 | 3.42E-03 |  | 333.776 | 0.003422 | 328.08 | 0.00342 | 4E-07 | 0.003289 |

1. Dawson, J., Bohaty, R., Mallampalli, N. Evaluation of the Potential Risks from Spray Drift and the Impact of Potential Risk Reduction Measures, June 20, 2012 PC 059101 DP 399483 and 399485. [↑](#footnote-ref-1)
2. Sensitive sites are areas frequented by non-occupational bystanders (especially children). These include residential lawns, pedestrian sidewalks, outdoor recreational areas such as school grounds, athletic fields, parks and all property associated with buildings occupied by humans for residential or commercial purposes. Sensitive sites include homes, farmworker housing, or other residential buildings, schools, daycare centers, nursing homes, and hospitals. Non-residential agricultural buildings, including barns, livestock facilities, sheds, and outhouses are not included in this prohibition. [↑](#footnote-ref-2)
3. U.S. Environmental Protection Agency, Brady, D. Guidance on Modeling Offsite Deposition of Pesticides via Spray Drift for Ecological and Drinking Water Assessments, December 20, 2013. [↑](#footnote-ref-3)
4. U.S. Environmental Protection Agency, White, K., Khan, F., Peck, C., Corbin, M. Guidance on Modeling Offsite Deposition of Pesticides via Spray Drift for Ecological and Drinking Water Assessments, December 19, 2013. [↑](#footnote-ref-4)