APPENDIX 1-3. Atrazine Scenario Development for Aquatic Modeling

The purpose of this Appendix is to provide supporting information for the aquatic modeling work.

The use sites simulated for atrazine are documented in **Appendix 3-1**. Agricultural modeling simulations are also summarized in **Table 2**. In **Table 2**, the use data layer (UDL) was obtained from information provided in **Appendix 3-1**. The PWC scenario simulated was determined based on the UDLs used in mapping. Unless otherwise noted, aquatic modeling for a HUC2 was simulated when the 2012 National Agricultural Statistics Service (NASS) Census Data indicated that a crop was grown in that region. See **Chapter 3** for additional details on the aquatic modeling.

In selecting application dates for aquatic modeling, EPA considered many factors. Label directions are considered, such as treatment timing (e.g., preemergence, postemergence, post-harvest). Selection of application dates included an analysis of weather files to determine the time of year most likely to produce the greatest off-site transport. The meteorological information is considered as pesticide loading to surface water may be directly affected by precipitation events. The wettest month (i.e., the month with the highest average daily precipitation) within each HUC2 was identified (**Table 1**), and a random date (i.e., the 15th of each month) was considered in an effort to maintain the probability of the distribution of environmental exposure concentrations generated. In cases when the application window is narrowed to a certain time of year (e.g., fall to late winter), the application date is the 15th day of the wettest month within a reasonable application window. The 15th of the given application month was arbitrarily selected and consistently used as the random date selection. Preharvest intervals and other restrictions specified on labels were also considered, so that applications were not modeled to occur within restricted timeframes.

In HUC2 regions with differing amounts of rainfall across the region, an additional location was selected with substantially different meteorological conditions to represent the range of conditions across the HUC2 region **Table 1.** These HUC2 regions with differing conditions are 10, 11, 12, 15, 16, 17, and 18.

Table 1. Month with highest total precipitation in each 30-year weather file in each HUC2.

| **HUC2** | **City, State** | **Meteorological File** | **Average Wettest Month**  **in 30 Years of Data** |
| --- | --- | --- | --- |
| 1 | Hartford, CT | w14740 | May |
| 2 | Lynchburg, VA | w13733 | July |
| 3 | Atlanta, GA | w13874 | March |
| 4 | Milwaukee, WI | w14839 | August |
| 5 | Covington, KY | w93814 | May |
| 6 | Knoxville, TN | w13891 | March |
| 7 | Des Moines, IA | w14933 | June |
| 8 | Fort Smith, AR | w13970 | July |
| 9 | Fargo, ND | w14914 | June |
| 10a | Grand Island, NE | w14935 | June |
| 10b | Sheridan, WY | w24029 | May |
| 11a | Fort Smith, AR | w13964 | May |
| 11b | Amarillo, TX | w23047 | June |
| 12a | Fort Worth, TX | w03927 | May |
| 12b | Abilene, TX | w13962 | September |
| 13 | El Paso, TX | w23044 | September |
| 14 | Rock Springs, WY | w24027 | May |
| 15a | Flagstaff, AZ | w03103 | July |
| 15b | Phoenix, AZ | w23183 | December |
| 16a | Salt Lake City, UT | w24127 | April |
| 16b | Winnemucca, NV | w24128 | November |
| 17a | Eugene, OR | w24221 | December |
| 17b | Pocatello, ID | w24156 | May |
| 18a | Sacramento, CA | w23232 | January |
| 18b | San Diego, CA | w23188 | January |

# Use Scenarios

**Table 2** provides a listing of the atrazine uses that were modeled in this BE, along with the maximum single application rate, number of applications, and retreatment interval. More information on the assumptions used in aquatic modeling and which HUC2 regions were modeled for each use pattern is available in **Appendix 3-2**.

Table 2. Modeled Crop Groups with Maximum Single Application Rate, Application Types, and Application Timing and/or Target.

| Use | Specific Crops Included | Use Data Layer | PWC Scenario | HUC2 | App. Rate  (lb a.i./A), # Apps., RTI1 | Run Name | Application Type | Application Timing |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sugarcane | Sugarcane | Other Grains | OtherGrain | 3, 11-13 | 4/3/3, 3, 14 d | sugarcaneFLTX | ground, aerial | preemergence, postemergence |
| 3, 8, 11-13 | 4/2/2/2, 4, 14 d | sugarcaneUS |
| Corn | Field corn, popcorn | Corn | Corn | 1-18 | 2/0.5, 2, NS2 (14 d) | corn | ground, aerial | preemergence, at plant, postemergence |
| Sweet corn | Vegetables and Ground Fruit | Vegetable | 1-18 | 2/0.5, 2, NS2 (14 d) | swcorn | ground, aerial | preemergence, at plant, postemergence |
| Turf | Turf for sod | Atz Other Crops | OtherCrop | 1-8, 10-18 | 4/2, 2, NS (30 d) | turfsod1 | ground, aerial | after Oct.1 but before Apr. 15 |
| 1-8, 10-18 | 2/1, 2, 30 d | turfsod2 |
| Turf, residential | Atz Developed | Residential, Impervious | 1-8, 10-18 | 1/1, 2, 30 d | turflawn | ground, aerial | after Oct.1 but before Apr. 15 |
| 1-8, 10-18 | 2/2, 2, 30 d | turflawn | granular |
| Turf, daycare, schools, playgrounds, parks, sports fields | Atz Open Space Developed | DevelopedOS | 1-8, 10-18 | 1/1, 2, 30 d | turfOS | ground, aerial | after Oct.1 but before Apr. 15 |
| 1-8, 10-18 | 2/2, 2, 30 d | turfOS | granular |
| Turf, fairways | Atz Open Space Developed | Golf | 1-8, 10-18 | 1/1, 2, 30 d | turfgolf | ground, aerial | after Oct.1 but before Apr. 15 |
| 1-8, 10-18 | 2/2, 2, 30 d | turfgolf | granular |
| Guava | Guava | Other Orchards | Orchard | 3, 12, 13, 15, 16, 18 | 4/4, 2, 4 months | guava | ground | preemergence, postemergence |
| Macadamia nuts | Macadamia nuts | Other Orchards | Orchard | 15, 18 | 4/4, 2, 14 d | macadamia | ground | preemergence, before harvest |
| Sorghum | Sorghum | Other Grains | OtherGrain | 1-11, 13-18 | 2/0.5, 2, NS (28 d) | sorghumsplit1 | ground, aerial | preplant within 2 weeks of planting |
| 1-18 | 2/0.5, 2, NS (21 d) | sorghumsplit2 | preemergence during planting |
| Soybean | Soybean stubble | Atz Soybeans | Soybean | 10, 11 | 2/0.5, 2, NS | soybean | ground, aerial | from harvest to Dec. 31, reapply spring |
| Fallow | Wheat-sorghum-fallow | Atz Wheat Sorghum Fallow | Wheat | 3, 5-17 | 2.25, 1, N/A | fallow1 | ground, aerial | immediately following wheat harvest |
| Wheat-corn-fallow | Atz Wheat Corn Fallow |
| Wheat-sorghum-fallow | Atz Wheat Sorghum Fallow | OtherGrain | 3, 5-15 | 2.25, 1, N/A | fallow3 |
| Wheat-corn-fallow (field corn or popcorn) | Atz Wheat Corn Fallow | Corn | 10, 11, 13, 14, 16, 17 | 2.25, 1, N/A | fallow2 |
| 7, 9, 10 | 2, 1, N/A | fallow5 |
| Wheat-corn-fallow (sweet corn) | Atz Wheat Corn Fallow | Vegetable | 10, 11, 13, 14, 16, 17 | 2.25, 1, N/A | fallow4 |
| 7, 9, 10 | 2, 1, N/A | fallow6 |
| Wheat-fallow-wheat | Atz Wheat Fallow Wheat | Wheat | 7, 9, 10, 11, 13, 14, 16, 17 | 1, 1, N/A | fallowwheat |
| Atz Wheat Fallow Wheat IDOR | Wheat | 17, 18 | 0.4, 1, N/A | fallow wheatIDOR |
| CRP | Conservation Reserve Program | Atz CRP | Grassland | 7, 10 | 2, 1, N/A | crp | ground, aerial | NS |
| Roadsides | Roadsides/ Highway rights-of-way | Atz Right of Way | ROW | 7, 10 | 1, 1, N/A | row | ground, aerial | preemergence |

1 The first application is the max. single application rate. RTI=retreatment interval. NS=not specified on label, but modeled RTI is in parentheses.

2 The RTI is not specified for preemergence but is 14 days for at-plant applications.