Effect Determination for Atrazine

Appendix C-2. Description of two assumptions in Residential Exposure Modeling

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Appendix C-2. Description of two assumptions in Residential Exposure Modeling: Use of ¼ Acre Lot Size and Use of 50% Treated Lot

Assumption of ¼ Acre Lot Size

In order to justify the assumption of ¼ acre lot as a typical exposure scenario, EFED reviewed publically available data from the United States Census (Census). Specifically, EFED reviewed data from 2003 from the American Housing Survey (AHS) available at the following website

http://www.census.gov/hhes/www/housing/ahs

EFED reviewed the data for all suburban homes available nationally. It is assumed that most pesticide applications, particularly herbicide applications, will occur in suburban settings. In order to test the assumption of the ¼ acre lot as the best representation, EFED reviewed the AHS data for suburban homes that list total number of houses by lot size and by square footage of house (see Table 1C-3 at the AHS website above). With a total of 45,552,000 total units reported nationally for all suburban areas, 12,368,000 units (the largest class at 27%) were on lots between 1/8 acre and ¼ acre, while 9,339,000 units (the second largest class at 21%) were on lots between ¼ acre and ½ acre. Overall, the median lot size was 0.37 acre. This analysis suggests that the ¼ acre lot is a reasonable approximation of suburban pesticide use.

Assumption that 50% of Lot Will be Treated

EFED also assumed in this assessment that 50% of a typical ¼ acre lot would be treated with atrazine. This assumption was based partially on data from the AHS website and partially from professional judgment about typical features and the percentage of a typical lot those features might require. For example, the AHS survey data reports that of a total of 43,328,000 reported single detached homes in suburban areas, 10,124,000 (the largest group at 23%) were between 1,500 and 2,000 square feet, while 7,255,000 (the third largest group at 17%) were between 2,000 and 2,500 square feet, and 9,513,000 (the second largest group at 22%) were between 1,000 and 1,500 square feet. From this data, EFED assumed that a typical home is 2,000 square feet with a 1,000 square foot footprint. EFED believes that the lower sized houses less than 1,500 square feet are more likely to represent single floor structures; thus, the 1,000 square foot estimate for a house footprint is reasonable.

In addition to the footprint of the typical house, EFED also assumed that a typical house would have a driveway of approximately 25 by 30 feet or 750 square feet and roughly 250 square feet of sidewalk. A typical suburban home was also assumed to have roughly 300 square feet of deck space and 900 square feet of garage. Finally, EFED assumed that a substantial portion of the typical home would be planted in landscaping with an estimate of 2,000 square feet. All of the previous estimates are based on professional judgment and are not derived from the AHS data. All of these areas are assumed to not be treated with a turf herbicide, resulting in a total area not treated with atrazine of 5,200

square feet. Taking a total ¼ acre lot size of 10,890 square feet and subtracting the untreated square footage yields a total remaining area of 5,690, or roughly 50% of the total lot that could be potentially treated.