Author's response to reviews

Title: Use of point-of-sale data to track usage patterns of residential pesticides

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Author’s response to reviews: see over
Responses to Dr. Black’s comments:

Comment:
While a precise calculation cannot be made, it seems that the authors want to predict trends on pesticide sales on only a small fraction of the market. On p. 21, the authors indicate that the database is sensitive to the number and types of merchants reporting sales data. Does this mean that the sales channels show different trends (increasing in chain home centers, decreasing in independent hardware)? I'm not clear what the authors mean by "an assessment of individual products sold indicates year to year variability has a greater impact ...than the amount sold by each channel." If we can use the database to determine which formulations are most widely sold (Figure 5), is it the same in all channels (including for the few years you have the mass market channel)? Are the regional trends, the ratio of indoor to outdoor units or pounds of active ingredients, the same in all channels? While you are "still able to analyze the sales database," does it really show general use trends or only trends in a small share of the market? Maybe other methods (pesticide use surveys) are needed to confirm that the point of sale data from this small market share is showing actual trends in pesticide use.

Response:
We agree with the comment that the statement “an assessment of individual products sold indicates year to year variability has a greater impact...than the amount sold by each channel” is an unclear statement. We have added language on page 21, half way through, explaining that sales trends in seasonal, regional, popular formulation, etc were the similar for each of the sales channels. The point-of-sale database used in this database does only cover a small share of the market, however, because of the similarities across the sales channels, we were still able to analyze the data for general use trends. The point of this database is to uncover sales trends and perhaps use trends. This database would need to be used in conjunction with other methods, such as pesticide use surveys, to get an even better understanding of pesticide use.

Comment:
I had previously questioned the association of the spike in outdoor use pesticide with WNV. The authors have chosen to include it, but I still find little evidence. WNV was present in the Northeast and no corresponding spike in pesticide sales was observed. Can the authors offer any other support that residents purchased outdoor use pesticides in response to WNV? The argument consists of two coincident events, WNV and a spike in permethrin sales in the South. They coincided only in one region. Perhaps the authors could discuss what additional study is needed; how would they investigate a spike in point of sale data?
Response:
While your point is well taken, we do not go as far as to make any definitive statements that the spike in permethrin sales in the South is due to the arrival of WNV in that area. We are simply illustrating how this database could lead toward an investigation of interesting trends in sales and why they may be occurring. To go into a discussion of what types of additional studies should be conducted in order to conclude whether that spike is due to WNV in the South is slightly beyond the scope of the paper. In acknowledgement to the fact that no definitive conclusions can be made on increased sales due solely to the spread of WNV, we do state at the end of the discussion on WNV that further study is needed in order to further investigate this phenomenon. Without going as far as stating this in the paper, because it is unfounded and purely speculative, one may conclude that the spike in pesticide sales in the South could be due to a knee-jerk type of reaction by people living in the South in response to the media hype surrounding the spread of west nile virus.

Comment:
On p. 10, please clarify the difference between regional and national data. With the exclusion of the mass market channel, is the national data simply a summation of the regional data (p. 10)? In comparing the graphs (Figures 1 and 2), I think it's important to note that national data (some of which is summarized by EPA) can be very misleading on a regional basis. While the national trend may be static, the regional trends were dynamic.

Response:
Some language was added to the third paragraph on page 10 to clarify the difference between national and regional sales data. Regional data only includes chain home center and hardware/independent channels while the national data includes all three sales channels (chain home center, hardware/independent and mass merchant). The regional data appears to be more dynamic in the figure because it is looking at a close-up of the data. The close-up look at data reveals ups and downs of the data trends. The national data is a summation of the chain home center and hardware/independent channels. Because the mass merchant data were dropped from the analysis, the massmerchant channel is not included in the national data. A new section was added on page 12 of the manuscript which specifically addresses, and hopefully clarifies, this issue.

Comment:
On p. 12, are the few lines under Merging datasets to be deleted?

Response:
We were not sure what this comment meant. There are four paragraphs in the section entitled Merging Datasets. None are meant to be deleted.
On p. 7, the discussion of NHEXAS is quite a long sentence. Also, the Minnesota study is MNCPES.

Response:
The sentence on NHEXAS on page 7 was cut down to more manageable sentences. The acronym for the Minnesota study was corrected.