Q&A From May 28, 2013 Hwy 36 Community Meeting:

As promised in the last listserv update, OHA has compiled the questions we didn't have time to answer in the May 28th public meeting. Some of the questions were similar in content, so we categorized them by themes and condensed the answers for clarity. Each agency has replied to questions that pertain to their areas of expertise.

1. Question: Chemicals used in the past were thought to be safe, and now those chemicals are considered so dangerous that they have been banned or severely restricted (e.g., DDT, PCBs, mercury, lead, etc.). How can we trust that the chemicals in use now are as safe as they are reported to be?

   Answer: It's true that the science is continually evolving and we are continuously learning about the toxicity of chemicals. But it's also untrue that many of the chemicals, such as PCBs and DDT, were necessarily thought to be safe. Prior to the 1970s, pesticides were regulated primarily as to whether they were effective. It wasn't until laws such as the Toxic Substances Control Act (TSCA) and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) were passed or updated that health and environmental concerns were considered in the regulation of most industrial chemicals and pesticides. The regulation of chemicals is also continually changing because decision-makers try to base their decisions on the best available science, and toxicologists provide the best available scientific information, based on what is known at the time. However, relative to other types of chemicals, pesticides are fairly well studied, and health and environmental concerns are carefully considered and weighed against the benefits of the pesticides' possible uses.

2. Question: Who will pay for the mediation recommended in the report?

   Answer: Mediation is a commitment that would have to be agreed upon and initiated by the community. This would involve decisions about the type and format of mediation, what organization would provide it and how long it should be continued. These are decisions that only those involved can make, and payment would ideally be shared among the interested community members. There are several organizations that provide community-wide mediation and some may provide financial assistance and/or find a way for it to work for the community. Oregon Health Authority has a list of mediation specialists for those who are interested.

3. Question: Why wasn't spring 2011 urine testing divided into pre- and post-application collections?

   Answer: OHA was not involved in designing the spring 2011 urine sampling event. Samples that were taken during this time were collected by community members. Participants attempted to collect pre- and post-application samples, but it was very difficult for them to know for sure when an application had occurred. OHA was able to re-classify community-collected spring 2011

urine data into those that occurred before and after reported pesticide applications because we had the application records to compare against. The results of this analysis are shown on page 28, in table 10 of the PHA report.

4. Question: Will more community-collected data be admitted for consideration, such as air or water monitoring data?

   Answer: OHA will consider all data that was collected with adequate quality controls in place. OHA recommends that if you want to collect data for inclusion in the Exposure Investigation, you contact us to consult about the sampling and study design, to ensure that all quality controls are in place. This will increase the likelihood that the data will be useable and useful to the Investigation.

5. Question: What is the source of the atrazine metabolites in spring 2011 urine samples that were collected before any known pesticide application?

   Answer: The short answer is that OHA does not know. Atrazine is a restricted use pesticide, meaning that only those with pesticide application licenses are allowed to purchase and apply it. Application records would be required for most applications conducted by licensed applicators. The source of atrazine metabolites in the 13 urine samples could have come from these sources:

   - *Local atrazine applications that were not reported to ODA or ODF; or Non-local atrazine applications, such as:*
   - *Applications that occurred outside the investigation area that then migrated into the area from a distance;*
   - *Applications outside of the area, where residents were exposed while they were away from home;*
   - *Other possibilities that we haven't yet considered.*

6. Question: Why haven't the 2012 pesticide application records been requested?

   Answer: We don't have any 2012 environmental or urine data against which to compare pesticide application records from 2012.However, as the investigation progresses, OHA may be requesting more application record data.

7. Question: Why didn't OHA request pesticide application records prior to 2009?

   Answer: According to the law, pesticide applicators are only required to keep application records for 3 years. 2009 was as far back as records could be requested.

8. Question: Why have so few chemicals been tested?

   Answer: The number of chemicals we are technically able to test for depends on the medium (such as air, water, soil, urine, etc.). Urine is the most restrictive medium in that the only pesticides known to be used in the area that laboratories have the ability to test for, are atrazine metabolites and 2,4-D. DEQ's lab was able to test water samples for over 170 different pesticides and pesticide breakdown products. ODA's lab was able to test soil and food samples for the 11 pesticides most commonly used by timberland owners and agriculturalists in the investigation area. The tables in Appendix B (starting on page 84) of the PHA list all of the pesticides that were tested in water, soil, and food samples.

9. Question: Will NHANES have reference populations for these atrazine metabolites in the near future, and will these data be used as part of those reference populations?

   Answer: NHANES has already developed the methods to measure these atrazine metabolites in urine and has been testing for those metabolites in samples collected since 2006. The data have probably already been generated, but NHANES has a prolonged data quality control process they must go through before the results can be publicly released. Because of their strict data quality control process, they also only use data from samples that they collect themselves. Therefore, Hwy 36 samples will not be part of the NHANES reference population.

10. Question: Did you compare urine results from people who drink from surface water and those from people who drink groundwater?

    Answer: No we did not. None of the surface or groundwater samples contained 2,4-D or atrazine (the only pesticides we could measure in urine), so that comparison would not have helped to answer any of the six exposure investigation questions.

11. Question: Since 100% of participants had atrazine metabolites in their urine in spring 2011 and none had atrazine metabolites in their urine in fall 2011 when no atrazine was being applied by forestry, is that enough evidence to prove that forestry applications are the source of atrazine metabolites in spring 2011 urine samples?

    Answer: No, not necessarily. Thirteen of the spring 2011 samples were collected before any known application of atrazine in forestry, and these samples also had elevated levels of atrazine metabolites. These 13 samples indicate that there is some other source of atrazine in the environment that we haven't yet been able to identify. The 9 samples collected within 24 hours of a known forestry application had higher levels of atrazine than those not collected within that time frame in spring 2011. This suggests that forestry applications may contribute to exposure, but they may not be the only source in the area (see question 7)

12. Question: How do the recommendations in the report protect children from these potentially dangerous exposures?

    Answer: This PHA is an interim report, which means that the exposure investigation is still in the information gathering phase. The recommendations in this interim report are primarily focused on actions that will enable OHA to get the information needed to finish the investigation. We know that children are more vulnerable to chemical contamination. The public health assessment process builds in a wide margin of protection for children and other vulnerable populations. As we obtain more information about the sources of exposure, we will make more specific recommendations. It is also important to note that stress can increase a person's susceptibility to environmental exposures, and children may be more susceptible to stress occurring in family and social situations in their community because they have less control over the relationships in their lives than adults do.

13. Question: Why not consult with Professor Tyrone Hayes who is an expert on atrazine and its metabolites.

    Answer: We have collected and read many published studies by Dr. Hayes. He is a well-respected expert in ecological toxicology. His studies focus on the effects of atrazine on wildlife. As a public health agency, OHA must focus on the effects of pesticide exposure on human health. Obviously human health is linked with wildlife and our shared environment, but there are some important differences between human and animals in how they are impacted by exposures to chemicals. Some types of wildlife (for example frogs and other amphibians) are extremely sensitive to the endocrine disrupting effects of atrazine. It is not yet clear how many of these sensitive endpoints are applicable to humans.

14. Question: How confident are you that you have complete application records?

    Answer: ***From ODF:*** *ODF has acquired 94% (334/356) of pesticide application records for spray operations with notifications in the Forest Activity Computerized Tracking System (FACTS). We have high confidence that a 94% sample is representative of forestry applications in the investigation area over the period of 2009-2011.*

    Answer: ***From ODA:*** *The verification/validation data provided by Commercial Pesticide Operators and Public Pesticide Applicators has given ODA a very high confidence in the data provided upon request.ODA Pesticides Division did not conduct verification/validation of pesticide use data submitted to ODA by Private Pesticide Applicators. Oregon Private Pesticide Applicators are not required under Oregon Revised Statutes, Chapter 634 (ORS 634) to prepare, maintain or make available for inspection pesticide use records. Response from Private Pesticide Applicators to*

ODA's letter of request for pesticide use data is voluntary. Pesticide use data provided to ODA by Private Applicators in response to the request has been provided to OHA in support of the EI.

*Answer: **From OHA:** We have confidence in the data collection efforts of ODA and ODF. However, OHA did consider the possibility that there might have been applications that occurred, where no notification or application records were required or otherwise submitted.*

15. Question: Is there NHANES type data available for pesticide levels in store-bought food? Both organic & non-organic? Store bought food was not a studied /or compared data. It should be considered.

    Answer: From ODA: The US Department of Agriculture's (USDA) Agricultural Marketing Service collects data on pesticide residues in food through its Pesticide Data Program. The data is presented in an annual report and is used by the Environmental Protection Agency, the Food and Drug Administration, the USDA Economic Research Service and Foreign Agricultural Service, and others. The Pesticide Data Program can be found on line at: http://www.ams.usda.gov/AMSv1.0/pdp

    From OHA: This is one reason why NHANES is so important as a comparison population. The levels of pesticide residue found on food would not be significantly different across the country and so it tells us what common exposures are from all sources, including store-bought food.

16. Question: Are there herbicides on organic and non-organic foods?

    Answer: Organic crops are not necessarily pesticide-free. There are pesticides (including herbicides) registered for use on both organically raised and conventionally raised food crops. The National Pesticide Information Center (NPIC) has a web page that discusses organic pesticide ingredients (http://npic.orst.edu/ingred/organic.html).

    The USDA National Organic Program standards describe the specific requirements that must be verified by a USDA-accredited certifying agent before products can be labeled as USDA organic. This standard allows for some substances to be used on organic crop production that are included on the National List of synthetic substances. The Oregon Department of Agriculture has an Organic Certification Program that further explains the requirements of the National Organic Program (http://www.oregon.gov/ODA/CID/Pages/organic.aspx).

17. Question: Will EPA re-study the bio-persistence of 2,4-D in living organisms? Isn't it possible that 2,4-D and/or atrazine remains in the body longer than expected? Isn't it possible that 2,4-D is not "processed" quickly?

    Answer: It's not clear how to precisely answer such a question, because the definition of "quickly" may have different meanings to different people. EPA itself does not conduct these types of studies. Instead, EPA relies on information from studies conducted by other entities

such as the National Toxicology Program, the National Institute of Environmental Health Sciences, industry groups, universities and other independent groups. In some instances, EPA may provide funding for this type of research through grants. The metabolic fates of 2,4-D and atrazine have been extensively studied and it is shown that for both chemicals, each dose is eliminated in a matter of days and that they do not accumulate in mammals, including humans. EPA will continue to review the results of research that looks into the fate and effects of atrazine and 2,4-D, as it does with all registered pesticides. However, given the vast body of knowledge that already exists, it seems unlikely that our current knowledge of the persistence of these chemicals in humans will substantially change.

18. Question: Why not conduct drift studies with water, orange dye and corn syrup to cause the spray to stick when sprayed via helicopter?

    Answer: Aside from any issues that might arise by spraying areas with an orange dye and corn syrup, the behavior of small droplets in wind currents and other conditions might well be different for pesticides in a petroleum-based solvent. And it's important to remember that one of the suspected exposures routes from aerial spraying on steep hillsides that remains uninvestigated is off-target movement in the "volatile phase," which means in a gaseous form. This is much different than off-target movement in the form of small droplets. And even more so than when evaluating the movement of droplets, the movement of chemicals as vapors is very dependent on the physical and chemical properties of the chemicals being studied, and can't be measured using surrogates such as water or corn syrup.

19. Question: Why would it take so long to investigate chemicals already on the market? Wasn't that done before it goes to market?

    Answer: Before any pesticide is registered for use, it's necessary to provide a great deal of information about the chemical, include the ingredients, the site or crop on which it is to be used, the amount, frequency and timing of its use, and storage and disposal practices. EPA evaluates the pesticide to ensure that it will not have unreasonable adverse effects on humans, the environment and non-target species. Beginning in 2006, each pesticide active ingredient is to be reviewed every 15 years to make sure that as the ability to assess risks to human health and the environment evolves and as policies and practices change, all pesticide products in the marketplace -still meet FIFRA standards for continued use. More information on the registration review process may be found at http://www.epa.gov/oppsrrd1/registration_review/index.htm.

    The registration review process for atrazine began on June 26, 2013 with the opening of the docket for a 60-day public comment period on the EPA's Preliminary Work Plan (PWP). To review EPA's plan for atrazine registration review and/or to provide a comment, go to www.regulations.gov docket number EPA-HQ-OPP-2013-0266. The Final Work Plan (FWP) for atrazine will be completed around November 2013 and will address public comments received on the PWP.

The registration review of 2,4-D began in December 2012. EPA expects to complete and request comment on the draft risk assessments for 2,4-D in the latter half of 2016. Anyone who would like to keep abreast of the work conducted so far under the registration review of 2,4-D can access the relevant documents at www.regulations.gov docket number EPA-HQ-OPP-2012-0330

20. Question: Who has done the research on these chemicals?

Answer: As noted previously, much of the information required for registration of a pesticide comes from the company that makes the product. EPA will also consider information provided from other sources as long as it meets the data quality requirements. Many researchers at academic and scientific institutions are actively involved in studying the environmental fate and toxicology of various current use pesticides, and their finding are routinely published in scientific journals, books, and on-line.

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