2013 Update - Human Health Benchmarks for Pesticides

Stakeholder Engagement

Purpose

- To discuss EPA's update of the human health benchmarks for pesticides (HHBPs)

- To seek stakeholder feedback before public release

Why Develop HHBPs

- EPA released DW Strategy (March 2010)
  - Address contaminants as groups rather than one at a time.
  - Foster development of new drinking water treatment technologies.
  - Use the authority of multiple statutes to help protect drinking water.
  - Partner with states to share more complete data from monitoring at public water systems.

- EPA developed these to provide a basis for states and utilities to understand and communicate the potential health risks indicated by drinking water monitoring data

What Are HHBPs

- Screening drinking water levels for health protection
- Acute and chronic exposures
- Derived from pesticide risk assessment information and drinking water health advisory methodology
- Active ingredients for food use pesticides
- MCL/MCLG or HA are not available
- Federally not enforceable
- Informational only

Public Release

- April 2012: EPA released human health benchmarks for 352 food use pesticides
  - Focussed only on noncancer health effects
  - http://www.epa.gov/pesticides/hhbp
  - Positive response from states
- Participating database in OECD Global eChemPortal
- Linked to the OECD chemportal in Jan 2013
  - http://www.echemportal.org/echemportal/participant/participantinfo.action?participantID=280&pageID=2

2013 Update Efforts

- Committed to periodic updates
- First update in 2013
  - Includes cancer risk benchmarks for 40 pesticides
  - Adds benchmarks for nine newly registered pesticides
  - Adds benchmarks for two existing pesticides
  - Updates information for eleven existing pesticides
- Stakeholder engagement and feedback ongoing

Stakeholder Outreach

- Organizations:
  - Federal (USDA/OPMP, USGS)
  - State/Associations (SFIREG, ASDWA, AMWA, AWWA, ACWA, FSTRAC)
  - Advisory Committees (PPDC)
  - Industry (CLA)
  - NGO (NRDC, CWA)
- Goal to complete stakeholder outreach – June 2013

Sample Page of the HHBP Table

Common Name	CAS Number	Acute RfD mg/kg/day	Acute or One-day HHBPs (ppb)	[a] Acute or One-day HHBPs Reference Population	Chronic RfD mg/kg/day	Chronic or Lifetime HHBPs (ppb)	[b] Chronic or Lifetime HHBPs Reference Population	[e] Cancer Quantification, CSF (mg/kg/per day)$^{-1}$	[f,g] Carcinogenic HHBP (E-6 to E-4) (ppb)
Chemical A	111111-11-1	0.300	**9900**	F 13-49 yrs	0.055	**385**	Gen Pop	-	-
Chemical B	232321-22-6	0.750	**24750**	F 13-49 yrs	0.040	**280**	Gen Pop	0.089	**0.4-40**
Chemical C	12345-05-8	--	**--**	--	4.490	**31430**	Gen Pop	-	-
Chemical D	23451-67-0	0.060	**600**	Children	0.060	**420**	Gen Pop	-	-
Chemical E	45432-23-6	0.300	**9900**	F 13-49 yrs	0.300	**1980**	F 13-49 yrs	-	-
Chemical F	172353-48-4	0.0076	**76**	Children	0.0014	**10**	Gen Pop	0.0281	**1 - 100**
Chemical G	92345-53-2	0.030	**300**	Children	0.020	**140**	Gen Pop	-	-
Chemical H	23589-94-4	0.20	**2000**	Children	0.05	**350**	Gen Pop	-	-
Chemical I	9685-38-2	0.0003[c]	**3**	Children	0.00003	**0.2**	Gen Pop	-	-
Chemical J	253-07-3	0.100	**1000**	Children	0.045	**315**	Gen Pop	-	-
Chemical K	19844-07-1	--	**--**	--	0.037	**259**	Gen Pop	-	-
Chemical L	16626-34-7	1.250	**12500**	Children	0.0283	**198**	Gen Pop	-	-
Chemical M	69898-88-9	--	**--**	--	0.006	**42**	Gen Pop	-	-
Chemical N	1786-08-6	--	**--**	--	0.017	**119**	Gen Pop	-	-
Chemical O	12993-63-8	--	**--**	--	0.170	**1190**	Gen Pop	-	-
Chemical P	366-14-5	0.0025[d]	**25**	Children	0.00125[c]	**9**	Gen Pop	-	-
Chemical Q	693641-23-4	0.320	**10560**	F 13-49 yrs	0.0025	**18**	Gen Pop	-	-
Chemical R	769390-01-8	0.200	**2000**	Children	--	**--**	Gen Pop	0.056	**0.6-60**
Chemical S	69315-41-8	0.060	**600**	Children	0.025	**175**	Gen Pop	-	-
Chemical T	66574-91-4	0.150	**4950**	F 13-49 yrs	0.032	**224**	Gen Pop	-	-
Chemical U	123918-61-6	0.375	**12375**	F 13-49 yrs	0.05	**350**	Gen Pop	-	-

[a] Formula for deriving Acute HHBP = [aRfD (mg/kg bw/day) x BW (kg) x 1000 (µg/mg)] / [Drinking Water Intake (L/day)] where BW=10 kg for children and 66 kg for females 13-49 yrs and Drinking Water Intake = 1L/day for children and 2L/day for females 13-49 yrs

[b] Formula for deriving Chronic HHBP = [cRfD (mg/kg bw/day) x BW (kg) x 1000 (µg/mg) x 0.2 RSC] / [Drinking Water Intake (L/day)] where BW=70 kg for general population and 66 kg for females 13-49 yrs and Drinking Water Intake = 2L/day for general population as well as for females 13-49 yrs and RSC = Relative Source Contribution assumed as 20%

[c] OPP's population adjusted dose includes an additional 10x FQPA factor that is not included in the RfD and HHBP calculations.

[d] OPP's population adjusted dose includes an additional 3x FQPA factor that is not included in the RfD and HHBP calculations.

[e] Where there is no value, refer to the document for the cancer classification and quantification.

[f] No value denotes that carcinogenic quantification is not applicable and therefore, no carcinogenic HHBP is determined.

[g] Formula for deriving carcinogenic HHBP(ppb) = [10^{-6} or 10^{-4}/Drinking Water Unit Risk (ppb^{-1}), where Drinking Water Unit Risk (ppb^{-1}) = [CSF (per mg/kg/day) x 2(L/day)]/[70 kg x1000 (µg/mg)]

In Summary

- HHBPs are being updated
  - New information on noncancer health effects for 11 pesticides
  - Cancer benchmarks for the first time for 40 pesticides
  - # pesticides for which benchmarks exist = 363
- Stakeholder outreach in progress
- Public release in Summer 2013

Next Steps

- Assess stakeholder feedback
- Brief EPA management
- Post on EPA website
- Update periodically as new data are available