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Remarks to VT Pesticide Advisory Council 2/18/15

Please be aware that your discussions of ROW permits affect watersheds and phosphorus loadings to waters of the state, whether or not you take this fact into consideration in your deliberations. The data and information below may help you to contribute to watershed planning more actively than before.

Glyphosate, soil & watersheds :

Researchers in the Lake Erie watershed have determined that glyphosate can be used as a source of P by algae in waterbodies (Ohio EPA 2010). Glyphosate can bind to colloidal matter in soil and enter runoff with sediment in precipitation events. Any loss from water is through adsorption to sediment and possibly microbial degradation (Schuette J 1998).

Researchers have found that glyphosate can become desorbed from sediment.

www.soils.org/publications/sssaj/abstracts/75/2/434?access=0&view=pdf

www.suprahumic.unina.it/home/images/pdf/J.%20Environ.%20Sci.%20Health-1994.pdf

Glyphosate Use by County in Lake Champlain Basin 2011-2012

(data based on Commercial Applicator Pesticide Usage Host Group Summary/ Pounds of Active Ingredient by County 2011 and 2012, acquired by FOIA request) (does not include use on private properties)

	<u>2011</u>	<u>2012</u>
Addison	460.23	3251.67
Caledonia	916.79	1137.40
Chittenden	3552.22	2479.28
Franklin	5981.25*	8955.58
Grand Isle	379.05	42.21
Lamoille	341.45	689.21
Rutland	1081.89	23,624.20 #
Washington	4164.96	3944.17

TOTALS **16,878.09 (8.4 tons)** **44,123.72 (22 tons)**

*does not include **30,997 lbs** listed for **field & forage**, questioned by VAAF.M.

21,578.47

lbs used by **utilities, substations, pipelines.**

Calculation of Glyphosate P Contributions:

K. Diedrick and Robert Mullen at Ohio State University estimate that **15% of glyphosate** is available as **phosphorus** in the form of phosphonate. (Ohio EPA 2010) Glyphosate applied as a pre-emergent herbicide is *essentially unavailable* to plants due to its high affinity for soil (Giesy JP et al 2000). Less than 1% will be absorbed by roots into the plant. So we can not assume that plants will absorb glyphosate applied to the soil or keep it from running off.

Consider the possibility that half of the glyphosate used (as reported) ran off in 2 years shown above. Then multiply that amount by .15 (15%) to get available phosphorus loading to Lake Champlain. See below:

2011: one-half of 16,878 = 8439 lbs. glyphosate x .15 to get 15% = 1265.85 lbs available P.

**2012: one-half of 44,123.72 = approx 22,060 lbs glyphosate X .15 = 3309 lbs available P.
These uses are in *discrete areas* in the watershed, not evenly distributed throughout the watershed.
What will VPAC do to decrease P loadings to Lake Champlain and to protect Waters of the State?**

Recommendations for VPAC:

1. Reconsider your traditional support for glyphosate use adjacent to waters in ROW permits because recent research implicates glyphosate as a source of phosphorus for aquatic ecosystems (Ohio EPA 2010).
2. Recommend that utility substation herbicide treatments be included in the VT Pesticide General Permit, as utilities are included in the Federal PGP.
3. Develop a mechanism in VAAFMM to separate substation herbicide use data from ROW use data, and require this data be submitted electronically.
4. Develop protocol by which ROW permittees map areas and list streams to be affected by permits.
5. Develop protocol for limiting amounts of glyphosate in watersheds because of phosphorus loading, possibly through revised buffer requirements.

I support the recommendation in your comments on the Pesticide Regulations, that warnings be placed on retail store shelves where pesticide products are sold. Warnings should alert buyers to dangers of Roundup for waterways because of phosphorus content.

References:

Giesy JP et al (2000). Ecotoxicological Risk Assessment for Roundup Herbicide. Reviews of Environmental Contamination & Toxicology 167: 35-120 <http://www.usask.ca/toxicology/jgiesy/pdf/publications/JA-228.pdf>)

Ohio EPA (2010). Ohio Lake Erie Phosphorus Task Force Final Report. p.41
http://epa.ohio.gov/portals/35/lakeerie/ptaskforce/Task_Force_Final_Report_April_2010.pdf

Schuetz J (1998). Environmental Fate of Glyphosate. California Dept.of Pesticide Regulation.
<http://www.cdpr.ca.gov/docs/emon/pubs/fatememo/glyphos.pdf>)