Integrated Plant Protection Center
Katie Murray, Assistant Professor of Practice
2040 Cordley Hall, Corvallis, Oregon 97331-2915
Tel: 541-231-1983
katie.murray@oregonstate.edu
ippc.oregonstate.edu

Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington DC 20460-0001
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Re: EPA-HQ-OPP-2008-0844-1260; Neonicotinoid Registration Review

The following comments are submitted in response to EPA's request for usage information regarding the registration review of four neonicotinoid insecticides: clothianidin, dinotefuran imidacloprid, and thiamethoxam. These comments are being submitted on behalf of the Western IPM Center, and provide input from Pacific Northwest commodities on the usage of these products in support of EPA's risk management decision process across these four compounds.

In a number of Pacific Northwest commodities, neonicotinoids serve as important tools for controlling insect pests that can cause economic damage. In many cases, neonicotinoid usage is replacing the use of organophosphates such as malathion and diazinon, and carbamates such as methomyl, for insect control. This comment focuses on the usage of imidacloprid, dinotefuran, clothianidin, and dinotefuran in potatoes, sugar beets, and PNW berry crops, specifically cranberry, caneberry, strawberry, and blueberry.

Berries: Imidacloprid is used in PNW cranberry production, and imidacloprid and thiamethoxam are used in blueberry, caneberry, and strawberry production. Clothianidin is registered for use in cranberries but not widely used, and dinotefuran is not used in any of these commodities. Note that all of the berry crops use managed pollination services except for strawberry.

Cranberry: Imidacloprid is the main neonicotinoid of the four used in cranberries in Oregon and Washington. This is used mainly to control black vine weevil, and some use it to control black-headed fireworm, but it only works well in sandy soil and is not as effective in organic soils. The use in this industry is minimal, estimated to be used on less than 20 acres per year in Oregon, and less than 5 in Washington.

An average rate for imidacloprid use in cranberries is 0.5 lbs ai/ac, applied to soil (via chemigation, or by hand as spot treatment) and watered in. Beneficial nematodes are an alternative for this use, with costs ranging from $15/acre to $800/acre. For many, the cost of this alternative is prohibitive. Cranberry growers mitigate risks to pollinators by spot treating only in areas showing damage, including a 15-foot area surrounding the damage. Clothianidin is also registered in cranberries, but not commonly used.

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Blueberry: Both Imidacloprid and thiamethoxam are used in blueberry production. In blueberries, these products, especially imidacloprid, are important for controlling aphids, which vector blueberry scorch virus. Imidacloprid is typically used between budbreak and harvest, depending on the weather and pest pressure. Between 1 and 2 applications are generally made.

In the PNW blueberry industry, direct communication between growers and beekeepers ensures that risks are mitigated. Many in the industry have 25+ year relationships between grower and beekeeper. Thus, growers apply at night or when there is no bee activity, and bees are taken out or covered if necessary.

In terms of alternatives, acetamiprid, another neonicotinoid, is considered to be a substitute product for imidacloprid and thiamethoxam. Diazinon is used as an alternative, but its use is limited to one application per season. Organophosphates (such as malathion) or carbamates (such as methomyl) might also be used as alternatives to the neonicotinoids. There are softer products used by organic growers (e.g. soaps, neem, oils), but these are not as effective. A new product, flupyradifurone (Sivanto), shows promise as an alternative.

Caneberry: Both imidacloprid and thiamethoxam are used in caneberry production. Aphids are the main pest target of the neonicotinoid usage in caneberry, although other sucking/piercing insects such as leafhoppers, true bugs, etc., are also controlled. While aphids are not virus vectors in caneberry as with blueberry, they still require control. Aphid feeding leaves necrotic spots that cause damage to the leaves, and heavy aphid infestations can weaken and damage raspberry and blackberry plants.

Because of the early harvest timing relative to the other berry crops, raspberry growers would typically be controlling aphids with just one application after harvest. Also, many caneberry growers use a synthetic pyrethroid or organophosphate to control spotted-wing drosophila, an application which would also offer control for aphids depending on the timing of the application. Thus, neonicotinoids are not used every year or in every caneberry field. When used, 1-2 applications would be common.

Strawberry: Usage of imidacloprid and/or thiamethoxam in strawberry is similar to that of the other berry crops—used to control aphids, which can vector up to four different strawberry viruses that can have serious impacts. Control is usually achieved with 1-2 applications per season, depending on pest pressure. Although strawberry growers do not use managed pollination, they

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face the challenge of a long bloom period with June-bearing strawberries being the main crop in Oregon and Washington (as opposed to day-neutral strawberries, which have indeterminate blooming), and thus still require mitigations to pollinators.

Potatoes: Imidacloprid and thiamethoxam are widely used as a seed treatment in potatoes. Aphids, flea beetles, wireworms, leafhoppers, and psyllids are the main pests being targeted with these products. There are currently no alternative seed treatment options that provide the same level of efficacy and early-season control.

Sugar beets: Thiamethoxam is used as a seed treatment on thousands of acres of sugar beets in Idaho. Control is accomplished with one application, which reduces the risk of exposure to pollinators and beneficials. Alternatives to this use would include foliar applications, which would increase the risk of exposure to pollinators and beneficials, and more applications would be required to achieve the same level of control.

In general, neonicotinoids pose the highest risk to pollinators in crop and off crop of all currently registered classes of pesticides. The use of neonicotinoids within IPM programs requires risk mitigation to protect pollinators, and to prevent drift and off crop movement in annual cropping that can lead to a cumulative residue burden in vegetation that is exploited by bees. Used with such mitigation and as part of an IPM program, neonicotinoids can replace organophosphates, and play an important role in pest management.

Please feel free to contact me with any further questions about usage of these products in PNW commodities.

Respectfully,

Katie Murray

Katie Murray
Program Leader, IPM Engagement and Implementation
Integrated Plant Protection Center (IPPC)
Assistant Professor of Practice
Department of Environmental and Molecular Toxicology
Oregon State University
541-231-1983
katie.murray@oregonstate.edu

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Katie Murray is the Western IPM Center's Northwest IPM Network Coordinator. Katie has expertise in agricultural stakeholder engagement and consultation methods that include understanding current pesticide usage trends, and pesticide compatibility with IPM.

The IPPC is the hub for Oregon's statewide IPM program, and the main IPM resource in Oregon for farmers, researchers, and extension agents. The expertise represented in the IPPC is highly interdisciplinary and includes toxicology, entomology, horticulture, adult education, public health, and anthropology, all with an IPM focus. Within the IPPC, we have a collective expertise in understanding the use of pesticides within IPM programs with a goal of protecting the economic, environmental and human health interests of our stakeholders.

To compile comments, input is actively solicited from stakeholders throughout the Pacific Northwest in an effort to convey use patterns, benefits, potential impacts, and the availability and efficacy of alternatives. These comments largely reflect expert testimony from stakeholders, including research and extension experts as well as farmers and commodity groups. The comments do not imply endorsement by Oregon State University or the Western IPM Center.