Agricultural and Emerging Chemicals: Fate, Effect & Exposure

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural and Emerging Chemicals: Fate, Effect & Exposure

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation	8%		8%	
135	Aquatic and Terrestrial Wildlife	10%		10%	
306	Environmental Stress in Animals	4%		4%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	20%		20%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc	1%		1%	
723	Hazards to Human Health and Safety	57%		57%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.1	0.0	3.8	0.0
Actual	0.8	0.0	2.5	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c 0	1890 Extension 0	Hatch 147935	Evans-Allen 0
1862 Matching 0	1890 Matching 0	1862 Matching 1338317	1890 Matching 0
1862 All Other 0	1890 All Other 0	1862 All Other 1050642	1890 All Other 0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The experimental approaches that will be used to meet the specific objectives of these subprograms include field studies in the Oregon, the Pacific Northwest, the U.S., and abroad.In addition, the experimental approaches will also include controlled laboratory experiments and database/model development.The methods that will be employed to reach direct and indirect, youth and adult, target audiences will encompass a variety of media including workshops, seminars, peer-reviewed manuscripts, newsletters, and websites. Expected short-term accomplishments that will result from successful completion of this five-year program include peer-reviewed manuscripts and other forms of information dissemination. Over the mid- to long term, the data and information generated as part of this Program will contribute to risk assessment and risk-based policy decisions and to the continued development of the theoretical understanding of processes affecting contaminant fate and exposure and on the effects of contaminant exposure on human and aquatic and terrestrial organism health.

2. Brief description of the target audience

There are diverse audiences for information this project generates. They can be classified into three general groups. (1) the general public and those in the food production system. (2) State and Federal regulatory agencies. (3) The research community: including scientists working in governmental, industrial, and academic sectors.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	4750	21700	250	3000
2007	500	1200	25	100

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

SCHOLARLY excellence in referred articles, book chapters, and books; participation on professional boards and panels, as well as science panels.

Year	Target	Actual
2007	17	10

Output #2

Output Measure

EFFECTS ON AND PROTECTION OF ENVIRONMENTAL HEALTH AND ECOLOGY analytical methodology and the application of the methods to assess spatial, temporal and risk of bioavailable contaminants behavior of bioavailable contaminants in terrestrial and aquatic eco-systems with temporal variation (seasonal) and aging. new types of passive sampling devices for use as in-situ analysis of contaminants increased understanding of fish responses to PAH exposures. identify proteins that are potential new biomarkers for exposure to and effects of persistent contaminants in fish. develop analytical methodology and the application of the methods to wastewater, atmospheric samples, and to landfill leachates determine behavior of fluorochemicals in wastewater, in the atmosphere, and in landfills. determine remote atmospheric concentrations of fluorochemicals and atmospheric residence times determine the importance of snow in removing FTOHs from the atmosphere understand the fate of agricultural chemicals in various compartments of remote ecosystems. clarify the role of exogenous estrogenic compounds in the disruption of vertebral formation in fish refine agrichemical risk assessment for aquatic insects to include life history and behavior develop, refine, improve quantitative procedures that improve our ability to assess the risks that pest management practices pose to beneficial invertebrates. analytical methods and biomarkers for agricultural chemicals and other contaminants

Year	Target	Actual
2007	5	5

Output #3

Output Measure

EFFECTS ON AND PROTECTION OF HUMAN HEALTH understand the regional/county variation in the epidemiology of pesticide exposures throughout the state. determine whether there is regional and/or temporal variation in the incidence of human pesticide exposures within the State of Oregon, and to identify opportunities for preventive interventions. communicate specific findings on the regional epidemiology of pesticide exposure incidents to public health officials and other agencies that oversee the use of pesticides.

Year	Target	Actual
2007	5	5

V(G). State Defined Outcomes

O No.	Outcome Name
1	Informed decision makers and citizenry Improved understanding of the spatial and temporal variability and distribution of bioavailable agricultural contaminants Fate and impact of temporal influences on bioavailable contaminants Methods and approaches for evaluating effects of aging on bioavailability of agricultural contaminants Document occurrence, exposure, fate, and treatment options of fluorochemicals in wastewater, the atmosphere, landfill leachate, snow, and crops Determine extent that landfills are a significant source of fluorochemicals and a significant extent in the crops intended for human consumption Provide technical training and resources to agricultural and regulatory stakeholders on ecotoxicology of pesticidesand integrated pest, nutrient, and water management. Increase ability of governments in Senegal and Mauritania, and eventually throughout the sub-region, to economically and efficiently monitor pesticides and their impacts of human and ecological systems.
2	Improved technology and strategies found New biomarkers of exposure to and effects of persistent contaminants in fish. Cost effective assessment of fish health in PAH contaminated aquatic ecosystems. New analytical methods and biomarkers for agricultural chemicals and other contaminants
3	Informed policy-making and management Data for environmental models, risk assessment, and risk management. Improved decision-making and policy on regulation of PAH in aquatic ecosystems. Predict the fate of agricultural chemicals in remote aquatic ecosystems Determine the relative contribution of regional U.S. and Canadian agricultural sources (both current and historic uses of these chemicals) and long-range or global sources in contributing to the deposition of agricultural chemicals to remote ecosystems Agencies that regulate or enforce the regulations relating to pesticides in the state develop policies or regulations. Able to assess trends, identify possible new issues, or assess the success of interventions
4	In the long run: • Risk assessment, policies and management of exposure of human and aquatic organisms to contaminants • Enhanced environmental quality within an economically responsible context. • Reduced exposure of human and aquatic organisms to fluorochemicals • Moderate the relative contribution of regional U.S. and Canadian agricultural sources (both current and historic uses of these chemicals) and long-range or global sources in contributing to the deposition of agricultural chemicals to remote ecosystems in the Western U.S. • Minimize the risk of adverse impact of pesticide use on human health. • Build environmental public health capacity

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Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

Year	Quantitative Target	Actual

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

V(H). Planned Program (External Factors)

External factors which affected outcomes

Natural Disasters (drought,weather extremes,etc.)
Economy
Appropriations changes
Public Policy changes
Government Regulations
Competing Public priorities
Competing Programmatic Challenges
Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Other (peer reviewed)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}