

22-101A Analysis for IDAPA 02.03.03 Rules Governing Pesticide and Chemigation Use and Application

Idaho Code Section 22-101A Statement: Section 22-101A, Idaho Code provides that ISDA must clearly specify that the proposed rule, or portions of the proposed rule, are broader in scope or more stringent than federal law or regulations, or regulate an activity not regulated by the federal government. The following is a summary of additional information required by Sections 22-101A (3) and (4), Idaho Code. Information relating to Section 22-101A (2) has also been provided. The requirements set forth in this rule are based upon best available peer reviewed science and studies and analyses conducted by other states, the US Environmental Protection Agency (EPA), Food and Drug Administration (FDA), and professional scientific and medical journals. The referenced studies and analyses will be included in the rulemaking record and can be reviewed during the public comment period for further detailed information regarding health effects.

Section 22-101A (2) (a), Idaho Code. To the degree that a department action is based on science the department shall utilize the best available peer reviewed science and supporting studies conducted in accordance with sound objective scientific practices.

The ISDA bases its enforcement program on holding primacy in Idaho on The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA.) This is the Federal statute that governs the registration, distribution, sale, and use of pesticides in the United States. A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest or used as a plant regulator, defoliant, desiccant, or nitrogen stabilizer. (USEPA, January 19, 2017.)

The requirements set forth in this rule, designed to protect humans, animals and the environment, are based upon the best available peer reviewed science and studies and analyses conducted by other states, the USEPA – United States Environmental Protection Agency (USEPA), Federal Food and Drug Administration (FDA), USDA Agriculture Research Service, and professional and scientific journals. The referenced studies and analyses will be included in the rulemaking record and can be reviewed during the public comment period.

Section 22-101A (2) (b), Idaho Code. To the degree that a department action is based on science the department shall utilize data collected by accepted methods or best available methods if the reliability of the method and the nature of the decision justifies use of the data.

All pesticide enforcement cases, data collection and sampling protocols are based on approved EPA/FIFRA, Quality Assurance Quality Control (QAQC) practices. Investigative reports are developed and submitted using approved USEPA/ISDA methodology. Certification and training (C&T) is based on USEPA standards and are comparable to surrounding states. Idaho's C&T standards meet EPA's requirements and are comparable to surrounding states. This C&T standard allows Idaho the ability to have reciprocation with other states for pesticide applicator licensing. Idaho's enforcement and C&T programs undergo an annual review by USEPA to ensure that standards are maintained to meet EPA's requirements. Pesticide registration is science and fact based. Pesticide registration is grounded in EPA/FIFRA requirements.

Section 22-101A (3) (a), Idaho Code. Identification of each population or receptor addressed by an estimate of public health effects or environmental effects.

The general public can become exposed to pesticides, is by residues left on fresh fruits and vegetables that can be more toxic to children and infants due to less established immune systems. The U. S. Environmental Protection Agency (EPA) establishes tolerances, based on a federal safety standard, to limit the amount of pesticide chemical residues that remain in or on the food (FDA, 2019.)

Pesticide exposure during the pesticide applications is a common means of exposure to agricultural workers and pesticide handlers. EPA's Agricultural Worker Protection Standard (WPS) is aimed at reducing the risk of pesticide poisoning and injury among agricultural workers and pesticide handlers. The WPS requires owners and employers on agricultural establishments and commercial pesticide handling establishments to protect employees on farms, forests, nurseries, and greenhouses from occupational exposure to agricultural pesticides. (USEPA, WPS 2015 revision) Children from agricultural families and those living in close proximity to agricultural areas are exposed to higher levels of pesticides than those whose parents do not work in agriculture and who do not live close to farms. Adolescents working in agriculture are also at risk of exposure to pesticides. The incidence rate of acute occupational pesticide-related illness in adolescents is significantly higher compared to adolescents not working in agriculture. This is a particular concern for young farmworkers since adolescents are permitted to work in agriculture at younger ages than in other industries. While the research examining the impact of neurotoxicants on the central nervous system of adolescents is limited, there is strong evidence of neural remodeling and brain development during adolescence. Dose responses, metabolic rates and routes of exposure may vary by age, gender and maturation. Extra caution is merited as consideration is given to acute and chronic pesticide exposures of adolescents, (USEPA 2013.)

The general public and the environment at large can also be exposed to pesticides by movement of the pesticide, (pesticide drift.) Pesticide spray drift is the movement of pesticide dust or droplets through the air at the time of application or soon after, to any site other than the area intended. (USEPA definition, 2017). Pesticide drift can be caused by many different factors, such as wind speed, temperature, droplet size, humidity, pressure, nozzle size and pesticide formulation. Pesticides can be moved physically by any of the means spoken, or combinations of factors. Pesticides can also drift through volatilization of the pesticide due to formulation, wind, humidity and temperature. Pesticides can also get into ground and surface water by over use of a pesticide, depth of groundwater, formulation of a pesticide, application of a pesticide, or by applying over water or near surface water and by the soil profile.

Section 22-101A (3) (b) and (c), Idaho Code. Identification of the expected risk or central estimate of risk for the specific population or receptor and identification of each appropriate upper bound or lower bound estimate of risk.

The upper risk level for the use of a pesticide is death of the applicator from the use of the product, or the death of someone who may be exposed to the pesticide from inhalation, dermal exposure or the ingestion of the pesticide. Pesticides have also caused the deaths of humans and animals due to pesticides not being stored in the proper or original containers. This type of poisoning is more common to children. Pesticide deaths have also been linked to misuse. Pesticides not stored in the original containers have also caused the deaths of livestock, due to mistaken feeding. The upper risk level for the damage to the environment by pesticides is from contamination of the soil, both surface and groundwater and causing the death of living microbes in the soil. This can happen in the area of impact by exposure from spills, over application, misapplications, pesticide formulations, or cleaning of equipment. The lower bounds of risk for pesticide exposure, is little effect to humans and to the environment.

Section 22-101A (3) (d), Idaho Code. Identification of each significant uncertainty identified in the process of the assessment of public health effects or environmental effects and any studies that would assist in resolving the uncertainty.

Uncertainties include: the total amount of a misapplication of pesticides, spillage, type of pesticide applied, pesticide mixtures that can magnify the effect of the pesticide in the environment, weather at the time of application, length of time that the residue on the commodity or crop stays active, if more than one product is used, time from application to consumer, soil type, microbial activity, pesticide half-life, amount of sunlight and moisture. ISDA is unaware of a study that would assist in resolving these uncertainties.

Section 22-101A (3) (e), Idaho Code. Identification of studies known to the director that support, are directly relevant to, or fail to support any estimate of public health effects or environmental effects and the methodology used to reconcile inconsistencies in the data.

The referenced studies support and are relevant to ISDA's identification of public health and environmental effects and will be included in the rulemaking record and can be reviewed during the public comment period for further detailed information regarding health effects.

Section 22-101A (4) The Director shall also include a summary of the information required by subsection (3) of the section in the notice of rulemaking required by chapter 52, title 67, Idaho Code.

Summary:

The Idaho State Department of Agriculture has primacy to regulate the use and distribution of pesticides in Idaho under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). ISDA's pesticide enforcement actions are science based, and data collection and sampling protocols are based on approved practices. Certification and training is based on USEPA standards, and meets the requirements to have reciprocity with other states for pesticide applicator licensing. Pesticides registered in Idaho must meet both federal and state requirements.

Idaho's pesticide programs help to educate and protect the public health and the environment from the possible effects of pesticide residues, based on tolerances established by the EPA. Pesticide exposure can occur to agricultural workers, professional applicators and pesticide handlers during mixing and use. The general public and the environment can also be exposed to pesticides by pesticide drift or through ground and surface water. In the worst case, pesticides can cause death of the applicator, or the death of someone who may have been exposed to the pesticide. Pesticides can also damage the environment from contamination of the soil, both surface and groundwater and cause the death of living microbes in the soil. Uncertainties such as misapplication, spillage half-life of the pesticide, pesticide mixtures and weather can also play a large role in pesticide damage.

The references included in the rulemaking record support the methodology used in this rule.

References:

FIFRA (Federal Insecticide Fungicide Rodenticide Act – Sections 150-180)

<https://ecfr.io/Title-40/CISubchapE>

(EPA's - RECOGNITION AND MANAGEMENT OF PESTICIDE POISONINGS

Sixth Edition • 2013 - James R. Roberts, M.D., M.P.H. Professor of Pediatrics, Medical University of South Carolina J. Routt Reigart, M.D. Professor Emeritus, Medical University of South Carolina.)

https://www.epa.gov/sites/production/files/2015-01/documents/rmpp_6thed_final_lowresopt.pdf

USEPA Agricultural Worker Protection Standard (WPS)

<https://www.epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wps>

NPIC – NATIONAL PESTICIDE INFORMATION CENTER, - Pesticides and the Environment

<http://npic.orst.edu/envir/>

U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension. - Managing Pesticide Drift

<https://edis.ifas.ufl.edu/pi232>

Food and Drug Administration - Pesticide Residue Monitoring Program Fiscal Year 2016 Pesticide Report U.S.

<https://www.fda.gov/media/117088/download>

USEPA – Reducing Pesticide Drift

<https://www.epa.gov/reducing-pesticide-drift/introduction-pesticide-drift#effects>

PES - Pesticide Environmental Stewardship, Cornell University – Understanding the fate of pesticides after application

<https://pesticidestewardship.org/water/pesticide-fate>

PESTICIDE DRIFT AND TEMPERATURE INVERSIONS- Jarrod Miller, Extension Educator, Somerset County

<http://blog.umd.edu/agronomynews/2017/07/26/pesticide-drift-and-temperature-inversions/>

USEPA – FOOD AND PESTICIDES

<https://www.epa.gov/safepestcontrol/food-and-pesticides>

Impact of pesticides on soil microbiological parameters and possible bioremediation strategies - Ashim Chowdhury · Saswati Pradhan · Monidipta Saha · Nilanjan Sanyal

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3450207/pdf/12088_2008_Article_11.pdf

USDA Natural Resources Conservation Service January 1998 - Soil Quality Concerns: Pesticides

https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052821.pdf

USGS – Pesticides in Groundwater

https://www.usgs.gov/special-topic/water-science-school/science/pesticides-groundwater?qt-science_center_objects=0#qt-science_center_objects

University of Idaho - Pesticides in Idaho Groundwater: Monitoring, Protection, and Prevention – Robert L. Manler, Ronda E. Hirnyck, and Alex Colter

<http://www.extension.uidaho.edu/publishing/pdf/CIS/CIS0861.pdf>

USGS – Pesticide National Synthesis Project – Pesticides in Surface Water

<https://water.usgs.gov/nawqa/pnsp/pubs/fs97039/sw6.html>

Environmental Health Perspectives - The Synergistic Toxicity of Pesticide Mixtures: Implications for Risk Assessment and the Conservation of Endangered Pacific Salmon (2008)

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<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2661902/>

USEPA - Summary of the Federal Insecticide, Fungicide, and Rodenticide Act

<https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act>

USEPA – Federal Register, Pesticides; Certification of Pesticide Applicators

<https://www.federalregister.gov/documents/2017/01/04/2016-30332/pesticides-certification-of-pesticide-applicators>

Idaho State Department of Agriculture's – Pesticide Sampling SOP

USEPA – Paraquat Dichloride: One Sip Can Kill

<https://www.epa.gov/pesticide-worker-safety/paraquat-dichloride-one-sip-can-kill>

Pesticide Environmental Stewardship – Introduction to Spill Management

<https://pesticidestewardship.org/spills/introduction-to-spill-management/>

Kansas State University Agricultural Experiment Station and Cooperative Extension Service – Factors Affecting Pesticide Behavior and Breakdown

<https://www.bookstore.ksre.ksu.edu/pubs/MF958.pdf>