

Appendix: Pesticide Ingredients in Agricultural Applications DPP Cases, 2010-2011*

Active Ingredient	2010	2011	Total	Human Health Concerns	Symptoms
Cholinesterase Inhibitors					
Carbaryl	3	0	3	Classified by EPA as "likely to be carcinogenic [cancer-causing] in humans." Has been linked with cancer in studies of farmers. Linked with sperm problems, including low sperm counts and sperm that can't move normally. The National Institute of Occupational Safety and Health labels carbaryl as a mutagen (a compound that causes genetic damage) based on a series of laboratory tests spanning decades.	Symptoms of carbaryl poisoning in exposed people include stinging eyes, wheezing, sweating, and nausea.
Chlorpyrifos	1	11	12	Chlorpyrifos affects the nervous system by inhibiting an enzyme that is important in the transmission of nerve impulses. Human birth defects have been associated with exposure. In pregnant laboratory animals, chlorpyrifos exposure caused fetal death. Immune system abnormalities have been reported.	Symptoms of acute poisoning include headache, nausea, muscle twitching, and convulsions.
Malathion	2	2	4	This insecticide caused breast cancer in laboratory animals, and use by farmers is associated with an increased incidence of a type of cancer, non-Hodgkin's lymphoma. Has caused genetic damage in a variety of laboratory studies.	Symptoms of exposure to malathion include headache, nausea and vomiting, burning eyes, difficulty breathing, and lethargy.
Other Insecticides (acaracides)					
Bifenazate	2	1	3	Known reproduction and development effects. Highly toxic to fish and aquatic life.	May cause an allergic skin reaction; causes serious eye irritation; causes damage to organs through prolonged or repeated exposure

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Imidacloprid	3	1	4	Exposure caused reproductive effects including reduced bone growth in the babies of rodents. No data were found on developmental or reproductive effects of imidacloprid in people.	Farm workers reported skin or eye irritation, dizziness, breathlessness, confusion, or vomiting.
Lambda-cyhalothrin	1	23	24	Lambda cyhalothrin can have corrosive effects on both the skin and eyes. Ingested lambda cyhalothrin is moderately toxic. The EPA identifies lambda cyhalothrin as a group D carcinogen, an undetermined human carcinogen.	Workers handling it reported facial tingling and burning, which lasted six hours to two days.
Spinetoram	2	12	14	Spinosad has not been found to alter or damage genes. Studies have found reproductive effects in rats.	Skin and eyes irritation and redness. Short-term residential inhalation risks and short-term post application incidental oral risks for children.
Spirotetramat	0	12	12	The U.S. EPA classified spirotetramat as “not likely to be carcinogenic to humans” based on a lack of evidence of carcinogenicity in oral rodent studies. This compound was also mostly negative in a number of genotoxicity studies	Moderate eye irritant.
Herbicides					
Glyphosate	3	4	7	Causes genetic damage in laboratory tests with human cells and in laboratory animals. Studies of farmers have shown a link with increased risks of the cancer non-Hodgkin’s lymphoma, miscarriages, and attention deficit disorder. Laboratory evidence that glyphosate can reduce production of sex hormones.	Symptoms of exposure include eye irritation, burning eyes, blurred vision, skin rashes, burning or itchy skin, nausea, sore throat, asthma and difficulty breathing, headache, lethargy, nose bleeds, and dizziness.

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Paraquat dichloride	4	3	7	Linked to development of Parkinson's disease. It is classified as "restricted use," which means that it can be used by licensed applicators only. In the European Union, paraquat has been forbidden since 2007. Highly toxic to mammals, including humans, potentially leading to acute respiratory distress syndrome (ARDS).	Symptoms include breathing problems, death may occur up to 30 days after ingestion.
2,4-D	0	4	4	Causes genetic damage. 2,4-D affects hormones in exposed people and laboratory animals and the ability to reduce the effectiveness of the immune system. Classified as possibly carcinogenic by the International Agency for Research on Cancer. reduces fertility and is associated with low sperm counts. 2,4-D also damaged sperm and male sex organs in laboratory studies.	Symptoms of 2,4-D poisoning in exposed people include irritation and inflammation of eyes and skin, hives, nausea, vomiting, throat irritation, headache, dizziness, coughing, and difficulty breathing.
Fungicides					
Metam-Sodium	6	0	6	In laboratory animals, metam sodium caused a wide variety of health effects. These include a reduction in the activity of immune system cells, a reduction in the levels of the hormone that triggers ovulation, a reduction in leg strength, a reduction in activity, anemia, damage to the lungs, and damage to the liver. Classified as a carcinogen.	Symptoms of metam sodium poisoning in exposed people include burns, eye irritation, difficulty breathing, nausea, diarrhea, anxiety, and blurry vision. Poisonings have occurred as far as a mile from the application site.
Sulfur compounds	3	6	9	Not enough information on chemical ingredient.	

Active Ingredient	2010	2011	Total	Human Health Concerns	Symptoms
Chlorothalonil	0	4	4	In laboratory tests, causes kidney damage, mild anemia, liver damage, embryo loss during pregnancy, damage to the cell's genetic material, and cancers of the kidney and forestomach. Classified as a "probable human carcinogen" by the U.S. EPA.	Irritating to eyes and skin. People exposed can become sensitized and develop severe or persistent reactions
Propiconazole	0	19	19	Moderately low acute toxicity. The EPA has categorized as a possible human carcinogen.	
Myclobutanil	2	4	6	Myclobutanil can become airborne as a dust. In high concentrations, it can become an explosive mixture in the air and burning may release toxic fumes. Listed as a developmental toxin.	Workers exposed have reported symptoms such as skin rash, allergic dermatitis, itchiness, nausea, headache, diarrhea, abdominal pain, vomiting, nosebleed, and eye irritation.
Pyraclostrobin	2	2	4	Very toxic to aquatic life with long lasting effects. Not listed as a carcinogenic, data unavailable.	Skin irritation; toxic if inhaled.
Trifloxystrobin	3	1	4	Very toxic to aquatic life with long lasting effects. Known reproduction and development effects.	Causes damage to organs through prolonged or repeated exposure; causes serious eye irritation; may cause an allergic skin reaction
Triflumizole	1	2	3	Possible liver toxicant. Very toxic to aquatic life with long lasting effects.	Skin sensitiser. May cause an allergic skin reaction
Other					
Ethephon	1	3	4	Cholinesterase inhibitor and Neurotoxicant; Respiratory tract, skin and eye irritant.	Toxic in contact with skin; Causes severe skin burns and eye damage; Harmful if inhaled
*Only chemicals with more than 2 total incidents included in this chart					
Citation: Pesticide Data Report Washington State, 2010 – 2011 Agency Data: A report to the governor, agency directors, the legislature, and the public as required by Chapter 380, Laws of 1989, and RCW 70.104. June 2013.					