

Frequently Asked Questions about 2,4-D

1. What is 2,4-D?

2,4-Dichlorophenoxyacetic acid, more commonly referred to as 2,4-D, is one of the most widely used herbicides in the world to control weeds in agricultural crops, forests and turf grass as well as invasive species in environmentally sensitive areas.

Dr. Franklin D. Jones, one of the inventors of 2,4-D, was working with the naturally occurring plant auxin, indole acetic acid (IAA). IAA is present in all plant matter and humans consume it daily whenever we eat fruit, vegetables and cereals. In an effort to work with a more chemically stable, auxin-like compound, Dr. Jones included 2,4-D, an analog of IAA, in his experiments and discovered that monocots (e.g. grasses) were left unharmed when sprayed with 2,4-D while growth was suppressed in dicots (e.g. broadleaf plants).

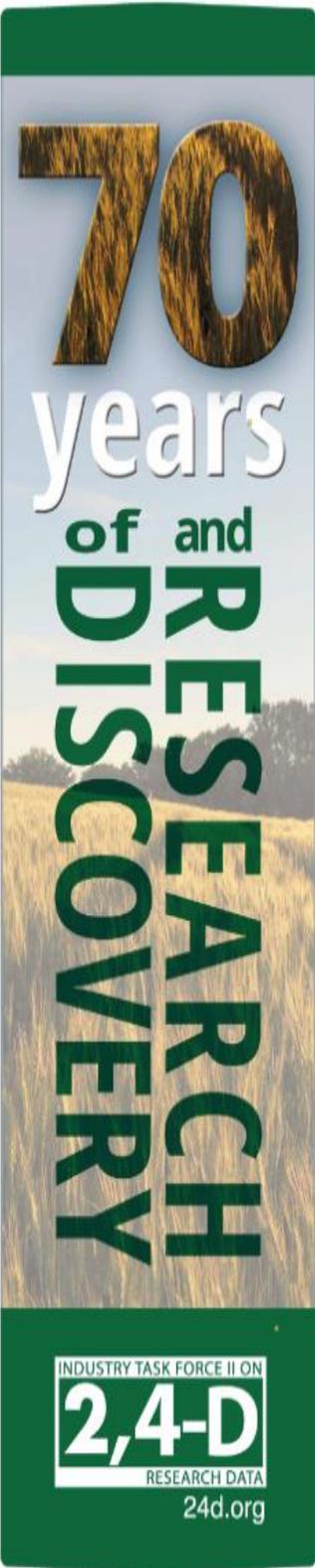
2. What is the IARC?

The International Agency for the Research on Cancer (IARC) creates working groups to periodically consider lifestyles, workplaces, and compounds that may have carcinogenicity potential. Unlike U.S. EPA and the World Health Organization body responsible for pesticides, IARC classifications are not risk assessments.

Working groups are made up of scientists from a wide variety of backgrounds and disciplines. IARC staff selects studies from the published literature – which may not include Good Laboratory Practices (GLP) research¹ submitted to pesticide regulators. Over the course of 1 week, IARC working group members consider the selected literature and provide a score.

Examples of agents and their corresponding IARC score

Group 1	<i>Carcinogenic to humans</i>	<ul style="list-style-type: none"> Alcoholic beverages Mineral oils Combined chemotherapy 
Group 2A	<i>Probably carcinogenic</i>	<ul style="list-style-type: none"> Hairdresser or barber (occupational exposure) Shift work High-temperature frying
Group 2B	<i>Possibly carcinogenic</i>	<ul style="list-style-type: none"> Aloe vera Coffee Traditional Asian Pickled Vegetables 
Group 3	<i>Not classifiable as its carcinogenicity</i>	<ul style="list-style-type: none"> Caffeine Cholesterol Hydrochloric acid



3. Are IARC and the WHO the same thing?

IARC is an agency under the WHO but is not responsible for regulating pesticides.

The body responsible for conducting risk assessments of pesticides for regulatory purposes is the Joint FAO/WHO Meeting on Pesticide Residues, or the “JMPR” for short.

“JMPR meets regularly since 1963 to review residues and analytical aspects of the pesticides, estimate the maximum residue levels, review toxicological data and estimate acceptable daily intakes (ADIs) for humans of the pesticides under consideration.”²

The Joint FAO/WHO Meeting on Pesticide Residues reviewed 2,4-D most recently in 1996/97. Previously 2,4-D was reviewed in 1970, 1971, 1974, and 1975. 2,4-D was tested for a wide range of potential health effects.

The JMPR continues to conclude that 2,4-D is not carcinogenic.

4. Are Hazard and Risk the same thing?

Hazard identification is the first step in a full risk assessment. A full risk assessment then considers:³

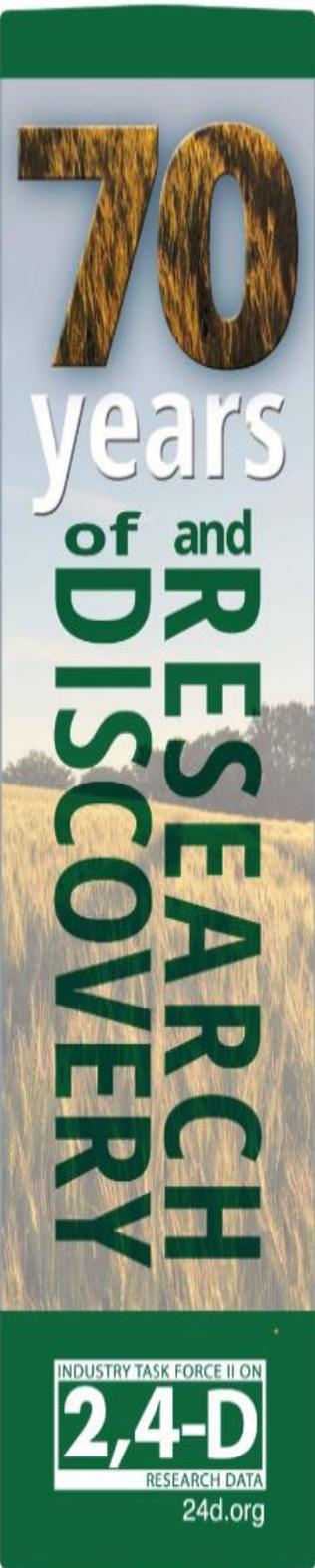
- Dose-Response (the relationship between exposure and effects)
- Exposure (frequency, timing, and levels of contact)
- Risk characterization (examines real world data)

Hazard identifies that something has the potential to cause harm, while risk is the actual likelihood that the harm will occur.

5. What is the EPA’s position on 2,4-D and cancer?

Worldwide, no pesticide regulatory agency classifies 2,4-D as a human or animal carcinogen. EPA stated in its 2007 decision not to invoke a Special Review:

“Because the Agency has determined that the existing data do not support a conclusion that links human cancer to 2,4-D exposure, it has decided not to initiate a Special Review of 2,4-D, 2,4-DB and 2,4-DP.”



In issuing the Order Denying NRDC's Petition to Revoke Tolerances in April 2012, the EPA stated:

*“A part of this cancer assessment was the review of data bearing on 2,4-D’s potential mutagenicity. EPA has consistently found that these data do not support classification of 2,4-D as a carcinogen. This view was concurred in by the Joint Committee of Science Advisory Board (SAB) and the Scientific Advisory Panel (SAP)”.*⁴

In reviewing Reregistration Eligibility in 2014, it was further concluded that:

*“EPA also completed a thorough literature search considering all pertinent toxicity research and found no information which would change the conclusions drawn in the Agency’s risk assessment.”*⁵

6. What did Health Canada determine about 2,4-D with its most recent decision?

After 25 years of analyzing all the pertinent science and considering the public’s input in 2005 and again in 2008, Health Canada’s Pest Management Regulatory Agency (PMRA) has determined that 2,4-D may be used safely according to label directions. With specific regard to use on lawns, the PMRA stated:

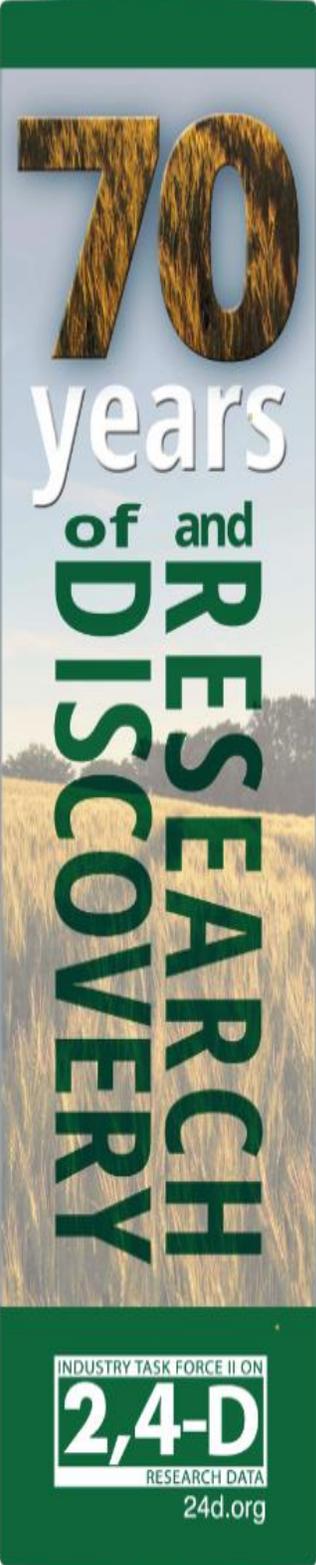
*“Health Canada has determined that 2,4-D meets Canada’s strict health and safety standards. Risks to homeowners and their children from contact with treated lawns and turf are not of concern.”*⁶

7. Does 2,4-D cause cancer in dogs?

Multiple studies, including the 1999 study conducted at the School of Veterinary Medicine at Michigan State University, conclude that there is no correlation between 2,4-D and Canine Malignant Lymphoma (CLM). Regulatory decisions around the world confirm that 2,4-D is not an animal carcinogen.

Homeowners should continue to use herbicides in accordance with label directions and restrict access during and immediately following the application of products containing 2,4-D to maximize its efficiency and limit potential exposure.

June 8, 2015



References

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- [2 http://www.who.int/foodsafety/areas_work/chemical-risks/jmpr/en/](http://www.who.int/foodsafety/areas_work/chemical-risks/jmpr/en/)
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