

Submissions on the 2,4-D Review

32 submissions were received for this review. The main points are summarised below along with the expert panel/MAF perspective on them.

Number	Comment
2, 4, 5, 8, 9, 10, 11, 13, 14, 19, 20, 21	Aerial application of 2,4-D causes spray drift damage (to crops, livestock and humans).
	<p><i>It was clear from the tenor of the majority of the submissions, particularly from those opposed to the continued registration of 2,4-D, that it was more that spray drift itself, rather than 2,4-D in particular was the major issue.</i></p> <p><i>The known and extensive toxicology of 2,4-D, shows that most of the claimed ill effects arising from alleged exposure to this herbicide are extremely unlikely to be caused by 2,4-D. Its known toxicology profile is such that most of the effects claimed are biologically implausible. However, it is also clear that the issue of spray drift from pesticide use generally is one which needs to be dealt with. The Panel believes that the combination of the Resource Management Act (with the Regional Plans that it requires) and the soon-to-be-implemented Hazardous Substances and New Organisms legislation (with the Environmental Exposure Limits that will be set under it) should go a long way towards addressing the issue.</i></p>

Number	Comment
1, 5	There has been a decline in white clover levels in New Zealand because of the use of 2,4-D.
	<i>The Panel had no information on which to base its agreement or disagreement with this allegation.</i>
2	No records are kept of the volumes of 2,4-D used or the areas treated with 2,4-D.
	<i>The Pesticides Board has never had a mandate to collect pesticide use data. However, the Ministry of Agriculture and Forestry has recently carried out a survey of pesticide use, covering both amounts used and areas treated. It is true that getting accurate figures for use and area treated is difficult, the figures obtained in this survey represent the best available in New Zealand at the present time. It is not known to the Panel if this survey is likely to be repeated, but the Panel would support any move to have this type of survey an ongoing one.</i>

Number	Comment
2	A complete analysis of the 2,4-D containing product should be a requirement of registration.
	<p><i>The Board requires a statement of the composition of a pesticide (including significant impurities) before a registration is granted. Impurities such as dichlorophenol are stated and this information is known to the Board. The Panel is aware that the impurity of 2,4-D that is of most concern is dioxin. Until recently, the ability of analysts to detect extremely low levels of the most toxic dioxin (2,3,7,8-TCDD) has not been good enough to find this contaminant in 2,4-D. The other dioxins which were known to be impurities in technical 2,4-D were not considered to be significant impurities because their toxicity is much lower than that of 2,3,7,8-TCDD.</i></p> <p><i>The Panel was aware that recent US EPA information showed that 2,3,7,8-TCDD can be found in 2,4-D at an average concentration of 0.06 µg/kg of 2,4-D, with a maximum concentration found at 0.13 µg/kg of 2,4-D. These levels can be compared to the level of 10 µg/kg, the level accepted by the WHO in the herbicide 2,4,5-T.</i></p>
2	The full details of the 2,4-D based product analysis should be on the product label and on the MSDS forms.
	<p><i>Labels already carry large amounts of information, and are limited in size by the size of containers, so that many have to be printed in small font and can be difficult to read. Much of the details of the composition of pesticide products are commercially confidential. The Panel believes that the information on labels should reflect the expert interpretation of the product data and give appropriate advice on the safe use of the products, rather than the actual data itself, which could be misinterpreted. The Board has little influence on Material Safety Data Sheets, which are mandated by the Health and Safety in Employment Act. The Panel understands that the MSDSs required by that legislation are harmonised internationally. However, there may be a point in seeking to have information on significant impurities stated in these Sheets, and the Panel would recommend that this issue be raised with Occupational Safety and Health (Department of Labour).</i></p>

Number	Comment
6	2,4-D sales should be banned until the manufacturer(s) can prove the product does not contain 2,3,7,8-TCDD.
	<i>The level of 2,3,7,8-TCDD in 2,4-D is known and is not considered to be a human health hazard.</i>
10	There has been contamination of dairy products by dioxins and 2,4-D.
	<i>Even though MAF has a monitoring programme for dairy products, the Panel was unaware of any evidence to support this allegation. The Panel was aware of an investigation of dioxin in carton milk containers some 8 – 10 years ago. This “contamination” was the result of using cardboard made from wood pulp that was bleached with chlorine, and not anything to do with the use of chlorinated herbicides.</i>
1	Northland hill country soils contain nine times the level of dioxin found in other comparable pastoral soils.
	<i>The Ministry for the Environment report “Ambient concentrations of selected organochlorines in soils”, published in December 1998, confirms this claim. However, it goes on to state that the source of dioxin was likely to be from 2,4,5-T because the analytical profile of the dioxin found was consistent with 2,4,5-T, and not 2,4-D use. The report further states that the level found in the Northland soil cannot be explained by the intentional use of 2,4,5-T. The possible explanation was that the high level arose from one or more of the samples coming from a site where 2,4,5-T may have been spilled.</i>

Number	Comment
2	All adverse events relating to the use of 2,4-D should be reported.
	<i>There is no compulsion to report such events in the current legislation, which is soon to be replaced. While the Panel could see valid reasons for a requirement to report adverse events, even if such compulsion was written into law, enforcing compliance would pose problems, just as it does now with regard to the compulsion to notify occupational diseases under the Health Act 1956.</i>
1	2,4-D is associated with Non-Hodgkin's Lymphoma (NHL), alternation of hormone levels and Small Intestinal Adenocarcinoma (SIA) in livestock (grazing on pastures) and humans.
	<i>There has been a number of epidemiological studies looking into the use of various pesticides and various human health effects (including cancer). While some have indicated an association between phenoxy herbicide use and non-Hodgkin's lymphoma, many more have shown no such association. The animal toxicology and mutagenicity data also shows that 2,4-D does not have any carcinogenic potential.</i>
3	A number of health effects have been linked to the use of phenoxy herbicides, and they have been identified as endocrine disruptors.
	<i>There have been many investigations (both here in New Zealand and overseas) looking into allegations of health effects caused by phenoxy herbicides. To date, these investigations do not confirm such a link for inadvertent (indirect) exposures. The known toxicology of 2,4-D also shows that such links are unlikely.</i> <i>We were not able to confirm any link between phenoxy herbicides and endocrine disruption.</i>

Number	Comment
4	Over the past 16 years the number of patients treated for 2,4-D poisoning averages 12 – 15 cases per week.
	<i>These patients have been diagnosed as being poisoned by 2,4-D via the use of a technique known as Electroacupuncture According to Voll (EAV). This technique has been studied in at least two investigations (one into possible health effects of 2,4,5-T, and the other regarding the ICI Chemical fire), and both investigations concluded that the diagnoses could not be relied upon. The technique has never been properly trialled.</i>
1	Dow Agrosiences are incorrect when they state that 2,4-D is not mutagenic or teratogenic.
	<i>The toxicology testing for both mutagenicity and carcinogenicity confirms that 2,4-D is neither carcinogenic nor mutagenic. This data has been thoroughly reviewed by many regulatory authorities around the world, as well as the WHO, and these reviews confirm the view expressed in the first sentence.</i>
1	Why should the Pesticides Board trust information provided by the chemical industry?
	<i>All information, submitted from any source, is thoroughly assessed by independent experts who advise the Board. The internationally accepted protocols which are used in the generation of the data submitted, known as “Good Laboratory Practice” (published by the OECD) preclude potential falsification of that data. Further, the US EPA operates inspection teams that randomly and unannounced inspect laboratories which are generating regulatory data to ensure that the protocols are strictly adhered to. Thus, the data submitted is able to be trusted, and further, the Board’s experts (through their networks) are able to (and do) obtain access to data from alternative sources which can then be used to confirm or otherwise the data sent in to the Board.</i>

Number	Comment
1	Agriculture Canada banned the use of the high volatile ester forms of 2,4-D and added a requirement for health and environmental data in 1982 for 2,4-D acid, 2,4-D dimethylamine salt, 2,4-D ethyl hexyl ester – why does the New Zealand Pesticides Board not require this?
	<i>The New Zealand Pesticides Board cancelled the registration of the high volatile (butyl ester) form of 2,4-D in 1996 after a review of spray drift incidents reported to the Board. The Board requires that health and safety information is supplied when any pesticide is proposed for registration, and that data must show that the pesticide can be used safely before any registration is granted. The data packages are extensive, and are thoroughly reviewed in accordance with international guidelines. Close watch is maintained on the outcomes of similar reviews by other regulatory authorities around the world to ensure that the data supplied to the Pesticides Board is complete and that its review is consistent and has not missed anything.</i>
1	What guarantees can the Pesticides Board give that problems associated with the butyl ester form will not occur with the ethylhexyl ester form?
	<i>The Board cannot give guarantees because it has no direct control over how purchasers may use the product. What can be stated is that the ethylhexyl ester of 2,4-D is approximately 20 times less volatile than the butyl ester. Volatility is not the only contributor to spray drift (the problem associated with the butyl ester) – the humidity of the atmosphere at the time of spraying, droplet size, wind speed and direction, etc all have an impact.</i>