

# Chemicals and Cancer



## Key Messages

- Although there are some chemicals and pollutants that have been found to cause cancer, for most people harmful chemicals only pose a minor risk.
- Exposure to pesticides and other residues in food should be minimized by rinsing fruit and vegetables before eating them.
- Even without rinsing, it is very unlikely that pesticide residues will increase your risk of cancer
- People who are exposed to pesticide or dioxins through work or through living near contaminated sites are likely to have higher levels of dioxins in their bodies, which may increase the risk of certain cancers.

## Pesticides and other residues in food

Because some fruit and vegetables may have traces of pesticides or other chemicals (also called agricultural compounds), it is a good idea to rinse fruit and vegetables before eating them.

Although there may be trace amounts of some pesticide residues in some fruit and vegetables in New Zealand, monitoring by the Ministry of Health shows they are well below the levels allowed by law (Cressy, 2000). The level of pesticide residue in foods has gone down in recent years (Cressy, 2000) and there is no evidence that pesticides increase the risk of cancer at these low levels (Buyers, 2002).

Research shows that eating plenty of fruit and vegetables has overall health benefits and can help to reduce the risk of cancer. Even if you eat a lot of fruit and vegetables without rinsing them, it is very unlikely that you would exceed the acceptable daily intake (ADI) that has been deemed safe by the New Zealand Food Safety Authority and the Ministry of Health (NZFSA, 2007), so you should not hold back

on eating fruit or vegetables because of fears about the effects of pesticide residue.

The New Zealand Food Safety authority has recently published a booklet that explains what agricultural compounds are; why they are used; how their residues come to remain in food; how maximum residue levels are set; and how the New Zealand Food Safety Authority (NZFSA) ensures these levels do not pose a public health or safety risk. The booklet is available on the NZFSA website:

[www.nzfsa.govt.nz](http://www.nzfsa.govt.nz)

## Pesticides in the environment

Workers exposed to higher levels of pesticides in industry or farming environments, may be at higher risk of certain cancers, particularly leukaemia and lymphoma. Some scientists think that these chemicals could suppress the immune system in people who are regularly exposed to them. This could increase their risk of cancer, but more research is needed to make sure. The current evidence is inconclusive but suggests that any

possible risks would be very small (Cancer Research, UK).

Some potentially dangerous pesticides such as DDT are no longer used in New Zealand but were used in the past. They contained dioxins, which are known to cause cancer (see section below). These chemicals break down slowly so they can accumulate in the environment, and traces can still be found in some foods. Even so, scientists have not found a link between these chemicals and cancer in the general public. These studies have been very consistent across different research groups and countries, so their results are likely to be accurate (Cancer Research UK, 2007).

## Dioxins

Dioxins are part of a group of chemicals called organochlorines. They are created by any kind of burning process, and are very toxic. Dioxins do not break down easily and stay in the environment for a long time. They enter the food chain when they go from the air onto soil and plant surfaces and are then eaten by grazing animals. Dioxins can build up in people's bodies and in animals, and remain there for many years.

Research shows that dioxins (specifically a chemical called TCDD) can cause cancer, and it is mainly people who have been exposed to high levels of dioxins through their work who are at risk (Smith, 2001; Steenland, 2004). In New Zealand, former timber workers in particular may have had higher exposure to dioxins than other New Zealanders (Smith, 2001), and a recent report found that residents who lived near a former agri-chemical plant had higher concentrations of TCDD in their bodies than other New Zealanders (ESR, 2005). The health effects of the exposure to dioxins for these groups are still unknown.

New Zealand has low levels of environmental dioxins and dioxins in food compared to many other developed countries, and dioxin levels in New Zealanders' bodies are also at the low end of the

scale (Smith, 2001). For the general population, about 90% of exposure to dioxins is through food, mainly meat, dairy products and fish (Smith, 2001). Our exposure to dioxins has dropped markedly since the 1970s and the government and industry are continuing to make efforts to reduce to amount of dioxins released into the environment (MFE, 2007).

For further information:

Dioxins FAQs on the Ministry for the Environment website:

<http://www.mfe.govt.nz/issues/hazardous/contaminated/dioxin-faq/>

Ministry of Health Dioxin fact sheet:  
[http://www.moh.govt.nz/moh.nsf/pagesmh/250/\\$File/dioxins-factsheet-2007.pdf](http://www.moh.govt.nz/moh.nsf/pagesmh/250/$File/dioxins-factsheet-2007.pdf)

## References

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ESR (2005) [A Study of 2,3,7,8-Tetrachlorodibenzo-p-dioxin \(TCDD\) Exposures in Paritutu, New Zealand](#) Wellington: Ministry of Health

This information sheet was reviewed in May 2009 by the Cancer Society.  
The Cancer Society's information sheets are reviewed every two years.

For cancer information and support phone **0800 CANCER (226 237)** or go to [www.cancernz.org.nz](http://www.cancernz.org.nz)