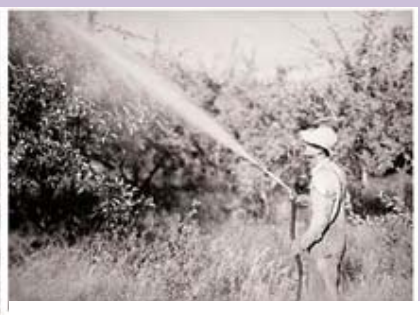
# FACT SHEET ORCHARDS

Spraying of orchards with various arsenic compounds was introduced to New Zealand around 1885.

Lead arsenate was the most common. Application was variable in time and between operators and the resulting contaminant pattern varies as well. Spraying from a truck or horse drawn cart often resulted in massive hotspots in places where the truck or cart got stuck. Letting the spray fluid out onto the ground was often the only way to get un-stuck. Hydrant systems (using a network of high pressure piping over the whole site) often had leaks where fluid spilled into the soil every year.

Worse contamination is found were broken apple crates were burned as in the ashes the wood treatment chemicals (again arsenic combined with copper and chromium) have accumulated to extreme concentrations (see box below). Lead from lead paint is found in glass houses (inside painted annually with white lead-oxide paint) as well as around old houses and sheds.



Using a hose connected to a hydrant system each time the hose was disconnected fluid leaked into the soil.

**They sprayed, you pay?** Spraying of arsenical pesticides on apple orchards was routine from the late 1800s through the 1940s. Lead arsenate was not banned, however, until 1988. images: Library of Congress

The arsenic and lead in the dust walked into the house causes continuous exposure. This can lead to chronic diseases and allergies for people and especially kids living (and crawling) near historical orchard sites. Low level contamination can sometimes be remediated by soil mixing, however mixing without detailed site assessment will invariably blend high concentration hot spots into the mixed soil. The result is worse than the original situation.

An experienced person can check for the presence of arsenic or lead in an orchard prior to purchase or for the presence of arsenic or lead in the house dust in a couple of hours using on-site analysis. To check for DDT or modern pesticides samples will need analysis in a laboratory.

If you have any doubt about the historical use of a property the council may have old aerial photographs available dating back to the 1950-ies. Earlier orchard use can often only be found out by soil analysis.

**Main contaminants** (found at 100 – 50% of original concentration mg/kg)

| | Lead | Arsenic | DDT |
|---|---|---|---|
| Period used | 1880 – 1988 | 1880 – 1988 | 1945 – 1961 |
| NZ background level | 10 – 40 | 4 -- 10 | 0.00001 |
| Lifestyle /residential guideline level | 400 | 30 | 8.4 |
| Levels in hot spots | 80 – 2000 | 20 – 500 | 5 – 150 |
| Levels near spray shed | 4000 | >1000 | >100 |
| Levels in glass house | 10,000 | 50 – 500 | 10 – 50 |
| Levels burning place of apple crates | >30,000 | >100,000 | 5 - 50 |

**Note** levels found in actual orchards surveyed (total orchards surveyed : 30)

Further reading: http://www.environment.nsw.gov.au/resources/clm/orchardgdlne05195.pdf
http://www.environment.nsw.gov.au/clm/verticalmixing.htm