



Australian Agriculture Acts to Reduce Cadmium Levels



Australian Agriculture

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Australia has adopted a strategy to maintain safe levels of cadmium in its agricultural soils and produce: an important move in ensuring safe food for Australians and a competitive edge for our agricultural exports.

The National Cadmium Minimisation Strategy recently commissioned by the Standing Committee on Agriculture and Resource Management (SCARM) will provide a consistent and coordinated program to address issues related to the control of cadmium in soils and crops. A Coordinator will manage implementation of the strategy and monitor its success.



Why is Cadmium found in Australian soils and plants?

Cadmium is a naturally occurring element. Although cadmium is present at low concentrations in all soils, its accumulation in soil and hence through the food chain may lead to a health risk in humans.

In Australia, natural levels of cadmium in the soil are low by world standards. The average

intake of cadmium in the Australian diet is also well within safe limits set by health authorities.

Phosphate fertiliser has been a major source of cadmium additions to agricultural soil in Australia. The Australian fertiliser industry has made significant reductions in the cadmium contents in fertilisers over the last 10 years. It now uses rock phosphate with lower cadmium concentrations for local manufacture. Imported



phosphatic and trace element fertilisers low in cadmium have also been targeted.

In recent years, the practice of adding sewage biosolids and green wastes to soils in Australia through recycling has also contributed to cadmium levels. Together with the effects of long-term fertiliser use, this has the potential to increase the level of cadmium in Australian food above the maximum concentrations acceptable to health authorities, with consequent implications for human health and international trade.



Despite the inherently low levels of cadmium in Australian soils, plant and animal products from Australian agriculture contain cadmium concentrations similar to other countries. This is due to the chemical processes involved in the uptake of cadmium by plants and the management practices applied to soils, crops and livestock in Australia.

Many soil and management factors influence the extent to which agricultural crops take up cadmium. These include crop type and variety, soil acidity and salinity, irrigation water quality, fertiliser history and management. For crops such as potatoes, guidelines are available to farmers to assist in minimising cadmium uptake. Avoiding soils and waters with high salinity is one example.

What has been done to manage Cadmium in soils?

Cadmium concentrations in fertilisers are regulated in all states in Australia, and steps are underway to harmonise these standards and to lower maximum permitted concentrations in fertilisers.

Most states have guidelines for use of sewage biosolids on soil, but regulatory levels vary around Australia. National guidelines for biosolids management are being developed as part of the National Water Quality Management Strategy.

The Australia New Zealand Food Authority regulates cadmium concentrations in foods. Cadmium concentrations in crops are monitored by various government surveys as well as through industry quality assurance programs.



What potential human health problems are related to Cadmium?

Cadmium can cause health problems in humans after long-term exposure. It accumulates in the body, principally in the kidneys, leading to gradual renal dysfunction if exposure is high over a long period. While cadmium can induce effects on organs other than the kidneys, the effects generally occur at doses higher than those associated with renal effects. Population-based studies in Japan and Belgium have shown a clear relationship between indicators of renal dysfunction and environmental and occupational exposure to cadmium.

While it is anticipated that the Australian population is unlikely to experience cadmium-related health problems, the potential for any increased health risk should be addressed. Cadmium is recognised internationally as a potential health risk and guidelines for a 'tolerable' level of intake have been established by the World Health Organization.

Non-tariff trade barriers

Cadmium is likely to become an increasing factor in international trade negotiations as countries establish standards to control cadmium residues in food. If a country's standards are low compared to the international norm, they may be perceived as a non-tariff trade barrier. Many countries now have strict regulations to limit human intake of cadmium in the diet, and are applying them to food imports.

The National Cadmium Minimisation Strategy

The issue of cadmium in agricultural soils and produce in Australia has been of concern to the former Standing Committee on Agriculture and its successor, SCARM, for some time.

A Cadmium in Agriculture Task Force was established by SCARM in 1997 to consider the situation and report back on any further action required. All State Governments, the Commonwealth, CSIRO, the National Farmers' Federation and the Fertilizer Industry Federation of Australia were represented on the Task Force. The result is a National Cadmium Minimisation Strategy.

The key elements of the Strategy are:

- development of Best Management Practices for the production and processing of agricultural produce for those industries and/or areas which have an existing or potential problem with cadmium levels in their produce
- development of a Code of Practice by the fertiliser industry to target low cadmium fertiliser to those areas/industries which have an existing or potential cadmium problem
- continued commitment by all states to reduce the regulated maximum level of cadmium (Cd) in phosphatic fertilisers to a practical minimum
- all states to consider the labeling of fertilisers and soil ameliorants, to alert growers to their cadmium content.

The Strategy is coordinated by a National Cadmium Coordinator whose role will include the collection and analysis of data and information on cadmium in fertilisers, soils and produce; its impact on trade, and to monitor the implementation and success of the strategy.

The National Coordinator operates under the direction of a National Cadmium Management Committee comprising representatives of all States, the Commonwealth, CSIRO, the National Farmers' Federation and the Fertilizer Industry Federation of Australia. The Committee will report regularly to SCARM on the success of the strategy.

Dr Mike McLaughlin from CSIRO Land and Water has been appointed National Coordinator to oversee the Strategy: a position funded for five years by the Fertilizer Industry Federation of Australia, the Horticultural Research and Development Corporation and the Grains Research and Development Corporation.

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