# Frequently asked questions – voluntary suspension of DCD

## Food safety

**How do you know there is no food safety risk from DCD residues in food?**

Research shows no food safety risk or human or animal health concerns with DCD use. It is of very low toxicity, and even with extremely high doses it has been difficult to identify any adverse effects.

DCD has been used commercially in New Zealand for direct application to pasture since 2004 and MPI scientists have concluded that DCD residues in food from pasture application do not raise any food safety concerns.

MPI and Ravensdown have done food safety assessments independently. Both assessments reached the same conclusion: that there was no likely food safety risk from this use of DCD in New Zealand.

DCD is a compound which is used widely in a number of industries including electronics, pharmaceuticals, and in food packaging.

**Was the question of DCD residues in food considered during the development of DCD for use on farm land in New Zealand?**

Yes. In 2003, a year before release, Ravensdown engaged Landcare Research to complete a comprehensive review on potential environmental and human health effects arising from land application of DCD. This paper confirmed what we know today about the product safety, and saw no impediments to use. Ravensdown also engaged with the Dairy Research Institute about the product and its intended use.

In 2009 the Ministry for Primary Industries' predecessors MAF and New Zealand Food Safety Authority took part in a trial to look at the levels of DCD that remained on pasture over time. The results showed that animal intake of DCD presented no animal or food safety concerns.

DCD is essentially a non-toxic water soluble compound. It is biodegradable in soil and it leaves no lingering residues in soil. It degrades to form carbon dioxide, ammonia and water.

**Can DCD be used to boost protein levels in milk?**

DCD is one of a number of compounds that may be used to make the total nitrogen content of a food appear higher than it actually is. The DCD levels identified are very low and far below any level that could provide any economic advantage.

**Are DCD and melamine the same?**

No.

Melamine is present in DCD in very small amounts. The melamine in DCD causes no health or regulatory issues. Testing has picked up no melamine residues in milk products from DCD use.

International standards setting bodies have established a safe limit for melamine residues in food. This limit is far above any potential residue of melamine from this DCD use.

**Were any melamine residues detected in the milk tested for DCD?**

No. MPI testing under the National Chemical Contaminants Programme has picked up no melamine residues in raw milk from DCD use – this is consistent with expectations.

## About DCD

**What is DCD?**

DCD is a compound that is being increasingly used in New Zealand agriculture (mainly dairy pasture) to simultaneously increase pasture production and address key environmental issues.

Its application directly onto farm land is one of the more promising ways of reducing nitrate leaching to water (improving water quality) and greenhouse gas emissions (nitrous oxide) from farming, particularly dairying, as well as promoting pasture growth. The benefit of reducing nitrate leaching is that the impacts of agricultural production on waterways may also be reduced.

New Zealand is unique in that DCD is sprayed directly onto pasture.

Internationally DCD is widely used in electronics, pharmaceuticals, and in food packaging plastics.

**What farm land treatments have DCD as a component?**

In New Zealand DCD products are sold under the brand names Eco-n (Ravensdown) and DCn (Ballance Agri-Nutrients). These are the products being suspended from the market.

**How long does DCD remain in the soil?**

DCD is completely biodegradable in soil and leaves no residues in soil. The rate of degradation varies depending on soil temperature and the amount of rainfall. It stays longer in the soil at lower temperatures and moves past the root zones quickly with heavy rainfall.

DCD is an essentially non toxic water soluble compound and is degraded when applied to pastures and soils to carbon dioxide, ammonia and water.

## Trade

**Why is the presence of DCD residues in milk a trade risk?**

Although there is no food safety concern, even at the low levels detected international regulators and customers are likely to view DCD residues as a contaminant. As there is no international standard for DCD in food any residue could be considered unacceptable to New Zealand's trading partners.

So there was the possibility that New Zealand milk products could have been excluded from international markets because of this. The action we have taken is to prevent that happening.

Exports of dairy products make direct and indirect contributions to New Zealand's economy and make up a quarter of New Zealand's total exported goods by value. In 2012 the total export value of New Zealand dairy was $14.5 billion.

Consumers have high expectations of New Zealand food and the regulations we have in place to ensure its quality and safety.

Food regulators around the world are reflecting market demands with increasingly rigorous testing. In some countries there is a zero tolerance to detected residues outside agreed standards regardless of whether they pose food safety issues.

More facts and figures about New Zealand's dairy industry are at the Ministry for Primary Industries website: Dairy Facts and Figures

**Why is there no international standard for DCD residues in milk?**

DCD has never been considered to be a food safety risk. It is of very low toxicity, and even with extremely high doses it has been difficult to identify any adverse effects.

However, the international environment has changed with low cost tests available to identify residues at very low levels. Increasingly, anything found in food that overseas regulators or customers do not expect to find is seen as unacceptable or a contaminant, regardless of whether or not it is a food safety risk.

Ministry for Primary Industries staff are investigating the process to get an international standard (Codex) set for DCD, if necessary. However, this is a lengthy process and could take up to five years or more.

**Are there likely to be DCD residues in meat?**

MPI has considered the potential for residues to occur in meat from the use of DCD in pasture. Testing in dairy products has shown that no DCD residue is present one month after use. DCD has only been used by approximately 500 dairy farmers (less than five percent of New Zealand dairy farmers). Given this and the knowledge that animal residues deteriorate within 90 hours MPI does not expect any residues to occur in meat.

In the unlikely event that residues did occur in individual animals they would not present any food safety risk.

## The action taken

**How will MPI ensure the DCD voluntary suspension works and that no one else comes onto the market with a DCD product?**

The action taken is the voluntary suspension, by the two major fertiliser companies Ballance Agri-Nutrients and Ravensdown, of sales of the two DCD farm land treatments used in New Zealand.

MPI supports this voluntary suspension of DCD sale and use and considers these actions are enough to maintain our trade reputation without necessitating the implementation of any regulatory measures.

MPI will also work with New Zealand Customs to identify how to detect imports of DCD products entering New Zealand so that MPI can ensure that other organisations or individuals that may import product do not use DCD on pasture.

**Is this action enough?**

Yes. We have been very proactive and will be keeping all stakeholders informed about the action we are taking and why.

As the food safety regulator, MPI took action as soon as we were alerted to potential trade issues resulting in DCD residues in milk products (November 2012). The first thing we assessed was food safety risk. We then worked quickly to ensure any trade risk was assessed and dealt with. The result is this course of action.

MPI set up a working group to assess the situation and ultimately decide on this course of action. The working group met three times in December 2012 and once in January 2013.

DCD affects a limited number of dairy products for the short window of time that follows its use. It is applied only two to three times a year and the next scheduled application was to be in the New Zealand autumn.

The working group is made up of Fonterra, Ravensdown, Ballance Agri-Nutrients, Dairy Companies Association of New Zealand (DCANZ) and staff from the Ministry for Primary Industries (MPI).

## Testing

**What testing has been conducted, when and by whom?**

MPI undertook testing of 48 random raw milk supplies for DCD in 2010 with no residues detected.

Testing was carried out for dairy products made in September 2012 (expected to have residues as DCD is applied in spring) and in November 2012 (not expected to have residues).

Fonterra's testing confirmed DCD residues were present in some products made in September (whole milk powder, skim milk powder, and buttermilk powder) but were not present in the same products made in November. This is consistent with expected outcomes based on the usage pattern of DCD. DCD residues in September products were found in both the North and South Islands.

Ministry for Primary Industries (MPI) has also completed recent testing of raw milk and is testing various dairy products to confirm initial findings.

Testing indicates that if DCD use is suspended before the next application is due no more milk products made will contain DCD residues.

**Is this the first time testing has occurred?**

No.

In 2003, a year before release, Ravensdown engaged Landcare Research to complete a comprehensive review on potential environmental and human health effects arising from land application of DCD. This paper confirmed what we know today about the product safety, and saw no impediments to use. Ravensdown also engaged with the Dairy Research Institute about the product and its intended use.

In 2009 the Ministry for Primary Industries' predecessors MAF and New Zealand Food Safety Authority took part in a trial to look at the levels of DCD that remained on pasture over time. The results showed that animal intake of DCD presented no animal or food safety concerns.

The trading environment has changed since that testing. Food regulators around the world are reflecting market demands with increasingly sensitive and rigorous testing and in some countries there is a zero tolerance to detected unexpected residues.

## Environment/water quality

**Will MPI be talking to regional councils about this DCD suspension and water quality issues?**

MPI will be talking to regional councils about this suspension and potential impacts on farmers. It will be up to regional councils to decide on any actions.

Water quality is of environmental importance in New Zealand and MPI will work actively with other organisations to investigate what this suspension means in terms of the future use of DCD in farming, including the impact on water quality requirements.

There are other measures farmers can use to limit nitrate leaching such as optimising fertiliser application and using nutrient management plans.

Farmers may need to work with their farm advisors to revise their upcoming plans.

**What are the environmental benefits of DCD?**

DCD is a biodegradable compound mainly used in New Zealand agriculture as a nitrification inhibitor to improve water quality and reduce production of the greenhouse gas nitrous oxide.

DCD is used on farms to decrease nitrate leaching. The benefit of this is that the impacts of agricultural production on waterways may also be reduced. Water quality is of environmental importance in New Zealand.

DCD can also increase pasture production by up to five to 10 percent, so it is seen as a win-win by farmers.

**What does this suspension mean in terms of DCD's recognition under New Zealand's National Agricultural Greenhouse Gas Inventory to mitigate GHG emissions?**

DCD is the only product recognised under New Zealand's National Agriculture Greenhouse Gas Inventory to mitigate GHG emissions in agriculture. Reductions in GHG emissions from DCD have helped reduce New Zealand's liability under the Kyoto Protocol since 2007. However, DCD for this use alone is not cost-effective at this time, and no benefit (or credit) passes to the individual user.

A working group has been set up to look at future use of DCD and will continue to investigate this issue and engage with relevant stakeholders.

# The role of the working group

**When did you set up the working group?**

MPI set up the working group in early December 2012 and the first meeting was 5 December 2012. There were three meetings in December and one in January 2013.

What is the role of the working group?

**Who is on the working group?**

Initially the working group was set up to identify any issues around DCD detection in milk products and come up with a course of action. Given DCD's environmental benefits, the working group will continue to assess its future in a way that meets trade requirements.

**Who is on the working group?**

The working group includes representatives from Fonterra, Ravensdown, Ballance Agri-Nutrients, Dairy Companies Association of New Zealand (DCANZ) and Ministry for Primary Industries (MPI).