

Hi-Cane: New scientific evidence



Hydrogen cyanamide, the active ingredient in a number of products including Hi-Cane, encourages flower growth and leads to greater yields of quality fruit which ripen at the same time. In New Zealand **it is applied once** in late winter and there are **strict rules** about how it is used safely. An independent economic report conservatively estimated that not using Hi-Cane in New Zealand would cost the economy \$1.56 billion over 30 years.¹

In May 2024 the Environmental Protection Authority (EPA) approved hydrogen cyanamide's continued use,

subject to controls. This followed a rigorous 4.5 year reassessment process that considered comprehensive risk assessments, expert opinion and valuable information contributed from individuals and the industry through submissions and a public hearing.

This sheet presents new scientific facts on how hydrogen cyanamide can be safely sprayed to protect people outside of the sprayed area (bystanders) and the wider environment.

Did You Know?

Hydrogen cyanamide is used in approximately 30 countries.²



Hi-Cane can be used safely. The EPA's decision-making committee stated that with the controls proposed, the risks from applying hydrogen cyanamide are:

- mitigated below the level of concern to **bystanders**,
- negligible to **birds** and in-field **soil organisms** and
- mitigated to negligible levels for the **aquatic environment**, non-target **plants**, non-target **arthropods**, and **pollinators**.³

Did You Know?

Hydrogen cyanamide is used to treat alcoholism. The therapeutic exposure levels and durations are well above the exposure levels of workers who apply hydrogen cyanamide to kiwifruit.⁴

FACT Hydrogen cyanamide does NOT cause cancer

The EPA's reassessment application in January 2020 proposed to classify hydrogen cyanamide as a **suspected** carcinogen. However, subsequent detailed expert analysis of the available carcinogenicity studies concluded that **no mechanism of carcinogenicity has been identified**,⁵ and as a result of this analysis, the EPA's updated proposal for hazard classifications no longer includes the suspected carcinogen (category 2) classification.⁶



FACT

The application of hydrogen cyanamide is strictly controlled



While hydrogen cyanamide has hazardous properties, it is safe when applied in accordance with controls which include a maximum application rate, a maximum application frequency of once per calendar year, a maximum windspeed, training and PPE requirements for operators and buffer zones.

FACT

Effective controls mitigate risks to bystanders

The EPA concluded that the risks to bystanders from using hydrogen cyanamide with the controls required, which include a buffer zone of 6m with effective shelter or 8m without, would be mitigated below the levels of concern.⁸ The label states that where workers are in contact with kiwifruit canes within five days of spraying, gloves should be worn.⁹

In addition to complying with the hydrogen cyanamide controls, growers must also comply with their regional plan rules and requirements of ZespriGAP.

Did You Know?

Hydrogen cyanamide spraying practices have evolved and improved considerably over the last 15 years and low drift spraying practices are now required by Zespri for all applications of hydrogen cyanamide.

FACT Hydrogen cyanamide is **NOT** dangerous for birds

The EPA's decision-making committee considered several sources of information when assessing the risk to birds. This information included a risk assessment, the results of a bird survey carried out on and around kiwifruit orchards before and after hydrogen cyanamide spraying, expert evidence on the status, habits, and breeding season of birds in relation to the timing of hydrogen cyanamide spraying, and grower observations. It also included the expert evidence of mātauranga Māori presented by submitters representing Māori growers and trusts.

The committee concluded that, with the controls in place, the risks to birds from the application of hydrogen cyanamide are negligible.¹⁰

Did You Know?

Hydrogen cyanamide rapidly degrades and has no accumulative potential in people, animals or the environment.¹¹

FACT The impact of hydrogen cyanamide on dogs is few and far between, if any

The risk of exposure exists when dogs and cats have access to sprayed orchards or the spray itself. Growers have an obligation to inform their neighbors when they are spraying to ensure that dogs do not stray into their property.

Did You Know?

Tauranga Vets has 11,000 cats and dogs on their database but has only seen three cases of suspected hydrogen cyanamide exposure over the last five years. In each case **other possible diagnoses could be made** and all three animals recovered. The most common poisoning Tauranga Vets treat is from rat bait or rotten food ingestion.¹²



Did You Know?

Growers understand the importance of healthy soils and their regular checks on soil health have not observed any detrimental effects on soil organisms from the application of hydrogen cyanamide.

FACT The risks of hydrogen cyanamide to on-orchard soil organisms are negligible^{13,14,15}

In 2023, Manaaki Whenua Landcare Research carried out a field trial to assess the potential impact of hydrogen cyanamide on Collembola (springtails) and other soil invertebrates on a Green kiwifruit orchard. While a significant decrease in Collembola between the pre-spraying and immediate post-spraying may indicate a slight effect of the spray, there was a marked increase in the abundance of Collembola and other invertebrates six weeks after spraying, probably due to spring weather conditions.

The results support the view that there are several factors that mitigate the risks to soils organisms including its short half-life, its one-off application in winter, and interception by soil surface coverings such as leaf-litter or grass/vegetation.

FACT Hydrogen cyanamide does **NOT** pollute waterways

Downwind spray drift and runoff buffer zone controls which are set by the EPA mitigate exposure to the aquatic environment.



Did You Know?

Many growers, including Māori growers, commented at the EPA hearing on hydrogen cyanamide that they had not observed a decline in the health of the aquatic environment around sites where hydrogen cyanamide is used.

FACT Buffer zones mitigate risks for non-target plants

The label states that spray drift can cause serious damage to other desirable plants, with casuarina species, lemons, tamarillos and gum trees being very susceptible. Buffer zone controls set by the EPA mitigate these risks.



All references in this factsheet can be found here:



New Zealand Kiwifruit Growers Inc. (NZKGI) runs a spray hotline and encourages people to get in touch with any complaints and concerns they may have, so that they can be investigated: **0800 232 505**.

Growers Details:
