



## ERGER: A VIABLE ALTERNATIVE TO HI-CANE® FOR HORT16A GROWERS?

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Optimal fruit set on a kiwifruit orchard requires good flower numbers following bud burst and synchronisation of male and female flowering. Winter chilling hours are nature's way of ensuring success at this stage of fruit production. In areas where winter chilling is marginal i.e. temperatures are too warm, a number of techniques can be used to improve budbreak, the most common being dormancy breaking sprays. The most widely used product is hydrogen cyanamide. Hydrogen cyanamide has been relied on for many years and is effective on both Hayward and Hort16A. Finding a more environmentally friendly mechanism to give consistent budbreak has long been the industry's goal. For this reason, a number of alternatives have been trialled and adapted by some orchardists. Erger K is the best known of these alternative products and has achieved results similar to those of hydrogen cyanamide on Hort16A in some cases. Although results can vary, Erger has proven effective in achieving results similar to hydrogen cyanamide in extended trials including those at Ngai Tukairangi Trust Orchard.

Erger K (the new formulation is now called Erger) plus ActivErger has been used (Erger is approved by Agricultural Compounds and Veterinary Medicines (ACVM) as an adjuvant) on kiwifruit in New Zealand since 2000. It is manufactured in Italy by Valagro and is distributed in New Zealand by Pacific Growers Supplies Ltd. The calcium and nitrogen in ActivErger are taken into the plant aided by Erger which assists in giving the plant more nutrients to help complete

the winter chilling processes. Fuller completion of winter chilling can improve bud break and the number of flowers per winter bud.

Ngai Tukairangi Trust Orchard is a 50 hectare orchard situated on the Matapihi Peninsula, Bay of Plenty. The orchard, managed by Colin Jenkins, has achieved consistently high GREEN and GOLD yields for the past 10 years. Erger K was first trialled in 2004 on a small Hort16A block that is adjacent to several houses. The results of that trial were encouraging and the area treated with Erger K has increased each year to include approximately two hectares in 2010. The

area has been harvested as a separate maturity area each year enabling comparison with an adjacent area, which is treated with Hi-Cane® (hydrogen cyanamide). Although there is no direct comparison with untreated vines (nil treatment), the results do enable comparison of Erger K and Hi-Cane® treatments.

Erger plus ActivErger should be applied 45 days before natural bud burst at a rate of six percent and nine percent respectively with 700l water/ha, typically the 13 to 14 July on the Ngai Tukairangi Trust Orchard. This season, the new formulation of Erger was trialled along with the original formulation.

	Yield	Count Size	Date	Yield	Count Size	Date	% Yield Difference
2005	13,500	-	24th April	16,000	-	22nd April	+15%
2006	-	30.7	24th April	14,700	28.8	16th April	-
2007	16,982	30.7	28th Mar	17,023	30.9	18th April	+1%
2008	22,665	31.1	22-23rd April	19,323	31.1	5-7th April	-15%
2009	17,415	28.6	22-23rd April	18,436	27.3	2nd April	+6%

**Table 1. Class 1 TE/ha and average Fruit Size.**

Comparison between the new and old formula will not be covered in this discussion but the new formula has improved mixing qualities and is said to have improved results achieved on Hayward.

A standard airblast sprayer has been used to apply both Hi-Cane® and Erger treatments on the Ngai Tukairangi Trust Orchard. AI nozzles may be used next season.

Yield comparison over four seasons shows the average result from both treatments is very similar. Average fruit size over four seasons is also very similar whilst harvest date is earlier for four out of the five seasons compared.

## MALE VINE COMPATIBILITY

The blocks treated with Erger K at Ngai Tukairangi Trust Orchard contain both CK2 and CK3 male vines. Colin has noted cane burn symptoms on CK2 vines treated with Erger resulting in reduced flower numbers in affected areas. CK2 vines treated with Erger K have also flowered earlier than those treated with Hi-Cane® (approx two to three days). Colin says he may replace CK2 males in the trial area with Bruce males if they prove less susceptible to burn. Pacific Growers say cane burn has not been reported by other Erger K users.

This season it was estimated that 30 percent of the crop was lost due to early fruit drop compared with approximately five percent in most other areas. The cane burn and early CK2 flowering described have probably contributed to these losses but it should be noted that a spring frost and unusually cold temperatures in October may have also contributed.

## ERGER K ON HAYWARD

Erger K was also trialled on a small area of Hayward in 2000 and 2009 with unsatisfactory results for both years. Reports on trials of Erger K on Hayward are varied but have typically proved less effective than trials on Hort16A. Pacific Growers report that poor results have usually occurred due to late application as Erger need to be applied earlier than Hi-Cane® and secondly growers not knowing when natural bud burst is likely to occur. Applications timed 40 to 45 days before natural bud burst are said to be most effective. Because many growers no longer know their natural bud burst dates, Pacific Growers are developing a tool to help growers predict natural bud burst based on winter chill units accumulated during April, May and June.

The trials at Ngai Tukairangi Trust Orchard show that Erger K has produced results similar to Hi-Cane® over a number of seasons. This year, estimates suggest yield from the Erger treated blocks will be significantly less than the Hi-Cane® blocks, however several factors have complicated comparisons this season including frost and the unusually cold October in 2009. Pacific Growers believe that their own trials have proven Erger can consistently produce results similar to Hi-Cane® treatment on Hort16A provided that recommendations are followed. Timing



**Figure 1. Hort16A bud break**

of application in relation to natural bud burst is important so growers should try to predict natural bud break as closely as possible. Seasonal variation in winter chill should also be taken into account to allow adjustment for early natural bud break. As an industry, it is vital that we continue to find environmentally friendly production

techniques to maintain the integrity of the ZESPRI® Brand in our key markets. For this reason products such as Erger are worthy of our attention and Erger should be considered for use on Hort16A orchards that are close to sensitive areas where spray concerns can be an issue. ■