

# Balanced Nutrition

## K-Forte

ISSUE 14

Top of the Line Products Increasing Dry Matter & Keeping Quality for your Bottom Line Dollars.

### Importance of Balanced Nutrition

Balanced nutrition plays a major role, if not the biggest role in the production of quality produce. The aim of the grower should always be to optimize fertilizer practices and never cut costs by cutting out on fertilizers.

Improper nutrition can impact on other issues within an orchard such as keeping quality, disease and pest levels, which at the end of the day may work out far more expensive than properly timed applications of quality fertilizers that are systemic and have no residues.

A range of products were trialed to test their efficacy on a number of variables including fruit sizing, fruitlet Calcium levels, pitting / keeping quality, fruit nutrient levels and also dry matter.

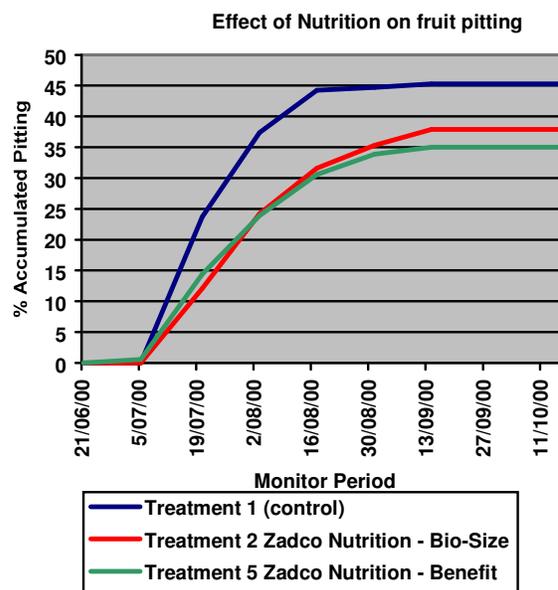
The results of the sizing trial and fruitlet Calcium trial can be seen in Issue 13. As a follow up to Issue 13, the results with respect to the role of nutrition on pitting and dry matter levels has been further assessed.

### Report on Nutrition of Kiwifruit July 2000.

Hort 16A fruit from three treatments were submitted to ZESPRI Innovation for mineral analysis and condition checking. The fruit was placed into coolstore, and condition checking was undertaken on the fruit for an extended period by a ZIL Quality Assessor who recorded and removed commercially out of grade fruit at each condition check. The trays were removed from coolstore when condition checked and returned once check was complete. There were very few soft fruit

or rots during condition checking so percentages below take into account the percentage of total accumulated pitting.

The above graph shows the results kindly



presented by ZESPRI Innovation

The nutritional trial work was carried out on a property which had a history of bad keeping quality and losses due to pitting. This property can be further improved upon, by looking closely at soil applied products as well as a reduction in Nitrogen usage, both of which were out of our control in this trial.

The graph clearly shows the decline in fruit quality earlier in the control than the other two treatments, with the leveling out of losses due to pitting at the same time.

This difference equates to between 7% - 10% saving, which on a 10,000 tray per Ha orchard is 700 - 1000 trays extra per Hectare.

## Dry Matter

Dry matter levels are playing a significant part in this seasons fruit payment. Incentive plans per tray are awarded where Dry Matter levels are above 16, which will obtain fruit access into a Market called 'Taste Japan'. It is a well-known factor also, that low Dry Matter levels can be an indicator to softening disorders in stored kiwifruit such as temperature breakdown as well as physiological soft patch.

Zespri Innovation submitted samples from the same trial to be analysed for nutrient elemental content as well as Dry matter levels.

The analyses are as follows: -

Sample	N mg/g	P mg/g	K mg/g	Ca Mg/g	Dry Matter	
1 A	9.1	1.76	19.1	1.10	17.2	Sample 1 :- Control Patch
1 B	9.3	1.58	18.4	0.97	17.6	
1 C	7.8	1.43	16.5	1.03	18.2	
2 A	10.6	1.73	18.6	1.16	18.1	Sample 2 :- Full Zadco program Plus Bio-Size 23.5% greater yield Size 31.9
2 B	9.8	1.79	17.7	0.96	18.5	
2 C	9.8	1.69	18.0	1.03	18.1	
5 A	10.7	2.03	20.3	0.82	16.2	Sample 5 :- Zadco program plus Benefit Size 28.9
5 C	9.7	1.72	18.4	1.00	17.0	
5 C	9.2	1.66	17.8	0.90	17.2	

It is worth mentioning at this time that Block 2 which had the full Zadco nutritional program with an organic sizing **product BIO-SIZE** carried 23.5 % greater yield at still relatively large sizes 31.9 (average). More importantly the yield carried has not negatively impacted on fruitlet Calcium levels which would usually decline but had a 0.23mmol.kg<sup>-1</sup> higher calcium content in the fruit without any soil inputs of Calcium. Calcium levels could have risen further with appropriate decreases in nitrogen levels. Dry Matter levels have stayed in the high '18' range on the full Zadco program. This can be contributed to a product called **K-FORTE**. It seems that 'Benefit' has had an impact on the Dry matter level. The control even though

higher than sample 5 in dry matter levels had early pitting and 10 % more losses.

Top quality produce is the outcome of 'Balanced Nutrition' and the right formulations of fertilisers under professional guidance. New Zealand is becoming quickly aware that there are better alternatives and choices to be made when it comes to fertilisers and that one cannot measure the price of fertilizer's bucket for bucket. The kiwifruit industry in New Zealand has been introduced to a number of new products: - **TRI-D25** (Trichoderma koningii & Trichoderma harzianum), **K-FORTE** 0-5-20 (Brix, Dry Matter, colour, flavour and early maturity), **BIOMIN CALCIUM** (systemic Glycine chelated trace elements) **BIO-SIZE**, organic sizing product, used also to help combat fruit drop).

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