

# Kelpak® effect on yield and quality of fruit, on a Cherry orchard cv. Bing on Gisela 6 rootstock, located in Los Lirios, Requinoa, VI Region, Chile. Season 2010.

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## Introduction

Kelpak, and Ecklonia maxima, seaweed product with high natural actives extracted via the proprietary cold cellular burst process developed by Kelp products showed positive yield results in cherries in Australia, Chile, France and California. A more recent trial in Chile confirms these results and supports the effect on set and retention.



## Materials and methods

**Period of study** 2010

**Location** Experimental Station Santa Amelia, Los Lirios, VI Region, Chile

**Crop** Bing Cherry on Gisela 6 rootstock, central leader training, cross-pollinated with Black Tartarian and Rainier

**Statistical design** Randomized block, 4 replicates of 5 trees per experimental unit

**Products** Kelpak®

**Treatments** 3 x Kelpak® sprays at 300 ml/100 L at 50% bloom, petal drop and sepal fall and 5 x Kelpak® sprays as above, plus straw stage (colour change) and 7 days later (see photographs)

**Cultivation** Standard fertilizer and pest and disease control practices

**Measurements** Yield (tons/ha) and Fruit yield performance (fruit mass/cm<sup>2</sup> of trunk section area), Fruit size (mm), Mass (g), Firmness (Durofel®) and Soluble solids (°Brix)

**Evaluations** One tree per experimental unit was selected to give a uniform size sample tree over all treatments and replicates. Sample size: Yield production (complete tree per replicate), Fruit size and Weight (average of 100 fruit per replicate), Firmness and °Brix (25 fruit per replicate)

### PHENOLOGICAL STAGES OF SPRAYS HARVEST DATE 16.12.10



## Results and discussion

**Yield increase (Fig. 1)** – Marketable yield increases for three and five Kelpak® sprays respectively were 22% and 61% higher than the untreated control, with the five spray treatment significantly higher. A 22 ton/ha yield for Bing cherry in Chile is considered a very high yield. The response supports the Californian trial result (Fig.1) where five sprays gave 38% yield increase.

**Quality of Fruit (Fig. 2)** – In spite of the substantial yield increases from Kelpak® treatments, no detrimental effect on fruit size was evidenced, maintaining an excellent average fruit size and weight. Fruit sugar level of the Kelpak® treatments did not differ significantly from the control, with the three sprays better than the five sprays.

**Fruit Set and Retention (Fig. 2)** – The yield increases were directly related to increases in number of fruits per plant, because fruit mass was similar for treatments and control. The first three applications had a possible effect on fruit set, fruit retention or both. The last two applications of Kelpak® definitely increased fruit retention as Kelpak® was applied after fruit set.

**Fruit firmness (Fig. 3)** – Due to the high yield increase, softer fruit was expected but no significant treatment responses were recorded. All treatments had excellent firmness as, according to Durofel® scale, a cherry with a value of 75 is considered a very firm fruit and is a requirement for the Chilean export market.

**Yield performance (Fig. 3)** – Kelpak® sprayed five times was significantly higher than the control, but similar to the three sprays, indicating that trunks of the sample trees used in the trial were very similar and differences recorded were due to the Kelpak® treatments.

## Conclusion

The effect of Kelpak® on fruit retention of cherries was similar to the effect obtained with auxins (Else *et al.*, 2004). The study demonstrated that the first three sprays had a possible effect on both fruit set and retention, while the last two sprays (of the five spray treatment) had a definite effect on fruit retention. The later applications also had an effect on fruit size, as the size was maintained even though fruit number per plant was 30% more than the three early sprays treatment.

Fig.1. Effect of Kelpak® on yield and fruit quality of Bing cherries

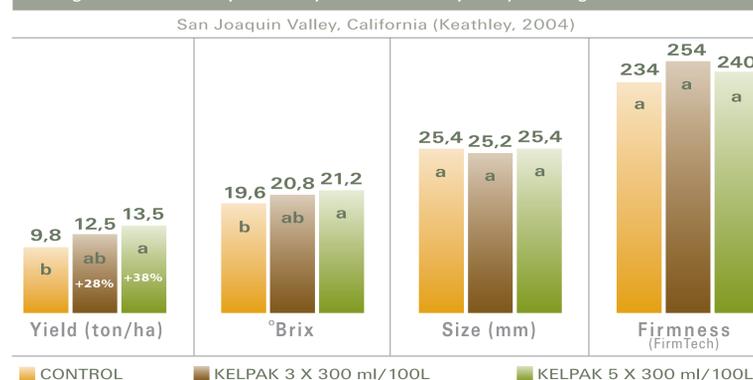


Fig. 2. Effect of Kelpak® on yield and fruit quality of Bing cherries, Chile 2010

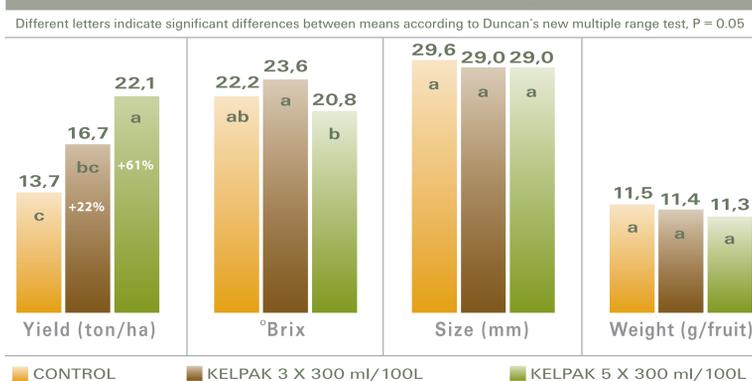


Fig. 3. Effect of Kelpak® on fruit firmness and yield performance of Bing cherries



\*grams of fruit produced in relation to cm<sup>2</sup> of Trunk Section Area. Lombard *et al.*, 1987. Oregon Agricultural Experiment Station Technical Paper no. 8381.