

Efficacy of using Keylamax® K Amino foliar nutrients in apple trees (Granny Smith).

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Introduction

Trial carried out in an apple orchard (*Prunus domestica*), cv. Granny Smith, located in Odessa, Molina, VII Maule region. Chile. Where the effect of Keylamax® K Amino as a potentiator of foliar applications was evaluated.

Objective

To evaluate the efficacy of the Keylamax® K Amino with the orchard standard treatment program, in a Granny Smith apple orchard plantation.

Materials and Methods

During this test, the following indicators were determined: mineralogical condition of the fruit in preharvest, harvest maturity (firmness, starch and weight), physiological disorders in storage (90 days), minerals in leaf tissue. There were two treatments, T0 orchard standard program, and T1. Keylamax® K Amino + orchard standard program. Experimental design was to use randomized plots of 10 trees, with 4 replicates per treatment.

Well-developed and healthy plants were selected for foliar applications; these were carried out from petal drop to preharvest. In total there were eight (8) applications with Keylamax® K Amino and calcium (Product based on calcium chloride (17% Ca), 6 L/ha). On the fourth and fifth application boron was additionally added (Sodium Borate (20.5% B) 1.5 kg/ha), and in the last three (sixth, seventh and eighth applications) Keylamax® K Amino, calcium, and a biostimulant (*Durvillea antarctica* algae extract, 3 L/ha) were applied, thus defining treatment 1 (T1). For the rest of the orchard, the same foliar products from the orchard program were used and in the same doses as those without Keylamax® K Amino.

Keylamax® K Amino was applied foliar with a nebulizer in a concentration of 42 g/100 L of water for Treatment 1 (500 g/ha of commercial product), in mixture with the foliar fertilizers of the grower standard program (at label concentration).

Results and Conclusions

The results of the trial showed elevated levels of calcium content in the fruit treated with Keylamax® K Amino, (T1) having the highest content, 26% more than the orchard standard treatment (T0). The weight and firmness of the fruit were 6% and 2% higher respectively, compared to the orchard standard treatment (T0), the starch content was very similar.

After 90 days in conventional cold storage and then 7 days at room temperature, the incidence of physiological disorders in the fruit was measured. The ripeness condition of the fruit at harvest was similar at T1 and T0. The fruits treated with Keylamax® K Amino were healthier (99.2%), with respect to the standard program (90.0 %). The orchard standard treatment showed a higher incidence of Bitter pit (5%) compared to the trees treated with Keylamax® K Amino (0%).

Variable	Orchard treatment (T0)	Treatment with KAmino (T1)
% Calcium in the leaf	1.34	1.81
% Boron in the leaf	25.7	27.8
% Calcio en fruto	3.8	4.8
Fruit weight (g)	197.9	211.4
Firmness of the fruit (lb)	19.6	20.1
% Healthy fruit	90	99.2
% Bitter pitt	5	0
% Otros desordenes	5	0.8

Keylamax® K Amino Results:

35% more calcium in the leaf
26% more calcium in the fruit
99.2% packable fruit.
0% bitter pit

Applications in treatment (T1) with Keylamax® K Amino showed significant improvement in the measured variables. This demonstrates the products capacity to potentialize foliar applications of nutrients in crops.