SUNCROPS
For Solar Damage, Hidric and Termal Stress Contol

SUNCROPS SUNSCREEN, RESULTS IN REDUCTION OF SUNBURN IN APPLE cv. GRANNY SMITH.

2012 CURICO, CHILE

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BACKGROUND TEST

- Name: Solfrut.
- Location: Los Niches, Curico.
- Orchard: San Ramon.
- Agronomist: Alejandro Salas.

TEST PROTOCOL

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Objective: To evaluate effectiveness of Suncrops on sunburn in apples

- Variety: Granny Smith
- Area: 0.25 ha
- Treatments: Control = T0; Suncrops = T1
- Dosage: 1 2.5% and 1.25% implementation in 2nd, 3rd and 4th application.
- Volume of water used: 500 liters / 0.25 ha
- Application Equipment: Nebulizer
- Application Start Date: 12/12/2011
- Application End Date: 14/02/2012
- Parameters to Measure:

  a)Percentage of fruit with sun damage
  b)level sunburn in orchard and packing process.
  c)Caliber curve.

- Evaluation Date: March (field) - July (packing).

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SUNCROPS, NUMBER AND DATE OF APPLICATION.

Number	Date	Dose (%)	Area (Ha)	Water (0,25 ha)	product used	Cost/0,25 ha
1	12/12/2011	2,5	0,25	500	12,5	68,75
2	03/01/2012	1,25	0,25	500	6,25	34,37
3	24/01/2012	1,25	0,25	500	6,25	34,37
4	14/02/2012	1,25	0,25	500	6,25	34,37

Total 31,25 kg (0,25 há) 171,86 U$ (0,25 há)

Cost Suncrops: $US 5,5/kg.
Cost/ há, for this treatment : US$ 687,4 (Old trees, Very high volume of water 2000 L/Ha)

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QUANTITY OF PRODUCT USED AND COST PER HECTARE

- Total of Suncrops applied per hectare: 125 kg.
- Product cost per Ha: U.S. $ 687.44
- Total kg used and cost of product per hectare; were are higher than normal dose, because the dose was respected (%) and take to 2000 liters of water per hectare.
- Sprayer, was used with calibration bar, usually found in orchards.

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RESULTS

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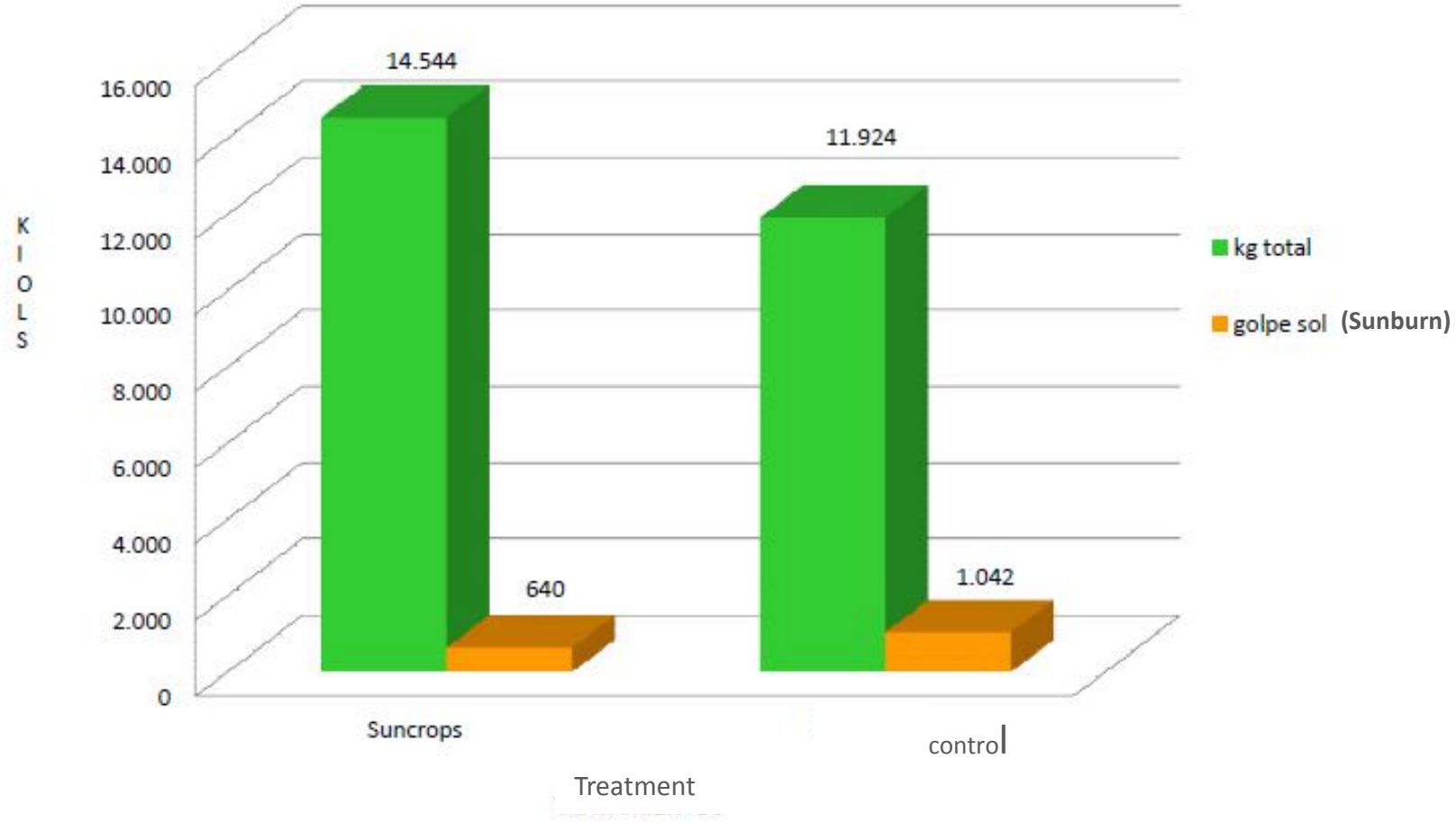
Total harvest in kg and total kg with sunburn damage (golpe de sol) in orchard of apples cv. Granny Smith. Field San Ramon, SOLFRUT, Curico, Chile



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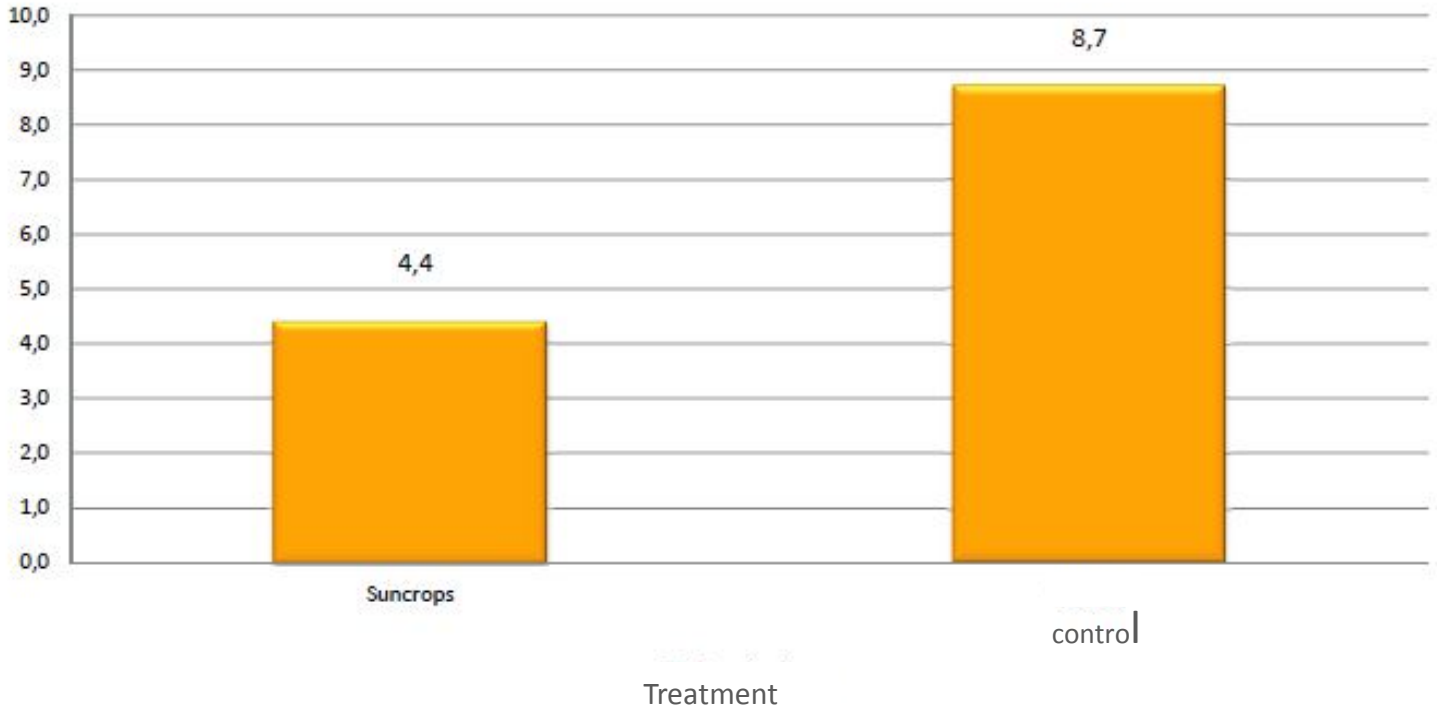
Percentage of sun damage on to orchard

Percentage of sunburn in apples cv. Granny Smith in quality control
Orchard San Ramon - Solfrut.



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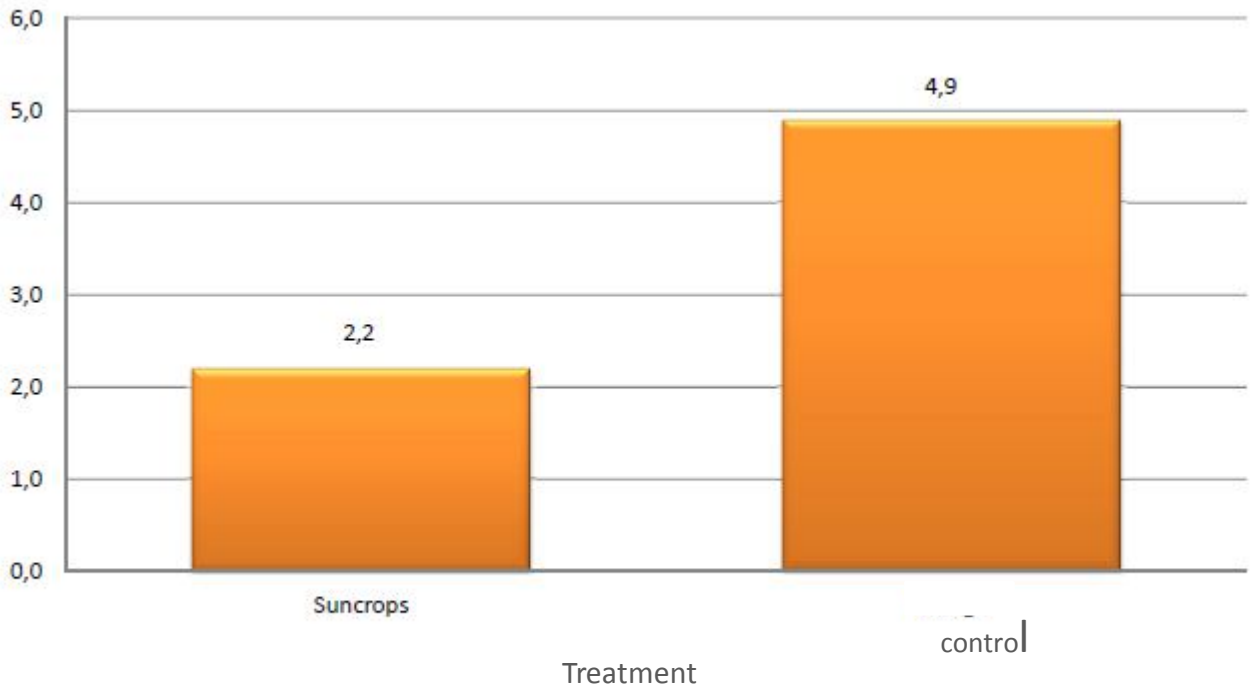
Packing, percentage of sunburn

Percentage of sunburn in apple cv. Granny Smith, in process packing at Copefrut S.A. Orchard San Ramon-Solfrut



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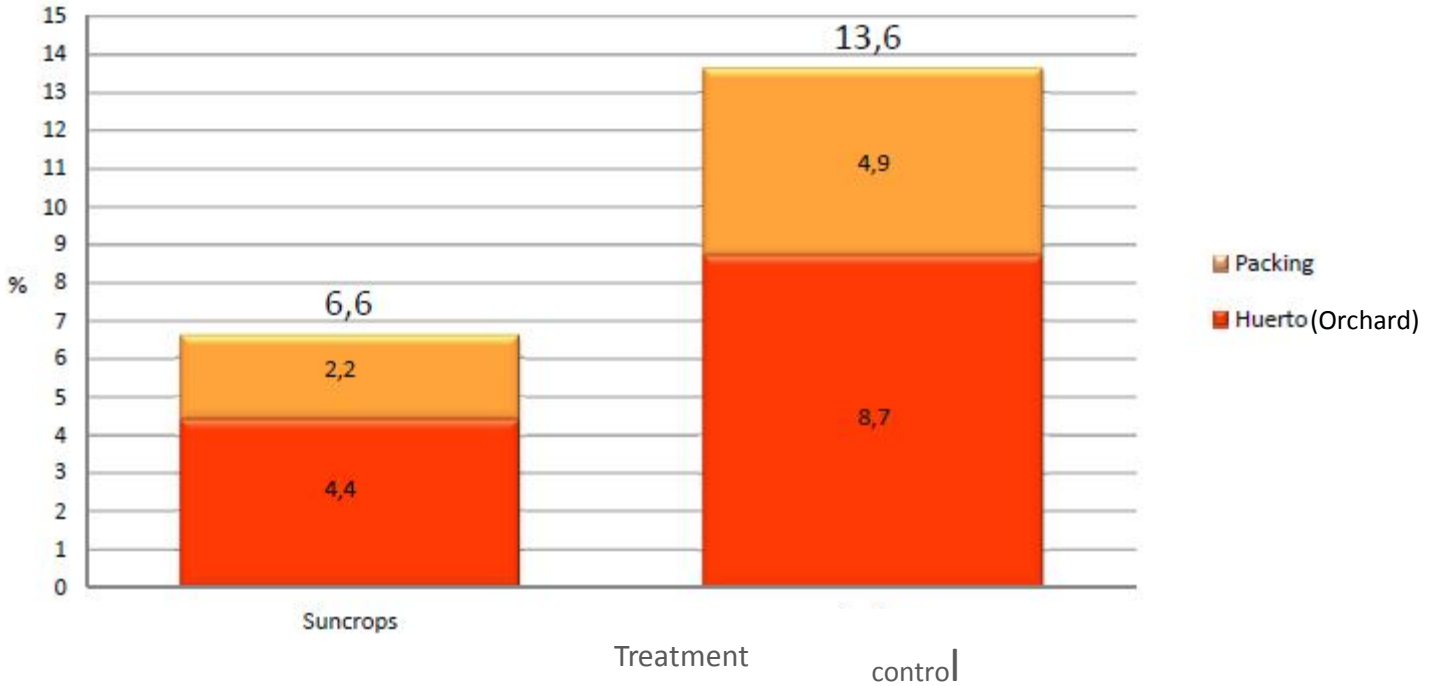
Percentage of sunburn (orchard + packing)

Percentage of total sunburn (orchard + packing) in apple cv. Granny Smith
Orchard San Ramon, Solfrut, Curico, Chile



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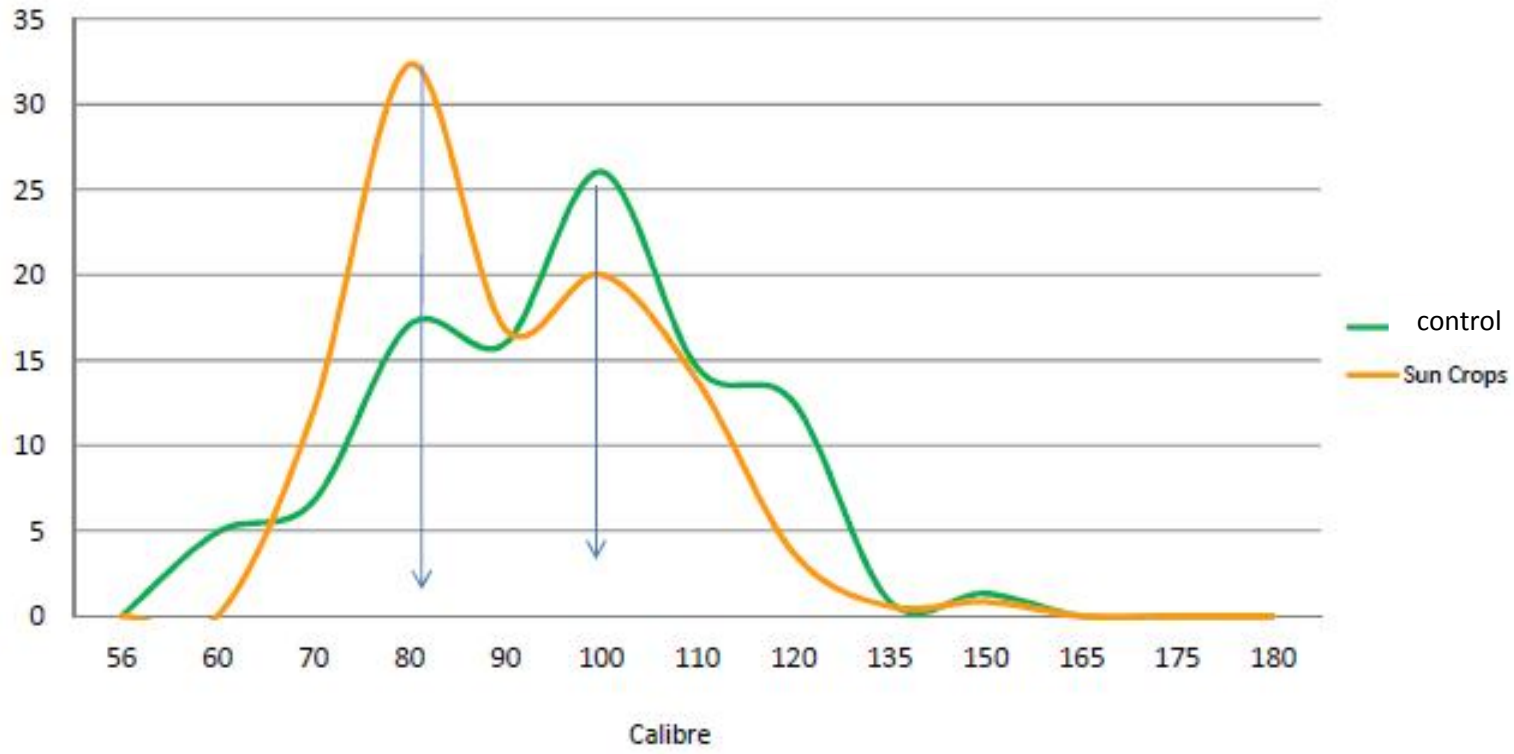
Fruit caliber curve in apple fruit cv. Granny Smith, at san Ramon orchard-Solfrut at packing



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Results, Analisys

- With Suncrops treatment (T1) reach 4.3% of more fruits from orchard into packing process, for fewer sunburn.
- With T1 would be a 2.7% more fruit packed at packing, for less amount of fruit-sunburn at commercial fruit.
- With T1 there altogether 7% less of sunburn (orchard + packing) to compare with T0. which reach a total sunburn of 13.6%.
- Caliber curves show that, the curve of T1 is more shifted to larger calibers. In this case, the caliber peak is 80 on contrast with T0 , that reach the peak at caliber 100.
- In the caliber T1 weigh average reach 91 (198 g/fruit) and at T0, caliber weighted average are 94 (192 g / fruit).

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Calculations of kg won, by less damage of sunburn with apply of Suncrops

• The Kg of fruits produced, from orchard to packing. With Suncrops treatment (T1) was 13,904 kg (0.25 ha) taking it and carry on to production per hectare, would be are 55,616 kg x 39.29% DN. (DN =% packaging within norm) = 21,851 kg / ha.

• In the case of T0 would be 53,224 kg / ha from orchard to process (4.3% + sunburn) and multiplying by a standard percentage in 36.59% (was subtracted 2.7% of more sunburn), gives a value of 19,474 kg / ha.

•The difference between 21,851 (DN T1) and 19,474 (DN T0) = 2,377 kg / ha.

• There are a 2,377 kg / ha over than T1, for less surburn.

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Appearance of fruits on to trees, treated with Suncrops

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Conclusion

- There are a 7% less sunburn in T1, if compare with T0.
- It would be have at pack on packing, over 3% more kg of commercial fruits. Because have a less impact of sunburn.
- The curve of size distribution is better for T1, where the larger sizes are observed with an 91 caliber average and weight average are near to 198 gr.
- The initial date to improve the treatments, was too late (December). Is very important began these, early on November and must be respect the dose of 75 kg/Ha, which are a perfect dose, to reduce costs to farmers.
- In addition, are recommended to good apply, use a bar or tower to increase efficiency; and also reach a high coverage on fruits.