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Biosolutions to live better

Effective and sustainable management of grapevine diseases with ECOSWING®

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WHO WE ARE

ecoflora
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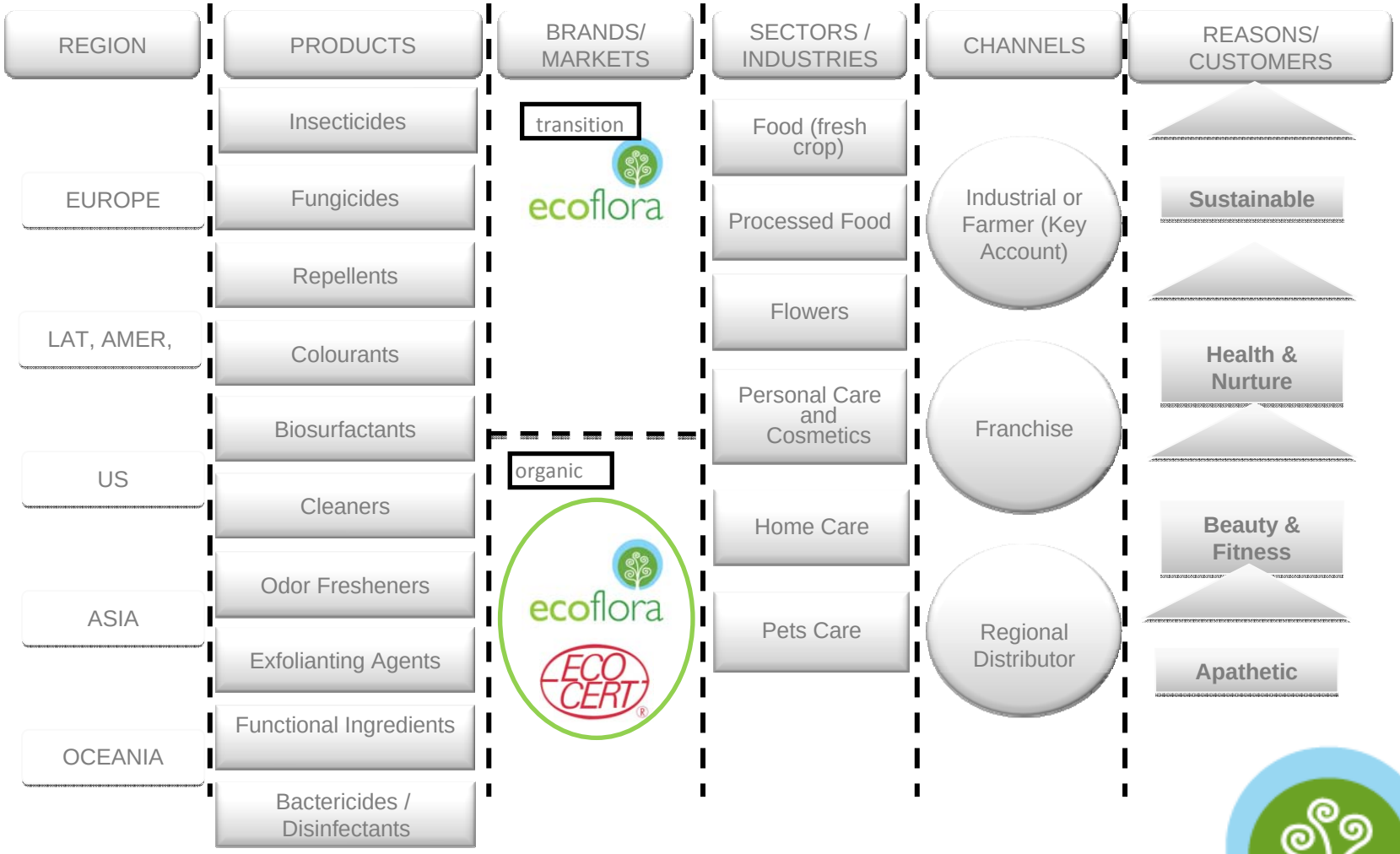
A pioneer Colombian B2B company of the “knowledge era”, with 11 years of experience, specialized in the development of innovative “bio-inputs” as sustainable solutions derived from botanical and biological resources (natural bioactives, ecodesigned plant extracts , botanical specialties and biotechnological products) for:

- ✓Food without the toxics
- ✓Cosmetics without the guilt
- ✓Flowers without the thorns
- ✓Cleaning without the poison



SCOPE

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A SERIES OF ATTRIBUTES

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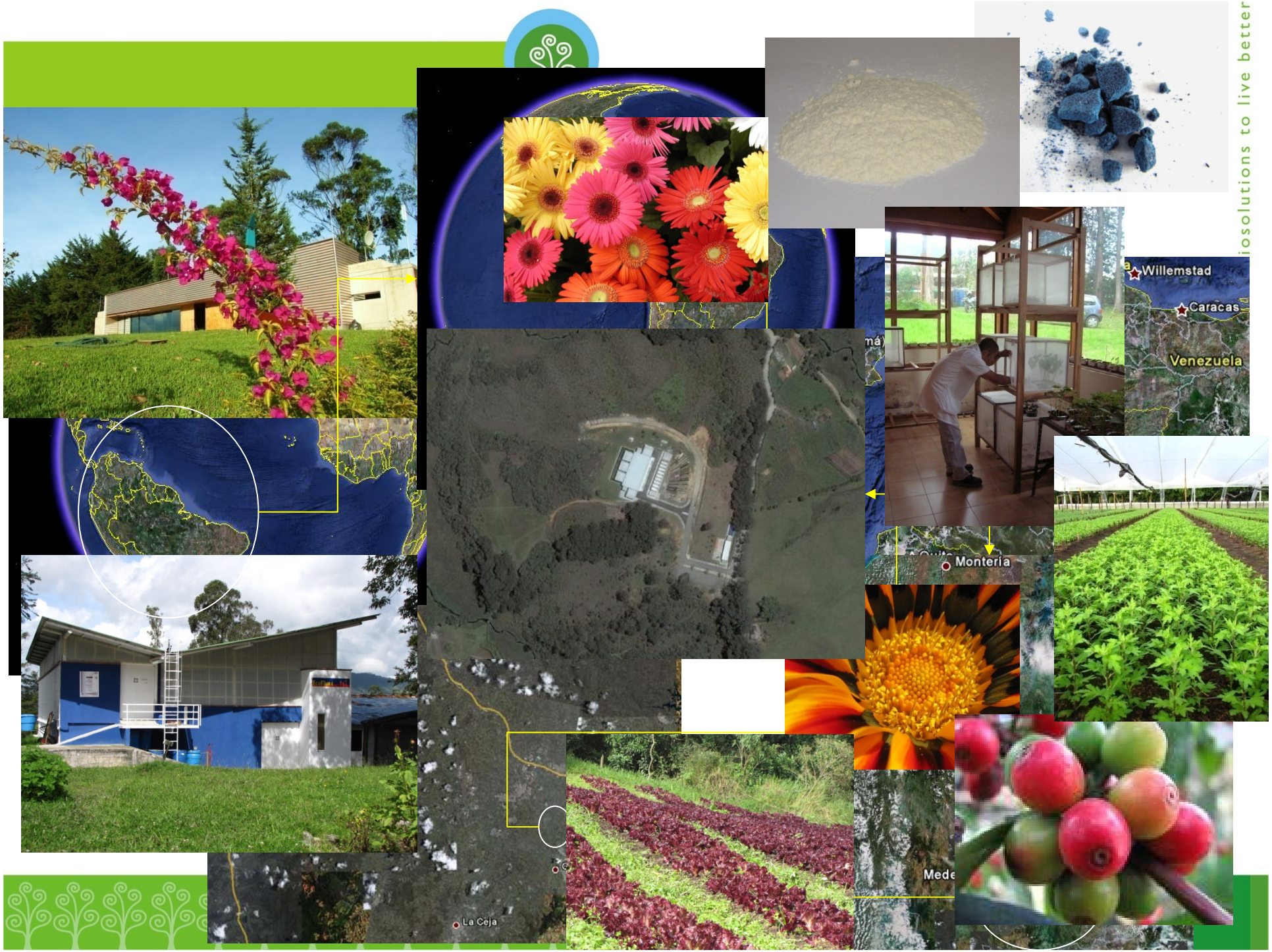
Willemstad
Caracas
Venezuela
Monteria
La Ceja

HISTORY OF ECOSWING

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- In 2006 Ecoflora started a project in Colombia and Perú for the sustainable management of the main grapevine diseases:

– Sour (Acid) Rot	Microbian complex
– Grey mold	*Botrytis cinerea* Pers.
– Mildew	*Plasmopara viticola* (Berk. & Curt.) Berl. & de Toni.
– Oidium	*Uncinula necator* (Schw.) Burr.
– Rust	*Phakopsora uva*. L

- Laboratory and field tests conducted demonstrating efficacy during several seasons

FROM LAB TO FIELD

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Viable conidias of *S. pannosa*

Effect of EcoSwing (2 mins. after)

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Effect of EcoSwing (dehydrated pustuls)

EcoSwing®

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- A new natural protectant and fungicide made from plant extracts was obtained (non-toxic mode of action)
- Botanical formulation with preventive and curative properties
- Patented at the USPTO, and registered in Colombia, Perú, Costa Rica, and Ecuador initially
- Broad spectrum
- Obtained, amongst others, from active ingredients of plants of the Rutaceae family
- High concentration and purity
- No toxicological concerns
- Attested by ECOCERT under NOP, JAS, and CEE Directives for organic agriculture

Grey mold

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- Caused by:
  - *Botrytis cinerea*

- Cause of losses from 10 to 15% in grapevine

Experimental conditions

Location	Peru
Province	Ica
Date	December 2007
Variety	Red Globe
Target	*Botrytis cinerea*
Treatments	EcoSwing® 1ml/L
	EcoSwing® 1,5 ml/L
	EcoSwing® 2ml/L
	Iprodione (Rovral)
	Control (no applications)
Area per treatment	1,000m^2

Evaluation

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- The incidence and the infection grade were determined in two clusters per plant and in thirty-two plants per treatment
- Evaluations were done 7 days before the first application and 1 day after each application
- Two applications were made per treatment

Results

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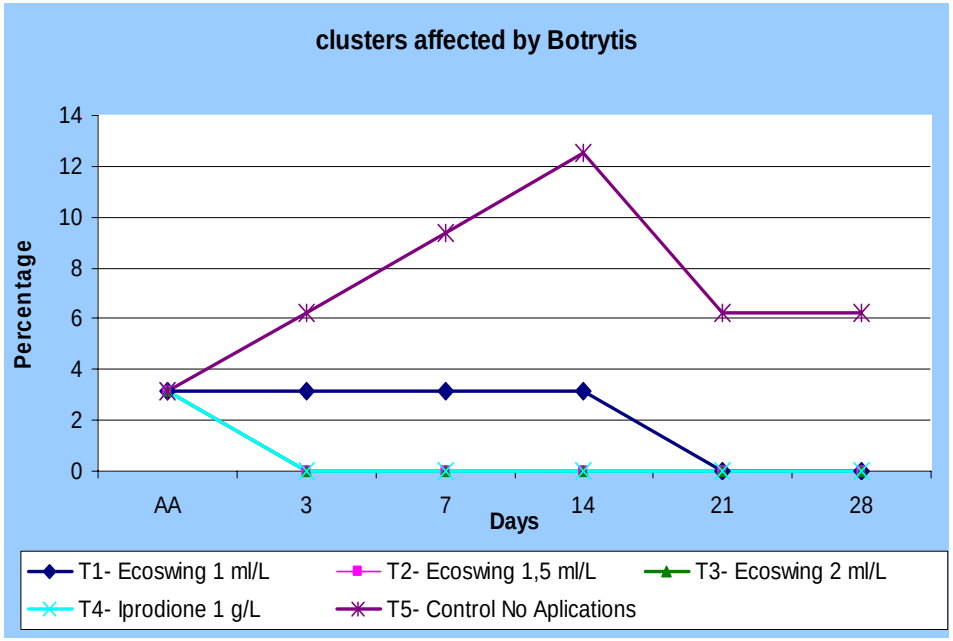
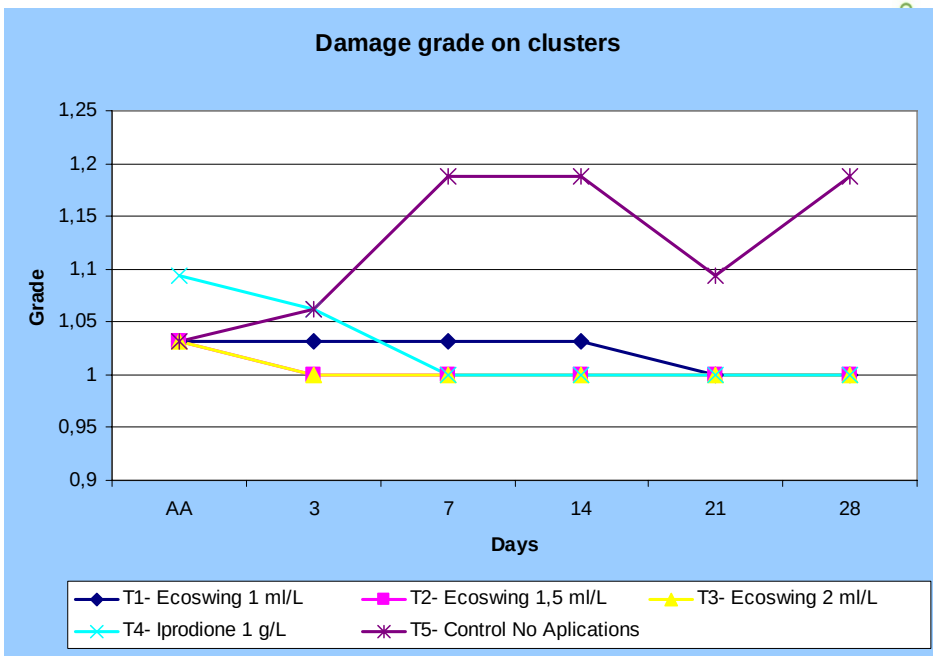
- EcoSwing® controlled the disease three days after the first application in 100% when applied at levels of 1,5 and 2ml/L

- It also prevented the evolution of the disease after the second application





- No differences were found amongst EcoSwing® (at 1,5 and 2ml/L) and the chemical control (Iprodione)

Acid Rot
Sour Rot

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- Caused by:
  - *Aspergillus niger*
  - *Rhizopus stolonifer*
  - *Penicillium expansum*
  - *Alternaria sp.*
  - *Cladosporium herbarum*
  - *Yeast*
  - *Acetobacter spp.*

- Cause of losses from 5 to 10% in grapevine

Experimental conditions

Location	Peru
Province	Huari, Ancash
Date	July 2009
Variety	Red Globe
Target	Acid rot
Treatments	EcoSwing® 1.8L/Ha
	BC1000 2.5Kg + Sulfur dust 15kg/Ha
Area per treatment	10,000m^2

Evaluation

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- Three randomized sites per treatment were selected , in which 10 clusters were chosen to monitor the incidence of acid rot disease
- Evaluations were done 7 days before the first application and 1 day after application
- Applications were performed to guarantee a good coverage of the whole foliage surface

Results

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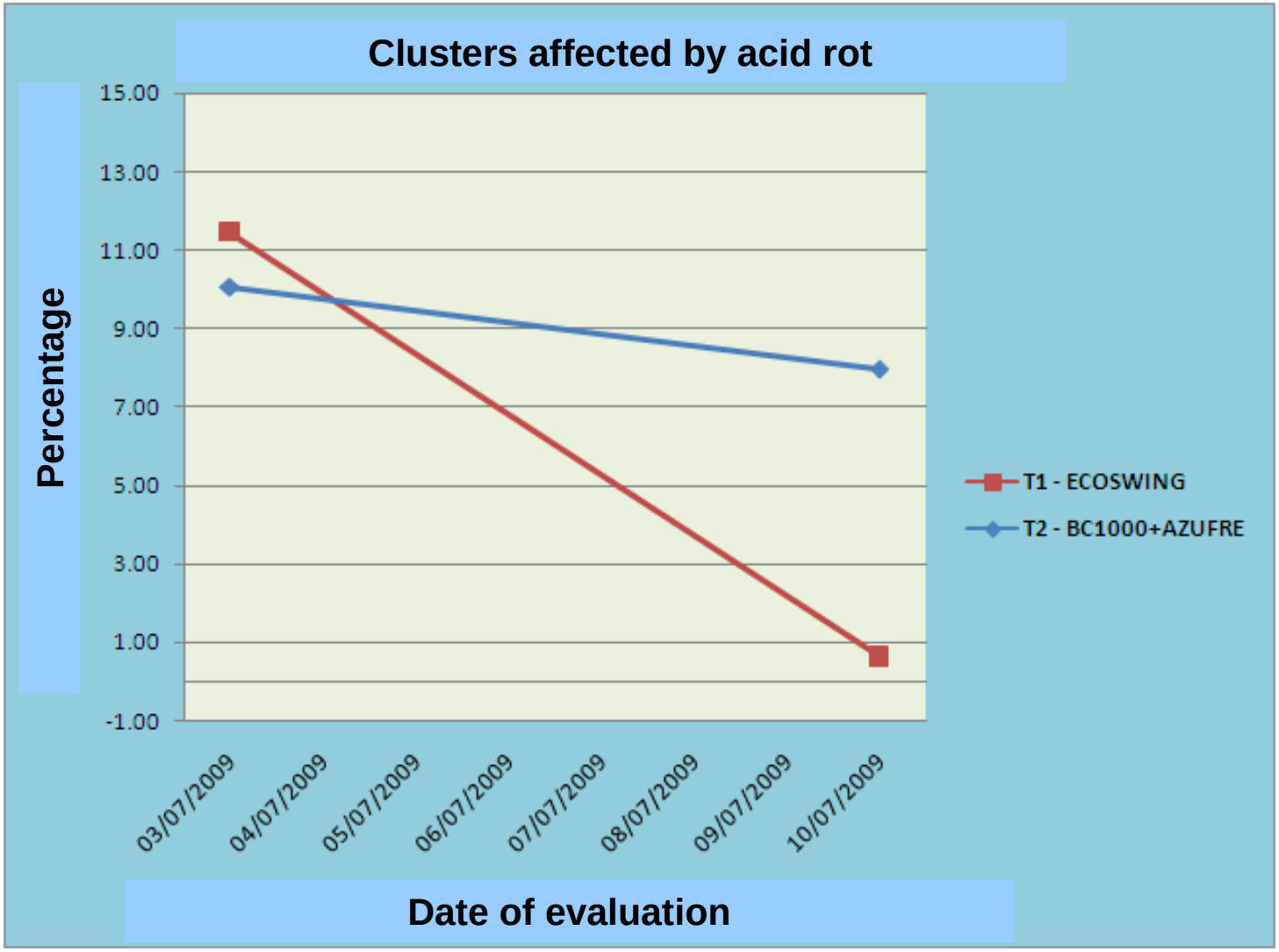
- There were statistically significant differences between the effectiveness of EcoSwing® and the conventional treatment

- After 7 days of first spray EcoSwing® controlled 99% of the disease, compared with the farm´s usual control which could only reduce it by 21,7%


Clusters affected by acid rot
Percentage
15.00
13.00
11.00
9.00
7.00
5.00
3.00
1.00
-1.00
03/07/2009
04/07/2009
05/07/2009
06/07/2009
07/07/2009
08/07/2009
09/07/2009
10/07/2009
T1 - ECOSWING
T2 - BC1000+AZUFRE
Date of evaluation

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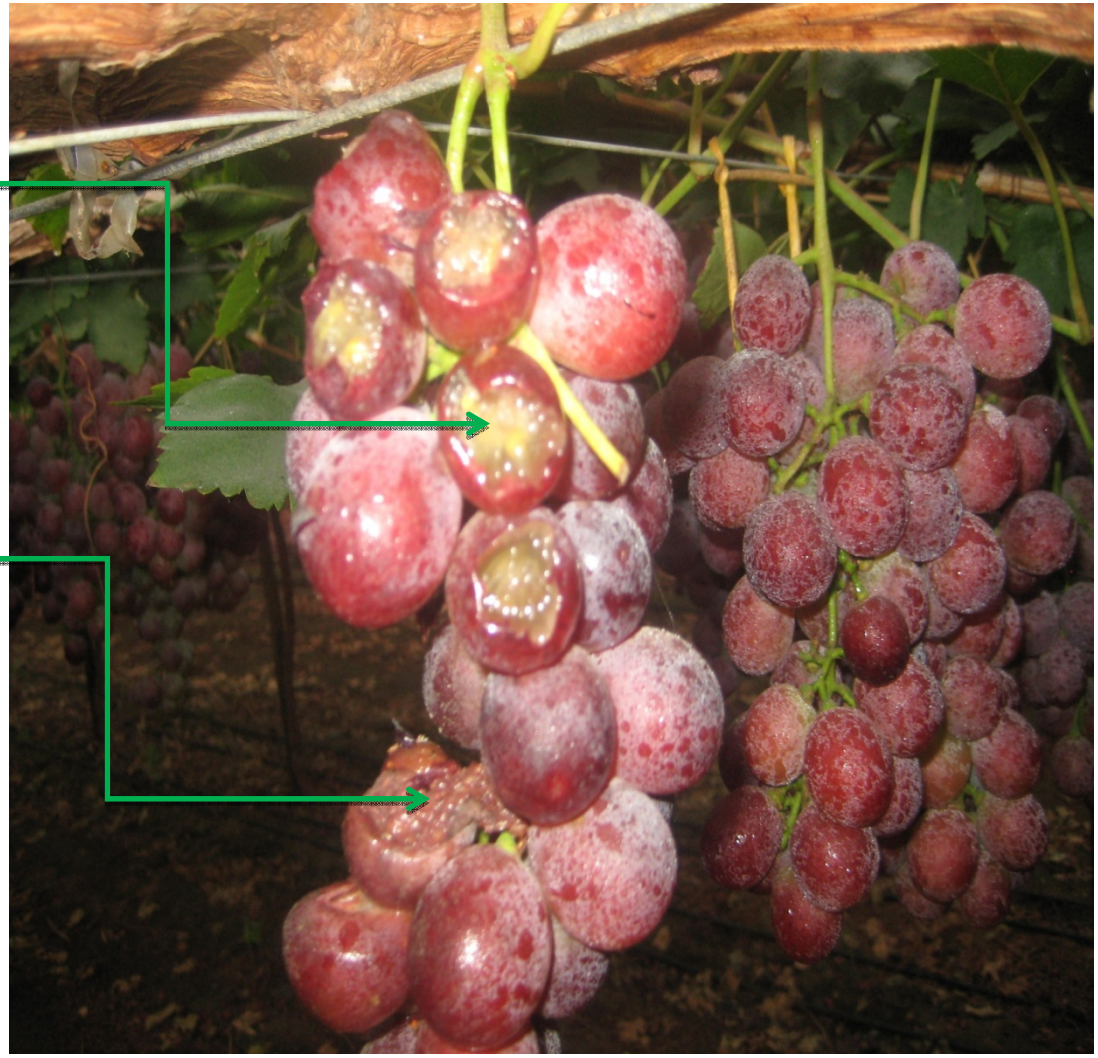
Fresh damage caused by rodents

Damage caused by acid rot



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The damage caused by acid rot and rodents was stopped and dried by EcoSwing®

Other uses of EcoSwing®

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Target	Crop
Powdery mildeu (*Sphaerotheca pannosa*)	Roses and gerbera
Cladosporium	Carnations
Crown rot	Bananas and Pineapple
Oidium (*Uncinola necator*)	Grapevine
Oidium (*Leveillula taurica*)	Artichoke

BENEFITS

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- Effectiveness
- No Residues, Non Toxic, Safe
- Sustainable tool with low carbon footprint
- Versatile (mixes and management pograms)
- Resistance risk reduction
- Ideal for both IPM (synergies, rotations, complementary action modes) and organic production (alternative for synthetic fungicides substitution)

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