

ROMEIO[®]

**Innovative biofungicide
against foliar fungal diseases**

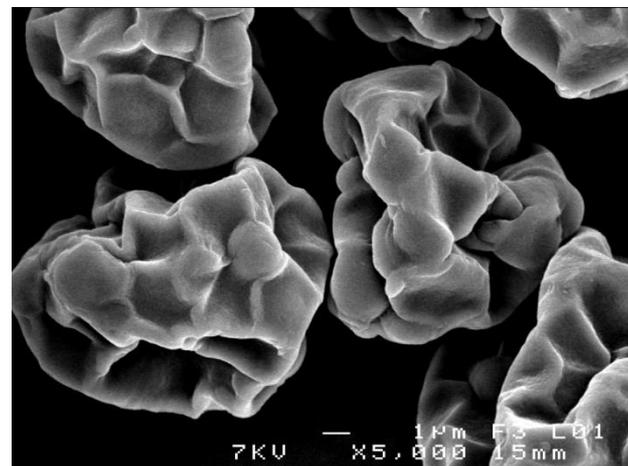
ABIM, Oct.24-26, 2016
Bernard Blum Award



- **Lesaffre is an industrial** family company
 - **160 years experience** in fermentation
 - **Innovation** in microbials and derivatives
 - **Scalability** of the production
-
- **Application : Biocontrol & Biostimulant**
 - Obtained by **fermentation** processes
 - **R&D > Registration > Production > Sales**



- **Cerevisane** is coming from **Lesaffre R&D pipeline and patented in 2006**
- **Cell wall** of *S.cerevisiae* yeast strain LAS117
- Specific process of **purification**
- Glucans, mannans, proteins, lipids and chitins
- **EU approval of cerevisane** on the 23/04/2015 for 15 years - Listed in annex of regulation 540/2011 as a **low risk** substance
- **No MRLs** (Annex IV of Regulation EC 396/2005)



Cerevisane microscopic picture (SEM)

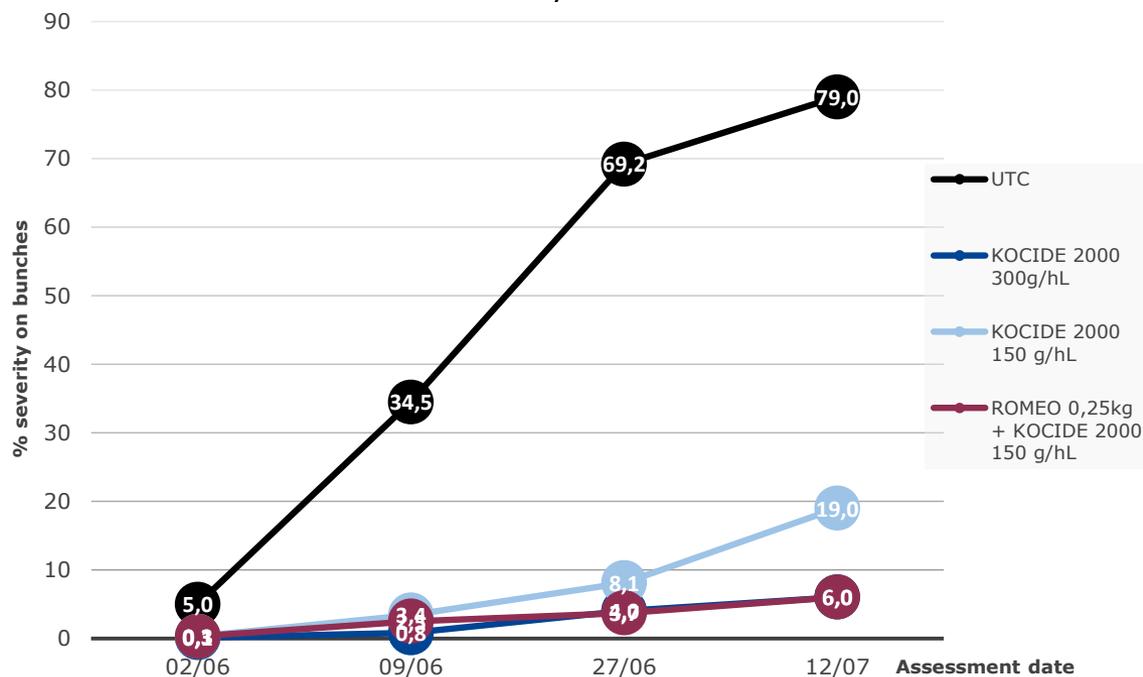
- **Composition:** 94,1% of a.i. Cerevisane
- **Formulation :** WP
- **2 years shelf life** at room temperature
- Developed in field **since 2009**
 - In **several countries** and **crops (> 300 GEP trials)**
 - **Partnership** with **universities, technical institutes** and **distribution**
- **Preventive foliar** application at **low dose rate**
- **Non living**, easy to use in **tank mix with chemicals**

Crops	Targets	Dose /ha
Grapevine & Table grape	Downy mildew Powdery mildew <i>Botrytis cinerea</i>	0,25 kg
Vegetables Cucurbits, salads, tomato, strawberry		0,5 - 0,75 kg



Grapevine Downy Mildew - Portugal 2016

% Severity on bunches

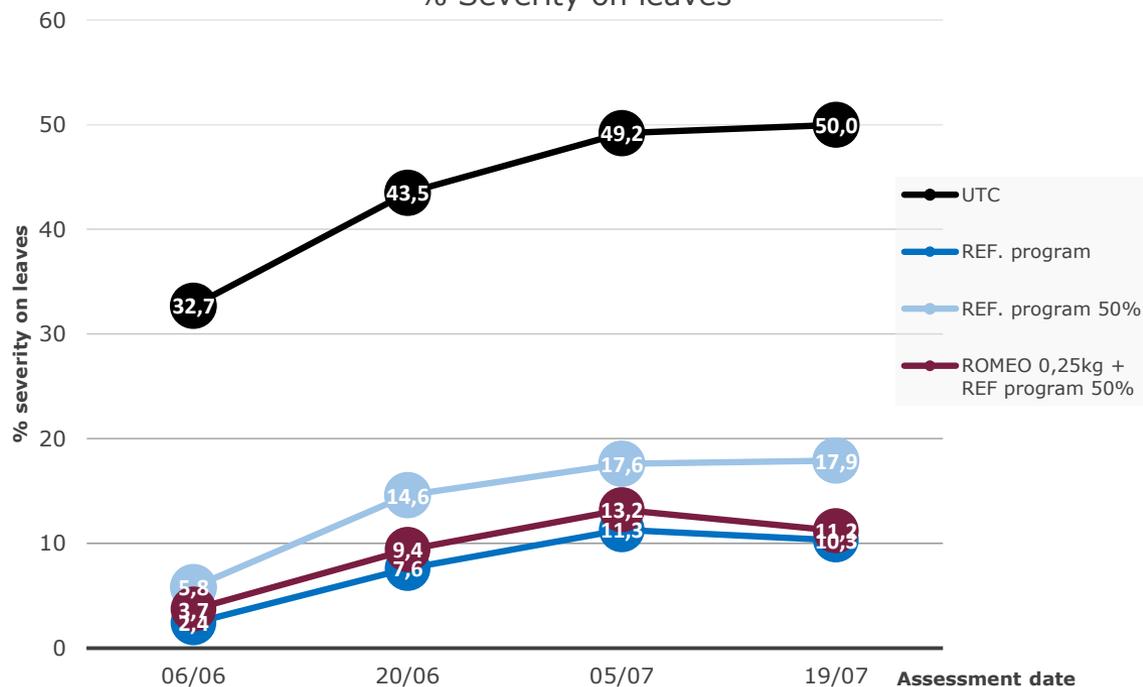


- Very strong pressure of downy mildew on bunches
- In **tank mix**, ROMEO allowed 50% **dose reduction of copper**



Grapevine Powdery Mildew – France 2016

% Severity on leaves



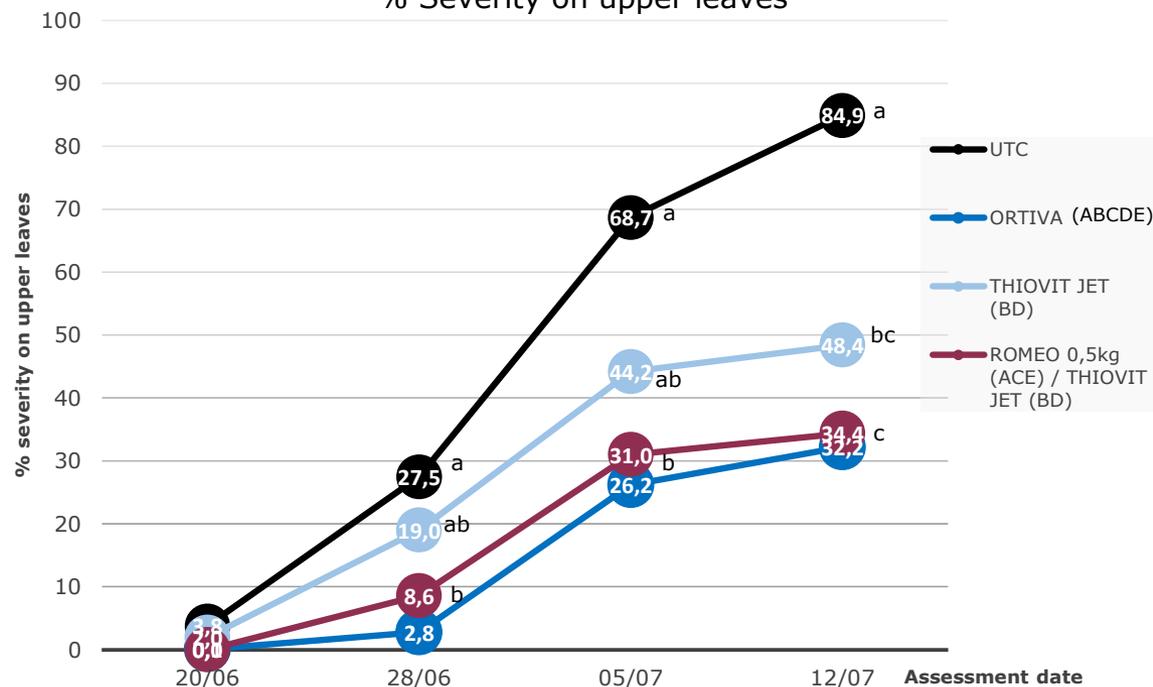
- Strong pressure and early attack on Carignan cultivar
- In **tank mix**, ROMEEO allowed 50% **dose reduction of this chemical program**

*REF . Program = Tebuconazole+Triadimenol / Fluopyram + Trifloxystrobin / Metrafenone / Proquinazid / Metrafenone / Spiroxamine



Melon Powdery Mildew - Spain 2016

% Severity on upper leaves



- Very strong pressure of powdery mildew on leaves
- In **alternation with sulfur**, ROMEO improved the efficacy and reached azoxystrobin reference efficacy.

And finally how does it works ?

ROMEIO treatment mimics a microbial attack

Perception by the plant

Activation of cell signaling cascade

Induction of defense genes

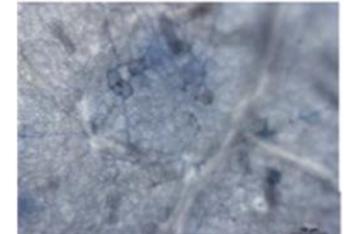
Metabolic changes = effective defenses

Plant protection against further pathogen attacks

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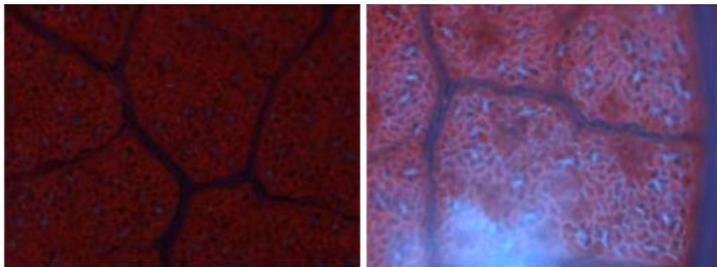
ROMEIO®



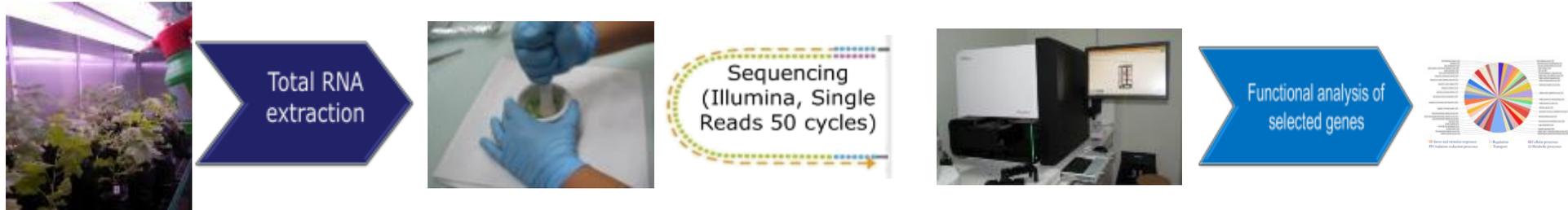
Microscopic observation of *E. necator* development on grapevine leaf

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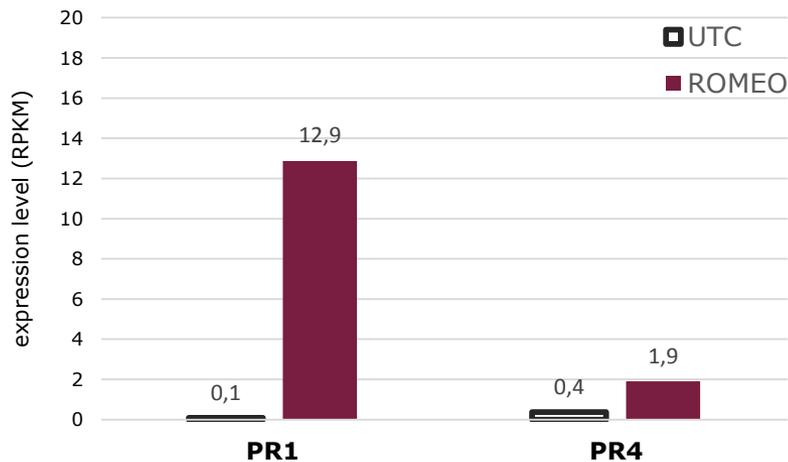
ROMEIO



ROMEIO stimulates the production of phytoalexins in leaves (fluorescent compounds).



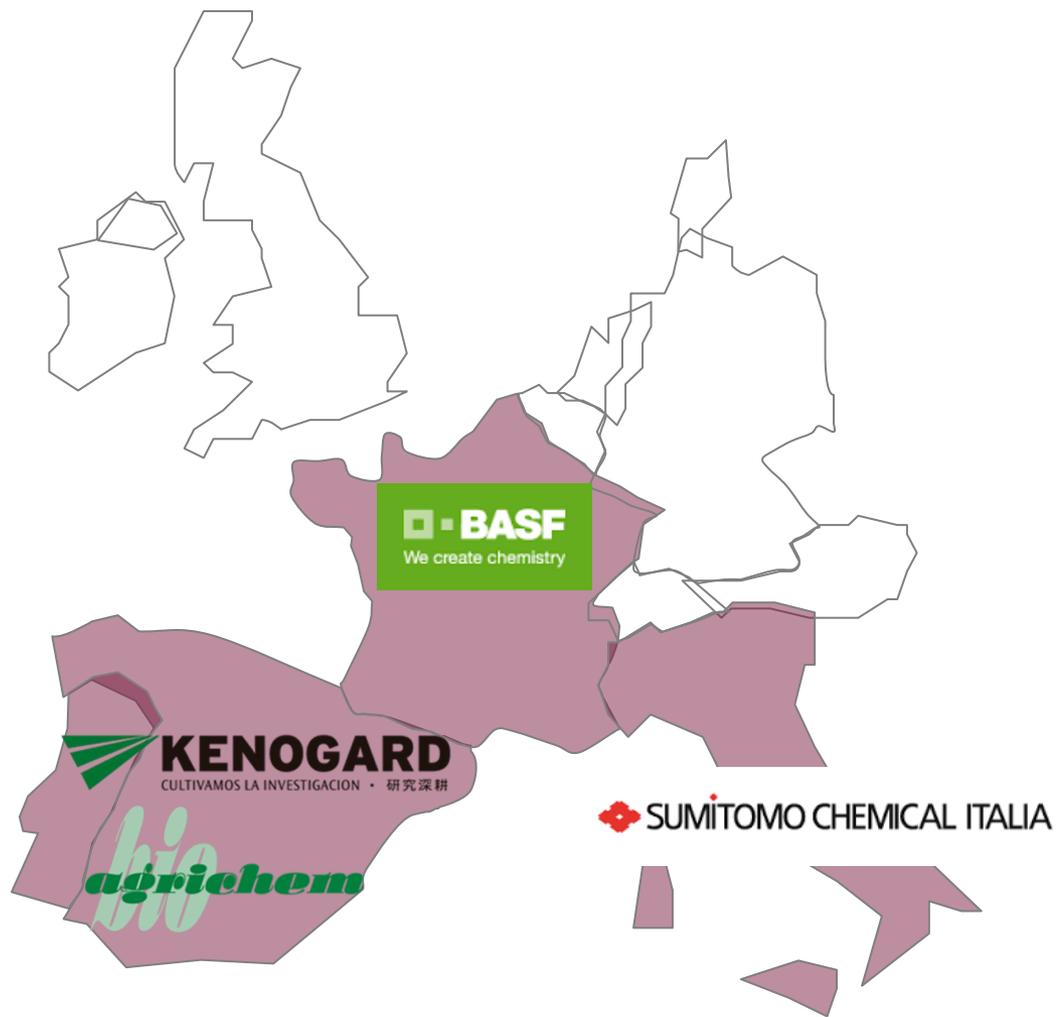
Expression level (RPKM) of PR1 & PR4
1 day after ROMEO foliar application



- **ROME0 induces the expression of many genes including genes involved in defense**
- **Stimulates both SA- and JA/ET-dependent signaling pathways**
- **Activates some defense processes known to be implicated in the reaction of grapevine genotypes resistant to downy mildew.**

- **1st Systemic Resistance Inducer** based on **non living microbial**
- **Multi-targets: effective** against several **foliar fungal diseases**
- Easy to **integrate in chemical program** and manage **dose reduction**
- **Long shelf life (2 years)** and available at **industrial scale**
- **Low dose rate** : 0,25 – 0,75 kg/ha
- **EU approval** of active substance **Cerevisane** – **Low risk**
- **No residues**





PERFORMANT BY NATURE