

- R+D Biotechnology company
- *Spin-off* from the Biología Department/Centro de Biología y Genómica de Plantas (CBGP) of the Universidad Politécnica de Madrid.

Mission and vision

- Transfer excellence science results to the farmers
- Answer plant protection and breeding market needs developing new technologies compatible with intensive, integrated and ecological Agriculture
- Reduce agriculture's environmental impact and improve our quality of life with healthier food without residues

Organization

Scientific advisory board

Dr. John Ryals

Metabolon Inc, Research Triangle Park, North Carolina, USA

Dra. Salome Prat

Research Professor, CNB-CSIC, Madrid, Spain

Dr. Dierk Sheel

Director Leibniz Institute of Plant Biochemistry (IPB), Halle, Germany

Board of directors

Management team

Co-founder

Dr. Antonio Molina

CEO

Eduardo Quemada

R&d Head Manager

Dr. Marisé Borja

Collaborations

Thorsten Nürnberger , Jürg Felix, Frederik Brunner, Andrea Gust (EKUTübingen)

Ivo Feussner (University of Göttingen)

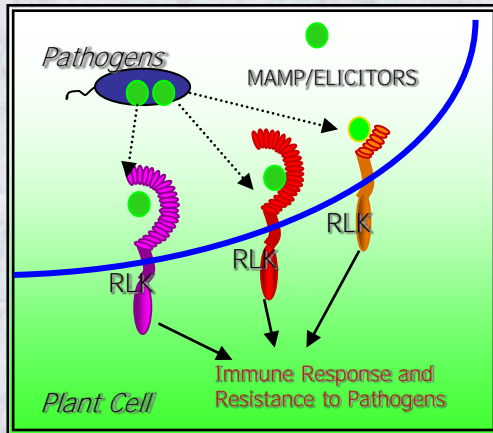
Cyril Zypfel (The Sainsbury Laboratory in Norwich)

Julio Salinas (CIB-CSIC)

Plant Response Biotech Technologies and Products

New technologies (**Know-how and Patents**) to control biotic or abiotic stress in plants, are developed in collaboration through licence with Research Centers or companies to bring the following **products** to the market:

* **“New stimulators/elicitors”** activating plant innate immunity in plants from:



- **Natural sources:** microorganism or plant derived molecules
- **Chemical synthesis:** *Chemetics (Chemical Genetics)* identification

* **Plant metabolites** activating plant stress resistance

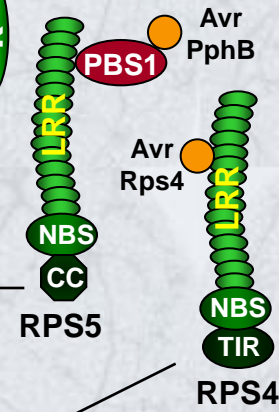
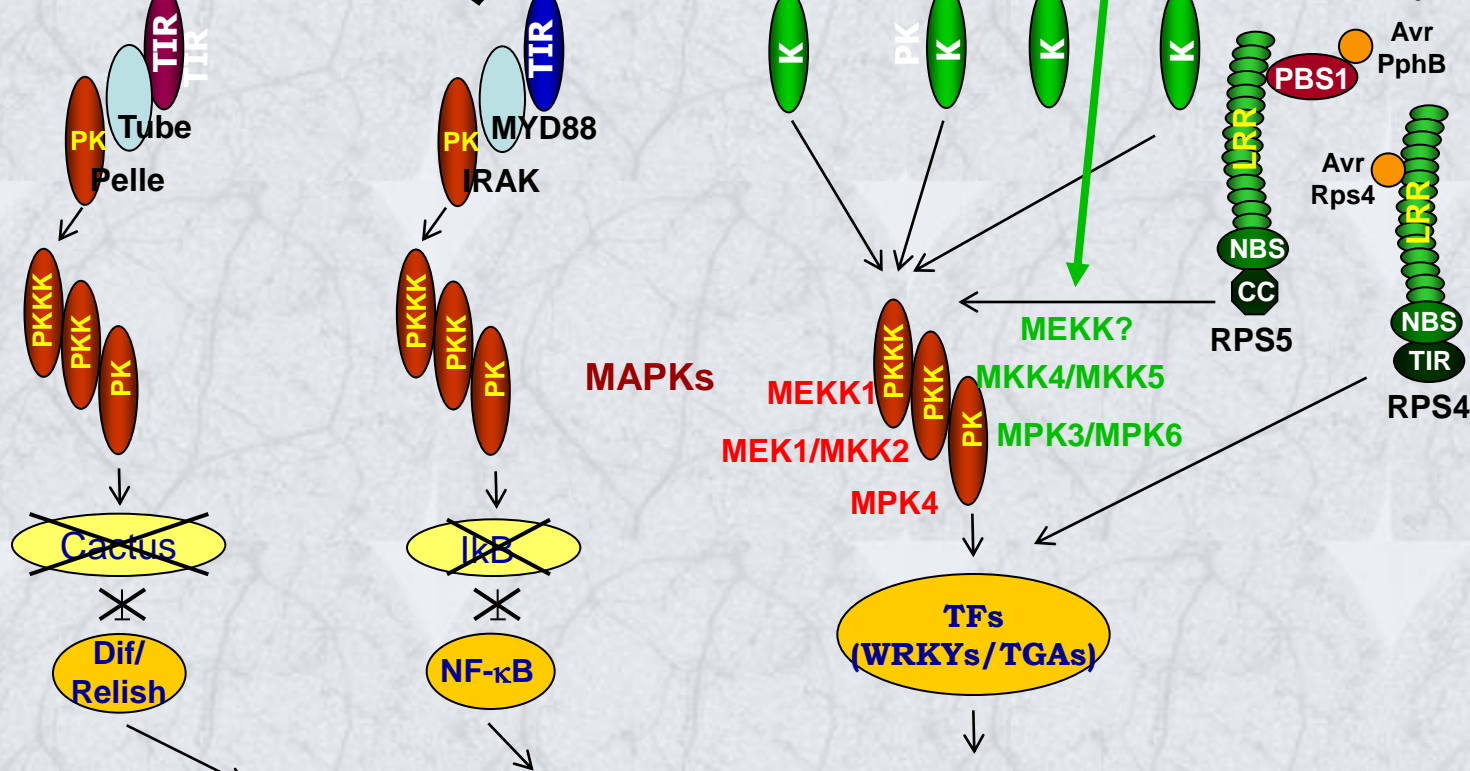
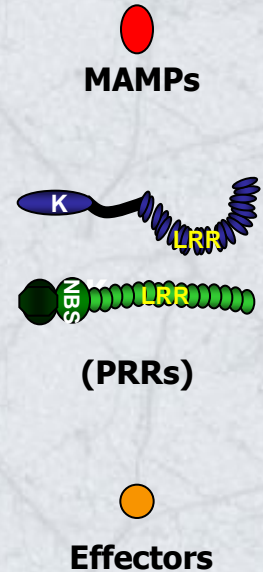
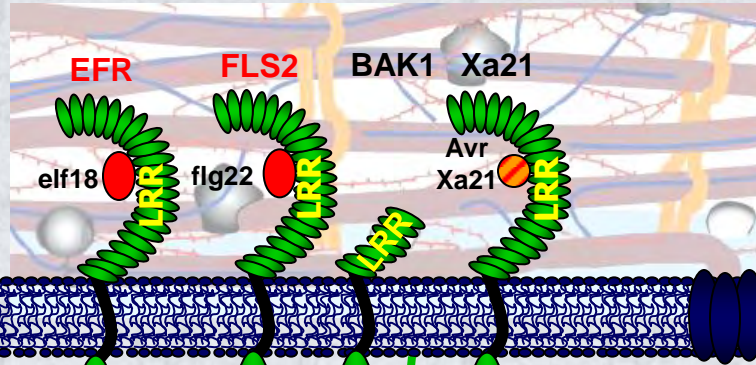
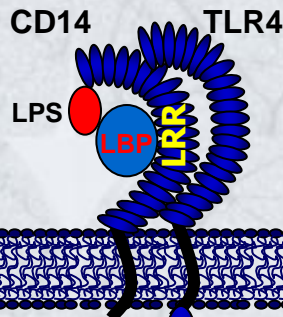
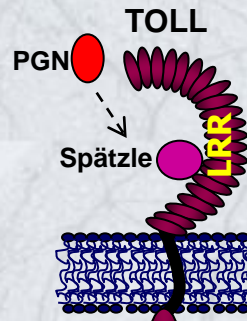
* **Plant Genes** coding for the proteins involved in the elicitor recognition, plant stress signaling or downstream components to breed **new plant varieties resistant to biotic and abiotic stresses** by:

- **Classical breeding** (horticultural species)
- **Biotechnology**(GMOs for extensive crops corn, soy bean, potato,..)

Plant Innate immunity applied to biotic stress response

DROSOPHILA MAMMALS

PLANTS

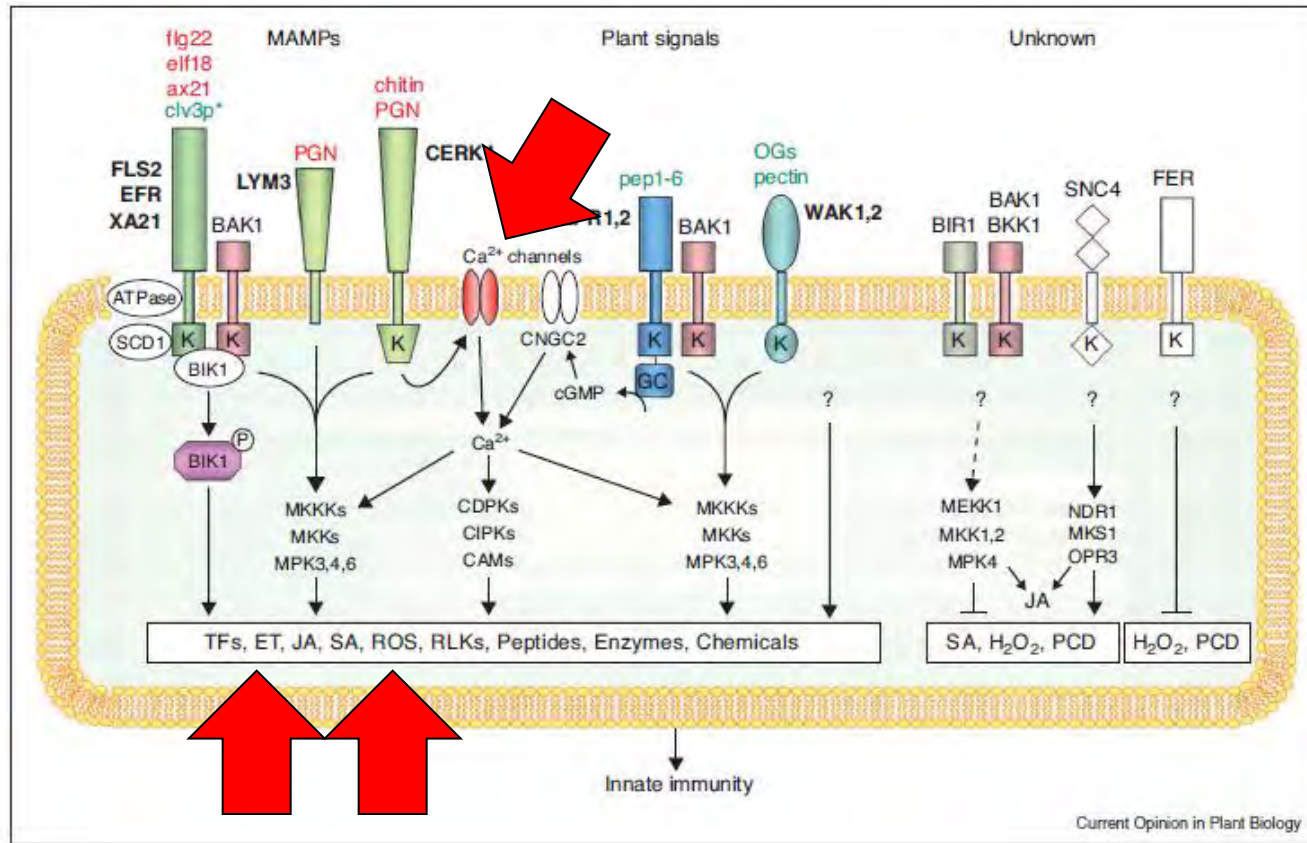


IMMUNE RESPONSE GENES
ANTIMICROBIAL PEPTIDES and PR (plant defence-related) proteins



Plant Innate immunity applied to biotic stress response

Figure 1

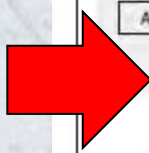
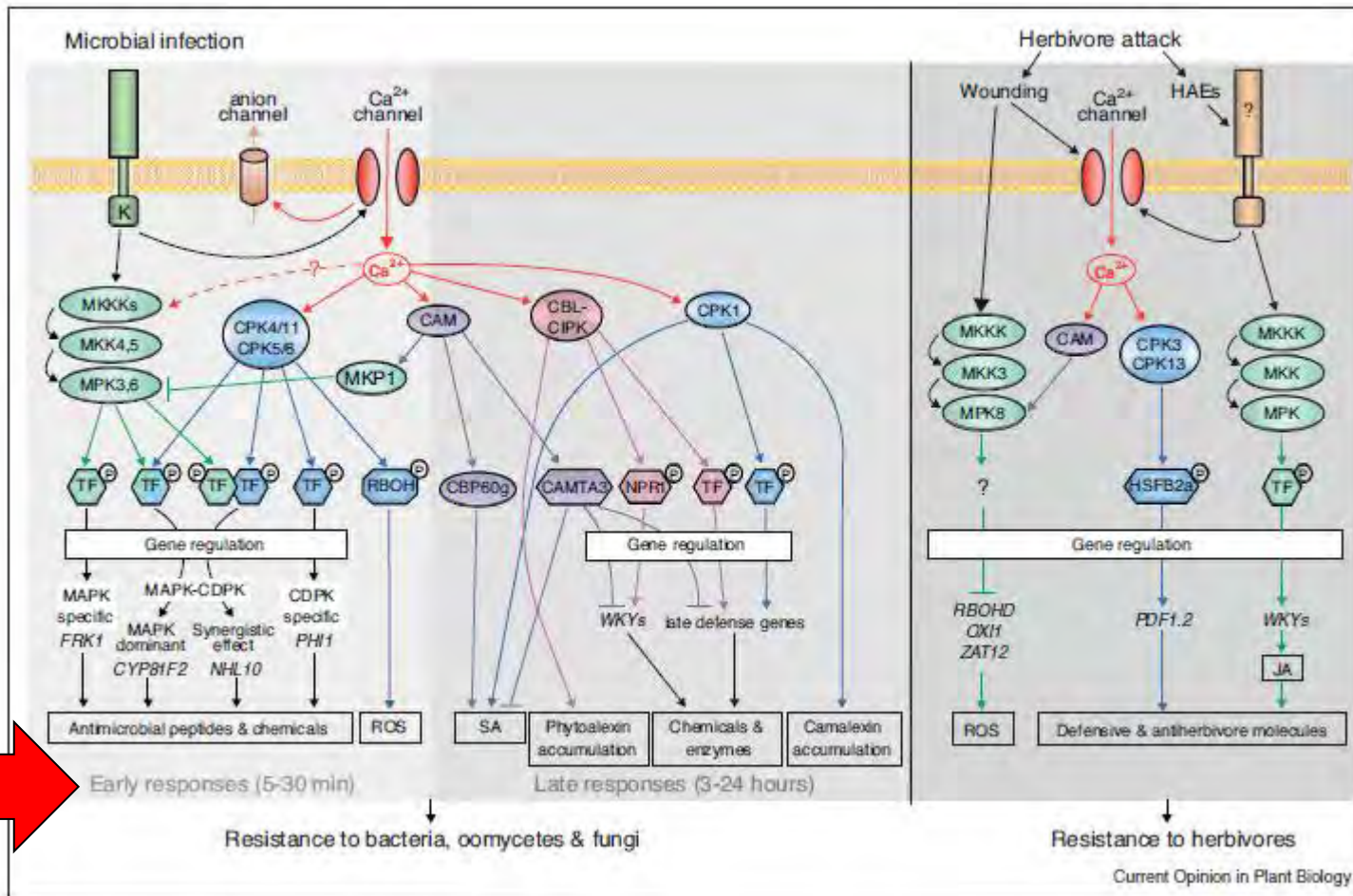


Tena et al, 2011

High throughput screening for conserved responses

Plant Innate immunity applied to biotic stress response

Figure 2

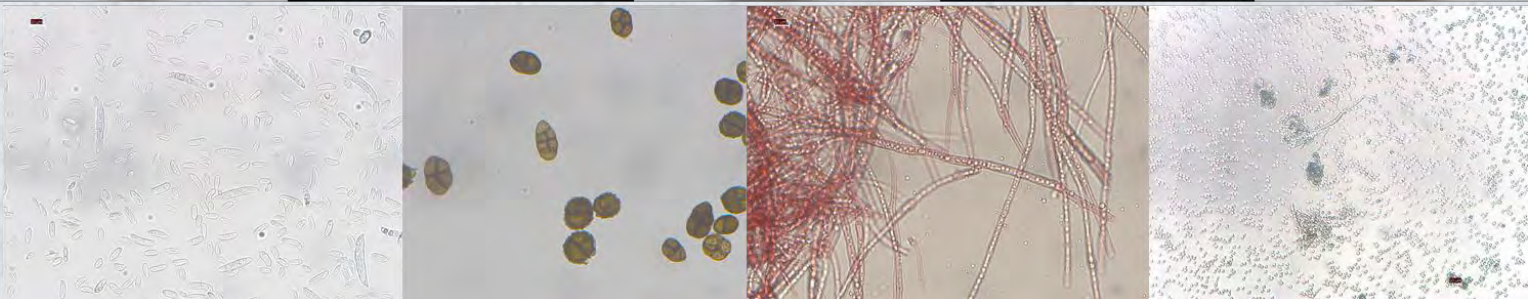


Tena et al, 2011

High throughput screening for early responses

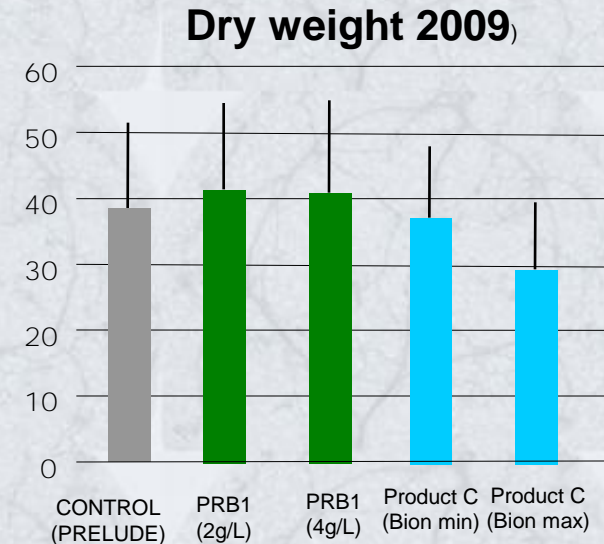
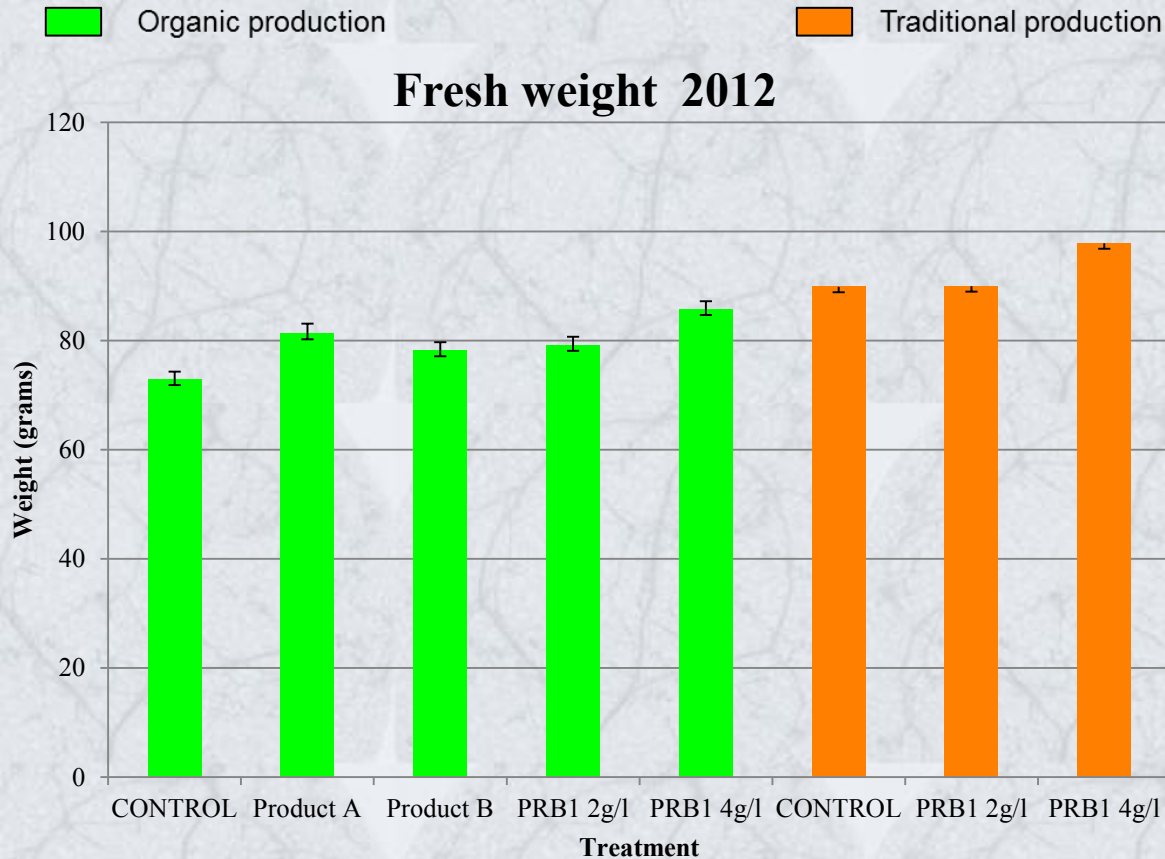
PBR1 product development

Field/greenhouse trials



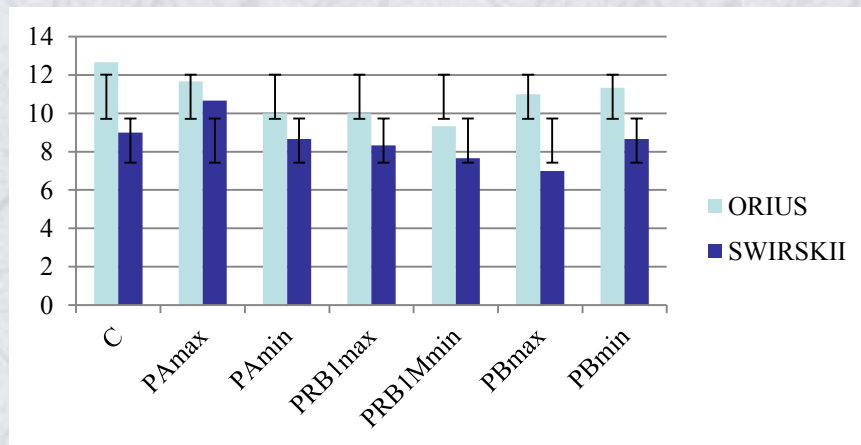
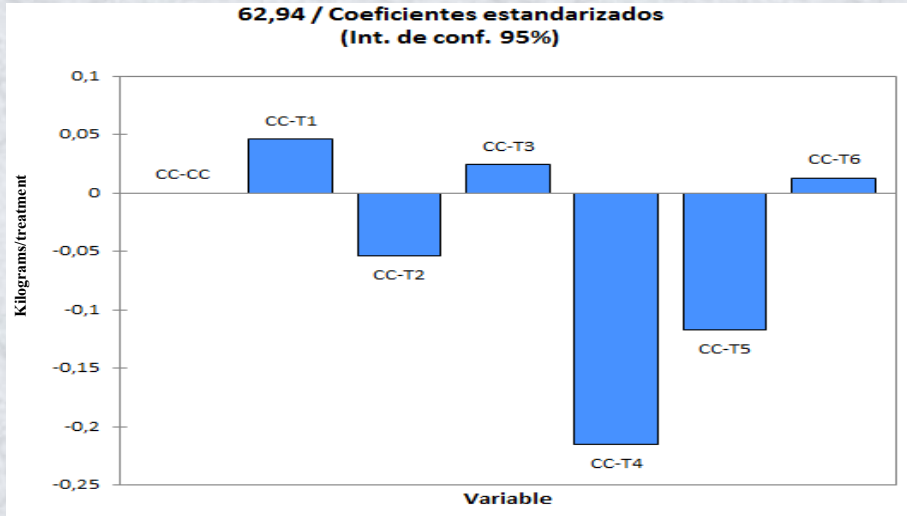
PBR1 product development

Garlic field trials: 10-20% production increase



PBR1 product development

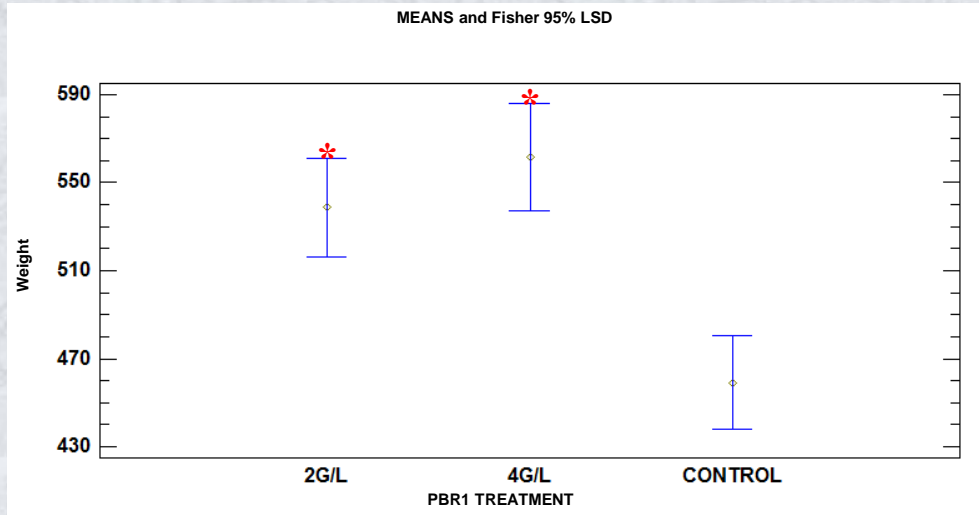
Pepper greenhouse trials: 10-20% production increase



It does not affect biological control insects and production is 1 month earlier

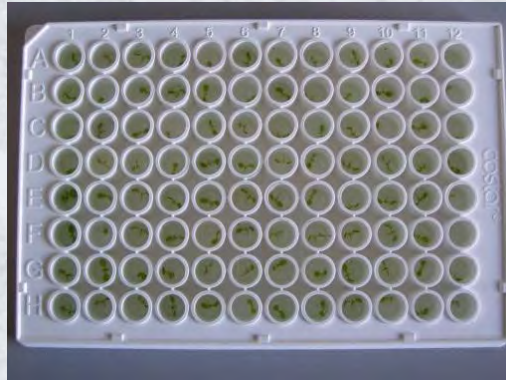
PRB1 Product Development

Organic onion production: 20-30% production increase

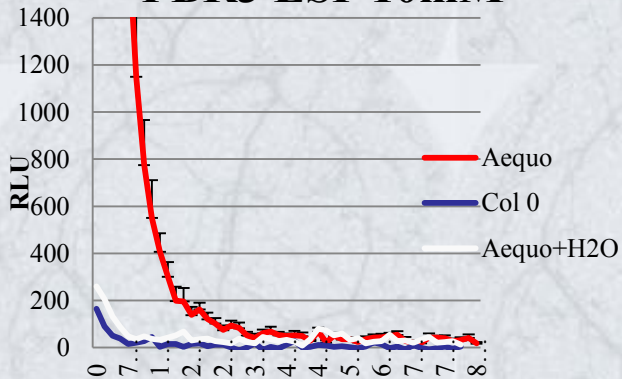


Product Development **QUALITY CONTROL**

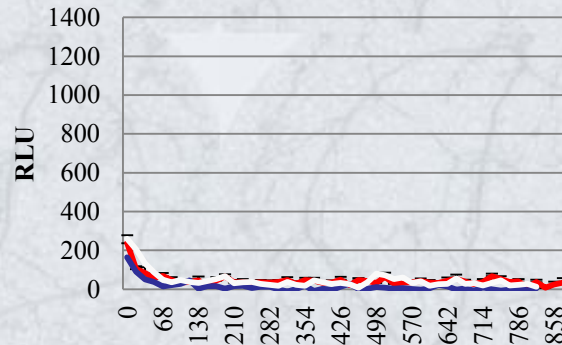
QUALITY CONTROL: The company has done extensive formulation and quality control validation trials since there is a big variability among different sources and formulations. Extensive data are available for the **PRODUCT REGISTRATION**.



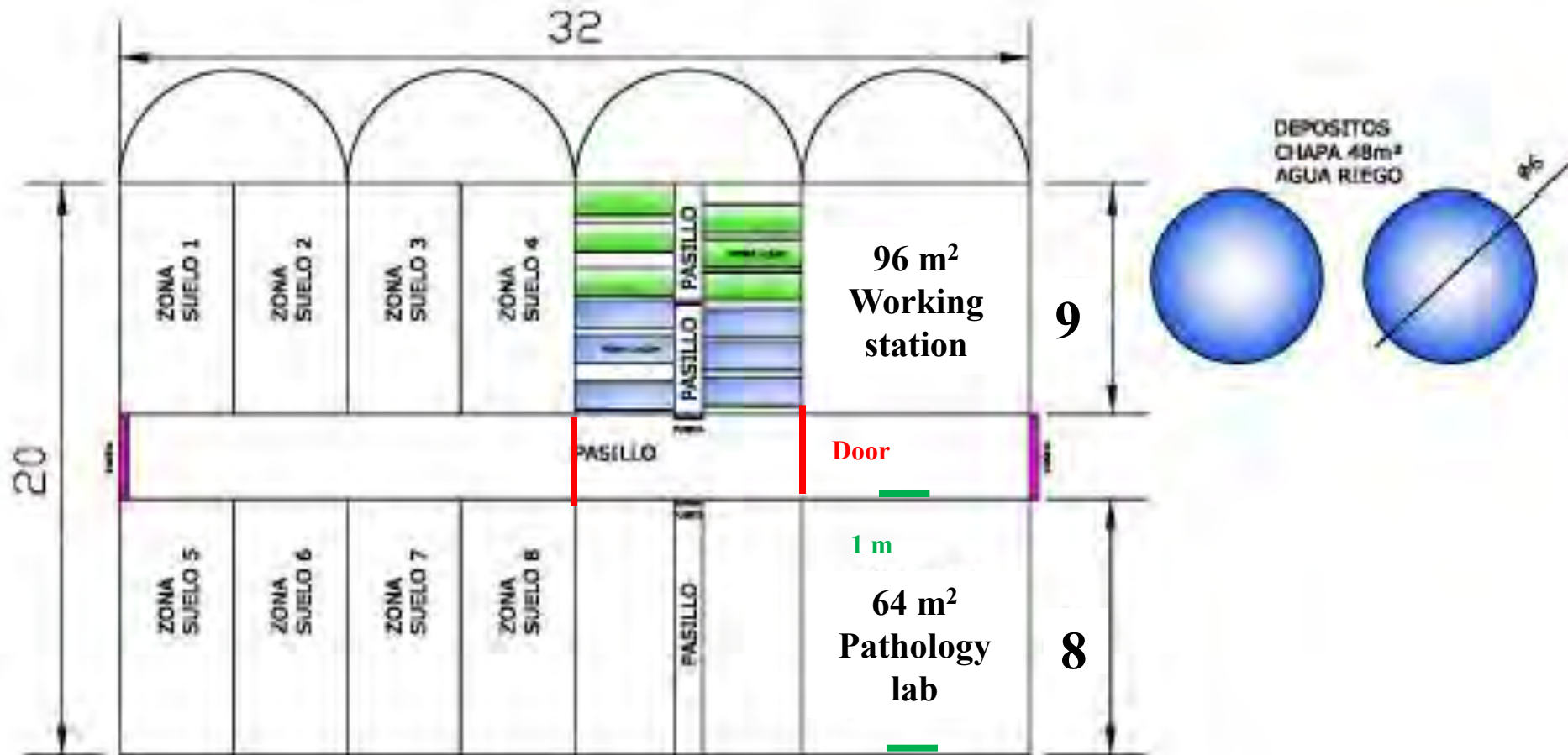
PBR3 ESP 10mM



PBR3 AS12 50mM



Product Development GROWER TRIALS



Plant stress response Current Targets

CROPS	Tomato	Pepper	Melon	Potato	Rice	Canola	Citrus	Grapevine	Strawberry	Ornamental
STRESS										
<i>Xanthomonas axonopodis</i> pv. <i>citri</i>	X	X					X			
<i>Sclerotinia sclerotiorum</i>						X				
<i>Phytophthora infestans</i>				X						
<i>Fusarium oxysporum</i>	X		X							
<i>Botrytis cinerea</i>		X		X				X	X	X
<i>Magnaporthe oryzae</i>					X					
<i>Rhizoctonia solani</i>	X	X	X			X				X
<i>Rhizopus oryzae</i>					X					
<i>Ralstonia solanacearum</i>	X	X								X
Drought	X	X	X							X
Salinity	X	X	X						X	X
Frost	X						X	X	X	X

X: ongoing

X: planned



PlantResponse



From the lab to the grower: Solutions for food and agriculture challenges