

*Natural products for  
a productive agriculture*

**Natürliche Produkte für  
produktive Landwirtschaft**

*Produtos naturais para  
a agricultura produtiva*

**Naturalne produkty dla  
rolnictwa produktywnego**



## What is GAÏAGO

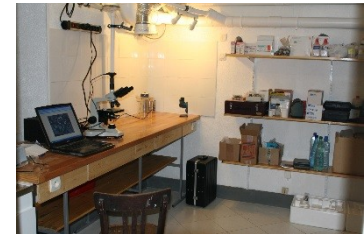
- An agricultural French Startup created in 2011 : Privately owned
- Name inspired by the Goddess of Earth : Gaia (go!)
- **GAÏAGO is specialized in Carbon and Nitrogen cycles optimization on soils and plants**

# A world network of soil scientists and hands-on agronomy



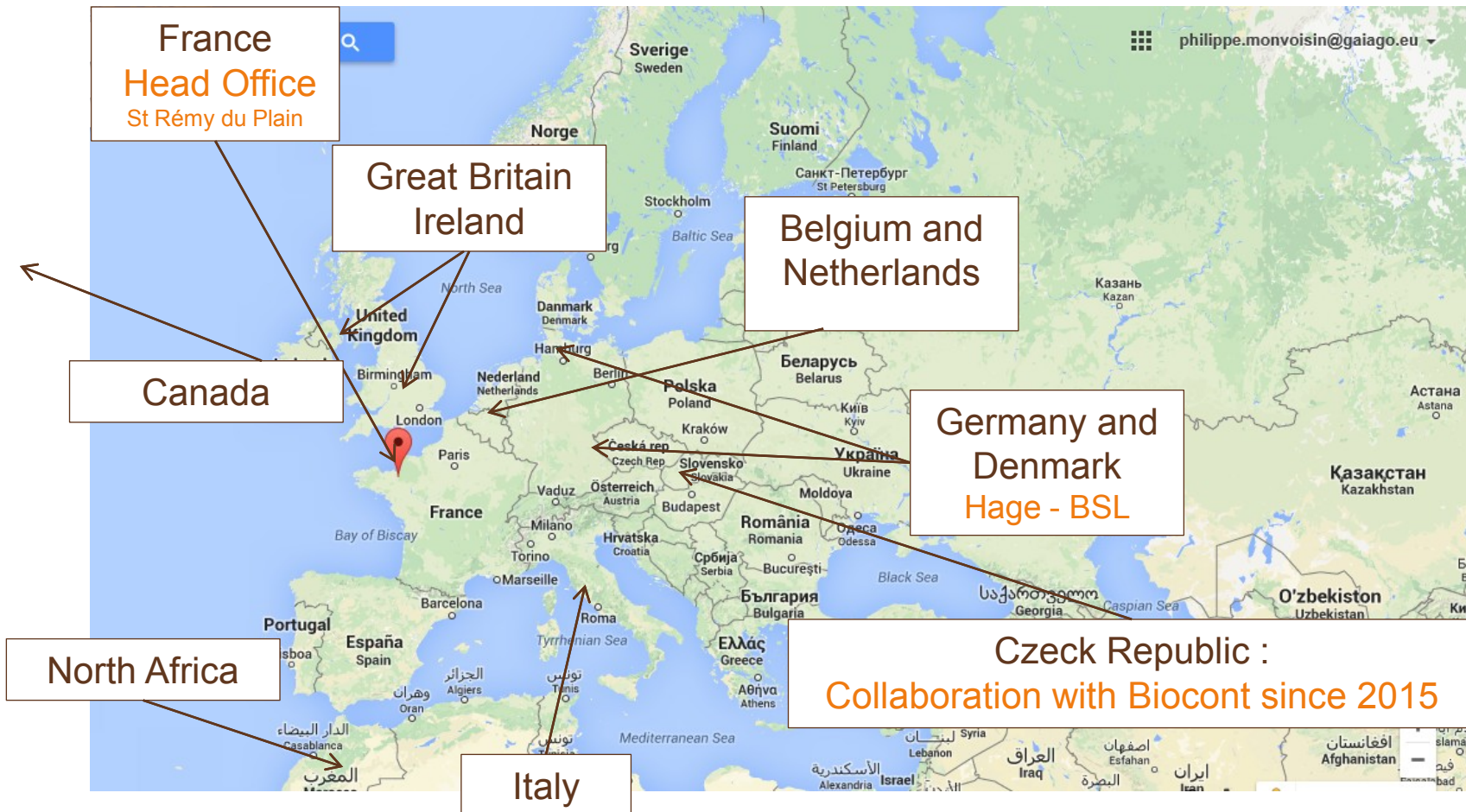
## Who are we ?

- **Our main activity : conception of products based on agronomic know-how, farming world knowledge and a worldwide network of pioneering scientists**
- **Our products : Natural and Innovative**
  - Soil conditioners
  - microbial inoculants
  - Biostimulants
  - elicitors
  - All of them can be used in organic farming in accordance with the EC regulations EC 834/2007 and EC 889/2009

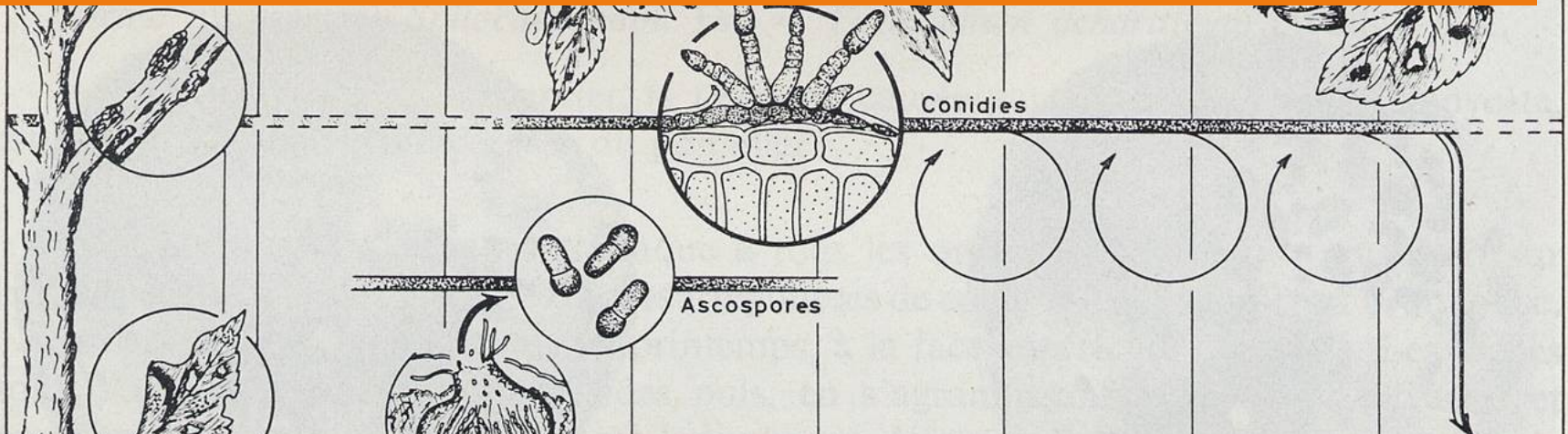




# Headquarters and selling area



## Our main observation regarding Fruit Trees (apple tree, plum tree, etc...)



➔ Most of the diseases are linked to soil born pathogen or to tree nutrition failure (mainly calcium)

## Exemples :



### SCAB

(Apple, Plum)

Infected from the soil caused by the ascomycete fungus *Venturia inaequalis*



### MONILINIA

(Rosaceae)

Fungi *Monilinia* which cycle go through contaminated fruits fallen on the soil



### BITTER PIT

(Apple, pears)

Induced by calcium deficiency

*Other exemples : Oidium, Phytophthora...*



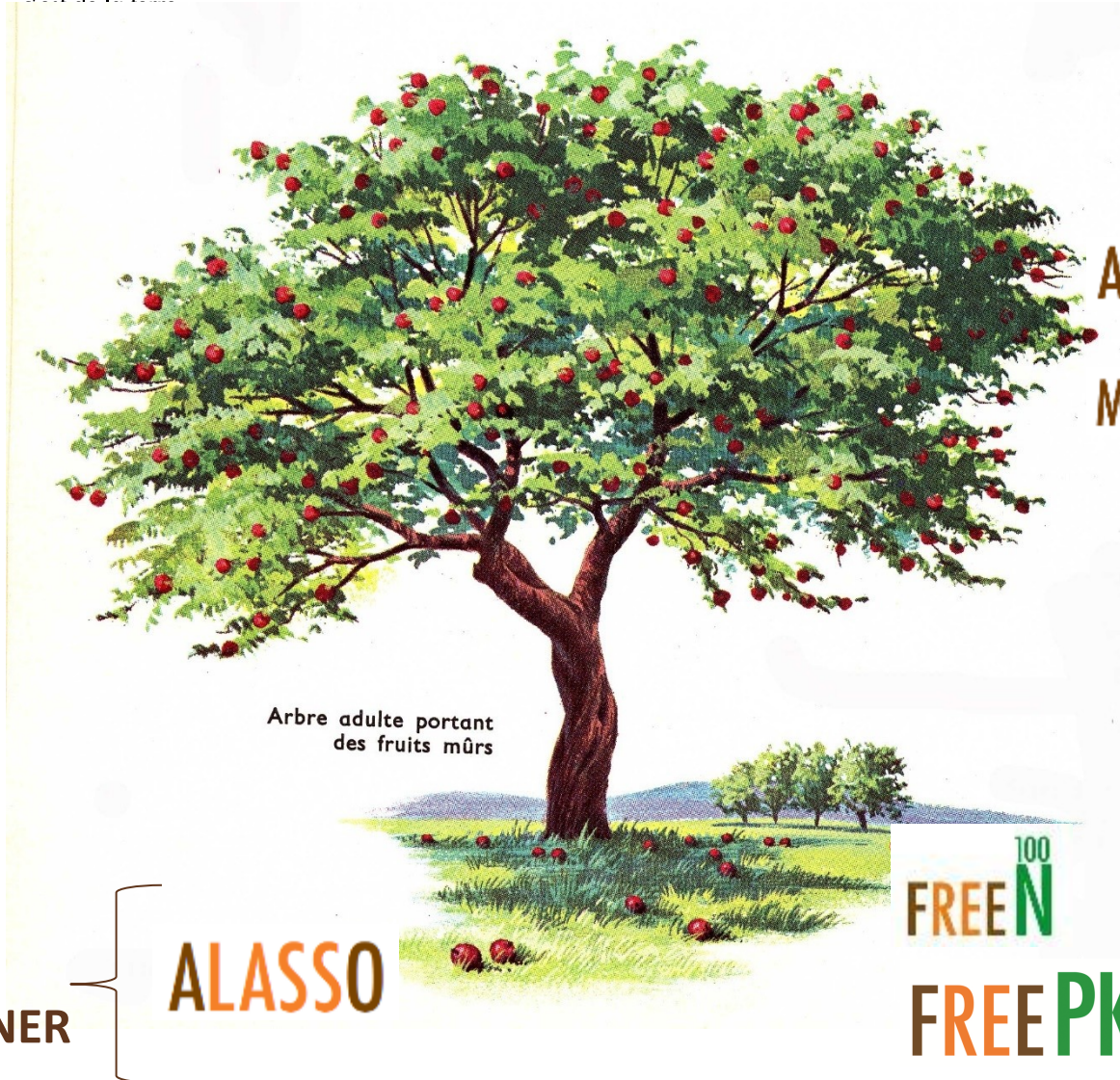
**One solution to limit disease pressure  
and decrease the use of pesticides**



**Make everything possible to improve  
soil health and tree nutrition**



# Using our natural products :



**ALTELA**

**MEMCOMBA**

ELICITORS

SOIL

**ALASSO**

**100  
FREE<sup>N</sup>**

**FREE<sup>PK</sup>**

MICROBIAL

INOCULANTS

CONDITIONNER

A close-up photograph of a man with dark, wavy hair and a light beard. He is holding a magnifying glass over his right eye, which is significantly enlarged and looking wide-eyed. His mouth is open in a surprised or excited expression. The background is a plain, light-colored wall.

**Gaiago!**  
l'homme  
c'est de la terre  
qui marche

**DE L'AZOTE**

**libre**

**COMME L'AIR**



**FREE<sup>100</sup>N**

And

**FREEPK**



Fixing Nitrogen from  
atmosphere



Making soil minerals  
bioavailable

MICROBIAL INOCULANTS : Plant Growth Promoting Rhizobacteria\*  
To secure continuous growth under all conditions for all crops



## Free N 100 and Free PK characteristics

- High concentration :
  - FREE N100 : Azotobacter >  $5 \cdot 10^{12}$  cfu/L. (i.e.  $2.5 \cdot 10^{12}$  cfu/ha)
  - FREE PK : Bacillus mucilaginosus >  $6 \cdot 10^{10}$  cfu/L (i.e.  $3 \cdot 10^{10}$  cfu/ha)
- Shelf life : 9 months at room temperature ( -3 °C to +25°C)
- Rate : 0.5 L/Ha
- Can be used in organic farming (Ecocert and FiBl certification)

## Why using Free N 100 ?



- To reach high yields in situations where synthetic nitrogen use is limited or forbidden by regulations.
- To get high yields in spite of unfavorable and versatile weather conditions
- To get a diversification of sources of nitrogen : health of plants and quality of grapes/juices/wine

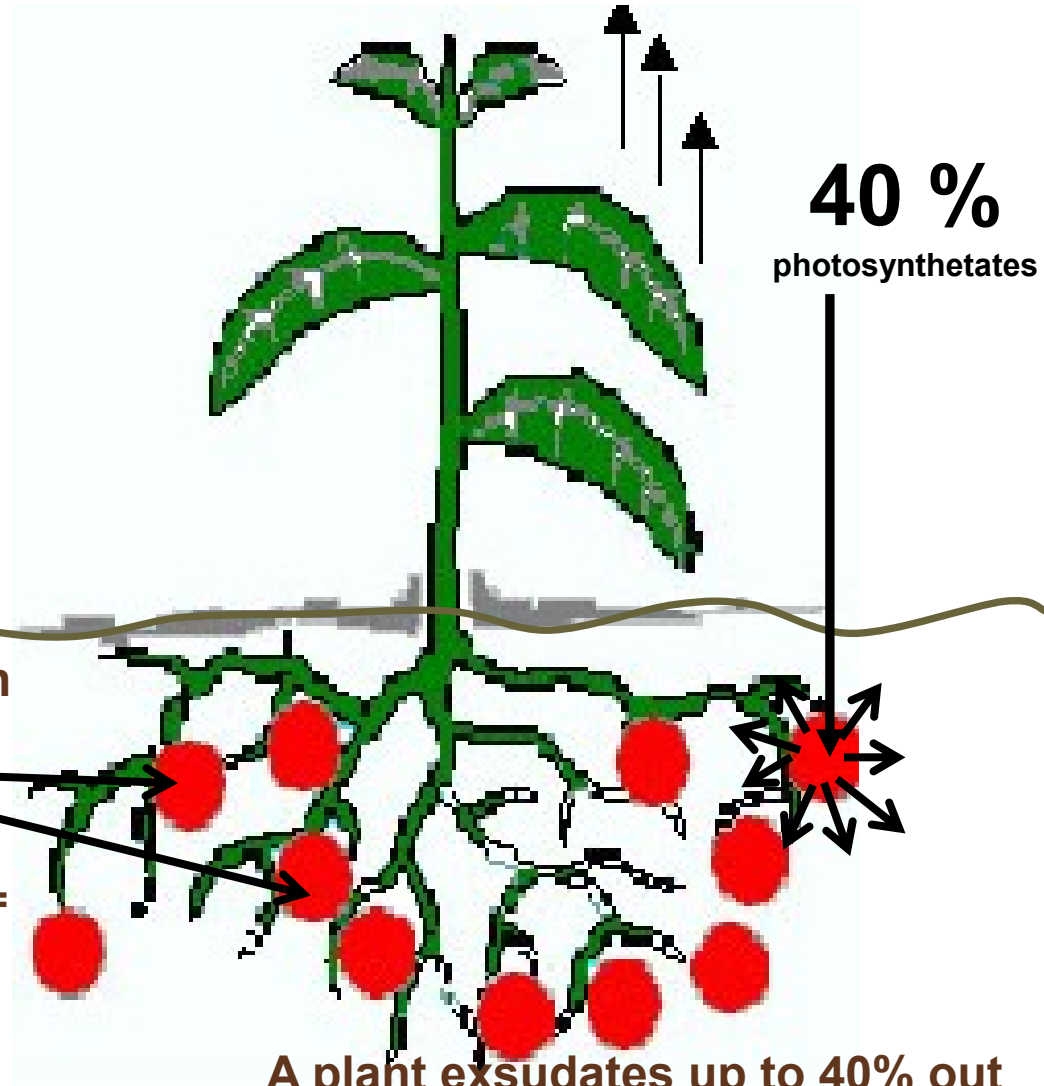


## Why using Free PK ?

- To make bio available phosphorus, potash, calcium, boron and other minerals in the rhizosphere
  - Improvement of soil minerals flows
  - Regular feeding of plants
- To make more profitable use of not very soluble phosphates



# HOW DOES FREE N and PK WORK ?



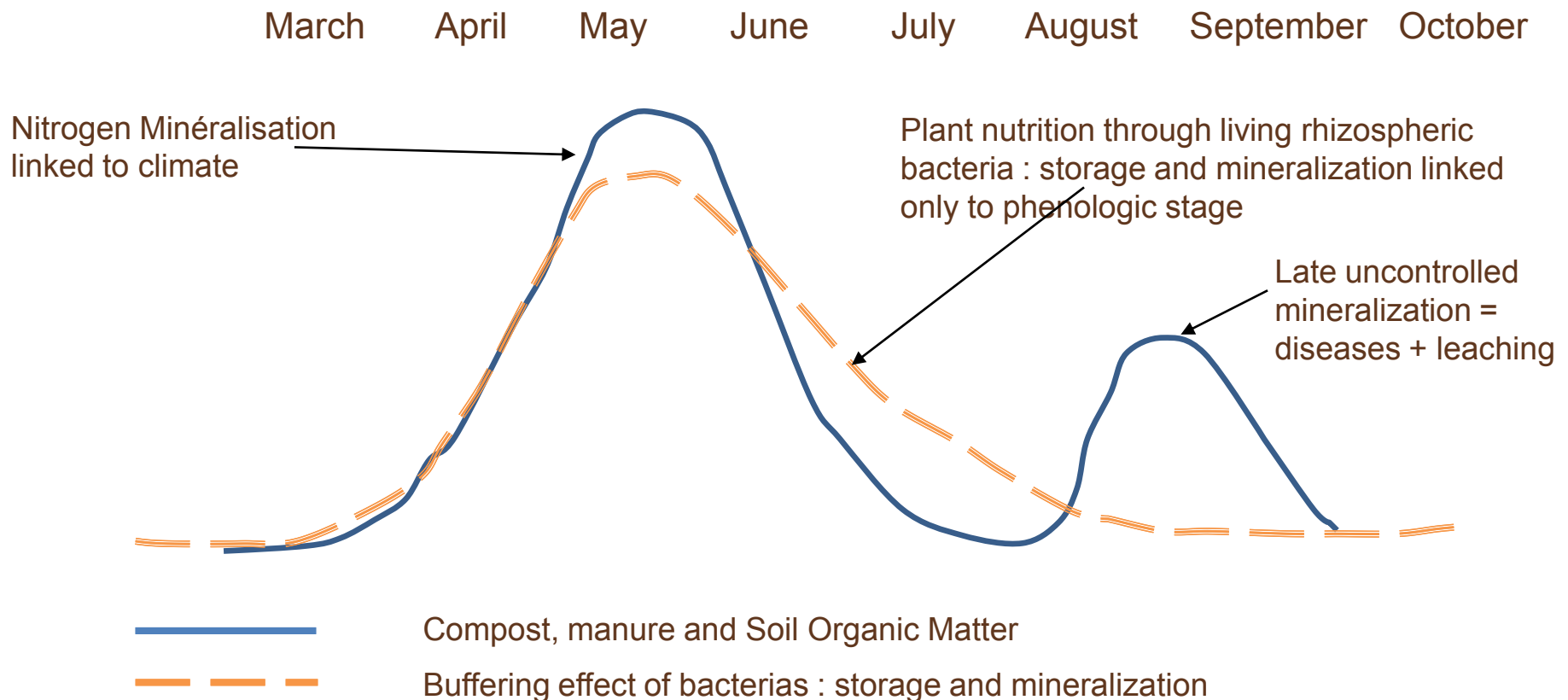
Rhizospheric microbiology feeds on root exsudates, stores and releases nutrients when necessary

Bacteriaes : growth factors and vitamins = Enhancement of the rooting system

A plant exsudates up to 40% out of its photosynthetic products !!!

# HOW DOES FREE N and PK WORK ?

- 1) FREE inoculants need an active growing plant
- 2) Bacterias activity is regulated by the growing stage



## When and How to use FREE products ?

- When ? grapes and fruit trees : after bud bursting and new vegetation growth in spring – 0.5 L/Ha
- Spraying in wet conditions
- Using a chlorine inhibitor when needed (1 Kg sugar/1000L)
- When opened, a drum must be used within 5 days and stored in a cool place
- Non open drums can be kept at room temperature ( -3° to +30°)





## SOIL CONDITIONER

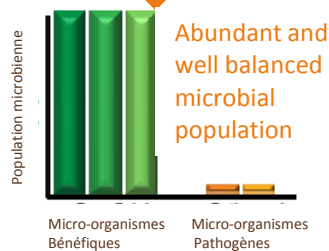
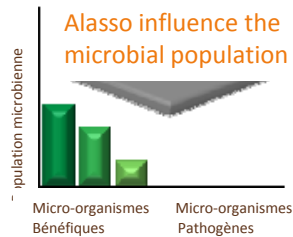
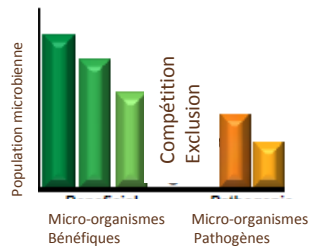
# ALASSO

- **For a better soil health...**
  - Liquid product which has to be applied to the soil by spraying or irrigation at the rate of 1-2 L/Ha
  - Bring all the trace elements and organic molecules necessary for the helpful microbes of the soil
  - Relaunching of the carbon and nitrogen cycles, means better efficiency for our two other products FREE N100 and FREE MIN Optimization of mineral nitrogen inputs = reduction of the losses of nitrogen through volatilization
  - Preventive effect on soil diseases (early damping-off,.....)

# Mode of action

# ALASSO

## Soil microbiology



## Soil Organic Matter

Natural enzymatic components  
Degrade organic matter



The decomposition of residues supplies nutritional and other substances which are going to help in the growth of the microorganism of the soil and the plant



## Example 1 : Free N100, Free PK and Alasso *Monilinia* problematic on Apricot tree

### Protocol

- **Place** : Perpignan, France
- **Date** : 24/04/2014
- **Variety** : Big Red Apricot
- **3 Treatments** :
  - 1 : Control
  - 2 : **FREE N100** & **FREE MIN** 0,5 l/ha each + **ALASSO** 2 l/ha sprayed March 2nd

### Results\*

	CONTROL	TREATED
Chlorophyll Index	32,27	34,40
BRIX leaves	6,10	6,10
Monilinia infested trees	55	30

\*12 measurement/modality for chlorophyll,

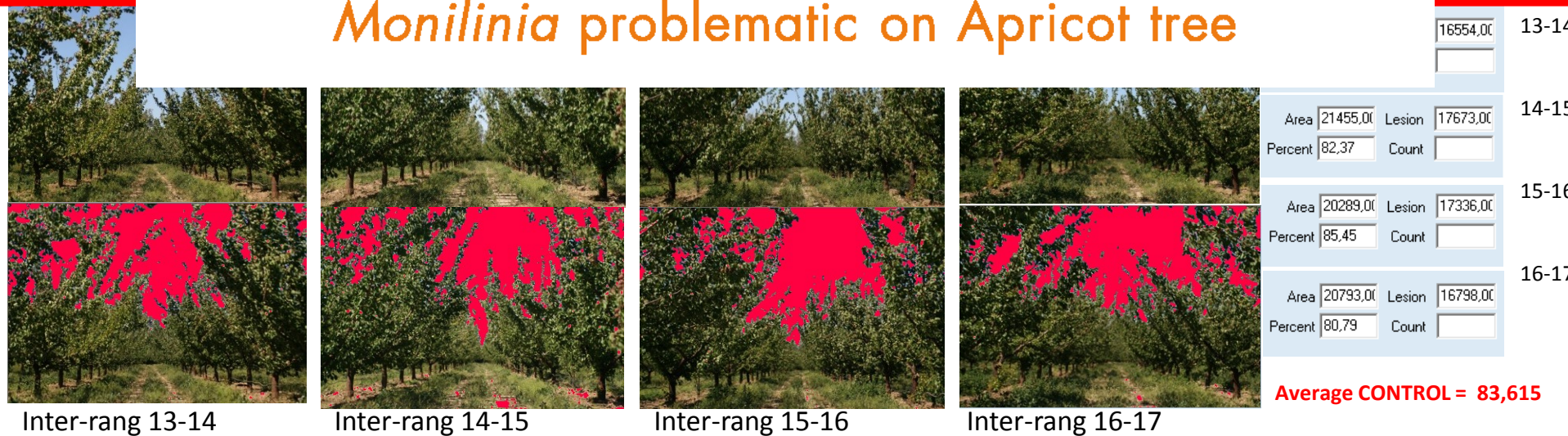
➔ Positive effect on *Monolinia* disease

# Example 1 : Free N100, Free PK and Alasso *Monilinia* problematic on Apricot tree



# Example 1 : Free N100, Free PK and Alasso *Monilinia* problematic on Apricot tree

Inter-rang



00+ FREEPK  
25

Inter-rang 13-14

Inter-rang 14-15

Inter-rang 15-16

Inter-rang 16-17

Pictures software treated, May 14th 2014 = vegetal cover %tage



## Example 2 : Free N100 and Alasso on Apricot tree



One row sprayed on March 2014 with ALASSO (2 liters/ha)  
and FREE N  
Valence, France, picture on October 3rd 2014



**Example 2 : Free  
N100 and Alasso  
on Apricot tree**



**ALASSO (2L/ha) + FREE N  
100 sprayed on March 2014**

**Adjacent rows.  
Same variety, same age**

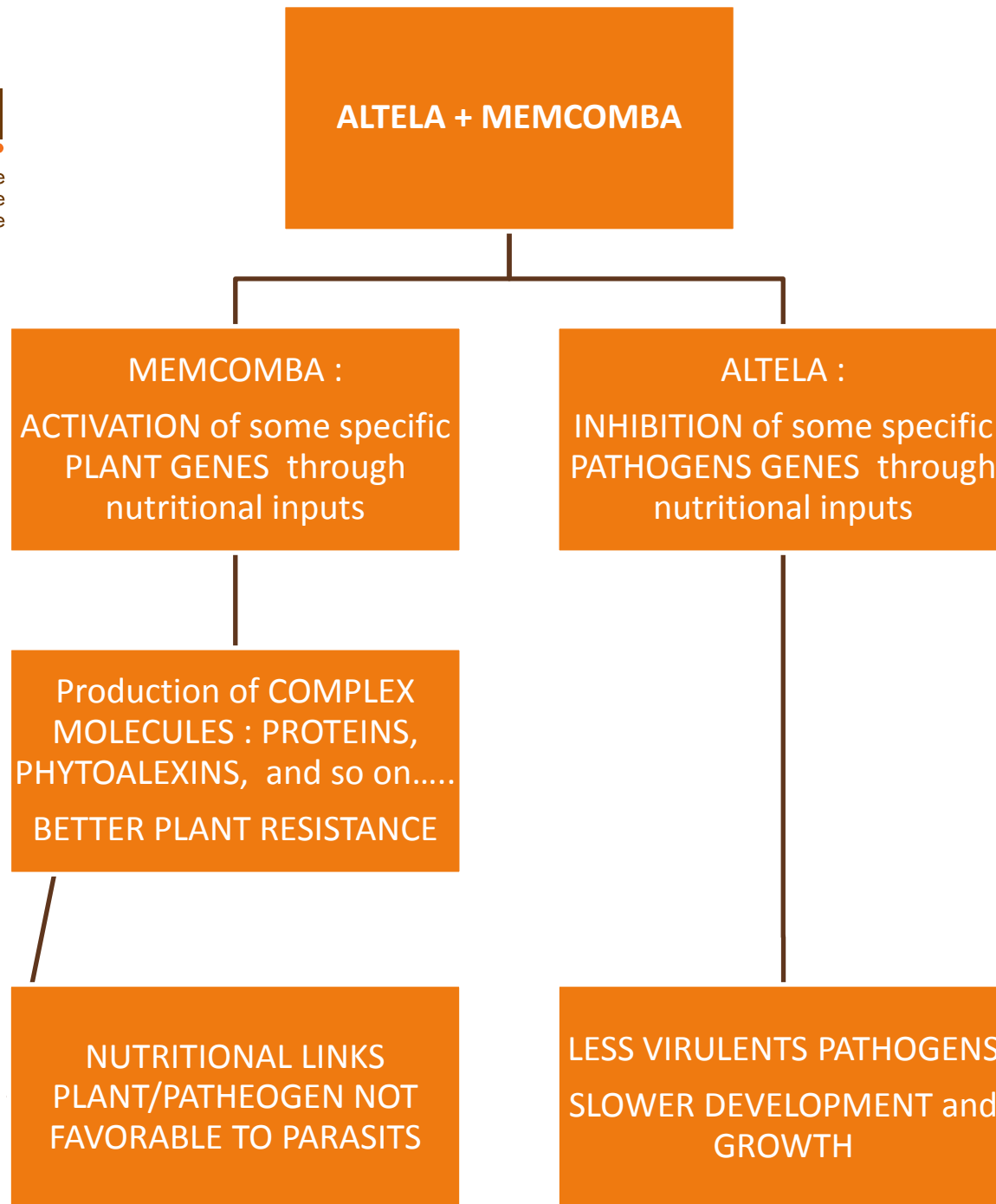
**Observation made October 3<sup>rd</sup>  
close to Valence, France**



# ALTELA and MEMCOMBA

- **Altela** : Natural product which stops or decrease the growth of micro-organisms on the plant
- **Memcomba** :
  - Natural substances which induce a reaction of the plant immune system
  - Plant will be then ready to act against the next pathogen attacks
  - Systemic effects

*Both can be used in organic farming, in accordance with Regulations (EC) No 834/2007 and No 889/2008*







## Results of the combined application of ALTELA and MEMCOMBA

- Reduction of use of conventional fungicides
  - Less immunosuppressive effect for the plant
  - Strong anti-fungus action
- Preventive program
- Less phenomenon of treatment resistance
- No residue
- Post harvest crop quality improvement

## CONCLUSION

- Innovative, easy to use, sustainable, profitable solution
- For fruits growers
- For consumers and .....
- for Earth







Merci  
Děkuji





# Appendix : Technical Itinerary









