3. Vacciplant® Fruit management within an anti powdery mildew program

A clear leader in sustainable technologies for agriculture

Main activity
Development and marketing of sustainable solutions, respectful to Mankind and his environment, for an improved and modern agriculture.

Plant health
- Phyto Activators
- Plant vaccines

Presence GOEMAR in 2009

Countries listed - with Goëmar distributors

Seaweed GOEMAR

The sea, the origin of a success story

Brittany: A field of 900 varieties of seaweed and the strongest tides in the world.
Goëmar: Development and marketing of seaweed-based products destined to plant health.
Trading opportunities for foliar stimulants.

1987: New approach to value natural sea water in human health
Activity diversified due to the launching of a seaweed-based product range destined to human health.

2002: Approval of the 1st plant vaccine
Invention of the plant vaccination, with a 1st vaccine registered for cereals in 2002.
Approval of the 1st plant vaccine in 1988.

2008: Reinforcement of the expertise in Plant Health
Sale of the Human Health department (Laboratoire de la Mer) in 2008.
In the same year, containing a natural compound resulting from Laminaria seaweed.
Invention of the plant vaccination, with a 1st vaccine registered for cereals in 2002.
Approval of the 1st plant vaccine in 1988.

Activity diversified due to the launching of a seaweed-based product range destined to human health.

2009: Marketing of product range destined to human health:
Activity diversified due to the launching of a seaweed-based product range destined to human health.

1987: New approach to value natural sea water in human health
Activity diversified due to the launching of a seaweed-based product range destined to human health.

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EVALUATION ON LEAVES

Average 3 trials (CATE, PROMOVERT 2006, SAA 2007)
Vacciplant® Fruit efficacy on young leaves

Average 2 trials HORTIS et PHYTEX
Proportion of marketable fruits

Benefits of Vacciplant® Fruit as a program:
- Fruit yield: Vacciplant® Fruit enabled to replace 4 fungicide applications out of 6
- Fruit Physio: Vacciplant® Fruit enabled to replace 4 fungicide applications out of 6
- On both trials: Vacciplant® Fruit enabled to obtain 15% of extra marketable fruits. Under the same conditions, preventive fungicides enabled to obtain only 5% extra.

The proportion of marketable fruits obtained with the Vacciplant® Fruit program is higher than the one obtained by the reference program.

In the Vacciplant® Fruit program, the 3 trials of the fungicide applications have been replaced by Vacciplant® Fruit, with a protection efficacy equivalent to the reference « all fungicide ».

La nature qui stimule la nature.

EVALUATION ON FRUITS
Plants have developed defense systems to resist against their aggressors' attacks.

1. Acknowledgement = Elicitors from the degradation of the plant walls or of the pathogen

2. The plant sets up its own defences:
   - Reinforcement of the cellular walls
   - Production of the active components on the aggressor

3. The aggressor suffers the consequences of its attack

La nature qui stimule la nature.

Vacciplant®

Laminarin : mode of action

Reserve oligosaccharide of seaweed, Laminarin looks just like fungi wall degradation products:

It's an elicitor.

La nature qui stimule la nature.

Vacciplant®

Cell wall strengthening

Cell wall strengthening

All species have the ability to settle non specific plant defence mechanisms.

These plant defence mechanisms are efficient against a wide range of various pathogens.

La nature qui stimule la nature.
Systemic protection:
• Laminarine induced protection is systemic. New formed organs are equally protected.

Regulatory status:
• Laminarine is Annex 1 listed - directive 91/414/CE (22/01/05).
• Some registration according directive 91/414/CE in France, Belgium, Greece + Switzerland and Morocco outside Europe.
• No Tox or Ecotoxic classification.

Preventive:
• Laminarine has preventive action and therefore must be applied before the plant is attacked by the targeted pathogen.
• 3 days after Laminarine application, plant defence are established.

La nature qui stimule la nature.