# *Bioprotection*
# Biocontrol Technologies: Current Situation

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International Biocontrol Manufacturers Association

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# Outline of Presentation

- Biocontrol Technologies: their size and relevance
- Agrocecologically based IPM
- Crop areas under biocontrol
- Farmer Experiences in implementation
- What have we learnt about implementation
- What do we need to do to accelerate the uptake

# Biocontrol Technologies include:
# Macrobials, Microbials, Natural substances, Semiochemicals

**As we embrace more biology and less chemistry,**
**IBMA Members' biocontrol technologies will be a major part of this as they are:**

- **made from nature, *or***
- **identical to nature when synthetised**

**They include microbials, semiochemicals (pheromones), natural substances and invertebrate biocontrol agents (macrobials).**

**Macrobials** - also called Invertebrate Biocontrol Agents -

**Microbials**

**Natural Substances**

**Semiochemicals**

# Biocontrol Technolgies , more details about *Macrobials, Microbials, Natural substances, Semiochemicals*

**IBMA Product categories within the scope of "Bioprotection" currently include:**

» **Semiochemicals** are substances emitted by plants, animals and other organisms used for intra-species and/or inter-species communication and have a target-specific and non-toxic mode of action.

» **Microbials** are based on microorganisms, including but not limited to bacteria, fungi, protozoans, viruses, viroids, mycoplasmas, and may include entire microorganisms, living and dead cells, any associated microbial metabolites, fermentation materials and cell-fragments.

» **Natural substances** consist of one or more components that originate from nature, including but not limited to: plants, algae/micro algae, animals, minerals, bacteria, fungi, protozoans, viruses, viroids and mycoplasmas. They can either be sourced from nature or are nature identical if synthetised. This definition excludes semiochemicals and microbials.

» **Invertebrate Biocontrol Agents** (also called macrobials) are natural enemies such as insect, mite and nematode species providing control of pest populations through predation or parasitism.

Currently IBMA does not include, within the scope of "Bioprotection", any technology for which there is no regulatory pathway or policy decision. Once policy decisions have been published, the technologies will be considered for inclusion.

# 2018 Worldwide Biocontrol Technologies Market Size

| *Region* | Biocontrol Technologies Market (in Euro Bns) 2018 | Annual Growth Rate 2014-2018 |
|---|---|---|
| *USA/Canada* | 1.1 | 16% |
| *Europe* | 0.9 | 23% |
| *South America* | 0.6 | 32% |
| *Asia-Pacific* | 0.4 | 14% |
| *Rest of the world* | 0.6 | 19% |
| ***Total*** | **3.6** | |

| *Cultures* | Biocontrol Technologies Market (in Euro Bns) | % |
|---|---|---|
| *Fruits and Vegetables* | 2.8 | 76% |
| *Arable Crops* | 0.35 | 10% |
| *Seeds Treatments* | 0.25 | 8% |
| *Other (public and green spaces)* | 0.2 | 6% |
| ***Total*** | **3.6** | 100% |

***Source:*** IHS Markit et Dunham Trimmer – Biocontrol LATAM - 2019

# Biocontrol Technologies, essential innovations within the EU Green Deal

- ***From 'Farm to Fork': designing a fair, healthy and environmentally-friendly food system:*** ´´The EU needs to develop **innovative ways to protect harvests from pests and diseases** and to consider the potential role of **new innovative techniques to improve the sustainability of the food system, while ensuring that they are safe**.´´

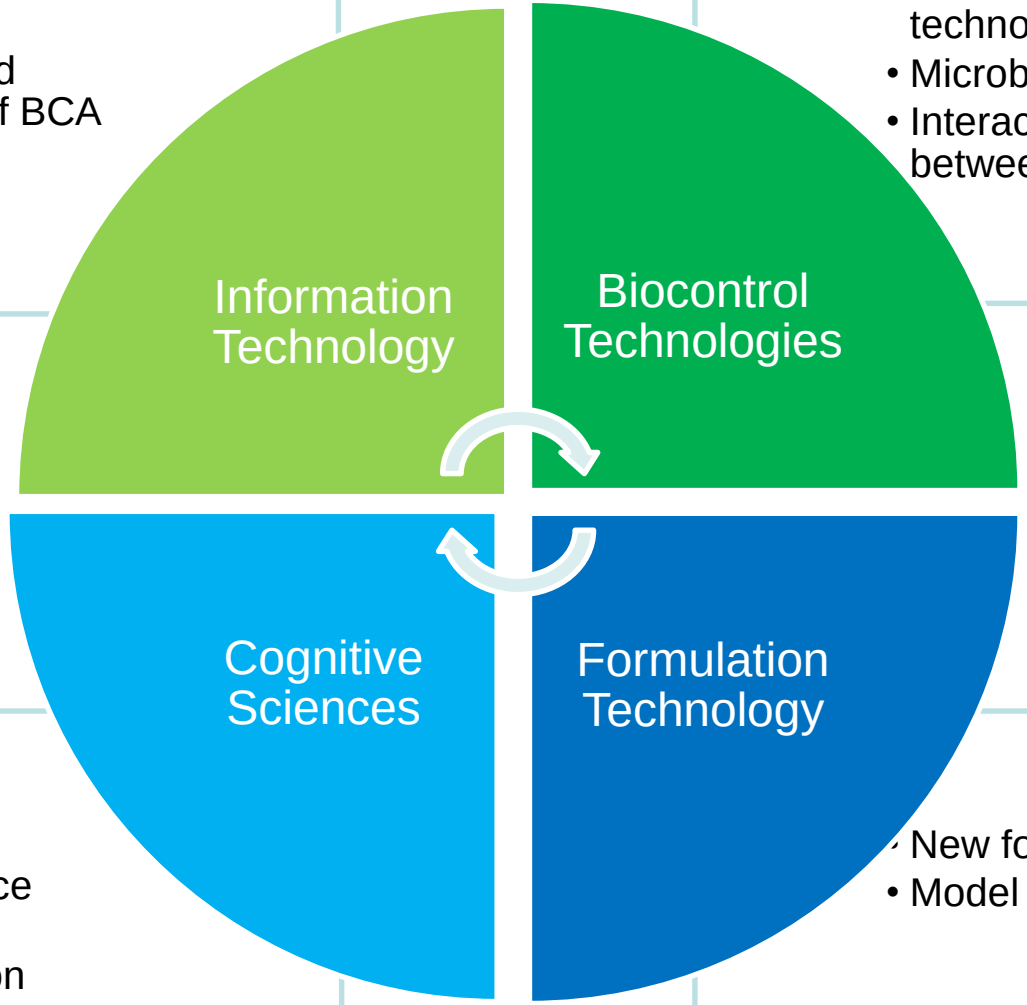
- ***A zero pollution ambition for a toxic-free environment:*** ´´To ensure a toxic-free environment, the Commission will present a chemicals strategy for sustainability. This will both help to protect citizens and the environment better against hazardous chemicals and **encourage innovation for the development of safe and sustainable alternatives´´**

**´´This is Europe's man on the moon moment,…Our goal is to reconcile the economy with our planet, to reconcile the way we produce, the way we consume with our planet and to make it work with our people."** ***Ursula von der Leyen, the European Commission President when presenting the EU Green Deal Communication***

# Converging Technologies are Creating New Solutions

- Remote sensing
- Sampling
- Controlled release of BCA

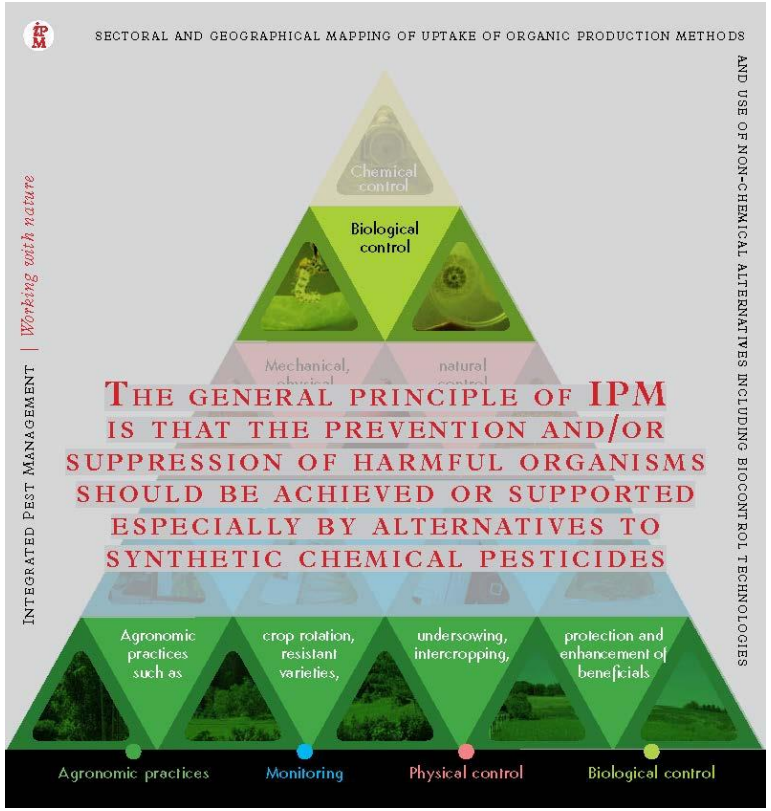
- New Biocontrol technologies
- Microbiomes
- Interactions between the two

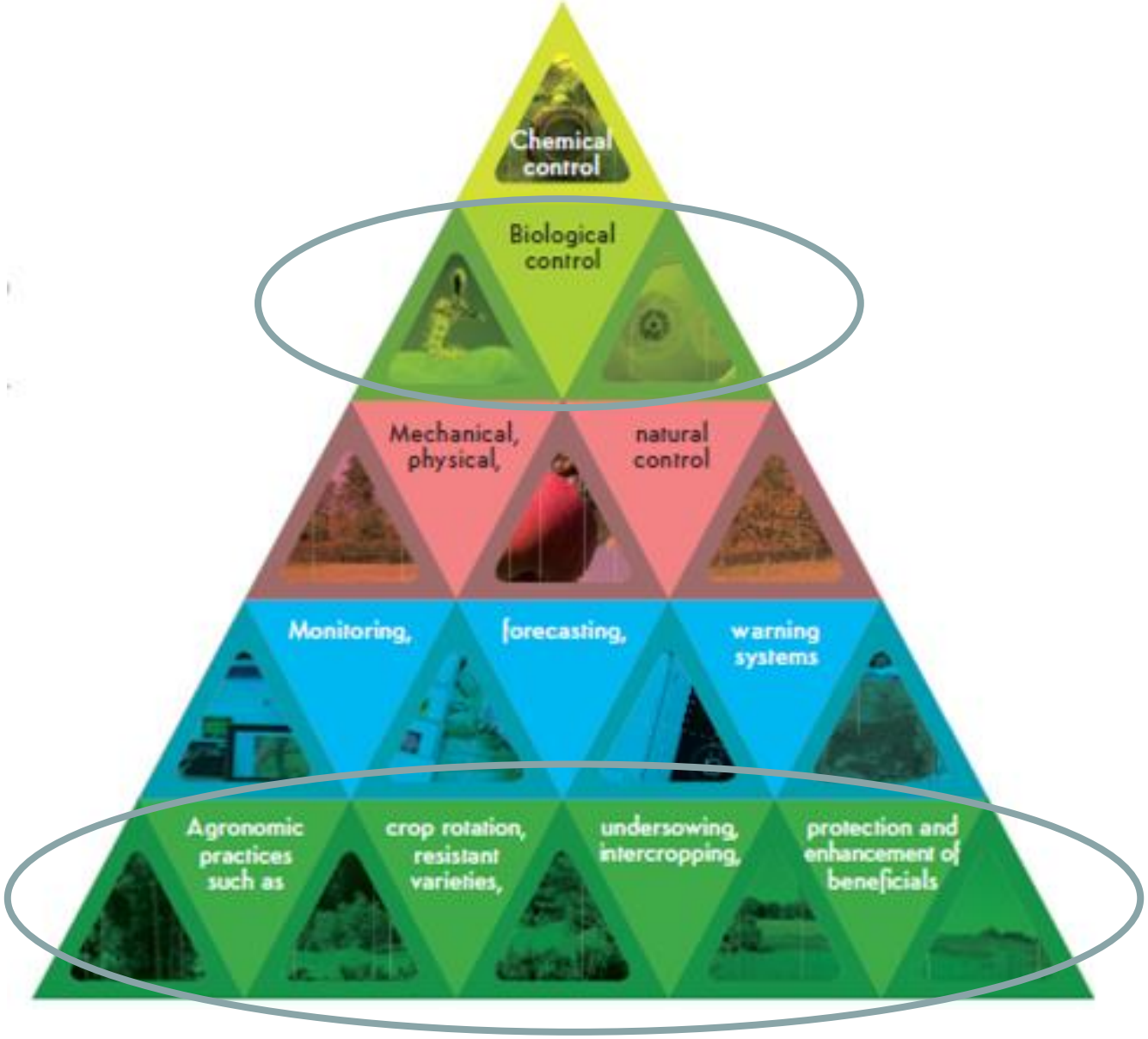



- Artificial Intelligence
- Pattern recognition

- New formulations
- Model of action

# IPM Integrated Pest Management Triangle - *agrocecologically based*

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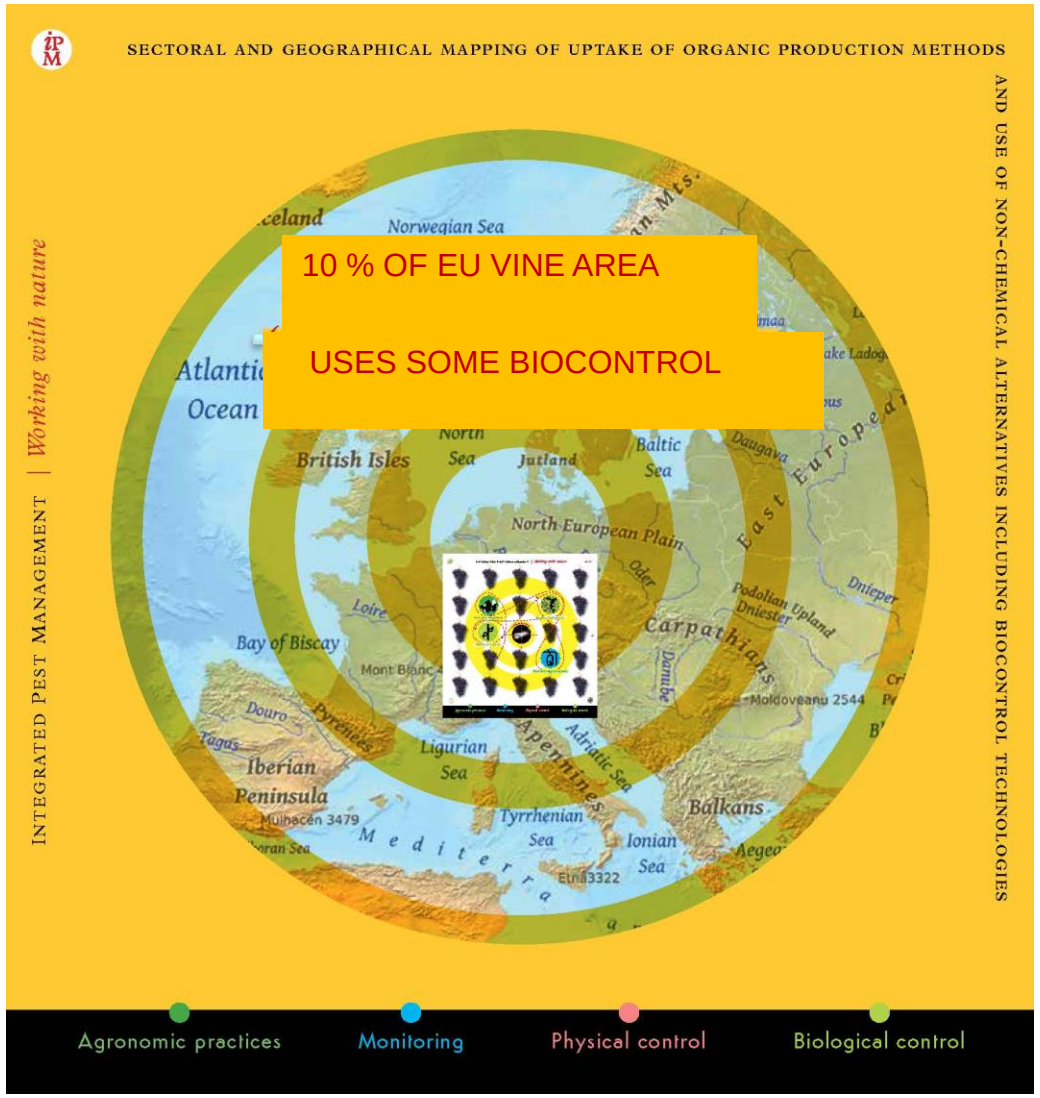
# Close to 100% of Greenhouses Growing Fruit and Vegetables use biocontrol



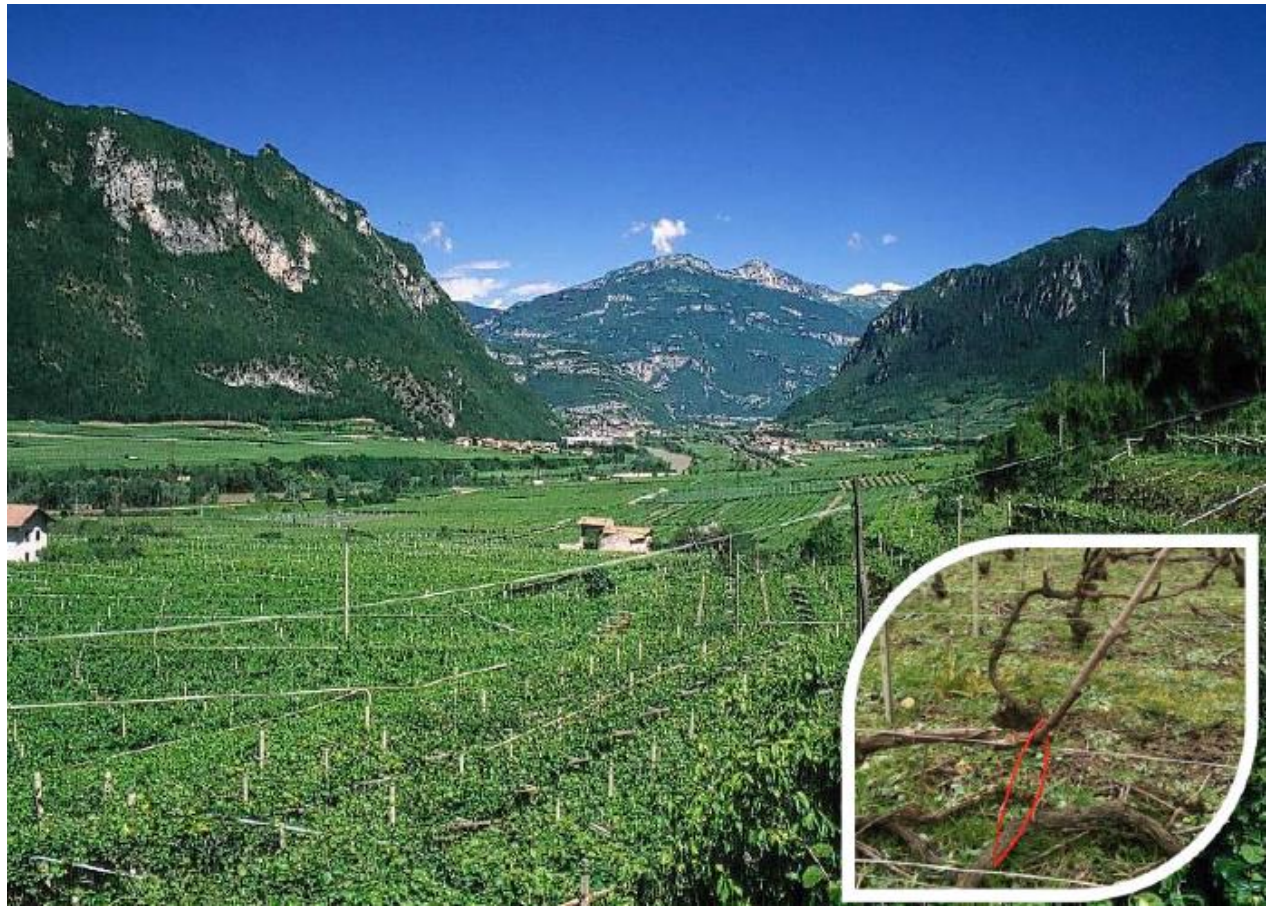
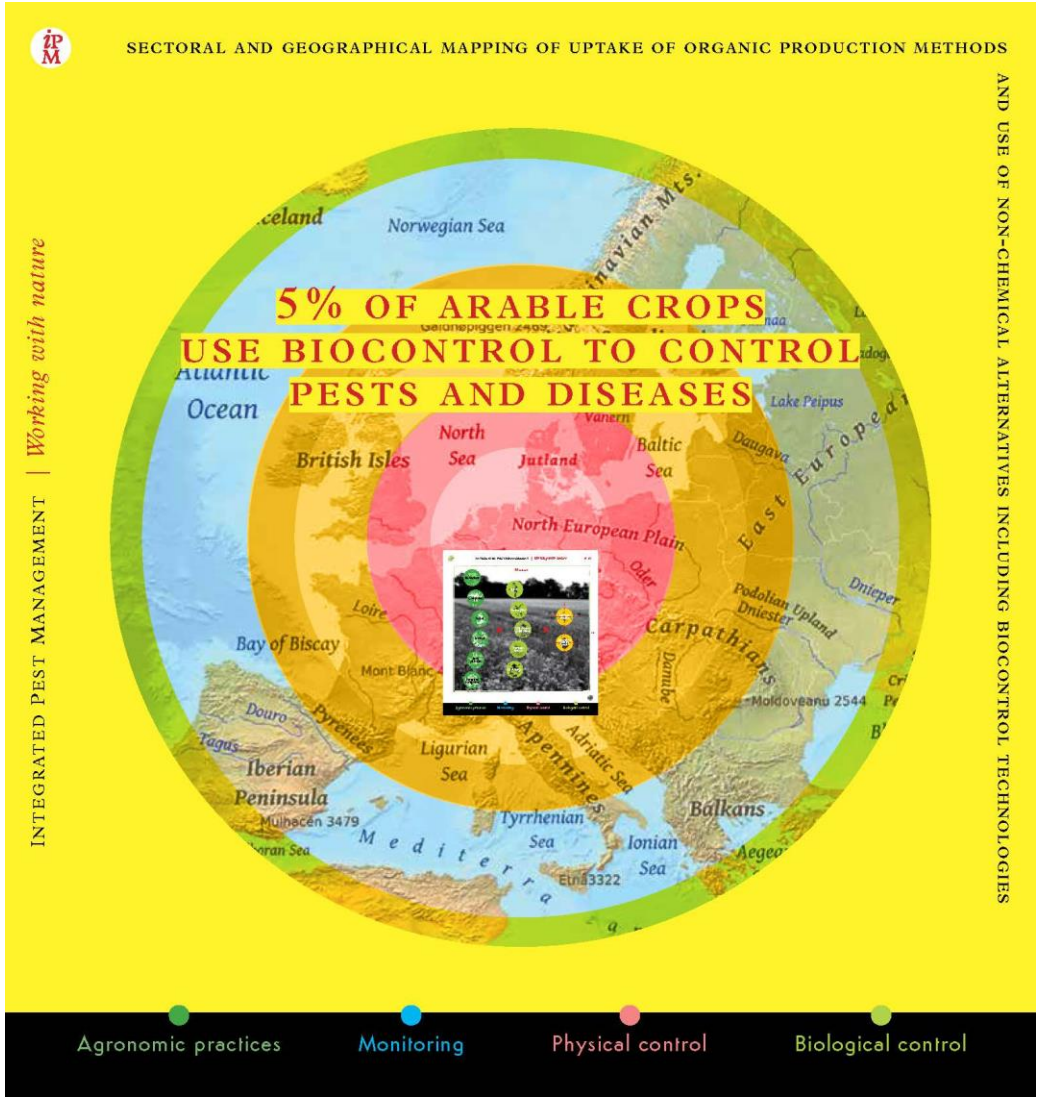



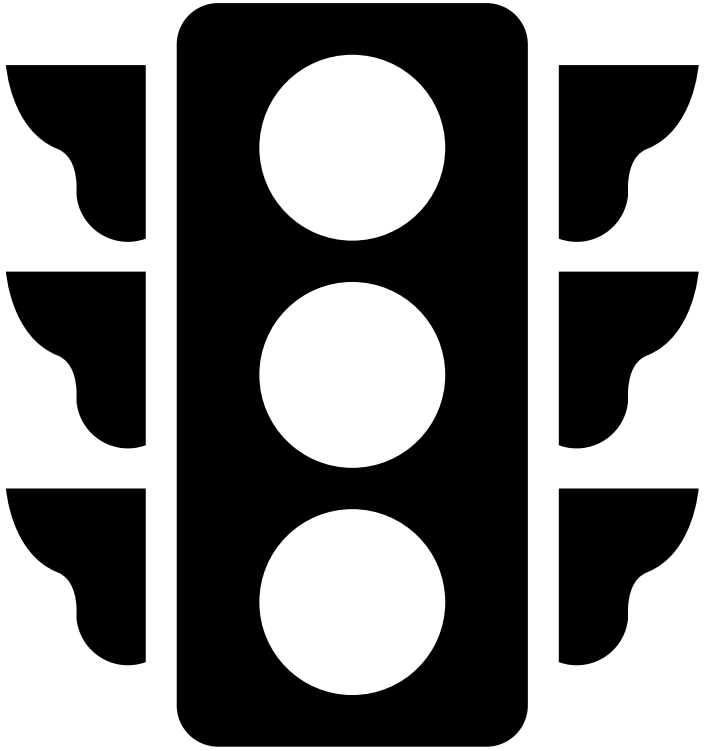
Photo : cbceurope.it

# Approximately 10% of EU Vine Growing area uses pheromones and other biocontrol technologies

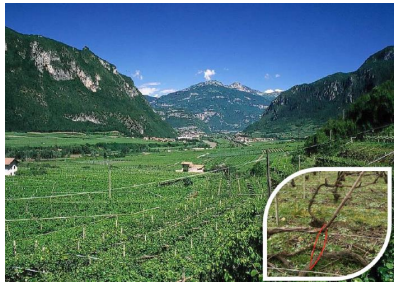



# Less than 5% of arable crops use biocontrol

# Status of uptake of biocontrol and alternatives is more advanced in horticulture than arable



- Arable
- some good examples
- But a lot to do



- Vines
- many good examples
- work in progress

- Protected Crops
- Normal practice

# Farmer Experience of Pheromone development in Vineyards

# 70% OF THE SWISS VINE-GROWING AREA (10 500 HA) COVERED BY PHEROMONES

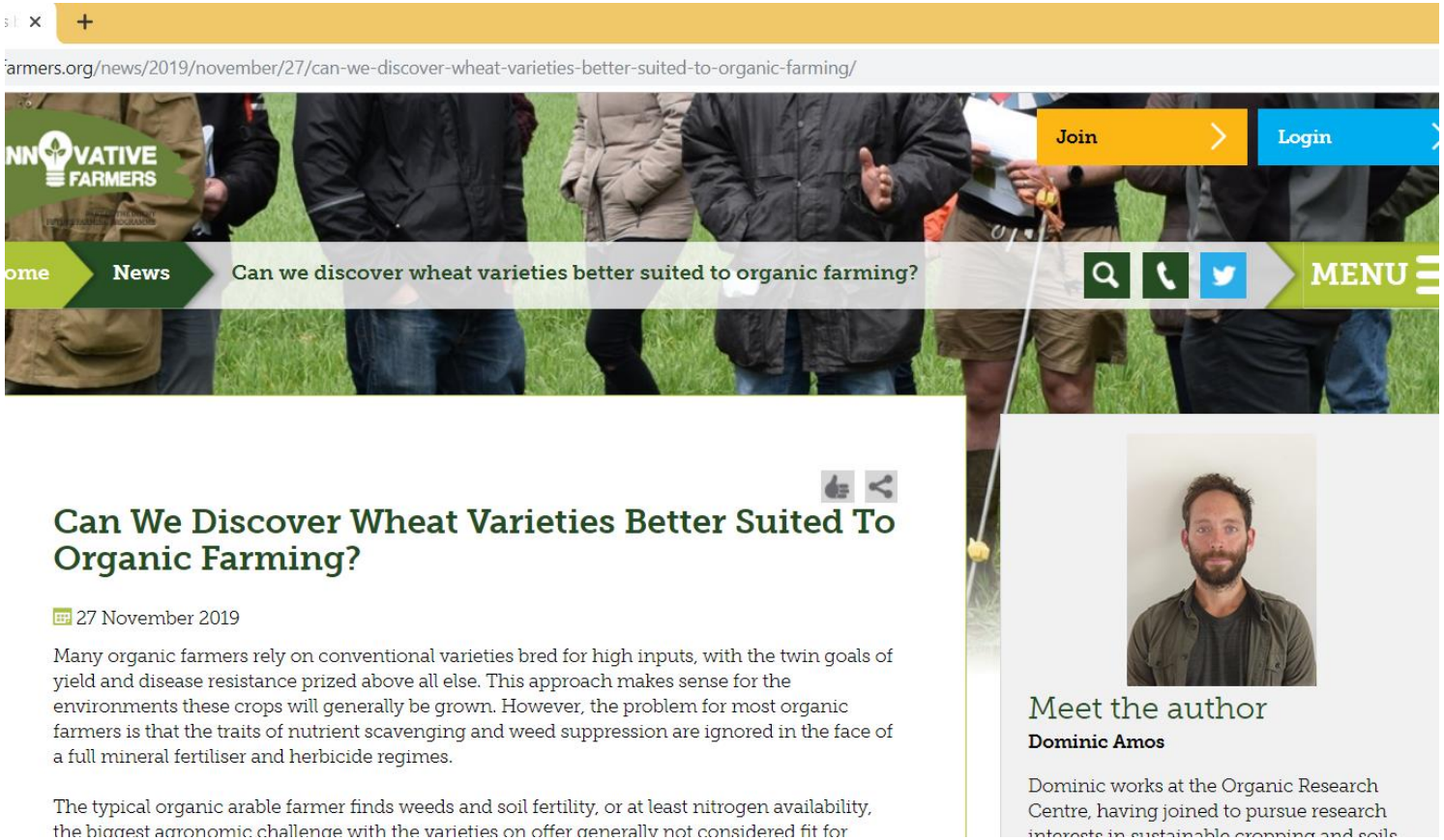
"Today, with a hindsight of over more than 20 years, we can prove that attacks in vineyard under confusion are always lower than in conventional ones."

# Farmer Experience of Biocontrol development in Arable

# 5% OF ARABLE CROPS USE BIOCONTROL TO CONTROL PESTS AND DISEASES

JEAN PHILIPPE PETILLON –RICHEVILLE

"It takes a few years, but you start to see the results: the figures speak for themselves. The farm is turning into a profit."




# What have we learnt from implementation?

- Need a trigger to start agrocecologically based IPM
- Farmer to farmer networks –led by farmers for farmers
- Multiple actors to help: advisers, researchers, companies
- Biocontrol works
- Be patient

# https://vimeo.com/386250087/4b7e8333f3

AKINAO Leno Créateur de formations Università degli Studi di Cagliari CSIC

**Are you a trainer, teacher or working within the biocontrol field?**

If answer is yes, you may be willing to help with the development of the biocontrol E-training products. We would particularly welcome your input in defining the contents of each module and/or testing the product as it is being developed.

If you are interested and would like more information about our BET project and how you can get involved please email to Vanessa ANDREU: **contact@akinao-lab.com**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**Associated Partners**

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BET

**Biocontrol E-training**

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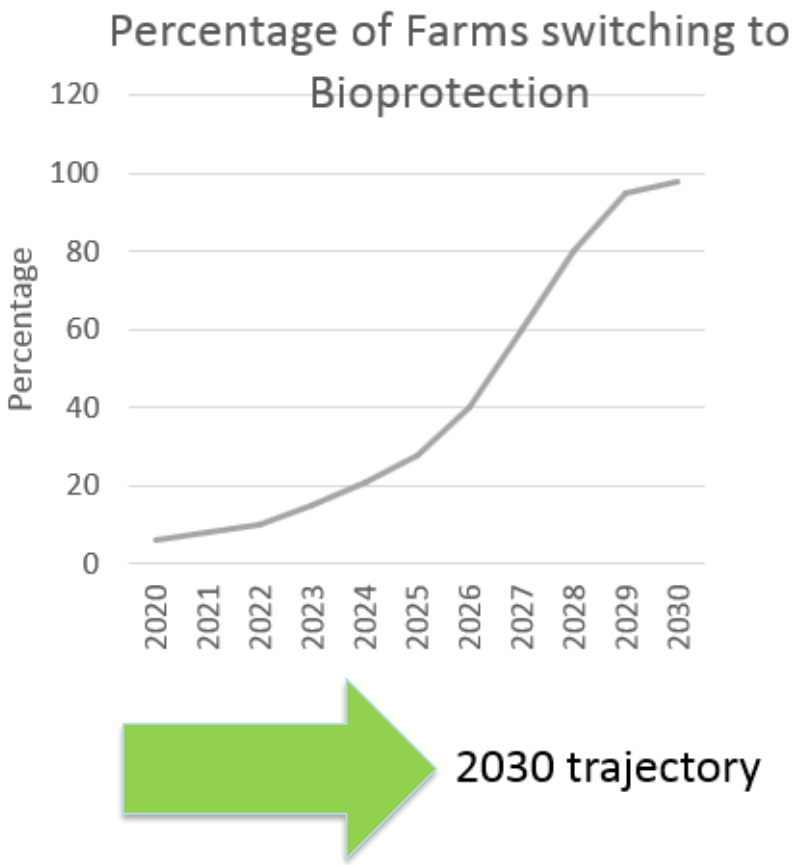
**e-biocontrol.com**

# Switch to Bioprotectants for Restorative Agriculture

**Forward thinking small and large farmers starting to use bioprotectants may take several years to transition to 100% restorative agriculture**




**The scale and speed of the transition depends on**

1. Enabling regulation to speed up market access for bioprotectants
2. Supportive CAP monies to enable farmers to immediately switch to restorative agriculture
3. Application of new digital techniques, monitoring and advanced data share among farmers
4. New farmer skills for all farmers

# **Biocontrol is a reality:** What do we need to do to accelerate the uptake?

- Proportionate regulation  - more products to market faster
- Farmer to farmer sharing of best practice
- In field participation and training from researchers, advisers and companies
- Financial incentives to adopt new ways of farming

# **Proportionate regulation is needed** for biocontrol technologies

***On the medium term:***

- The EU must create an enabling regulatory environment so **biological products can reach farmers faster,**
- A new bioprotection specific regulation **should cover microbials and other bioprotectants,**
- A fast tracking approach such as provisional approvals for bioprotectants, **while ensuring consumer and environmental safety**.

# *The REFIT of EU1107/2009:* **quick fixes opportunity** for biocontrol technologies

***On the short term:***

- The REFIT of EU1107/2009 provides an opportunity **to manage quick fixes in the existing regulation including adaptation of data requirements and use of derogations (Article 53) for bioprotection products,** especially for arable.
- Part B should be adapted for microbials
- Parts C and D created for new data requirements for semiochemicals and botanicals, natural substances.

“Biological life is a force and once unleashed it will continue to grow and generate new life”

Gabe Brown (2018) – Author of from “Dirt to Soil”

# Thank you

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