



# The Role of Bioprotection in the Transition to Regenerative Agriculture

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**IBMA**

INTERNATIONAL BIOCONTROL  
MANUFACTURERS ASSOCIATION

# International Biocontrol Manufacturers Association



Part of the Federation of Biocontrol industries Bioprotection Global



### Small Association

Local associations around Europe – members represent us where no local Association



### SMEs dominate

In Europe 71 SMEs and 76 micro SMEs



### Global with European Focus

165 member companies in Europe  
Global members learn how to access Europe. 90 more members worldwide



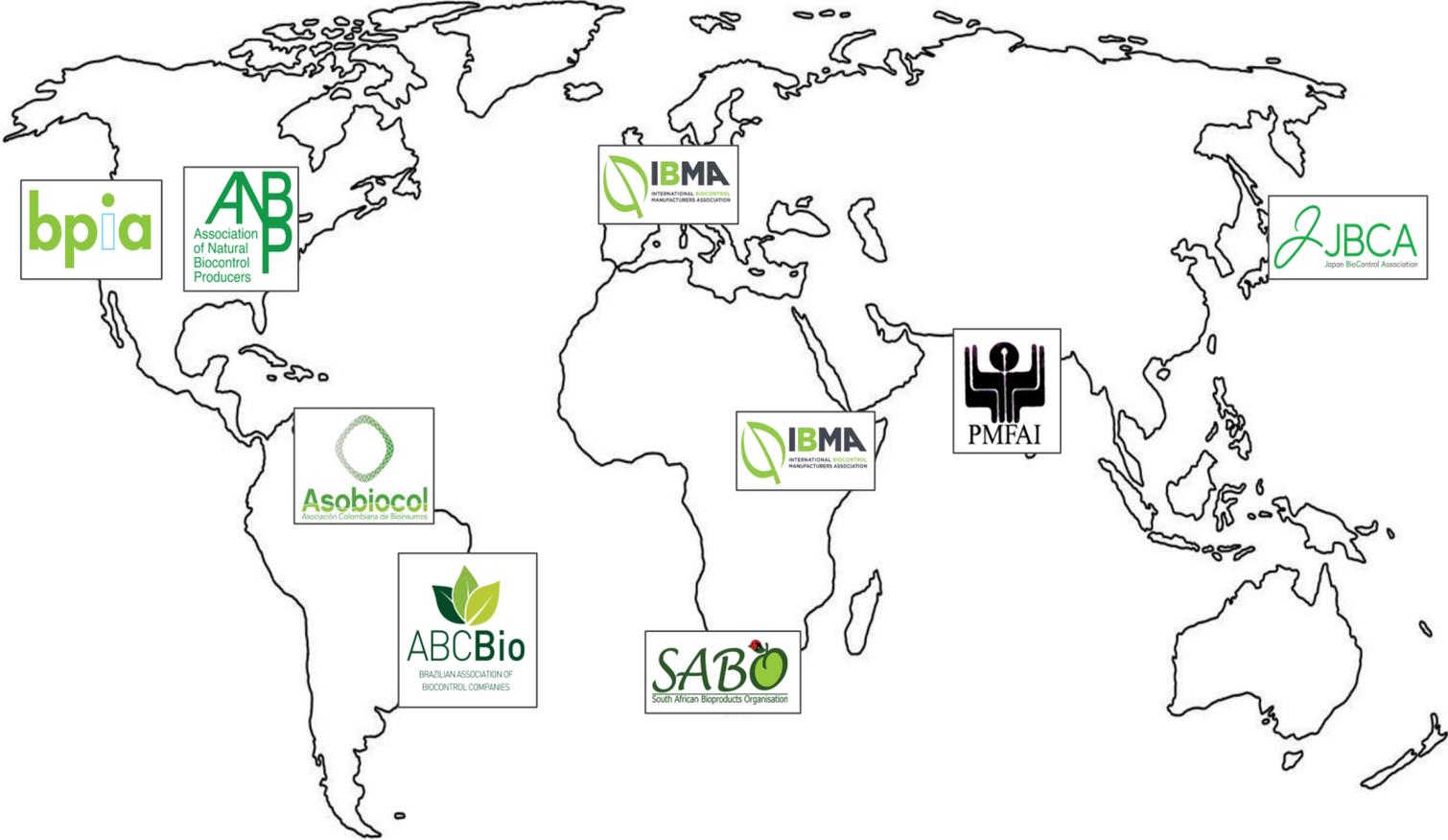
### 25 years old

Established in 1995 – 25<sup>th</sup> anniversary



### Global reach

Part of Bioprotection Global IBMA Kenya and 20% of members from outside Europe  
Annual Biocontrol Industry Meeting  
EU COM present



# Bioprotection

## MACROBIALS 01

Beneficial Insects and mites that control other insects and mites

## NATURAL SUBSTANCES 02

Botanical extracts and minerals

## MICROBIALS 03

Micro-organisms that outcompete or control pests and diseases

## SEMIOCHEMICALS 04

Insect pheromones and plant kairomones that affect the behaviour of specific insects or plants



## Biocontrol Technologies: More details on Macroblials, Microblials, Natural Substances and 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.
- » **Microblials** 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 synthesised. This definition excludes semiochemicals and microblials.
- » **Invertebrate Biocontrol Agents** (also called macroblials) 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 Market Sizes

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



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

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

Biocontrol industry Market Research in EU in 2020 has indicated a European market size of 1bn Euro in 2019

# Bioprotection: Essential Innovation within the 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***

# New Green Deal Policies support Bioprotection



## Action plans



### Farm to Fork

Alternatives to conventional pesticides  
Facilitate placing on market of PPP containing biological active substances  
Revision of Sustainable Use Directive to ...  
enhance Integrated Pest Management



### Biodiversity

Biodiversity loss results in reduced crop yields  
Set national values for targets for Biodiversity and Farm to Fork using CAP instruments

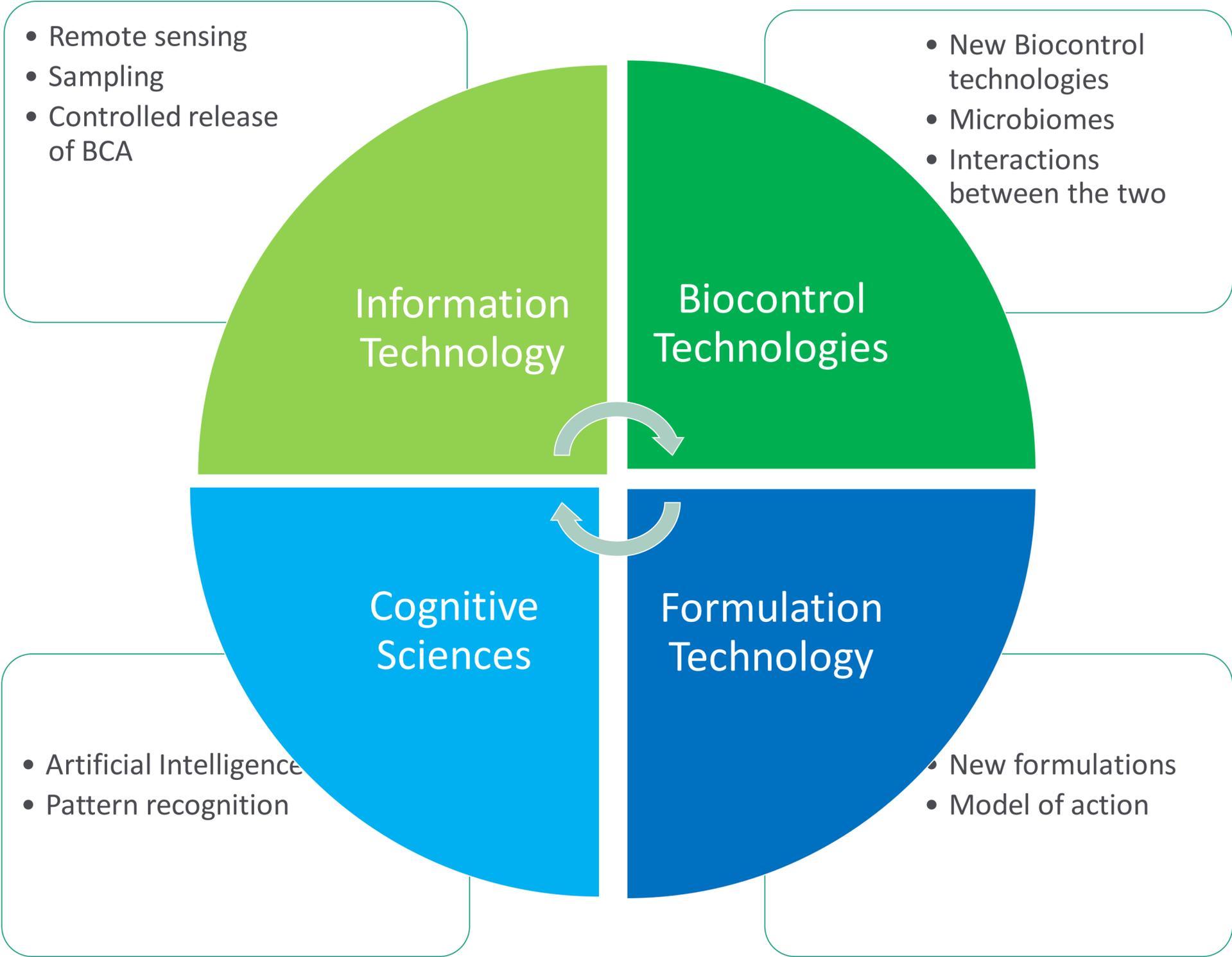


### REFIT

1107/2009 Effectively manages risk  
BUT  
Accelerate the placing on the market of low risk alternatives

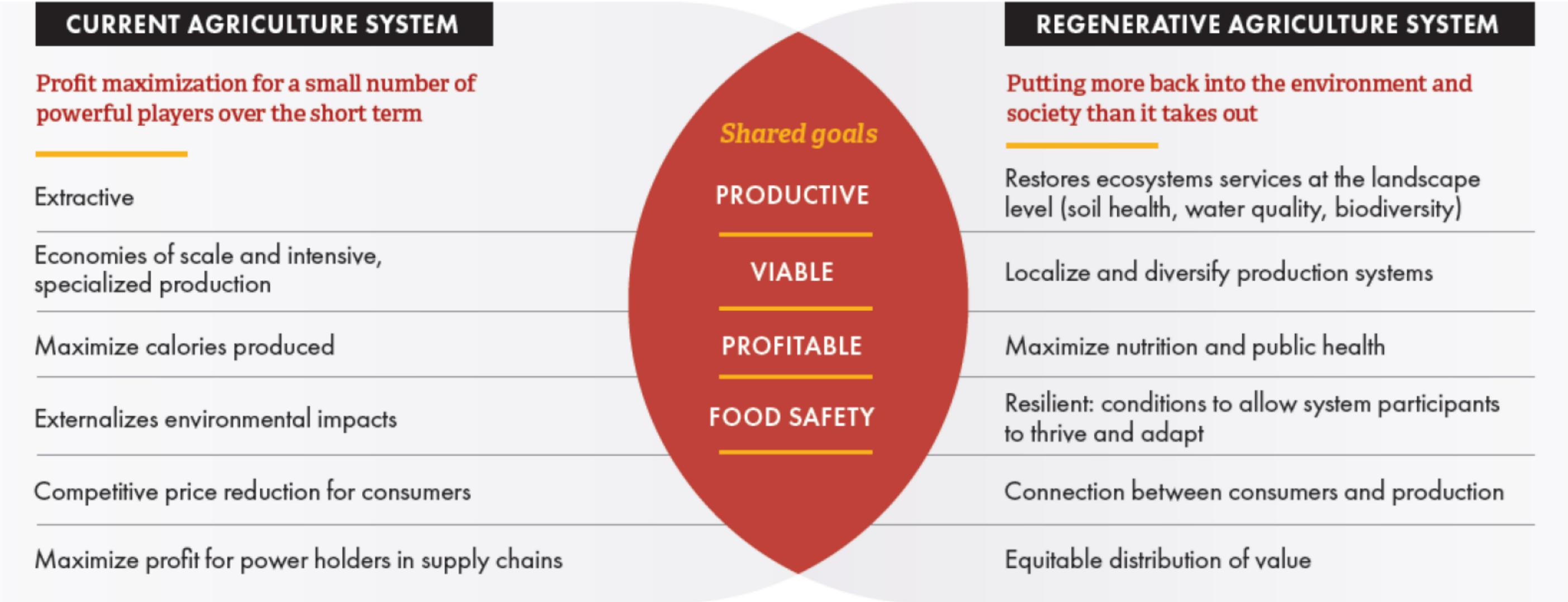
The screenshot shows a tweet from Stella Kyriakides (@SKyriakidesEU) dated 20/05/2020. The tweet text is: "#EUFarm2Fork contains no less than 27 key actions, which aim for 🇪🇺 by 2030:". Below the text is a list of five goals, each preceded by a checkmark: "-50% less pesticides", "-20% less fertilisers", "+25% organic farming", "-50% less antibiotics in farming", and "Reduce food waste & fraud". The final goal, "Protect animals", is not preceded by a checkmark. The tweet has 23 retweets and 61 likes. The background of the tweet image shows Stella Kyriakides speaking at a podium.

# Converging Technologies are Creating New Solutions



# The Transition to Regenerative Agriculture

From Forum for the Future – Growing Our Future Report



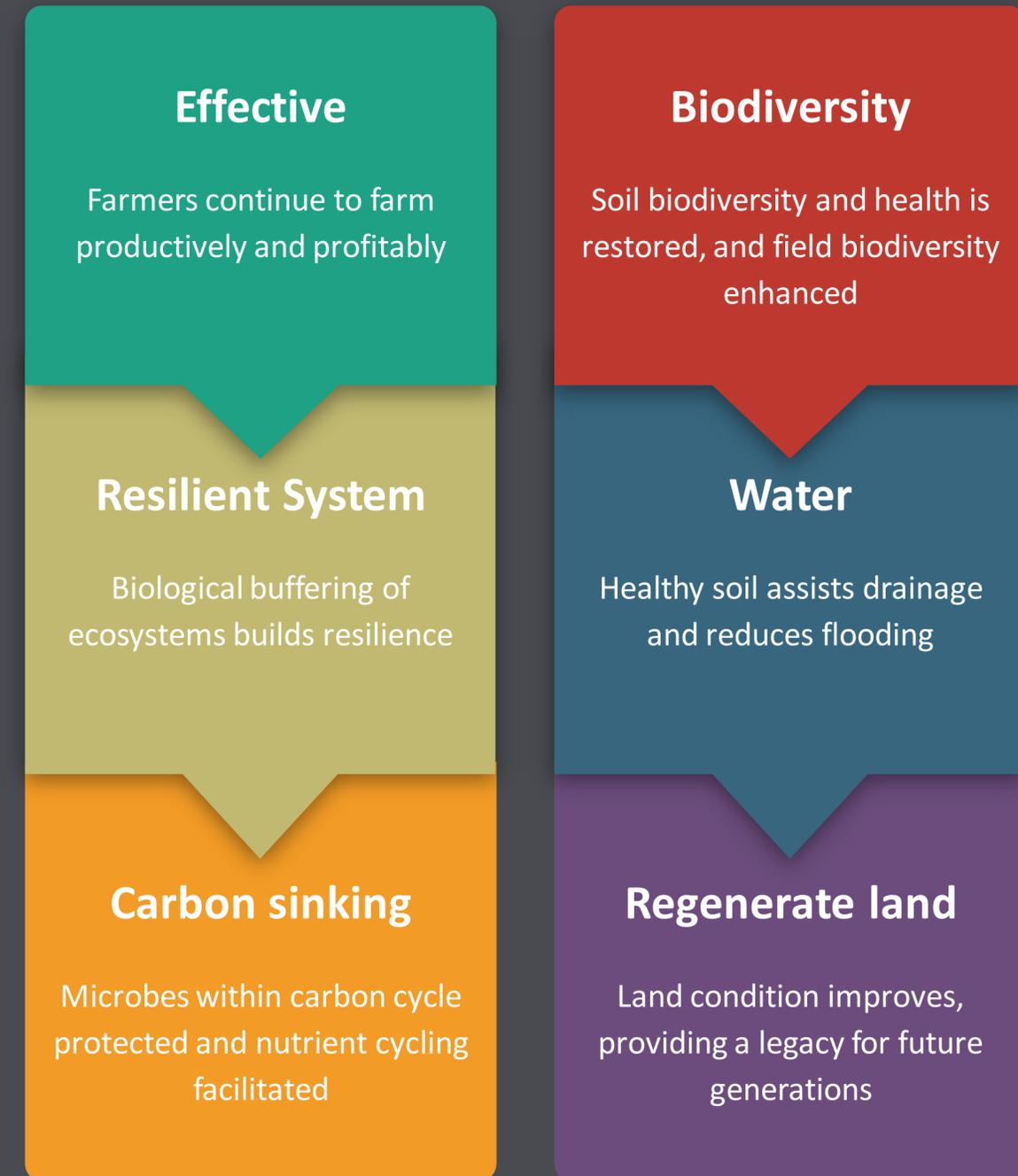
# Benefits of Bioprotection

## Bioprotection is an enabler for regenerative agriculture

For regenerative agriculture we need systemic change

For sustainable agriculture and maintaining biodiversity, bioprotection and biocontrol technologies need to be at the heart of the pest and disease control programme

It is not business as usual – it is a biology first approach and agroecological approach



# How to Incentivise Switch to Bioprotection



And mandate IPM within the SUD revision so bioprotection targets are set within National Action Plans



### Incentives

Farming businesses need incentives to change .  
Use CAP EcoScheme to reward change and mitigate the risk of change.



### Farmer to farmer networks

Farmers listen to farmers.  
Peer to peer learning within rural communities and regions



### Training advisers and farmers

How to use bioprotection and how to make successful IPM programmes



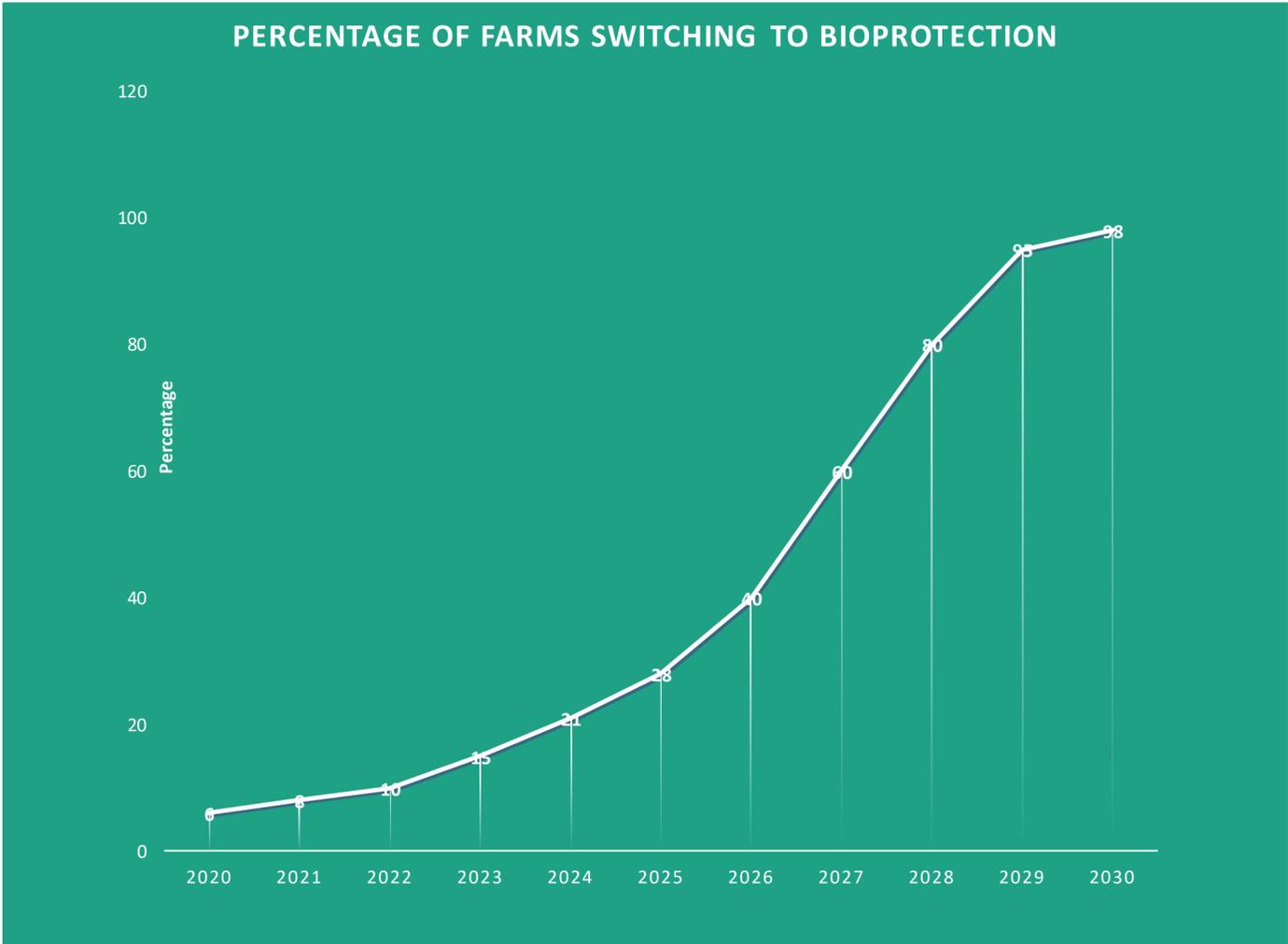
### Multi-stakeholder best practice sharing

Farmer research for farmers led by farmers with support from multiple stakeholders – researchers, advisers, industry.



### Enabling Regulation to Speed Up Market Access

Farmers need products to control pests and diseases  
Bioprotection products are available but are stuck in the inappropriate regulatory system unable to reach market.



2030 trajectory

# Enabling Regulation for Bioprotection is part of the Solution



01

**Bioprotection does not work in the same way as chemical pesticides**

Bioprotectants are not the same as pesticides – they generally work by suppression, triggering plant defences, or outcompeting the pest or disease

02

**Pesticide legislation is written for chemicals**

1107/2009 is designed with chemicals in mind

03

**Bioprotectants promote resilience.**

Bioprotection enhances nature's biological buffering and over time their impact increases as they facilitate the natural processes in soil and above ground

04

**Systemic Change**

Farming with a biological mindset is different to farming with a pesticide mindset. Systemic change requires a paradigm shift to actively promote bioprotectants

05

**Active facilitation and promotion of bioprotection**

Today bioprotectants are buried in pesticide legislation. This is hampering market access for bioprotection



**Bioprotection Specific Regulation**

We want a new bioprotection specific regulation to accelerate market access for bioprotectants. This is necessary for the transformative ambition of the Farm to Fork Strategy

# Bioprotection – New Regulation Principles

## Precautionary

Precautionary at farm level – safety to farmers, the environment and the public

## Proportionality

Inherently low risk of bioprotectants merits a reduced evaluation and minimal re-evaluation process

## Safe Use

Where safe use demonstrated on one crop and no MRL they could be used on all crops

## Right to know

A bioprotection specific regulation can give consumers more information on the origin of their food and boost their confidence



# The SUD review can help the agricultural transition



SUD is a great tool – it describes Integrated Pest Management within the biology first context



## Legally binding Action Plans

National Action Plans have not delivered.  
Voluntary approach needs replacing with legally binding action plans.



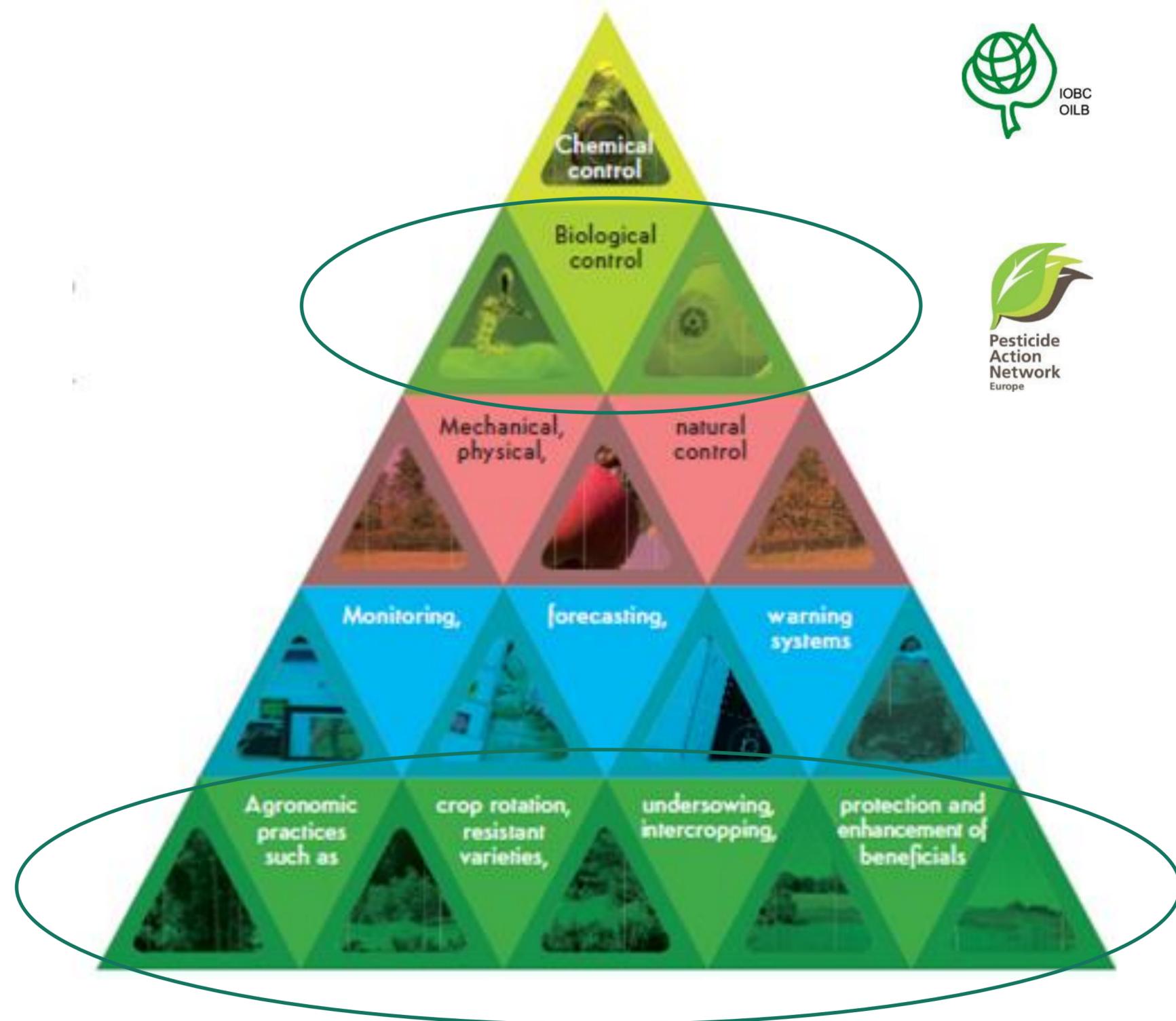
## Integrated Pest Management is rewarded

Reward IPM in CAP through Ecoschemes in the National Strategic Plans



## Include Targets in SUD

Create National Targets for bioprotection uptake within the new National Action Plans





## Vines in Franciacorta Italy

60% of vines in region under organic production



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# What has been the impact so far?

## *Lobesia botrana* control through mating disruption

### Mimising residues and land contamination

Triggers for change are multiple – in this case the societal change and limiting risk to workers and the environment was a key driver for change as was the achievement of national certification, highlighting the importance of standards.

### Change happens field by field, farm by farm

Started with small pilot on one plot and by 2000 the farm was organic and in 2001 has organic certification. Now over 60% of the Franciacorta region vine area is organic

### Joint working Farmers, Researchers Univ of Milan, local agronomists and municipality

It began a social project providing work for people with mental health difficulties who were located nearby.

Technology transfer involved multiple stakeholders within the community





## Rice in Albufera of Valencia

15,300 ha of rice surrounding 3,000 ha of freshwater lagoon  
using mating disruption



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# What has been the impact so far?



## *Chilo suppressalis* control through mating disruption

### 16,000 ha under mating disruption

Since 2006 the pest is fully controlled by mating disruption in the whole area (approx. 16,000 ha) avoiding of the use of approx. 50,000 L of synthetic insecticides each year.

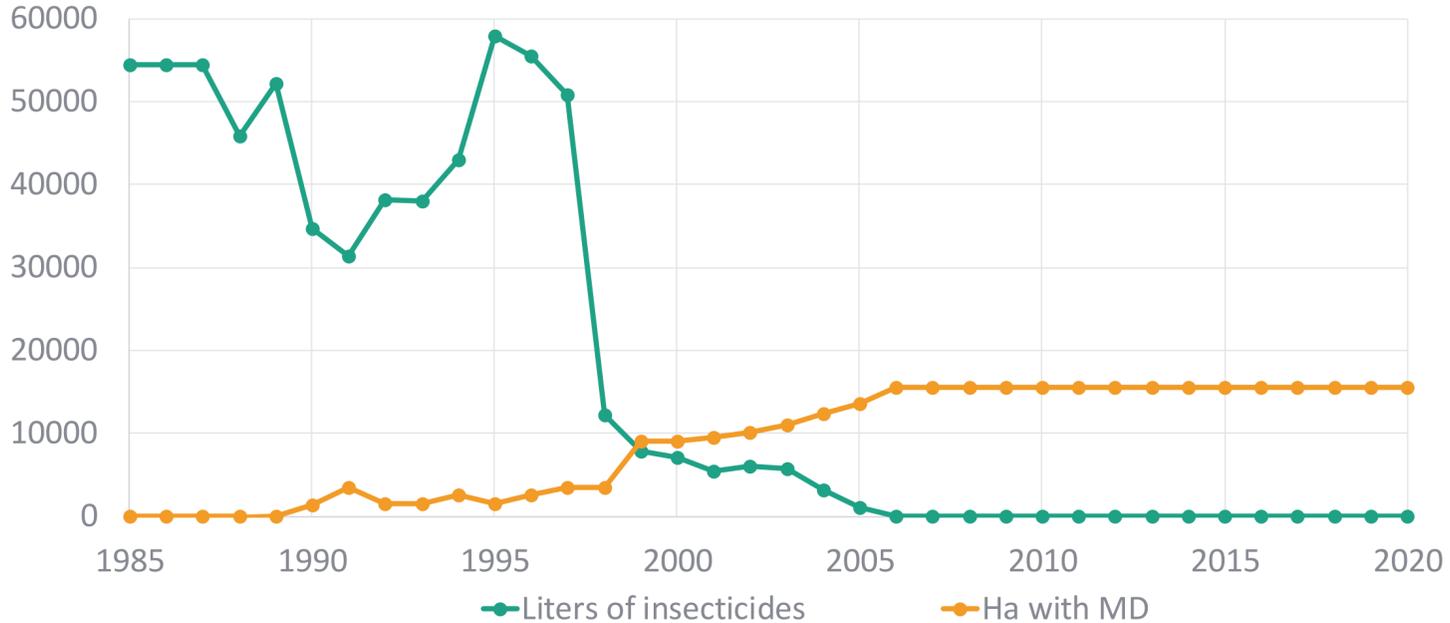
### Joint working with extension service, farmers and industry

The use of mating disruptions allows the coexistence of an important economic activity (such as the rice cultivation) in an area which as been declared a natural reserve and that is, additionally, a touristic site in the region.

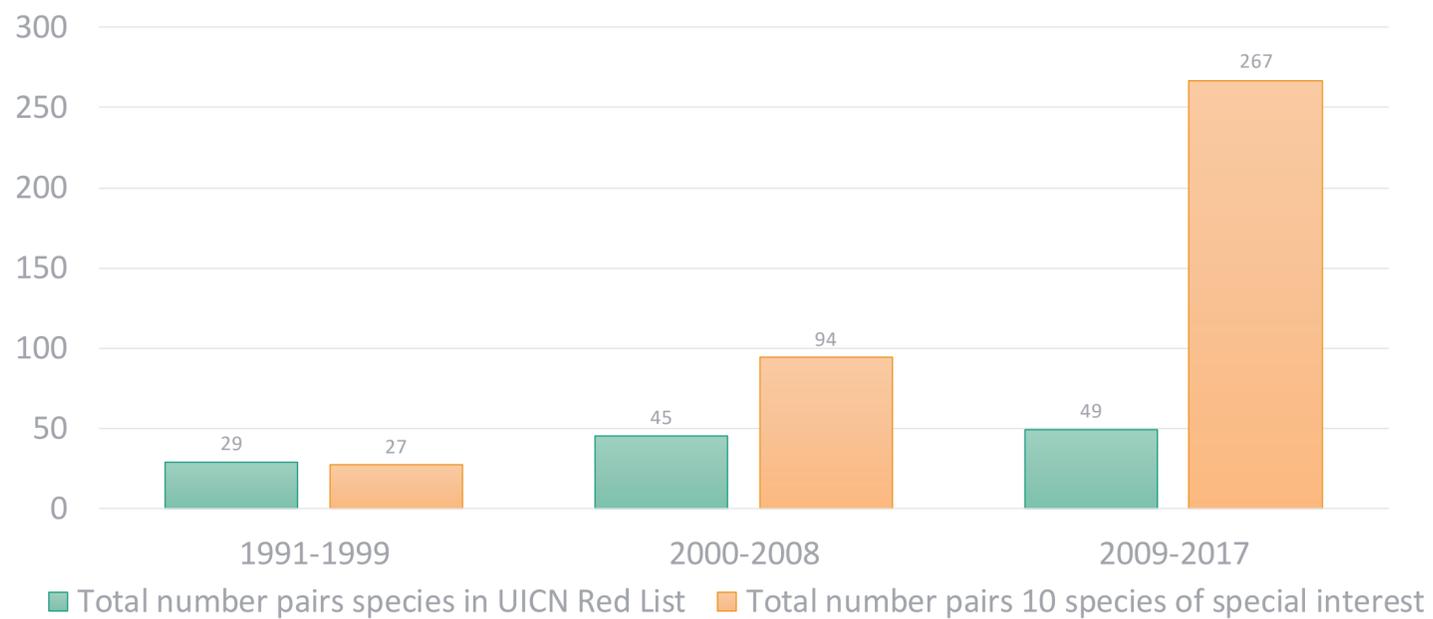
### Biodiversity increased

The switch to biocontrol allowed to significantly decrease pollution and reliance on chemical pesticides, increasing biodiversity enabling resilient rice cropping systems.

Evolution of insecticide use



Evolution of nesting aquatic birds





## Maize in Italy, France and Germany

400,000 ha of maize under parasitic wasp control



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# What has been the impact so far?

*Ostrinia nubilalis* is controlled by *Trichogramma brassicae*



## 400,000 ha of maize grown under bioprotection

Since 2000 *Trichogramma* used to parasitise European corn borer but exponential increase in use due to use of drones to apply capsules.

## Efficacy to match synthetics

Over 80% of eggs are parasitized achieving similar levels of control and yield increase as synthetic pesticides

## Development of new application techniques

Innovation nexus – drone application with change in format of parasitic wasp eggs provided the ability of the technique to compete economically



# Conclusion: What is needed to accelerate Bioprotection Role in Regenerative Agriculture



Transition takes time – it is urgent –start now



### Enabling regulation

Products must reach the market - use the SUD to push bioprotection but a new biological specific regulation is needed to enable the transition



### Incentives – National Strategic Plans

Use the CAP EcoScheme to reward and mitigate the risks for farmers making change



### Targets -National Action Plans

Make the SUD legally binding and include a target for bioprotection



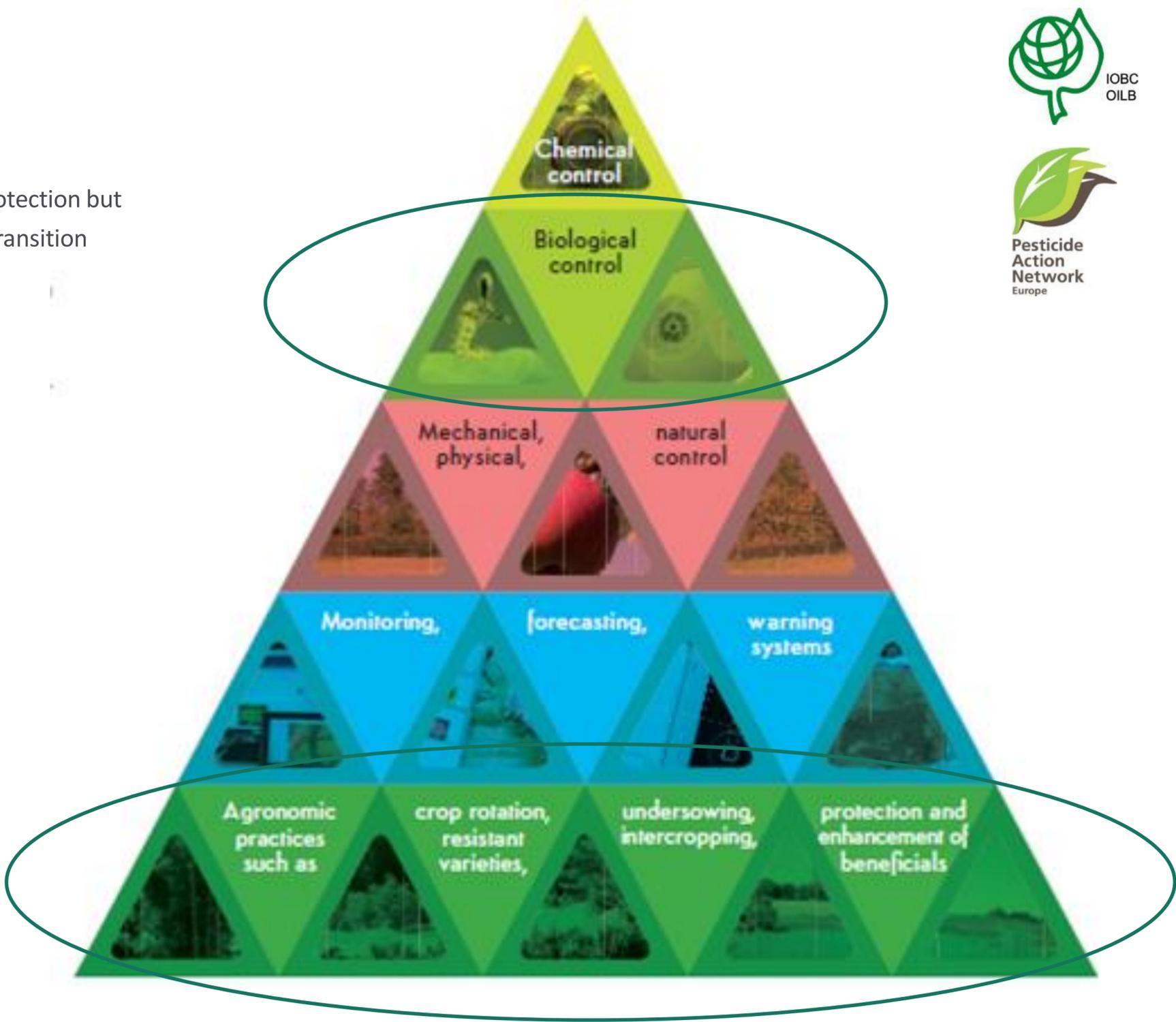
### Farmer to Farmer Networks

Sfarmers learn from farmers and advises and are part of the rural community



### Training and Advice

Advisers must understand biocontrol and be able to advise biocontrol



# What can the Research Community do to accelerate the agricultural transition?

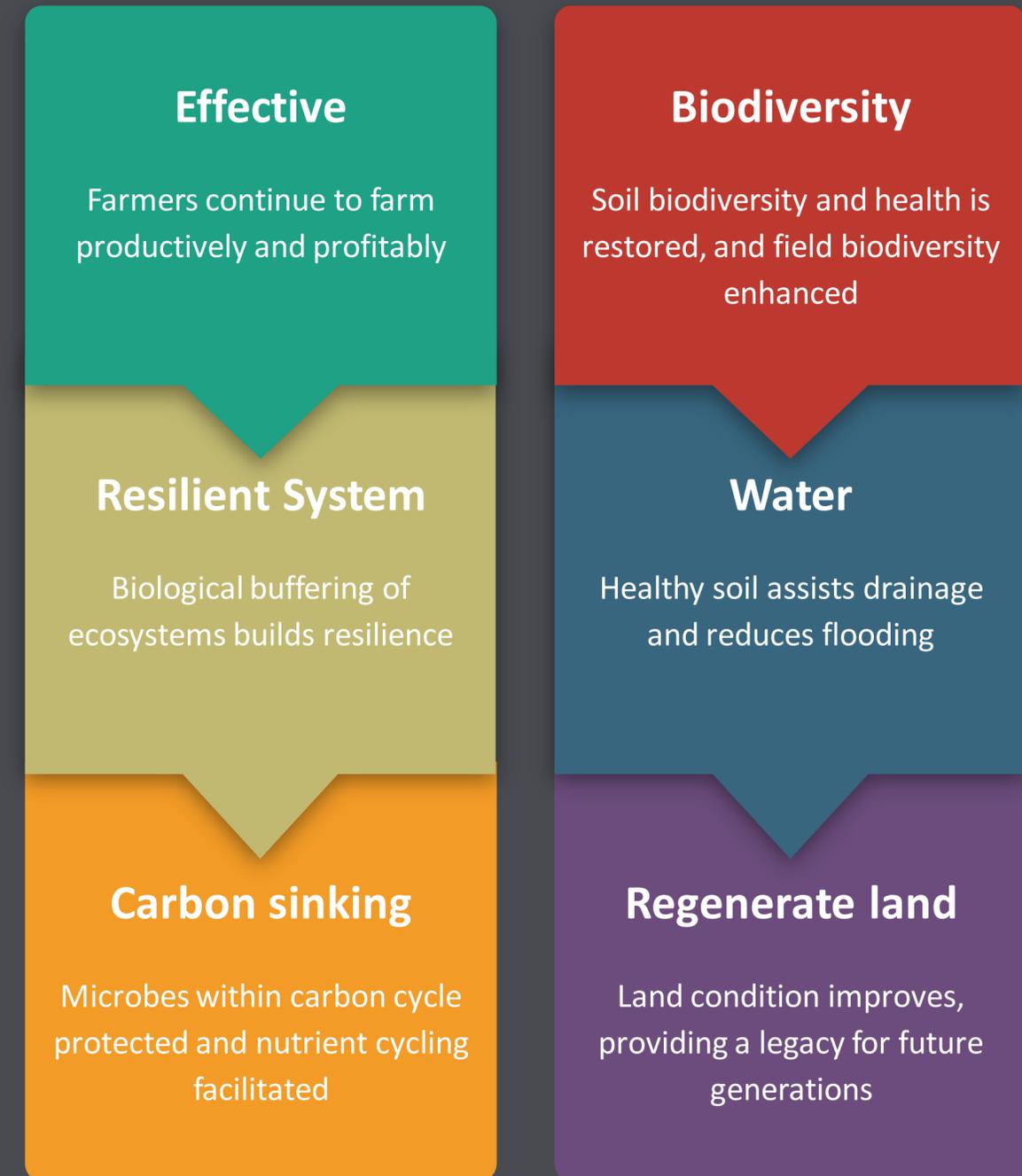
## Provide evidence of the wider benefits of bioprotection

For regenerative agriculture we need systemic change

- Wider benefits of existing products eg biodiversity, soil health
- Look beyond efficacy at wider benefits for new products – biodiversity, carbon cycling, microbiome health

All at field level

-



# Thank you

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