OFFICIAL FEEDBACK FORM



| DIALOGUE DATE | Wednesday, 9 June 2021 09:30 GMT +01:00 |
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| DIALOGUE TITLE | The Shift to Nature Positive Food and Farming - What Role for Biocontrol? |
| CONVENED BY | IBMA, Forum for the Future |
| DIALOGUE EVENT PAGE | https://summitdialogues.org/dialogue/17654/ |
| DIALOGUE TYPE | Independent |
| GEOGRAPHICAL FOCUS | Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland, United Kingdom of Great Britain and Northern Ireland |

The outcomes from a Food Systems Summit Dialogue will be of use in developing the pathway to sustainable food systems within the locality in which they take place. They will be a valuable contribution to the national pathways and also of interest to the different workstreams preparing for the Summit: the Action Tracks, Scientific Groups and Champions as well as for other Dialogues.

1. PARTICIPATION

TOTAL NUMBER OF PARTICIPANTS

37

PARTICIPATION BY AGE RANGE

0-18 19-30 51-65 66-80

PARTICIPATION BY GENDER

15 Male Female Prefer not to say or Other

NUMBER OF PARTICIPANTS IN EACH SECTOR

Education Health care Agriculture/crops Fish and aquaculture Communication **Nutrition**

Livestock Food processing National or local government

Agro-forestry 8 Food retail, markets Utilities

3 Environment and ecology Food industry Industrial **Financial Services** Trade and commerce Other

NUMBER OF PARTICIPANTS FROM EACH STAKEHOLDER GROUP

Large-scale farmer

Workers and trade union 2 Small/medium enterprise/artisan

Member of Parliament 8 Large national business

13 Multi-national corporation Local authority Small-scale farmer Government and national institution

1 Medium-scale farmer Regional economic community

International financial institution 1 Local Non-Governmental Organization

International Non-Governmental Organization Private Foundation / Partnership / Alliance 3

United Nations

Indigenous People Consumer group

Science and academia Other

1

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2. PRINCIPLES OF ENGAGEMENT

HOW DID YOU ORGANIZE THE DIALOGUE SO THAT THE PRINCIPLES WERE INCORPORATED, REINFORCED AND ENHANCED?

Act with urgency: brought together initial insights to work from during the workshop. Commit to the summit: we encouraged people to really share honestly, create a safe space for a wide range of opinions to come together; encouraged new connections. Be respectful: ground rules – listening and encouraging participation and sharing; recognise complexity, operating at the intersection of a number of issues across nutrition and sustainability, encouraged people to explore different angles and perspectives around the same issue. Engage multi-stakeholder inclusivity: business community, civil society, research, farmers. Complement the work of others: built on interview insights; encouraged people to highlight what was already being done, build trust, encouraged people to share their motivations for joining the session and identify areas of shared action and alignment.

HOW DID YOUR DIALOGUE REFLECT SPECIFIC ASPECTS OF THE PRINCIPLES?

| We actively sought to engage different and diverging perspective | es, we asked if anyone ha | d any access needs beforehand |
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| and we made multi-language content available. | | |
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DO YOU HAVE ADVICE FOR OTHER DIALOGUE CONVENORS ABOUT APPRECIATING THE PRINCIPLES OF ENGAGEMENT?

Prepare well. Have a clear facilitator agenda. Do background research ahead of time. Select diverse participants with differing perspectives, but who can listen to others. Ensure a wide range of voices are heard. Listen to what is being said underneath what is stated and paraphrase where necessary to check you have heard right.

3. METHOD

The outcomes of a Dialogue are influenced by the method that is used.

DID YOU USE THE SAME METHOD AS RECOMMENDED BY THE CONVENORS REFERENCE MANUAL?

Yes

No

4. DIALOGUE FOCUS & OUTCOMES

MAJOR FOCUS

'Bioprotection' includes biocontrol technologies in agriculture and has uses in agriculture, forestry and public health. It protects against unwanted organisms e.g. pests and pathogens and is found in nature/are nature identical if synthesised.

Biocontrol could reshape agricultural practices to be nature positive, reduce pesticide use, supporting biodiversity and regenerative farming practices supporting soil health and carbon sequestration.

Bioprotection aids integrated pest management and has benefits in nature based solutions for agriculture to reduce pesticide use, supporting ambitions of legislation e.g. the EU Green Deal.

What is biocontrol? Globally, terminology is unclear with lots of terms used. IBMA Product categories within the scope of

"Bioprotection" include 4 categories which are the same as the French legally defined list for "biocontrôle":

• Semiochemicals are emitted by plants, animals and other organisms for intra-species and/or inter-species communication targeting specific and non-toxic mode of action, such as pheromones affecting behaviours of pests.

• Microbials are based on microorganisms e.g. bacteria, fungi, protozoans, viruses, viroids, mycoplasmas and may include

entire microorganisms, living and dead cells, associated microbial metabolites, fermentation materials and cell fragments. They outcompete pests within a crop.

 Natural substances consist of >1 component from nature, e.g. plants, (micro) algae, animals, minerals, bacteria, fungi, protozoans, viruses, viroids and mycoplasmas. They're found in nature/are nature identical if synthetised. This excludes semiochemicals and microbials.

• Invertebrate Biocontrol Agents (IBCAs) ('macrobials') are natural enemies e.g. insect, mite and nematode species controlling pests through predation or parasitism.

Currently IBMA doesn't include, within the scope of "Bioprotection", technology where there is no regulatory pathway or policy decision. Once policy decisions are published, technologies are considered for inclusion.

Bioprotection may be a preferred pest management solution as it's non-pathogenic to humans and doesn't contribute to antimicrobial resistance development for human or veterinary pathogens. Bioprotectants are natural and minimally impact the environment. Natural substances and semiochemicals have degradation pathways or are inert; microbials have existing ecosystem mechanisms to balance populations; they're usually specific to target organisms. They may cause minimal negative effects to non-target organisms, ecosystems and the environment because any negligible negative impact would be transient, resulting in no lasting reduction in biodiversity; indeed, bioprotectants often contribute to ecosystem services.

Contextually, this work is timely as agriculture is shifting fast with the climate emergency, rising focus on soil health and biodiversity, and new EU and UK legislation where policy agenda is moving focus to ecosystem services and natural capital values. This means both food businesses and suppliers are actively building nature-friendly farming into strategies.

Biocontrol could support food companies and growers to reach outcomes. However, it can be poorly understood outside of horticulture. It may face barriers to adoption from lack of knowledge, limited practical experience, European Common Agricultural Policy funding structure and inertia, with current profitable practices fitting with existing farming operations.

The workshop addresses current biocontrol uses; opportunities/issues in emerging uses and identifies how to drive uptake of practices supporting biodiversity and soil health while being safe and productive. The audience included farmers, food businesses, policymakers, agricultural service providers. The geographical scope is Europe with a focus on arable farming. With ~ 80% of European farming under arable cropping and 20% in horticulture and scaling nature positive solutions and addition and all used in horticulture and scaling in graphs. farming is vital. Biocontrol is an existing solution and well-used in horticulture and speciality crops. Upscaling in arable requires adaption by in field learning and development.

ACTION TRACKS

Action Track 1: Ensure access to safe and nutritious food for all Action Track 2: Shift to sustainable consumption patterns Action Track 3: Boost nature-positive production Action Track 4: Advance equitable livelihoods Action Track 5: Build resilience to vulnerabilities, shocks and stress

| 1 | Finance | 1 | Policy |
|---|------------------------------|---|-------------------------|
| 1 | Innovation | 1 | Data & Evidence |
| | Human rights | | Governance |
| | Women & Youth Empowerment | | Trade-offs |
| | | 1 | Environment and Climate |

MAIN FINDINGS

Why is biocontrol relevant for the future food system? Why are we having this conversation now?

The world is shifting its focus toward forms of agricultural production that are healthier for both people and planet, and support the restoration of our environment. The 2020s have brought increasing shifts across policy, legislation and corporate strategies toward nature positive farming, with a focus on biodiversity restoration and regenerative and agroecological farming practices. Signposts include the EU Green Deal, its Farm to Fork Strategy and the UK 25 Year Environment Plan and Agriculture Bill. Government support payments for farmers will increasingly favour nature positive practices. Clear signals from business, for example from food service giant Compass, to the world's largest retailer, Walmart, to major commodity producers such as Cargill, target regenerative agriculture as a key means to deliver their climate, net zero and sustainability strategies. Reductions in pesticide use are flagged in the legislative and policy frameworks above. Soil health is a key target for maintaining resilient productivity in the face of climate change impacts such as more extreme weather, so methods of pest management that protect the soil biome will play a significant part in future agricultural solutions. In short, agriculture will need to incorporate different practices to shift away from the needs of the 20th Century and meet the deepening challenges of the 21st Century.

Biocontrol can contribute to agroecological practices and support resilient nature positive farming. It keeps biodiversity in the soil which contributes to plant health, and allows for reduced chemical inputs as part of integrated pest management programmes.

Examples presented included the production of apple orchards, vineyards and arable crops such as wheat, barley, rapeseed and other crops such as corn and potatoes and beets.

Opportunities identified in case studies presented included the improvement of biodiversity and reduction in chemical pest opportunities identified in case studies presented included the improvement of biodiversity and reduction in chemical pest management. Adoption of decision-making tools allowed for optimisation of the use and timing of chemical products application, and the introduction of biocontrol, thus reducing the amount of chemical plant health management required for arable crops such as rapeseed and wheat. This has enabled the farmers to market their crops under High Environmental Value (HVE) labels which align with the strategies and preferred buying practices of many food companies. The farmers note that this shift in practices has also increased their reputation within the agriculture and food sector and many stakeholders want to see the on farm example of change. Financial benefits do not flow from a reduction in costs, as the biocontrol products costs more but from the ability to access labels and standards such as Clobal Can and LVE premiums. This also products costs more, but from the ability to access labels and standards such as GlobalGap and HVE premiums. This also aligns with the preferred buying standards of food companies and supports their strategic commitments to reduce pesticide use, and their ability to communicate their achievements to consumers. Other farmers identified the potential for biocontrol as an element of shifts in agricultural practices in response to new climate change challenges. Farmers shifting their practices noted that the shift comes at a cost, so to remain profitable produce needs to be marketed at a higher price, if not through an accreditation such as HVE in France, through higher purchase prices from food companies or traders or government support.

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KEYWORDS

Finance Policy Innovation Data & Evidence Human rights Governance Women & Youth Trade-offs Empowerment Environment

and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 1/4

What can biocontrol deliver?

In creating a sustainable and healthy food system, reducing the pressure on the environment is key. As a non-chemical and targeted input, biocontrol can offer a systemic and balanced solution for sustainable agriculture.

The effect of plant protection methods on biodiversity and health are now at the centre of political and technical discussions. In face of the upcoming revision of the Sustainable Use Directive, a milestone within the implementation of the Green Deal objectives, it's essential to explore sustainable alternatives.

As a non-chemical and targeted input, biocontrol offers a systemic and balanced solution for sustainable agriculture. Biocontrol acts within the farm ecosystem of life cycles, insects' behaviour and the influence of agronomic practices on plant health. It thereby becomes a key enabler of the European Green Deal, particularly for the Farm-to-Fork objectives.

Evidence of the role that biocontrol can play in sustainable agriculture, particularly in terms of benefits for biodiversity, was presented to the dialogue, based on a report from the Institute for European Environmental Policy (link to report below). Their literature review examines definitions around biocontrol, the literature on benefits with regard to biodiversity, soil and human health, current efficacy levels and market position, and potential wider impacts on farm economics and climate considerations. The report states that

"...biocontrol has an advantage in its overall long lasting effects, which in itself has a positive knock-on effect on biodiversity and crop resilience. Biocontrol opens a virtuous circle generating more biodiversity and more resilient agroecological systems.

The report notes key evidence in the following areas:

- Biocontrol has recognised potential to support the protection and enhancement of biodiversity, particularly in the framework of Integrated Pest Management and in combination with organic production. Reducing the overall use of chemical pesticides has widely acknowledged benefits for biodiversity.
- Biocontrol has evolved into being a targeted measure, with little adverse effects on non-targeted fauna and flora.
 The positive interplay between biodiversity and soil health is an area where biocontrol can play a key role. The living organisms in the soil create a vital living ecosystem, which can, among other functions, filter potential pollutants and sustain healthy plant growth. The reviewed studies indicated benefits of biocontrol both in decreasing chemicals reaching the soil and creating favourable states for soil microbes.
- The use of biocontrol can lower negative impacts on human health. From farmers and field workers to residues in food products, chemical pesticides pose a multitude of health issues. Biological approaches can deliver on the safety of both consumers and workers.

Several key shifts in the food and agriculture system are needed to realise the potential of biocontrol in nature friendly farming. These are outlined in the 'action' section at the end of this dialogue report, but include an appropriate legislative framework, policy alignment opportunities, with the new EU Green Deal and Farm to Fork strategy, research in to wider environmental implications of biocontrol, such as its role in agricultural systems for climate change mitigation; and field application studies.

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OUTCOMES FOR EACH DISCUSSION TOPIC - 2/4

What is the relationship of biocontrol to strategy?

The following key themes arose from the dialogue:

There is increasing focus on regenerative agriculture from food companies – and major new commitments from companies. Therefore companies are looking into the technical solutions that will underpin the shift.

Links can be drawn between healthy diets and the quality of food. Biocontrol needs to sit within the context of a food company's sustainable nutrition strategy and healthy diets. Biocontrol is a long way from the consumer – so finding ways of linking biocontrol to consumer aspirations is essential to get consumer pull through.

Companies are also looking at landscape level solutions and whether, in changing their farming practices, they can work over the long term across rotations and other surrounding land owners, to optimise outcomes across the crop cycle.

Biocontrol is an area with potential for innovation strategy of food companies, for example looking at introducing integrated pest management, peer to peer learning and utilising the capabilities of food companies to drive innovation at farm level.

Least cost is a key consideration for business strategy – the UK and EU are already working to higher standards. So there is a risk that use of newer and more expensive products could price growers out of the market.

Businesses are committing increasingly to net zero carbon strategies and will need to respond to the policy environment which is shifting toward nature positive farming and environmental restoration.

Pioneering farmers are adopting strategies that do prioritise more sustainable farming methods; however this is not yet recognised in the marketplace.

Farmers' business models need to be financially viable and thus biocontrol needs to sit within an economic model that is sustainable and values their environmental performance.

Biocontrol can form a bridge between organic practices and the shift in conventional farming.

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- ✓ Finance
- ✓ Innovation
 - Human rights
 - Women & Youth Empowerment
- Policy
- ✓ Data & Evidence
 - Governance
 - Trade-offs
 - Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 3/4

Barriers and opportunities

While the opportunities are extensive, the shift to biocontrol will require a change in mindset, backed by clear evidence and data to prove the efficacy of biocontrol products. The notable barriers and opportunities raised through the dialogue are outlined here:

Barriers:

- The regulatory environment moves too slowly to bring in new products to replace those chemicals that are being phased out, potentially leaving major gaps in the portfolio of pest management options for farmers. Increased speed and adaptation of regulatory processes for biocontrol are urgently needed.
- · A lack of knowledge of the potential role of biocontrol within food system actors further up the supply chain

· Cost: Biocontrol products do not yet have the benefit of scale and thus may cost more

- · Specificity: Biocontrol products may be specific to a particular crop or species of pest, and to optimise their use may require use at a different time in the cropping cycle to chemical pesticides so having a greater operational cost implication for the farmer
- Inertia: farmers are experienced in the use of pesticides and their effectiveness, and may not see the need to change and biocontrol is not usually a straight replacement of chemistry as to optimise its use other agronomic and environmental factors need to be considered and often adapted.
- Cost of investment and length of time in bringing a product to market (for the biocontrol manufacturing industry)

Regulatory frameworks: these vary globally and are not designed for assessing biocontrol products

- A lack of solutions in the market for particular crops
 Perceived risk of lack of efficacy of biocontrol measures in outdoor farming setting such as arable, as opposed to horticulture
- In horticulture, use of biocontrol is much more mainstream but this is less well developed in broad acre crops

Access to higher value premiums through environmental claims and assurance standards

• Strong environmental credentials to production practices can be communicated

- Alignment with new regulatory environments and financial support mechanisms that reward either shifts in practice away from pesticide use, or outcomes such as improved biodiversity
- Shifts in business strategy (not just for food and fibre companies) toward nature positive farming and regenerative agricultural practices

Farmers can act as enablers of food companies' environmental strategy

· Potential for food companies to communicate the benefits and alignment of biocontrol to public and reflect societal demands on pesticide use and nature positive farming

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OUTCOMES FOR EACH DISCUSSION TOPIC - 4/4

What needs to change?

The dialogue identified the following actions to accelerate the shift to nature positive farming and adoption of biocontrol:

Knowledge:

• Build linkages between food companies, suppliers and growers, to understand the appetite for shifts in agricultural practices across the value chain

Increased farmer knowledge of the efficacy of biocontrol products, and how they can transition

- Utilise decision support tools to enable farmers to understand how biocontrol efficacy could be optimised in their specific context
- Increase awareness of what biocontrol products are available, and how to use them: from advisors and suppliers to agricultural media
- Research and development to prioritise biocontrol, demonstrate its efficacy and the business case for its use
- Knowledge transfer and training in the use of biocontrol methods in the farm context
- An understanding of farming operation implications such as work and labour

Cost and risk:

- Pricing structures (product cost and incentives for utilisation) that allow farmers to invest in the transition to, and adoption of, biocontrol
- · Contracts and partnerships with off-takers and food companies to share risk in the transition, rather than borne solely by the farmer
- The shift to ecologically focused farming needs to be appropriately compensated, particularly for the additional benefits such as carbon storage and biodiversity and ecosystem services such as water quality

The wider role of food companies:

- Build stronger connections between farmers using biocontrol and actors further up the supply chain such as food retailers and manufacturers, to share knowledge, demonstrate practice and engage in partnership
- · Food companies need to understand the process of agricultural transition, and support farmers as they gradually transform practice, for example through longer term relationships, contracts, access to metrics to demonstrate outcomes, and sharing risk
- · Food companies can communicate to the public the use of biocontrol strategies and the wider benefits arising from its use
- Collaboration across the sector and through the supply chain on advocacy for a better enabling environment for a shift to nature positive farming (such as the speed of decision-making and regulatory frameworks underpinning biocontrol)

Policy

To enable biocontrol to play its part in the shift to nature positive farming, a significant shift in policy is required. Agricultural policies need to align with the future ambitions of the EU Green Deal and Farm to Fork strategy, looking forward rather than reflecting the agricultural practices of the past. The following represent the top five policy recommendations from the IEEP report.

- Definition: Using a common EU definition on biocontrol would bring clarity of its technical aspects to the political discussion on pest control for sustainable agriculture.
- · Legal framework: Adapting the current EU legal framework to recognise the non-toxic implications of biocontrol, in comparison to chemical products, should be considered.
- Alignment opportunities: By increasing the uptake of biocontrol use, as part of Integrated Pest Management, the Common Agricultural Policy can be better aligned with the Sustainable Development Goals and the Farm-to-Fork strategy in creating a pathway for achieving the 2030 targets on organic farming and chemical pesticide reduction.
- Research needs: Extending research topics and investment beyond technical issues to biocontrol's relation to climate change mitigation and farm economics will create a more holistic image of the impact of the use of biocontrol.
- Field application: Pushing for larger scale and accelerated application, supported by available policy instruments in the Common Agricultural Policy, will show the potential that biocontrol demonstrates for controlling plant pests and diseases, in support of EU Green Deal targets.

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AREAS OF DIVERGENCE

| There are very different visions of the future of agriculture, from organic to conventional integrated pest management. The current context of farming is a long way from the future trajectory outlined in EU and UK policy. | |
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| | | 1 | Environment and Climate |

ATTACHMENTS AND RELEVANT LINKS

RELEVANT LINKS

- United Kingdom 25 Year Environment Plan https://www.gov.uk/government/publications/25-year-environment-plan
- European Union Farm to Fork Strategy https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en
- European Union Green Deal https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
- Forum for the Future report on the shift to regenerative agriculture https://www.forumforthefuture.org/Handlers/Download.ashx?IDMF=e4bf6296-6037-4c58-8dc3-daa578a5a58e
- IBMA website https://ibma-global.org/
- IEEP report launch webinar: Biocontrol: an essential component of the EU Green Deal? https://ibma-global.org/latest-news-2/save-the-date-biocontrol-an-essential-ingredient-of-the-green-deal
- IEEP report on The Benefits of Biocontrol for Sustainable Agriculture https://ieep.eu/publications/exploring-the-benefits-of-biocontrol-for-sustainable-agriculture
- Case study of farmer's experience of using biocontrol https://www.youtube.com/watch?v=5BEkytQJgmM