## ACTIONS IMPLEMENTED COLLECTIVELY BY FARMERS AND BEEKEEPERS TO PROTECT POLLINATORS

The health and survival of pollinators is a topic of immense importance for European farmers and their cooperatives. Pollinators and farmers are interdependent and irreplaceable for one another: farmers need crop pollination in order to successfully cultivate European food and therefore have a symbiotic interest in contributing to the survival and flourishing of pollinator populations. Studies estimate that around 80% of crop and wild-flowering plant species in the EU depend on insect and other animal pollination<sup>1</sup>. The agricultural sectors have first-hand experience in the fact that losing pollinators poses an indelible risk to the future of our natural and biodiverse world, our European food supply. Farmers are not standing still and have already made various efforts in order to aid the functioning and abundance of biodiversity, and especially pollinators on their farms and their local environment.

In order to future-proof agriculture, agriculture and forestry must continue to take into account the environment and the abundance of natural species and ecosystem health. Sustainable agriculture can only be achieved by cultivating the fields so that we can harvest as much as possible with efficient and effective use of inputs while remaining economically viable. Here, bees and other pollinating insects play an important role. Many crops produce a higher yield when pollinated by bees and other pollinators.

However, the populations of wild pollinators such as bees, hoverflies, butterflies and moths are decreasing in occurrence and in diversity in Europe due to the loss, degradation and fragmentation of flower-rich habitats and nesting places, inappropriate use of plant production products, the ever increasing threat of invasive alien species and rising temperatures and extreme weather events caused by climate change. In particular, in the last years, we have experienced a variety of previously unseen extreme weather conditions, such as the flash floods in Germany and Belgium in 2021, devastating forest fires in Portugal (2020) and Greece (2021) and the increasingly desperate drought in southern Italy and Spain.

Copa and Cogeca, representing beekeepers, farmers and their cooperatives, recognise and respect the fundamental role of pollinators for agriculture and the importance of safeguarding them, including on farmland as well as forestland. An increase in the area and the quality of pollinator habitats and food resources on these lands has the potential to enhance the populations as well as the diversity of pollinators. In addition, Copa and Cogeca would like to demonstrate the continuous efforts made by farmers to reduce the environmental impact of plant protection products on pollinators. One of these measures consists in precision spraying to avoid spray drift that may affect the environment. In general, spraying of plant protection products is a useful tool for farmers when large extensions of terrain must be covered and the crops there protected. However, sometimes these activities may have impacts on the environment and/or human and/or animal health. For

https://ec.europa.eu/environment/pdf/nature/conservation/species/pollinators/Progress in the implementation of the EU Pollinators Initiative.pdf.

<sup>&</sup>lt;sup>1</sup> COM(2021) 261 final,

instance, it is strongly recommended not to spray during the day, only during late afternoon or evening when the bees are less active; plus, they prefer to spray in certain humidity conditions (>70%), when pollinators do not fly, and plants absorb any substances that may be on the surface better. Moreover, the innovation and development of spraying machinery has improved over the past years. In this context, Copa and Cogeca participated in the INNOSETA Project<sup>2</sup> to help boost innovation on spraying techniques that may be more sustainable and environmental-friendly. Additionally, specific rules apply for the risk assessment for bees in the approval procedure of plant protection products. Furthermore, we believe that precision-spraying alternatives and the use of unmanned aerial precision sprayers (e.g. drones) can be a very useful tool for farmers to avoid spray drift and considerably reduce any potential environmental impact, including wild and domestic pollinators.

- This document aims at providing examples of concrete, clear and solid initiatives that beekeepers and farmers can apply from day one to stop the decline of Europe's precious pollinators. It should be noted that many farmers are already applying certain measures on a voluntary basis. While some measures can easily be implemented by farmers at no cost and without any kind of coordination being required, other practices may require extra funds and additional energy. In order to improve the implementation and efficiency of such measures, we believe that the agricultural sector's efforts should be encouraged and supported by incentives and financial compensation of related costs from EU or national and regional funding.
- Another objective of this document is to provide policy makers, stakeholders and citizens with similarly concrete and useful measures, as the efforts made by farmers and beekeepers cannot be an individualistic action, they must be part of a bigger scheme of protecting and rejuvenating Europe's pollinator populations.
- > This paper aims to show that farmers can, want, and already do effectively contribute to biodiversity restoration in agricultural areas, with voluntary actions. As the context in our different Member States is often completely different, it is not possible to simply apply examples from one Member State in another. These examples are all measures taken voluntarily by farmers. It is up to the various authorities to provide the appropriate support and guidance for such measures so that similar solutions can be incorporated on a farm.
- Farmers need legal security in order to be able to develop their farms over a sufficiently long period. Governments sometimes use measures farmers have taken to promote biodiversity to justify the refusal of permits. We call upon governments to pay attention to this and ensure that farmers can invest more in biodiversity on agricultural land.

The below table demonstrates how a range of good practices and measures to be implemented by farmers and beekeepers can bring benefits to a pollinator-friendly farmland management, where farmers, beekeepers and pollinators can bring about a win-win situation.

The list of actions mentioned below is not exhaustive and will be updated as new data arrives.

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<sup>&</sup>lt;sup>2</sup> <u>https://innosetaproject.eu</u>



- Flower strips with seed mixtures designed to attract pollinators and natural enemies of crop pests around their fields (e.g. olives, maize, winter cereals and plums).
  - Helping bees, insects and other wild animals to find food;
  - Habitat creation for pollinators;
  - Fighting crop pests.



- Creation of pollinator habitat on farms and on public land (natural nesting opportunities in the soil and above the ground + bee hotels).
- Increasing the populations of solitary bees and bumblebees.



- Notification system: website where farmers can see instantly where beekeepers have placed their beehives
- + farmers have to communicate to beekeepers when they are going to spray.
- Minimising the risk for honeybees and beekeepers:
- Helping farmers to have a successful seed production.



- mprove feed resources for bees before winter by implementing melliferous cover.
- Increasing bee population;
- Allow better establishment of new nests after winter;
- Ensure robust nests and queens for coming winter.
- \* Timing varies from species to species





National map where the needs of farmers are described and where beekeepers can offer their services

> - Helping farmers to get a successful seed production.



Building a self-steering network of knowledge exchange on bee-friendly landscape management practices, integrating evidence in practical management, building citizen buy-in and communication and setting up monitoring.

> - Reducing the decline of bumblebees and wild bees, as well as honeybees.



Nature based management of endangered habitats through appropriate agricultural practices (adjusted time and intensity of mowing and abandon fertilisation, assisted colonisation of endangered native species, remove invasive alien species, and re-establish natural bog hydrology).

> - Improving the habitat of species (including bees) whose condition has deteriorated significantly in recent years.



## Meetings of beekeepers and farmers at local, county and state level (platform

for the exchange of views) + wild and honeybees monitoring: wide base programme for survey + explanation of bee losses over the winter season (e.g. diseases, feed supply, plant protection products).

- Improving communication and knowledge in order to improve farmers' practices.



## Research on plant - pollinators interactions nteractions

- Improving the transfer of knowledge into farmers' practices.

Measures and initiatives	Benefits	Funds
	ON-FARM ACTIO	NS
Protect and improve small biotopes between the fields (e.g. road verges, field margins and hedgerows). If possible, establish an uncultivated buffer zone around them. (This can be done both voluntarily and also in connection with financial compensation schemes)	<ul> <li>-Increase pollinator populations.</li> <li>- Enhancing the ecological value of agricultural land to provide habitats and refuges for animals and plants.</li> <li>- Improve the cohesion between pollinator habitats</li> <li>- Better production for farmers.</li> </ul>	No EU or national funds available
Protect old, dead and dying trees. Both standing and fallen trees are valuable habitats. Another possibility is to veteranize younger trees by ringing them or cutting holes in the trunk.	<ul><li>Increase pollinator populations by providing them with good ecosystem.</li><li>Better production for farmers.</li></ul>	No EU or national funds available
Convert unproductive parts of the field into permanent nature. Areas placed along field margins or close to existing nature areas have the highest nature-potential. Allow wild plants to establish.	<ul> <li>Increase pollinator populations by providing them with a good ecosystem.</li> <li>Better production for farmers.</li> <li>Improve biodiversity.</li> </ul>	No EU or national funds available
Let fallen branches and other deadwood decay naturally. If trees are being trimmed or cut down, leave the wood to decay naturally in an undisturbed spot, e.g. inside a hedgerow.	<ul><li>Increase pollinator populations by providing habitats.</li><li>Better production for farmers.</li></ul>	No EU or National Funds Available

Measures and initiatives	Benefits		Funds
<ul> <li>Adopt a pollinator-friendly plant protection treatment:</li> <li>Favour the use of products when there is more than 70% humidity, as pollinators do not fly then and plants absorb and react better to the treatment.</li> <li>Respect the rules related to the period of the day during which farmers are allowed to spray (from late afternoon until very early morning) as pollinators do not fly during the night in general (except for very few species of "night pollinators").</li> </ul>	<ul><li>Contribute to the survival of pollinators.</li><li>Increase pollinator populations.</li></ul>	No EU or national fo	unds available
Flower strips with seed mixtures designed to be attractive to pollinators and natural enemies of crop pests around their fields (like olives, maize, winter cereals and plums).	<ul> <li>Increase the availability of diverse sources of pollen, nectar and other food for pollinators, insects and other wild animals.</li> <li>Promote natural enemies: providing habitats for 'natural enemies' of pests, enabling the farmer to reduce synthetic crop protection products.</li> <li>Contributing towards the preservation of a traditional and diverse cultural landscape.</li> <li>Improve yields for many types of crops.</li> <li>Reduce leaching: acting as a natural barrier, and preventing</li> </ul>	EU Funds:  European Agricultural Fund for Rural Development (EAFRD) (Interreg)  European Innovation Partnerships (EIP) – AGRI programme  Examples: - Austria: Flower Strips - Belgium: Fabulous farmers	National or Regional Funds:  Private funds: honey companies, universities  Spanish national fund Fundación Biodiversidad  German Federal Biological Diversity Program  Examples:  - Sweden: Blommor For Bin  - Germany: Buzzing Rhineland - farmers for arable diversity and Praxisprogramm

Measures and initiatives	Benefits	Funds
	losses of phosphorus or pesticides from farmland into water bodies.	- Germany: Flowering frames
	<ul> <li>- Avoid soil compaction: use as field "roads" for farmers to avoid driving heavy machinery on the field itself and therefore protecting the soil from compaction.</li> <li>- Attract field wildlife: providing food and shelter for other wildlife which has environmental benefits.</li> </ul>	- Spain: Poliniz-Up - Sweden: Flowers for Bees - Spain: HA BEE TAT campaign
Grass between the rows of permanent crops	<ul> <li>Increase the availability of diverse sources of pollen, nectar and other food for pollinators, insects, and other wild animals.</li> <li>Promote natural enemies: provide habitats for 'natural enemies' of pests, enabling the farmer to reduce synthetic crop protection products.</li> <li>Improve yields for many types of crops.</li> <li>Reduce leaching: acting as a natural barrier, and preventing losses of phosphorus or pesticides from farmland.</li> <li>Avoid soil compaction: use as field "roads" for farmers to avoid driving heavy machinery on the field itself</li> </ul>	EU Funds:  European Agricultural Fund for Rural Development (EAFRD)  FEAGA (Interreg)  European Innovation Partnerships (EIP) – AGRI programme

Measures and initiatives	Benefits		Funds
Identification, protection and creation of honeybee and wild pollinator habitats on farms and on public land ("bee hotels" + natural nesting opportunities in the soil and above the ground for species not using bee hotels)	and therefore protecting the soil from compaction.  - Attract field wildlife: providing food and shelter for other wildlife, which has environmental benefits.  - Increase pollinator populations.  - Better production for farmers.	EU Funds:  EAFRD (Interreg)  Examples:  - Belgium: More nature for strong fruit  - UK: Pasture for Pollinators	National or Regional Funds:  German Federal Ministry of Food and Agriculture (BMEL)  National Federation of Group Water Schemes (Ireland)  Wexford County Biodiversity Action Plan  Several French universities  Examples:  - Germany: BienABest  - Ireland: Let's Bee Friendly and Let It Bee  - UK: A million bees on farm (voluntary initiative)  - France: BeeWood
<b>Improve feed resources</b> for pollinators before winter by implementing melliferous cover (Poll'Aisne Attitude) and by using	<ul><li>Increase pollinators populations.</li><li>Improve crop pollination.</li></ul>	EU Funds:  EAFRD (Interreg)  MSCA-RISE - Marie Skłodowska-Curie	National or Regional Funds:  Fondation Pierre Sarazin (France)  Example:

Measures and initiatives	Benefits		Funds
The voluntary restoration and preservation of endangered habitats through sustainable agricultural practices (establish an adjusted time and intensity of mowing on these surfaces, abandon fertilisation, assisted colonisation of endangered native species, remove invasive alien species and re-establish natural bog hydrology).	<ul> <li>Improve the habitat of species (including bees and other pollinators) whose condition has deteriorated significantly in recent years.</li> <li>Improve spatial cohesion between pollinator habitats.</li> <li>Biodiversity restoration.</li> </ul>	Research and Innovation Staff Exchange (RISE)  Example: - Italy: NO PROBLEMS  EU Funds: European Regional Development Fund  Example: - Slovenia: projekt Poljuba (20%: Slovenian government)	- France: Poll'Aisne Attitude  National or Regional Funds:  German Federal Ministry of Food and Agriculture (BMEL)  Heritage Lottery Fund (HLF) and Landfill Communities Fund (LCF)  Northern Ireland Environmental Agency  Examples:  - Germany: Orchideen, Bunte Wiesen, Wiederansiedlung  - Ireland: Save Our Magnificent Meadows and Don't Mow Let It Grow
Publication of guidelines that explain evidence-based actions to help make farmland more pollinator-friendly (i.e. maintain native flowering hedgerows, allow wildflowers to grow around the farm, provide an ecosystem for wild bees, minimise artificial fertiliser use and reduce pesticide inputs that may threaten pollinators, strive to ensure spatial cohesion	<ul> <li>Achieve an increased awareness of pollinators and the resources they need in order to survive on farmland.</li> <li>Biodiversity monitoring.</li> </ul>	EU Funds:  EIP – AGRI programme  EAFRD (Interreg NSR)	National or Regional Sources:  - France and Belgium: SAPOLL project (co-funded by EU Interreg)  - Denmark: Bee friendly: www.bivenlig.dk or www.bivenlig.dk/landbrug

Measures and initiatives	Benefits		Funds
between habitats as many solitary bees do not fly further than 100 m from their nest).	- Continuing improvement of crop pollination by insects.	ERA-NET Cofund SusAn under EU Horizon 2020 research and innovation programme  Examples: - Ireland: All-Ireland Pollinators Plan - EU: BPractices - EU: B-GOOD - EU: BeeSpoke	- Denmark: Bees and pesticide damages:  https://www.biavl.dk/medlemmer/wp-content/uploads/2022/01/Bier-og-sproejteskader2022 Final.pdf
	SOCIAL ACTION	S	
Tools for coordination between farmers and beekeepers  Notification system: government-based website where farmers can instantly find out where beekeepers have placed their beehives, who, in turn, keep beekeepers notified about when they are going to apply insecticides to their crops. All platforms that	<ul> <li>Minimise risk for honeybee colonies and beekeepers.</li> <li>Help farmers get a successful seed production.</li> <li>Enable farmers and beekeepers to work together.</li> </ul>	EU funds:  EAFRD (Interreg)  Example:  - Denmark: Pollinator Portal  - publicly consultable	National or regional funds: CropLife UK ANAMSO, GNIS, UFS & ITSAP (France) Funds from private companies Examples:
contain information regarding the location of apiaries must be equipped with mechanisms that control access to information with a view to reducing the risks related to hive thefts. This type of solution may conflict with the current		land parcel identification system  LPIS in the Czech Republic with information on the	<ul> <li>- Italy: <u>3Bee for the Bees</u></li> <li>- UK: <u>BeeConnected</u></li> <li>- Belgium (Wallonia): Collaboration entre apiculteurs et agriculteurs</li> </ul>

Measures and initiatives	Benefits		Funds
communication rules for the transhumance of beehives.		location of all honeybee apiaries	- France: <u>Beewapi</u>
<b>National map</b> where the needs of farmers are described and where beekeepers can offer their services (Beewapi, FR).			
Meetings of beekeepers and farmers at local, county and state level (platform for the exchange of views)	For pollinators:  - Improve communication and knowledge in order to improve farmers' practices in relation to pollinators' health.  - Enable farmers and beekeepers to work together.	EU funds:  European Regional Development Fund  Example: - EU: BeePathNet	National or regional funds:  Joint funding: German Federal Ministry of Food and Agriculture + the federal states  Emilia-Romagna regional plant protection service  Office français de la biodiversité (OFB)  Examples:  - Italy: SEMENTI  - France: SURVapi
	DIGITAL ACTION		
Monitoring pollinators presence and health	- Minimise risk for pollinators and beekeepers.	EU funds: EAFRD (Interreg)	National or regional funds:  Regional innovation programme (Île-
<b>Network of connected scales</b> : the connected scale gives beekeepers access to real-time monitoring of variations in the weight of a hive via their smartphone (Projet Apicole). This allows beekeepers to adapt	- Enable farmers to communicate positively about their business and to meet society's high expectations regarding agricultural practices in a permanent quest for improving the	EIP – AGRI Programme	de-France)  Example: - France : Projet Apicole de la FNSEA

Measures and initiatives	Benefits		Funds
their agricultural practices by integrating data on movements into and out of bee populations and recording periods of phytosanitary treatments, generating an optimised technical follow-up of their apiary.  Sensors on beehives sending data directly from the hive to a regional network of beekeepers (NOMADI-App). The sensor data comes with information from meteorological forecasts and info on flowering times and on pesticides that may be used in the area. All information will be fed into a digital network that regional beekeepers can consult remotely from their computers or mobile phones. Beekeepers can use this information to choose the best areas to take their bees.	coexistence of farmers and pollinators.  - Evaluate and develop positive ecosystemic services for biodiversity, provided by pollinators.  - Rely on innovation by collecting data from connected scales in order to prove that agricultural practices are eco-responsible and socially acceptable.	Horizon 2020 FET Programme  Examples:  - Austria, Belgium, Bulgaria, Latvia, Germany: Hiveopolis  - Italy: NOMADI-App	
Building a self-steering network of knowledge exchange on pollinator-friendly landscape management practices, integrating evidence in practical management, building citizen buy-in and communication and setting up monitoring.	<ul> <li>Reduce the decline of pollinators (including wild bees and domesticated honeybees).</li> <li>Enable farmers to communicate positively about their business and their involvement towards pollinators.</li> </ul>	EU funds:  EAFRD (Interreg)  LIFE European Fund  Example:  - Italy, Greece, Spain and Slovenia: Life 4  Pollinators	National or regional funds:  Funds from private companies and organisations  Example:  - Netherlands: Green Circle Bee Landscape

Measures and initiatives	Benefits		Funds
Research on plant – pollinators interactions and monitoring  E.g.:  Comparing plant-pollinator communities in abandoned and intensively grazed grasslands (Staccato).  Researching the impact of habitat creation and arable crop management on pollinators (Poll-Ole-GI).  Providing quantification of the risk (including hazard and exposure) of chemicals to both domestic and wild pollinators and how different plant protection product formulations, either alone or in combination with pathogens and nutrition patterns for pollinators, may affect the health of the latter (PoshBee).  Pollinator monitoring: wide base programme for survey and explanation of pollinator losses over the winter season (e.g. diseases, feed supply, plant protection products) (DeBiMo).  Systematic collection of information on the health status of bee families through beekeeping-environmental surveys and sampling of various matrices (BeeNet).	<ul> <li>Improve the transfer of knowledge into farmers' practices in relation to pollinator health.</li> <li>Support healthy pollinator populations, sustainable beekeeping and pollination across Europe.</li> <li>Biodiversity monitoring.</li> </ul>	EU funds:  EAFRD (Interreg SUDOE)  European Union's Horizon 2020 research and innovation programme  Examples:  - Slovenia: Fruit growers for pollinators and pollinators for fruit growers (+ 20% Republic of Slovenia, 11% beneficiary's contribution)  - Finland: EcoStack  - Italy: BeeNet  - EU: PoshBee	National or regional funds: BiodivERsA/FACCE initiative German Agricultural Research Alliance (funded by the federal government) Finnish Cultural Foundation  Examples: - Romania: Staccato project - Spain: Poll-Ole-GI project - Finland: Diversification methods that support inherent biological control and pollination - Germany: Expert forum on bees and agriculture and DeBiMo project
ACTIONS BY CITIZENS			

Measures and initiatives	Benefits	Funds
Have a <b>small garden</b> with flowers (e.g. lavender, blueberries or daisies) or fruit trees.  Use specific plants and flowers on <b>terraces</b> , <b>balconies or even roofs</b> .	<ul><li>Increase pollinator populations by providing habitats.</li><li>Improve biodiversity.</li></ul>	No funding needed *  Ideas and recommendations: - Netherlands: Bijen Landschap
Plant <b>pollinator - friendly (organic) bulbs</b> in autumn for early spring feeding, such as crocuses, snowdrops, anemones, grapes and ornamental onions.		
Provide <b>sandy locations in the sun</b> as pollinators like heat (one centimetre between stones is enough).		
Provide sandy locations with little or no plant growth in dry sunny locations on slopes or flat land (most ground-nesting bees - but not all - build nests no deeper than 35 cm).		
Do not prune all the stems in autumn and <b>leave the wilted stems</b> until spring as some species of bees hibernate in wilted flower stems over winter (at the same time, it protects the plants from frost).		
In autumn, <b>do not throw dead leaves</b> in the organic waste bin, but scatter them lightly on the ground to allow pollinators to nest in the soil. It is also good for the garden itself.		

Measures and initiatives	Benefits	Funds
Set up <b>bee hotels</b> where insects can nest and hibernate or make a nesting mound or silt wall for ground-nesting pollinators.		

<sup>\*</sup>However there has been increased uptake among farmers for compensation for these measures; and coupling these measures with financing may prove more beneficial to fulfilling biodiversity goals.