



L'inquadramento delle politiche a supporto della diversificazione

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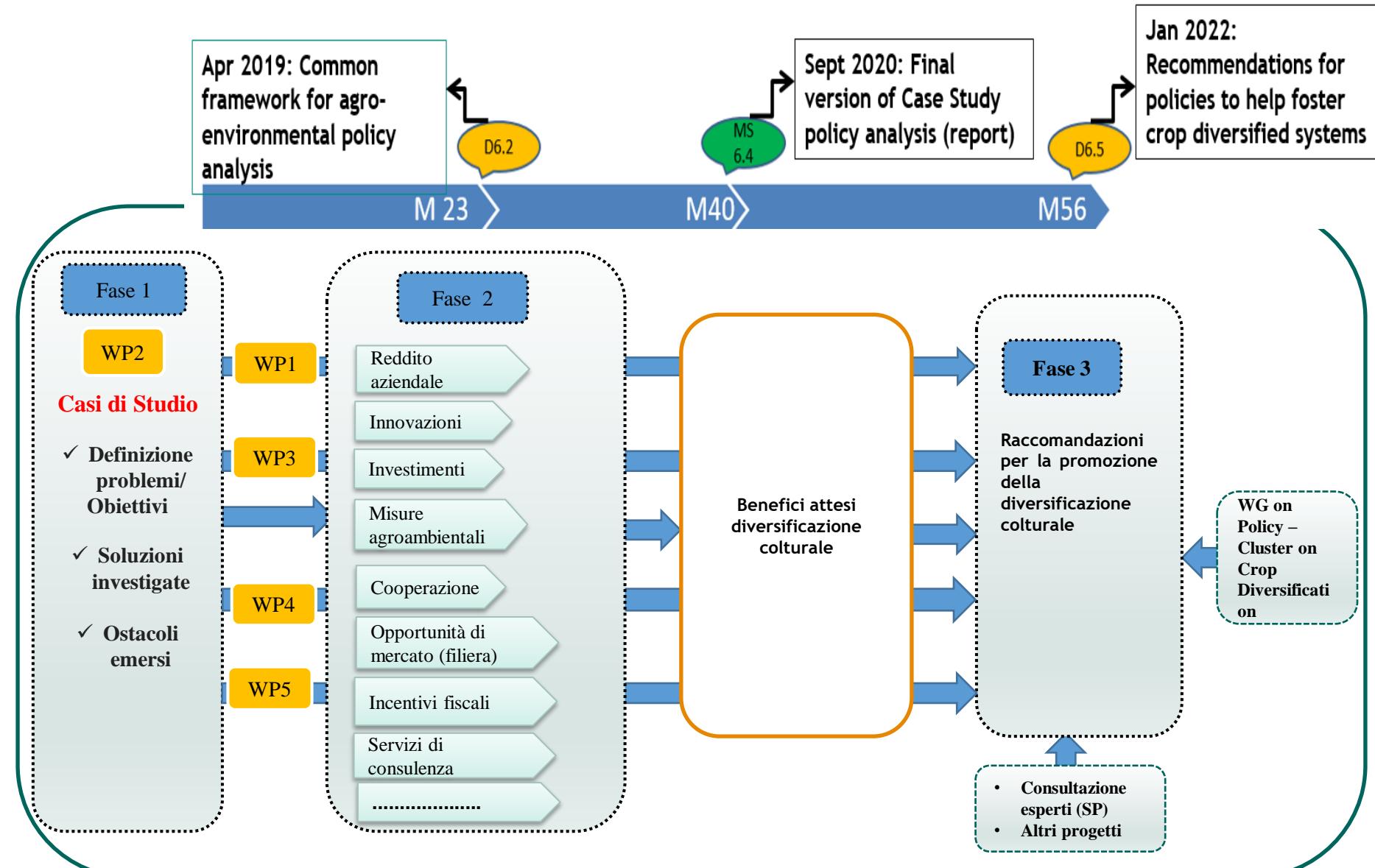
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Analisi delle politiche agroambientali nell'ambito del progetto DIVERIMPACTS

Sviluppare un quadro di riferimento basato su 3 principali fasi:

- **Fase 1: Case study background and context,**
 - principali problemi alla base dell'emergere dei Casi di Studio;
 - Soluzioni studiate per superare questi problemi ed eventuali ostacoli incontrati sia a livello di azienda agricola che lungo le catene del valore
- **Fase 2: identificare e descrivere le principali politiche agro-ambientali esistenti, che possono avere un impatto diretto o indiretto per promuovere la strategia di diversificazione culturale, nonché la potenzialità della diversificazione agli obiettivi delle politiche UE in materia ambientale (acqua, aria, suolo, biodiversità, cambiamento climatico, pesticidi),**
- **Fase 3: produrre delle raccomandazioni (in forma di policy brief) per la promozione della diversificazione culturale, sulla base dei benefici attesi.**

Quadro di riferimento per l'analisi delle politiche agroambientali



Politiche e strumenti a livello EU

Il lavoro si è basato sulle seguenti attività:

- Analisi delle politiche e strumenti a livello EU per identificare quelli legati diversificazione delle colture, la principale fonte di informazioni derivata da dati ufficiali pubblicati. (Direttive, Regolamenti, Programmi di sviluppo rurale, programmi di ricerca EU....)
- Realizzazione di un sondaggio - tramite questionario - con i gestori dei Casi di Studio del progetto, al fine raccogliere informazioni di maggior dettaglio sulle potenzialità delle politiche individuate per promuovere la strategia di diversificazione culturale, nonché il potenziale contributo della diversificazione agli obiettivi delle politiche Comunitarie in materia ambientale.

25 Casi Studio suddivisi in 5 Cluster:

Cluster 1: Crop diversification with, among other, a special attention for service crops (CS)

Cluster 2: Crop diversification under adverse conditions

Cluster 3: Crop diversification in systems from Western Europe

Cluster 4: Diversification through intercropping, with a special focus on grain legumes

Cluster 5: Diversification of vegetable cropping systems

FASE 1 - Case study background and context



The DiverIMPACTS case studies
<https://www.diverimpacts.net/case-studies.html>

DiverIMPACTS will build on existing experiences of crop diversification by accompanying 25 multi-actor case studies in their dynamic transition and reinforce co-innovation processes. The case studies are coordinated by work package 2 "Promoting crop diversification in case studies through actor-oriented research".

Each case study is represented by a case study leader and case study monitor and allocated to one of the five innovation clusters:

- Cluster 1: Service crops
- Cluster 2: Crop diversification under adverse conditions
- Cluster 3: Crop diversification in systems from Western Europe
- Cluster 4: Diversification through intercropping, with a special focus on grain legumes
- Cluster 5: Diversification of vegetable cropping systems

Case studies: Map



Policy analysis in the context of DiverIMPACTS

What are the main problems underlying the emergence of the case study?

Farmers underlined a yield gap of up to 25% in maize monoculture. This yield gap is connected to (1) soil quality degradation, (2) to potential pest pressure and/or emergence, and (3) to possible legal limitations in organic manure and N and P fertilisation rates.

Moreover, the higher chance of drought emergence and water excess due to climate change and expected limitations in the application of pesticides may affect maize production in the long term. Although the problem is not new, the farmers' awareness has increased as their self-sufficiency of fodder production in the dairy systems is being reduced while their reliance on imported and expensive feeds has increased. This has a clear and negative impact on their economic performances. Societal demands for sustainable production, the reduction of pesticide use, limited nitrate emissions, and a sustainable water management call for the emergence of the case study.

How is the problem addressed and which actors are involved?

Different options for innovative and sustainable maize cropping systems have already been identified and tested in experiments, and further development and implementation in the value chain is challenging. In order to explore potential solutions to this problem, a group connecting private and public actors was set up in 2015. Farmers, breeders, contract workers, dairy industry workers, and advisors represent the private actors, whereas the public "Business Unit of Applied Plant Research of Wageningen UR" aims to translate and transfer scientific knowledge to field actors.

Solution investigated

To improve soil quality, different uses of service crops between two maize crops are investigated: cover crops sown under the maize (e.g. Italian ryegrass) or fodder crops such as a mixture of winter rye and winter pea, sown after the maize crop and harvested in May, the following year, before the next maize crop is sown. In these systems, especially when the service crop is harvested, (very) early varieties are required for a timely harvest of the maize (from half of September onwards).

Expected outcome

The short-term economic effects of the tested innovations are low compared to those of current maize monoculture cropping systems. It is expected that innovative systems maintain a higher fodder production in the long run, due to better soil quality and a more diversified cropping system. Once the method has been tested and is refined, it is expected that maize yields will increase. The development of strip seeding of the maize after the winter crop may be a promising system for maize growers, by using a timely harvest combined with a well-established winter fodder crop/cover crop and non-inversion tillage systems combined with cover/winter crops. Designing rotations of maize with other annual or perennial fodder crops may be a further solution.

Country	Case study	Main problems/objectives underlying the emergence of the CS	Investigated solution	Main lock-in	
				Farmer level	Supply chain/market level
IT	9. Diversification of durum wheat cropping systems in semi-arid environment with sulla and other crops (chick pea and hemp). (Mix) FIRAB	Economic sustainability is the main entry point framed in an environmental sustainability perspective with soil fertility and erosion being major concerns.	Identification of suitable pathways for innovative agronomic solutions and value chain options.	KnowR Invest Innov Adv	Vol Invest Know

FASE 2 - Politiche e strumenti a livello EU

EU Policies linked with Crop diversification	Main objectives/scope
Common Agriculture Policy (CAP) 2014-2022	<p>CAP is a key EU policy in a strategic sector in terms of enhance agricultural competitiveness, improve its sustainability and achieve greater effectiveness. To accomplish those challenges the architecture of CAP is organised into two pillars:</p> <p>CAP First Pillar instrument aims to reach two macro objectives:</p> <ul style="list-style-type: none"> i. improvement farm competitiveness by enhancing market orientation removing all existing restrictions to production through market intervention, and providing income support - trough the basic payments and coupled support ii. provision of environmental public goods, through the “Greening payments”. <p>CAP Second Pillar (Rural Development Programme), aims to pursue six priorities strongly focused on 1) knowledge transfer, innovation, 2) organization of agri-food chains 3) risk management 4) ecosystem protection 5) contrast to climate change and CO2 reduction 6) social inclusion and development in rural areas.</p>
Common Agriculture Policy (CAP) 2023-2027	<p>On 2018, the European Commission presented legislative proposals on the common agricultural policy beyond 2020.</p> <p>The post-2020 CAP reform set out 9 specific objectives to meet broad ongoing challenges related to the economic health of the farm sector, the environment and climate, and socio-economic development of EU's rural areas .</p> <p>The most important elements introduced in the proposal of the new CAP are represented by:</p> <ul style="list-style-type: none"> ➤ New policy instrument tool - The New Delivery Model, more flexibility for Member States in the implementation of the CAP - trough National Strategic Plan, ➤ enhanced conditionality. <ul style="list-style-type: none"> □ Greening moved from the direct payment to the conditionality (Rotation instead of crop diversification) □ Introduction of new SMR (e.g. Water Framework Directive) and GAEC □ Introduction of the eco-scheme in Pillar 1 to maximize environmental and climate benefits

Politiche e strumenti a livello EU

EU Policies linked with Crop diversification	Main objectives/scope
The European Green Deal (including the EU Adaptation Strategy)	<p>Green Deal - provide a roadmap for making Europe the first climate-neutral continent by 2050. The Green Deal set out specific policy areas (Measures to cut pollution rapidly and efficiently, clean energy, sustainable industry, etc). The agricultural sector is asked to promote ways to ensure more sustainable food systems, through the farm to fork strategies, targets on:</p> <ul style="list-style-type: none">▪ reduction of chemical pesticides, fertilisers and increased organic area.▪ actions to develop innovative ways, to adapt to climate change and improve sustainability of food systems.
Programmi di ricerca EU	<p>Horizon 2020 programme</p> <p>Provides funding for research and innovation for 2014-2020. It supports projects in many fields, including 'Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy' (Societal Challenge 2). The Operative Groups of EIP-Agri will have a strategic role in the agricultural interest calls financed within the Horizon 2020 programme thanks to a multi-actor approach that sees the agricultural operators involved in all phases of the project (from the idea to the demonstration in field).</p>

EU Policies which Crop diversification can potentially contribute		Main objectives/scope
WATER	Nitrate Directive (ND) - (Directive 91/676/EEC), and Groundwater Directive (GWD) (Directive 2006/118/EC)	The Nitrates Directive aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. GWD aims to protect groundwater against pollution and deterioration. This include procedures for assessing the chemical status of groundwater and measures to reduce levels of pollutants.
	Water Framework Directive (WFD) - (Directive 2000/60/EC)	The WFD aims to achieve a good qualitative and quantitative status of all water bodies in the EU. It intends to contribute to preserve, protect and improve environmental quality and the prudent and rational use of natural resources, introducing several new ecological, economic and social approaches and concepts in the EU water management (e.g. good ecological status, full cost recovery, public participation).
	Sustainable Use of Pesticide Directive (PD) - (Directive 2009/128/CE)	PD establishes a framework to achieve a sustainable use of pesticides by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of integrated pest management (IPM) and of alternative approaches or techniques such as non-chemical alternatives to pesticides.
Climate Change	Climate & Energy Package	The package is a set of binding legislation to ensure the EU meets its climate and energy by implementing the 20-20-20 targets for the year 2020 (by 2020, reduce by 20% the emissions of greenhouse gases, increase by 20% the energy efficiency in the EU and to reach 20% of renewables in total energy consumption in the EU). The package is composed of the following main legislation:
	Greenhouse gas emissions	Decision 406/2009/EC (Effort Sharing Decision) on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction up to 2020.
Soil	COM(2006) 231. Soil Thematic Strategy, to protect soils across the EU.	The Seventh Environment Action Programme (from 2014) recognises that soil degradation is a serious challenge, but in May 2014 the EC withdrew the proposal for a Soil Framework Directive, so that the main soil protection policies are linked with cross-compliance system, greening requirements and Rural development policy.
Air	Directive 2008/50/EC on ambient air quality and cleaner air for Europe	Reduction of emissions of ammonia (NH_3) from livestock management and farming activities.
Biodiversity	The EU Biodiversity Strategy (BS) to 2020 (COM (2011)244), of 3 May 2011	The EU Biodiversity Strategy aims to halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity loss by 2020. It reflects the commitments taken by the EU in 2010, within the international Convention on Biological Diversity. Natura 2000 is the key instrument to protect biodiversity in the European Union. It is an ecological network of protected areas, set up to ensure the survival of Europe's most valuable species and habitats, and it is 2000 is based on Birds Directive and the Habitats Directive.
	Birds Directive 2009/147/EC	The Directive aims essentially to ensure the conservation of birds and their habitats, contributing to the maintenance of biodiversity.
	Habitats Directive (92/43/EEC)	The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Creates the Natura 2000 network.



DiverIMPACTS
Diversification through Rotation, Intercropping, Multiple Cropping, Promoted with Actors and value-Chains Towards Sustainability

***Deliverable 6.2
Common framework for agro-environmental policy analysis***

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Work package leader: Anja Viewger ORC

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Dissemination Level

PU Public	X
CI Classified, as referred to Commission Decision 2001/844/EC	
CO Confidential, only for members of the consortium (including the Commission Services)	

Research and Innovation action: GA no. 727482

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Risultati questionario - principali ostacoli

- diversi studi* - in forma di metanalisi - hanno messo in evidenza che la diversificazione colturale può costituire una leva importante per sostenere la transizione agroecologica verso sistemi agroalimentari sostenibili, grazie ad una serie di effetti positivi
 - sulla biodiversità,
 - e diversi servizi ecosistemici tra cui la qualità dell'acqua, il controllo dei parassiti e delle malattie e la qualità del suolo, rispetto a sistemi culturali più semplificati.
- Nonostante tali aspetti positivi la diversificazione dei sistemi culturali è ancora limitata a causa di ostacoli presenti sia a livello aziendale che lungo la catena del valore.

* Beillouin, D., Malézieux, E., Seufert, V., Makowski, D., 2020. *Benefits of crop diversification for biodiversity and ecosystem services.* <https://doi.org/https://doi.org/10.1101/2020.09.30.320309>. Metanalisi basata su 5.662 studi

Beillouin, dei sistemi culturali, la gestione specifica delle colture delle pratiche di diversificazionee le prestazioni dei sistemi di riferimento (Viguier et al., 2021).

D., Ben-ari, T., Makowski, D., 2019. Evidence map of crop diversification strategies at the global scale. Environ. Res. Lett. <https://doi.org/10.1088/1748-9326/ab4449>. Metanalisi basata su 3.700 studi

Giovanni Tamburini, Riccardo Bommarco, Thomas Cherico Wanger, Claire Kremen, Marcel G. A. van derHeijden, Matt Liebman, Sara Hallin. *Agricultural diversification promotes multiple ecosystem services without compromising yield.* Ecology. Metanalisi basata 5.188 studi



Risultati questionionario - principali ostacoli

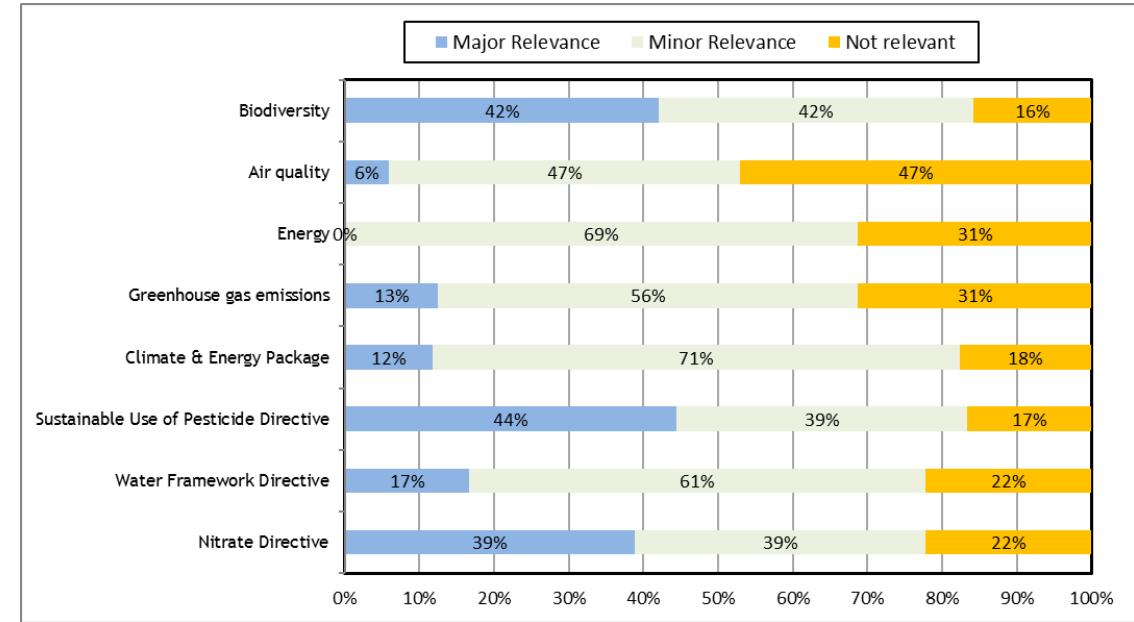
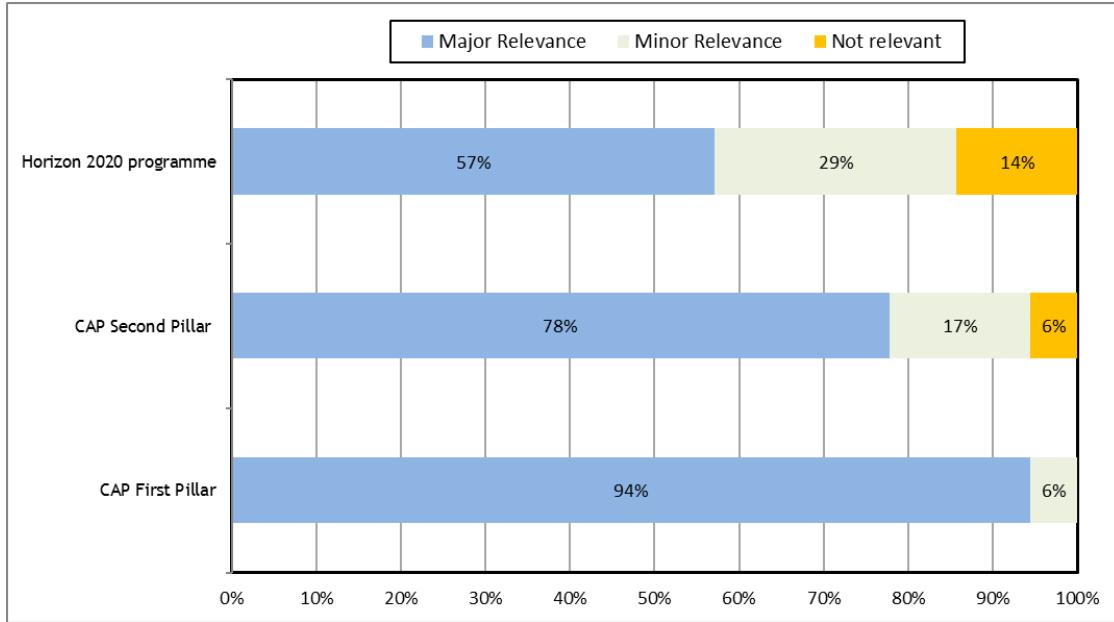
Sono stati identificati 46 ostacoli alla diversificazione delle colture a diversi livelli:

1. a livello di azienda agricola;
2. dalla raccolta alla vendita al dettaglio;
3. a livello di mercato
4. nel coordinamento tra gli attori della catena del valore.

Alcuni esempi di ostacoli:

- ✓ la mancanza di conoscenze tecniche e riferimenti
- ✓ barriere culturali in confronto con le precedenti pratiche agricole
- ✓ mancanza di accesso a input chiave come i semi di varietà necessarie per la diversificazione delle colture
- ✓ incertezze, rischi, variabilità delle prestazioni agronomiche e di lavorazione
- ✓ I volumi sono troppo limitati in una determinata area per essere raccolti con profitto
- ✓ mercato non preesistente o limitato;
- ✓ Dubbi sulla disponibilità dei consumatori a pagare di più per i prodotti di diversificazione

Risultati questionario - rilevanza delle politiche

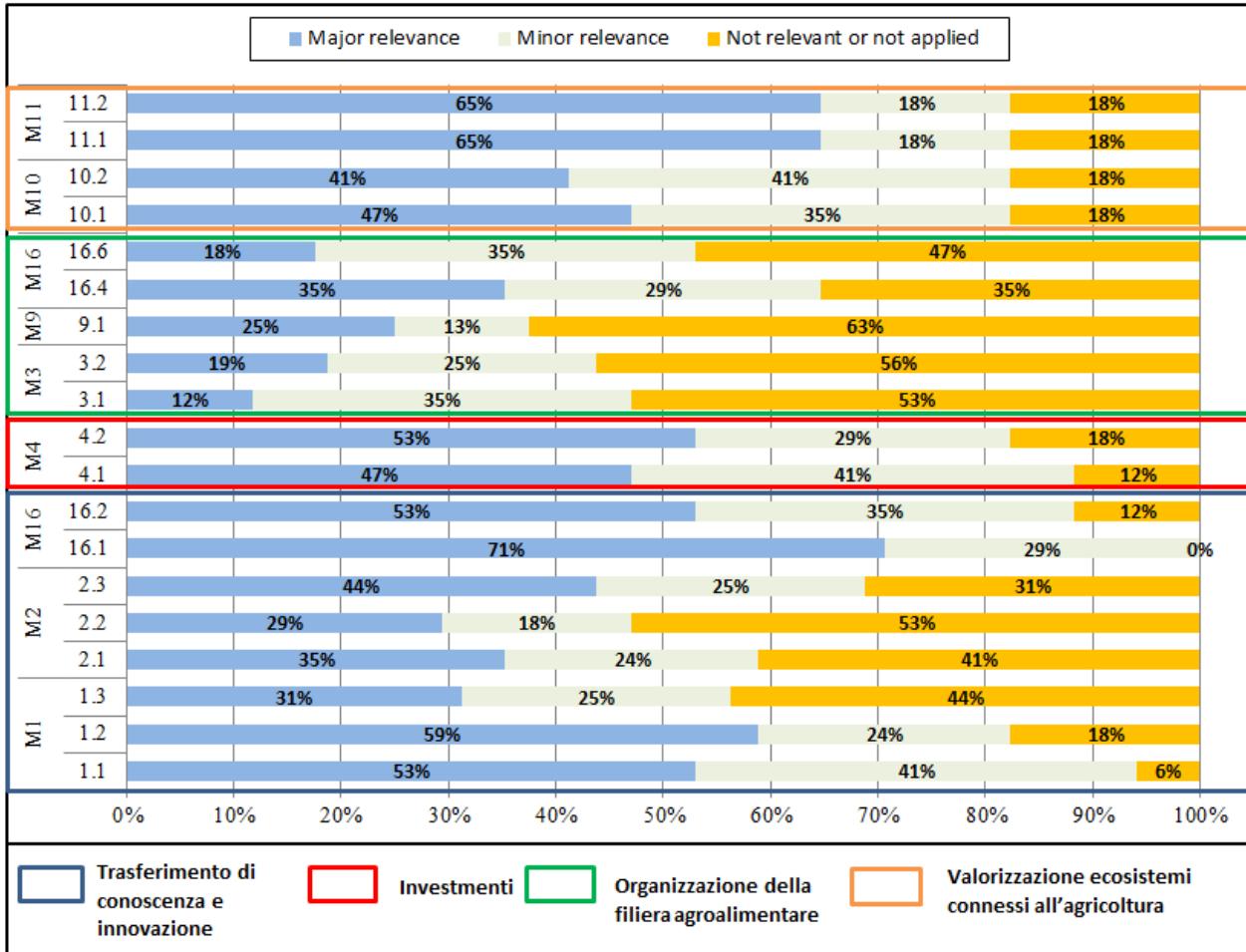


- Sia il primo che il secondo pilastro della PAC sono considerati di "maggiore rilevanza" nei diversi casi di studio (rispettivamente 94% e 78% degli intervistati).
- I programmi di ricerca (es. H2020) sono riconosciuti come rilevanti per il 57% degli intervistati

I benefici attesi della diversificazione colturale (es. miglioramento della qualità dell'acqua riducendo la lisciviazione di nutrienti e pesticidi, migliore qualità del suolo con un maggiore apporto di carbonio, effetti positivi sulla biodiversità) sono stati evidenziati nei diversi casi di studio per avere un potenziale contributo agli obiettivi delle seguenti politiche agroambientale dell'UE

- Uso sostenibile dei pesticidi (44% degli intervistati)
- Biodiversità (42% degli intervistati)
- Direttiva Nitrati (39% degli intervistati)
- Direttiva quadro acqua (17% degli intervistati)

Risultati questionario - Rilevanza misure Sviluppo Rurale



Trasferimento di conoscenza e innovazione

Le misure legate a questa priorità del PSR sono valutate da circa la metà degli intervistati come di "grande rilevanza", sebbene con alcune differenze nelle diverse misure. Le opportunità offerte potrebbero avere una grande influenza.

Miglioramento competitività (Investimenti)

Vi è un ampio consenso tra i CS nel considerare il sostegno agli investimenti in beni materiali (sia misura 4.1. sostegno agli investimenti nelle aziende agricole sia 4.2 sostegno agli investimenti nella trasformazione/commercializzazione e/o sviluppo dei prodotti agricoli) una delle misure più importanti per affrontare le sfide della diversificazione delle colture.

Organizzazione della filiera agroalimentare

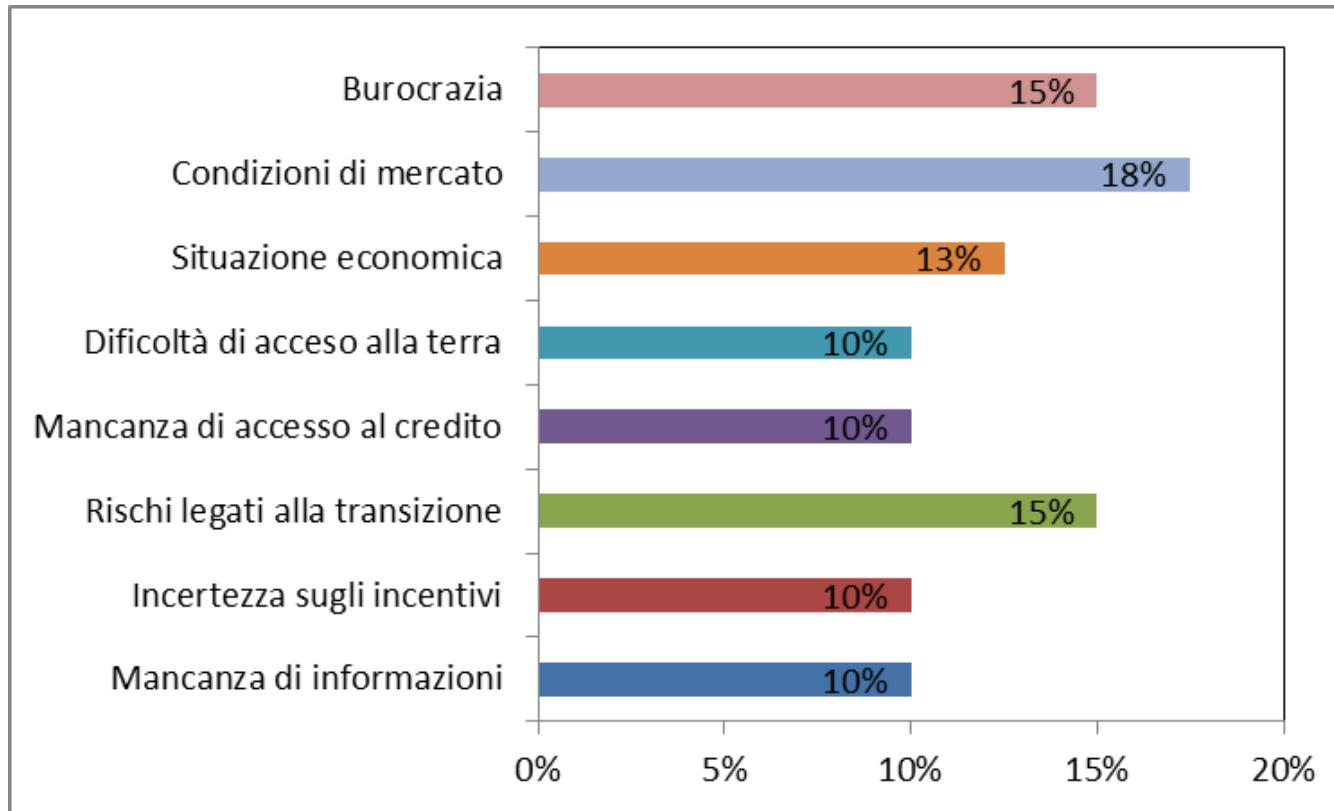
Le misure legate a questa priorità del PSR sono considerate, in media, dal 22% degli intervistati di "grande rilevanza".

Valorizzazione ecosistemi connessi all'agricoltura

Le misure 10.1 pagamento per impegni agro-ambientali-climatici e 10.2 sostegno alla conservazione e all'uso sostenibile e allo sviluppo delle risorse genetiche in agricoltura, hanno una "grande rilevanza" per il 47% e il 41% degli intervistati

Le misure per l'agricoltura biologica (M11.1 Conversione e M11.2 (Mantenimento) sono considerate di "maggiore rilevanza" dal 65% degli intervistati. Si prevede che tali misure avranno un impatto (positivo) sulla diversificazione delle colture.

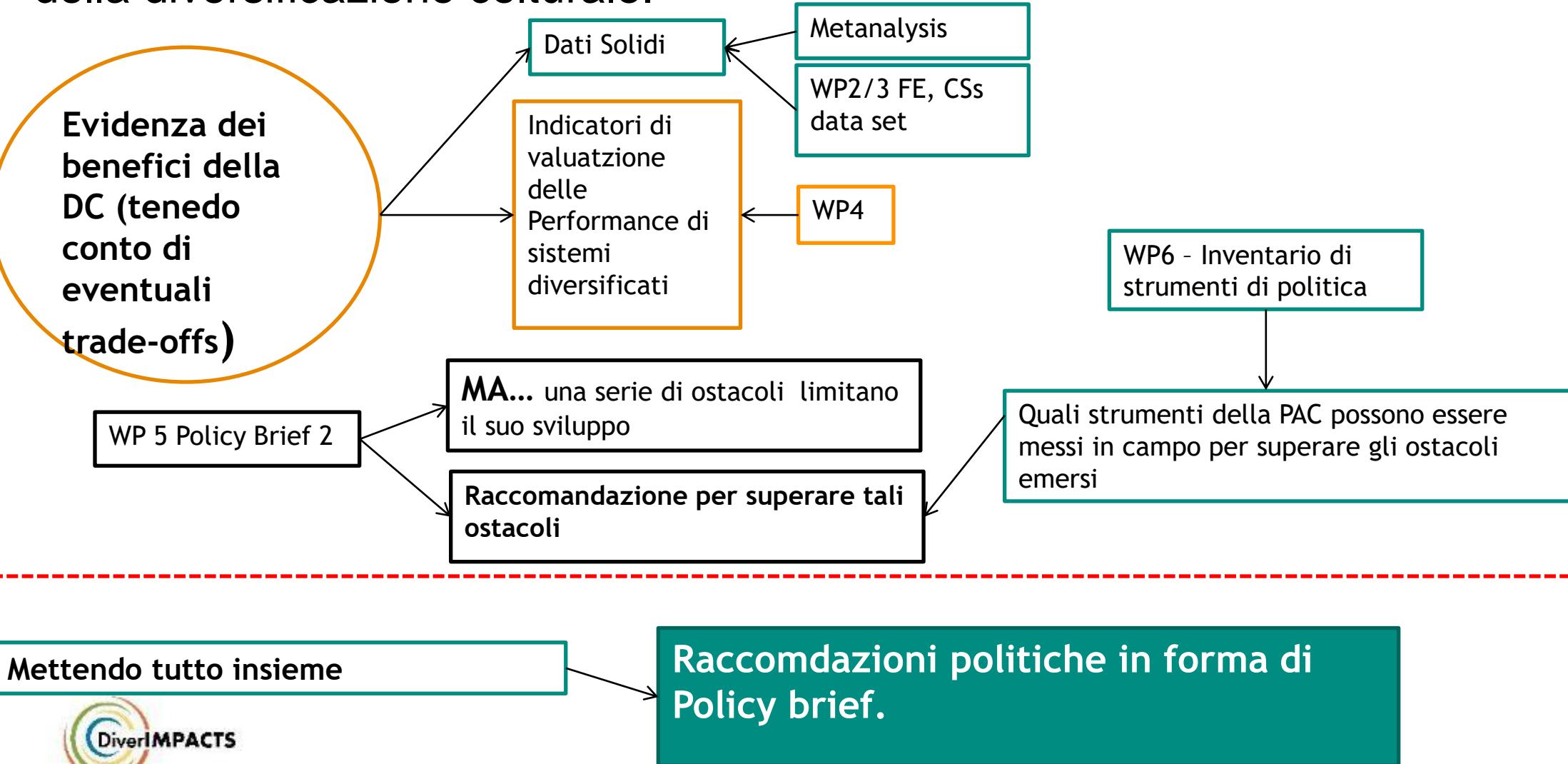
Risultati questionionario - principali motivazioni per cui non vengono utilizzate le misure politiche disponibili



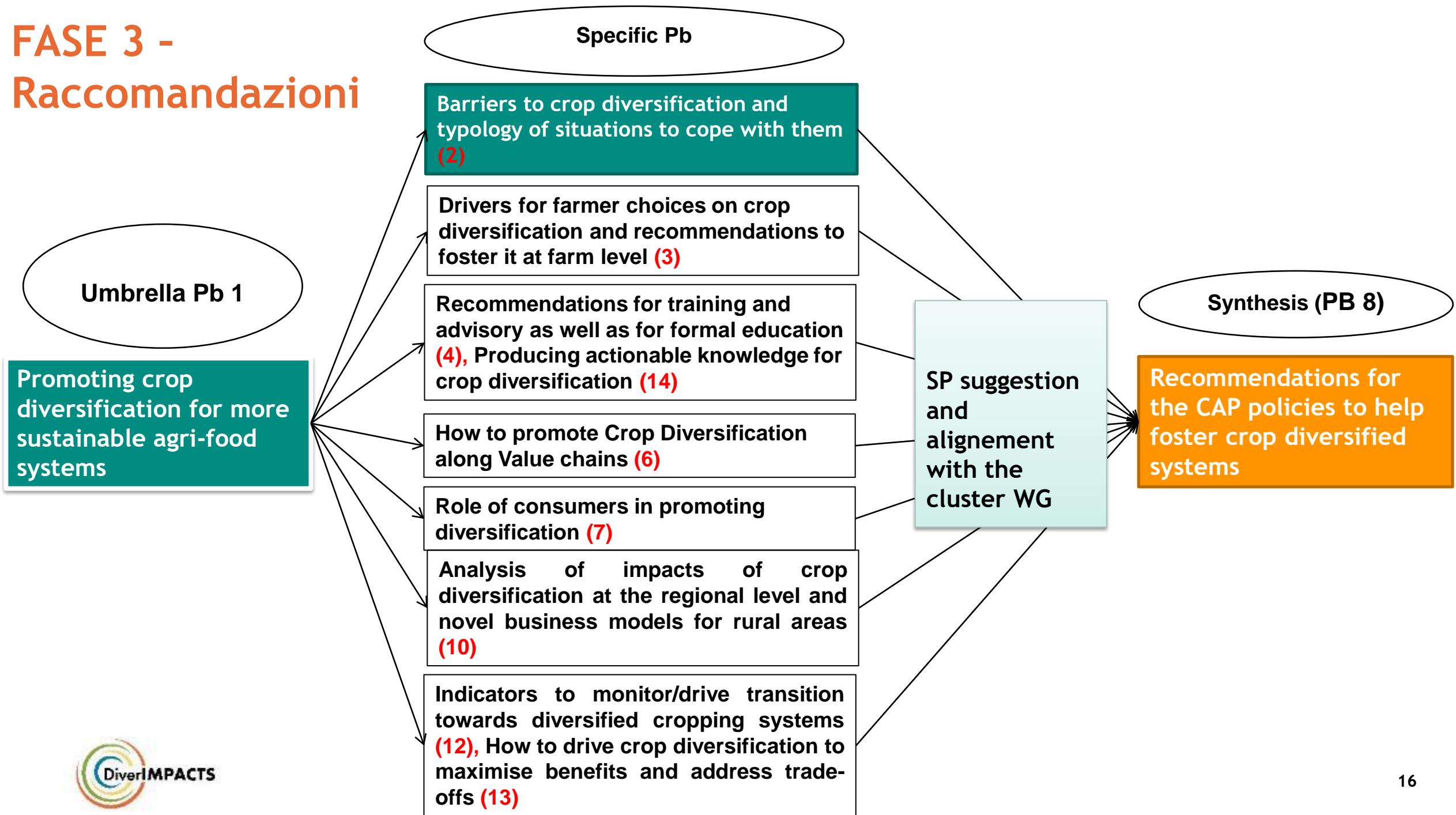
Condizione di mercato (es. regolamentazione, prezzo, 18% degli intervistati), Burocrazia (15% degli intervistati), Rischi legati al sistema di gestione della diversificazione delle colture e situazione economica dell'azienda (13% degli intervistati)

FASE 3 - Raccomandazioni

Integrare i risultati del progetto in una serie di raccomandazioni per la promozione della diversificazione culturale.



FASE 3 - Raccomandazioni



Opportunità nuova PAC

Eco schemi

Interventi volti a incentivare l'adozione di pratiche ecologiche che devono avere un impatto positivo sul clima e sull'ambiente e che i singoli agricoltori possono scegliere di attuare nelle proprie aziende agricole in cambio di un pagamento dedicato

Nell'ambito dei lavori di preparazione alla riforma, la Commissione ha pubblicato a gennaio un elenco di pratiche agricole che gli eco-schemi potrebbero sostenere nella futura PAC, che comprende anche quelle legate all'agroecologia. (rotazione con leguminose, consociazioni e diversificazione culturale, colture di copertura, colture/varietà vegetali più resistenti ai cambiamenti climatici.

Grazie per l'attenzione

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