



Promoting landscape resilience in the Mediterranean basin trough knowledge and alliance of agriculture and forestry: the ResAlliance project

Valentina Romanin, Maria Giulia Pelosi, Colm O’Driscoll, Giulia Cecchinato, Nicola Andrighetto - Etifor | Valuing Nature
Annick Smeenk, Marta Serra, Eduard Plana - Forest Science and Technology Centre of Catalonia

The context of ResAlliance

In Europe, the Mediterranean region is considered one of the most prone to the effects of the **climate change** and related hazards and whose lands are predominantly under **agricultural and forest management practices**. The impacts are seen in temperatures warming 20% faster than the global average resulting in reductions of 10 to 30% of summer rainfall, increasing water shortages, desertification, reduction of crop yield and increased risk of wildfires. These factors result in **increased stress, pressure and vulnerability on agricultural land and forests**, and indirectly expose them to other types of hazards like crop pests and pathogens. This also increases the **complexity of management**, as there is more uncertainty about the specific impacts on activities and land. Overall, this is leading to a decline in agricultural and forestry economic and productive capacities. The Horizon Europe project ResAlliance aims to **enhance landscape resilience** in the Mediterranean region through innovative research, collaboration, and stakeholder engagement. Focusing on forestry and agriculture, ResAlliance seeks to develop **sustainable management practices** that mitigate the impacts of drought and wildfire, which are imminent threats in the Mediterranean. By fostering collaboration among scientists, policymakers, practitioners, and local communities, the project aims to **promote adaptive capacity and ecosystem health**.

Addressing the problem

A **comprehensive survey** conducted as part of the project provided a better understanding of the **barriers, gaps, and needs** faced by foresters and farmers in **implementing policies and adopting good practices** for landscape resilience. This survey forms a crucial component of the project’s holistic approach, ensuring that interventions are informed by real-world experiences and perspectives of those directly engaged in managing Mediterranean landscapes. Based on the responses of 82 respondents representing a wide range of sectors of activity and spread across the Mediterranean basin, the **environmental factors exerting the most significant impact on activities** are primarily linked to **substantial shifts in climatic and meteorological patterns**. Key identified changes include the rise in above-average temperatures (62% reported a high or very high impact on their activities), decreased precipitation (58% reported a high or very high impact), and alterations in distribution patterns (60% reported a high or very high impact) (Figure 1). Regarding socioeconomic factors, the primary influencers on activities include the **absence of stable, long-term policies, insufficient sustainable infrastructure, and the expansion of urban and industrial areas**, which heightens competition for water resources. The principal constraints hindering the proper advancement of landscape activities encompass the lack of facilitation for loans and investments, inadequate support mechanisms, limited access to both national and international markets, insufficient participation in exchange programs, and the absence of affiliation with trade unions, insurance systems, or cooperatives and associations. The **identified climate and socioeconomic challenges need concrete management practices, financial and governance tools, and technological solutions** to advance the adaptation of the agricultural and forestry sectors to global change. Some examples of needs identified by the respondents and classified according to the four thematic areas are displayed in table 1.

Knowledge exchange and capacity building

ResAlliance puts these results to practical use by **facilitating stakeholder engagement** through **interactive and innovative participation methods**. Foresters and farmers coming from 5 Mediterranean countries are involved in a process of knowledge collection, transfer and exchange, thanks to the **“LandNet”**(Figure 2), a mediterranean alliance connecting innovative solutions of the four thematic topics promoted by the project. To ensure the exchange of best practice knowledge and methods at Mediterranean level, ResAlliance is launching a **massive open online course, “MOOC”**, a multilanguage 3-month course on strategies to enhance Landscape Resilience in the agricultural and forestry sectors in the Mediterranean region and similar. The course will target farmers and foresters, AKISs, farmer and foresters’ associations and representatives, and consultants, but also students of Agriculture and Forestry schools, public institutions and advisors. It aims to **exchange knowledge** regarding **landscape resilience solutions**, through the description of real practical cases implemented in the different countries in the Mediterranean basin. Connecting the voices of the thematic experts with the knowledge of the practitioners coming from different territories the MOOC is a powerful instrument able to foster the **spread of knowledge and competences** throughout the Mediterranean area, **generating innovation** in the face of major climate changes. The MOOC will be launched in February 2025, for a duration of 3 months and promoted through the main projects channels.

Conclusions

The ResAlliance MOOC will **put together and exchange knowledge** on these links and solutions **fostering innovation** throughout the Mediterranean basin. The survey highlighted a **clear tendency toward climate warming**, which brings along challenges such as droughts, heatwaves, and forest fires, calling for adaptation to these new conditions. Furthermore, **a link has been identified between socioeconomic factors affecting activities and environmental conditions**. For example, urban and industrial development, as well as competition for water, can directly contribute and be directly related to droughts, leading to increased tension as conditions worsen and landscapes become drier. New solutions should address these predictable situations, focusing on maintaining or increasing activities with fewer available resources (e.g., equal water needs amid decreased availability). The **knowledge transfer and exchange methodologies** that the ResAlliance project adopted makes **landscape resilience** a **dynamic concept**, allowing interaction between nature and humans across the Mediterranean areas. The **innovations** that arise from this process can **reinforce resilience**, for example including crop and tree species diversification, improved soil and water conservation techniques, agroforestry and silvopastoral systems, sustainable land management practices, community-based approaches, training and education, and political support and incentives.

Learn more about the project and join the LandNet:

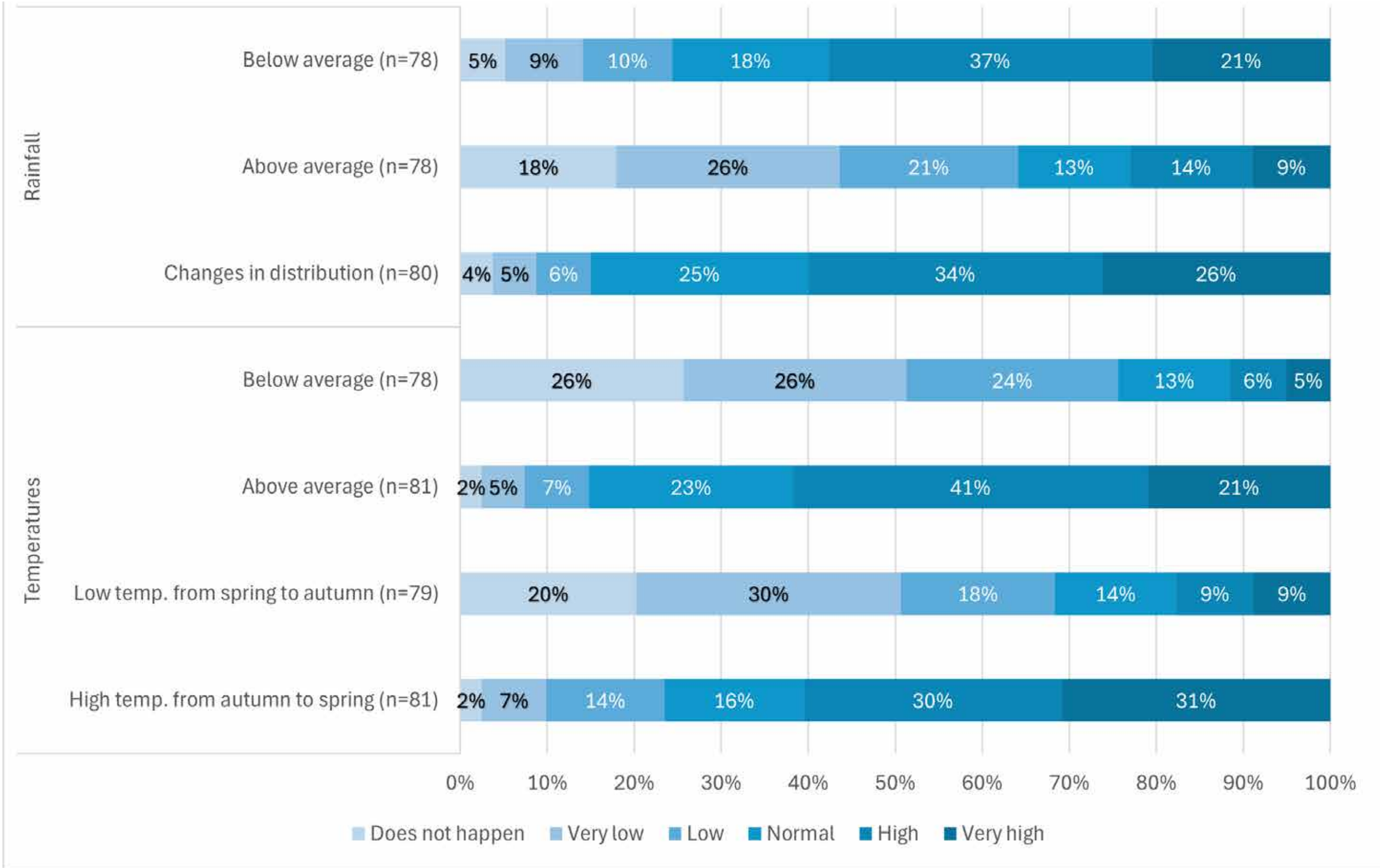


Figure 1: Level of impact of changes in meteorological and environmental conditions and climate patterns on respondents activity

Table 1: Examples of highlighted needs per thematic area

MANAGEMENT PRACTICES	TECHNOLOGY	GOVERNANCE	FINANCE
Reexamine cultural and silvicultural practices and techniques considering new climate trends (drought)	Development of production prediction tools based on dynamic modelling using climate data	Simplification of bureaucracy, long-term programs to achieve sustainability goals, and reduction of legislative complexity	Designing financial instruments that effectively support the diverse needs of agricultural and forestry activities
Implement forest fire prevention measures linked to the agro-forestry mosaic landscape	Improving access to existing technologies or adaptation for smallholders	Improve the support framework for agroecological practices and simplify livestock health regulations to promote extensive farming systems	Development and implementation of climate insurance systems and support frameworks for agroecological practices