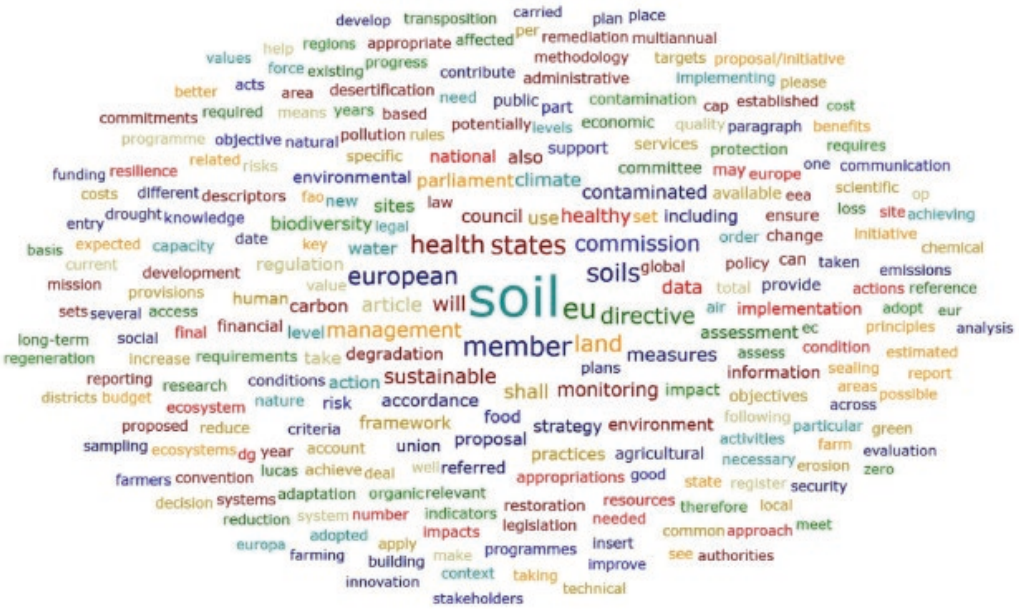
THE WHAT AND WHY

Impact of Soil Biodiversity Practices Across the EU

This analysis assesses the economic and environmental impacts of soil biodiversity practices in the EU27 at Member State level. The analysis focuses on organic farming, no-tillage and a combination of practices based on the economic market model MAGNET. The results show that organic farming significantly reduces crop yields - by around 40% - due to the absence of synthetic fertilisers and pesticides, leading to higher food prices and increased dependence on imports, especially from Latin America and the MENA region. By contrast, no-tillage maintains higher yields by preserving soil structure and reducing erosion, although it does not significantly reduce fertiliser use or carbon emissions. The combined scenario of organic farming in southern Europe and no-tillage elsewhere mitigates productivity losses while balancing environmental benefits.

The shift to organic farming also leads to an expansion of arable land, especially in Central Europe and Finland, raising concerns about land-use conflicts and biodiversity loss. Trade dynamics are shifting as southern EU countries, particularly Spain and Italy, become major exporters of organic produce, while high-yielding regions in northern Europe face declining production.

Our analysis highlights the trade-offs between sustainability, food security and economic stability, and underlines the need for targeted CAP reforms such as performance-based payments, yield insurance and investment in sustainable agricultural innovation. These findings underline the importance of balancing environmental objectives with agricultural productivity through region-specific policies.



1. Soil biodiversity is an essential component for yield stability in European agriculture.

KEYWORDS

Organic farming, yield stability, food security, CAP

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