



## SOIL

Soil is the basis of food production, yet its loss and degradation currently threaten many EU regions. Soil erosion by water affects 16% of Europe's total land area and 1 million hectares in the EU are threatened by wind erosion. Moreover, 45% of European soils show low levels of organic matter<sup>1</sup>. These problems result in poor nutrient balances, reduced drainage and water retention capacities, contributing to lower crop yields. Agricultural practices are responsible for over 90% of NH<sub>3</sub> (ammonia) emissions leading to soil acidification and erosion<sup>2</sup>. Current trends estimate that the overall societal cost of inaction to adequately protect soils stands at €38 billion per year in the EU<sup>3</sup>. Soil degradation, in combination with changing climate patterns and economic constraints, can lead to the abandonment of arable land. Projections suggest that 19.8% of EU arable farmland could be abandoned by 2030<sup>4</sup>. Organic farming, however, can offer solutions to many of the negative effects that agriculture places on soil.

### ORGANIC FARMING PROTECTS AND ENHANCES SOIL

**Enhanced soil fertility:** Crop rotations which incorporate grass legume leys (e.g. clover, alfalfa, beans and peas) improve soil organic matter, and consequently build soil fertility and reduce nutrient loss<sup>5</sup>.

**Erosion control:** Soils with good structure improve water infiltration, reduce surface runoff where soils are lost to streams, lakes and rivers, and help to reduce soil erosion<sup>6</sup>.

**Reduced soil acidification:** Farmyard manure improves soil organic matter and releases nitrogen more gradually than synthetic nitrogen fertiliser. Livestock is the main source of NH<sub>3</sub> emissions, however organic farms, have lower livestock densities and as a result can have about 40% lower NH<sub>3</sub> emissions per hectare than conventional farms<sup>7</sup>.

### CAP RURAL DEVELOPMENT MEASURES FOR SUSTAINABLE SOIL MANAGEMENT

New rural development measures<sup>8</sup>, in combination with organic farming (Article 30), offer targeted solutions for sustainable soil stewardship. Relevant measures include:

#### **Knowledge transfer and advisory services** (Articles 15-16)

Options tailored specifically towards organic farmers to increase understanding and technical expertise on advanced soil management.

#### **Agri-environment-climate** (Article 29)

Application of advanced soil management measures to enhance and maintain soil fertility, reduce soil erosion including the introduction of hedgerows and landscape elements to respond to wind erosion.

#### **Agro-forestry systems and forest measures** (Articles 22-27, 35)

Agroforestry and the application of forest measures, in conjunction with organic farming, to enhance soil management and contribute to nutrient recycling.

#### **European Innovation Partnership** (Articles 53, 61-63)

Support for knowledge exchange and collaboration between researchers, the organic sector and relevant stakeholders to stimulate participatory agro-ecological innovation on soil.

## GERMANY: POLICY SUPPORT FOR ORGANIC FARMING

In the German region of Rheinland-Pfalz the state government recognises organic farming as a system approach that can contribute to keeping arable soils in a good state, socio-economic development and climate action. The Rheinland-Pfalz Rural Development Programme (2007-2013) "PAUL"<sup>9</sup> aims to expand organic food production through increased payments by combining organic farming with agri-environment measures. Moreover, increased support for ecological infrastructure on agricultural land and the introduc-

tion of diversified crop rotations seek to improve the economic resilience of farms<sup>10</sup>. "PAUL" has prioritised organic farming by increasing the organic farming premium by 20-25% and providing extra payments for animal welfare measures, advisory services, research, test fields, education as well as regional marketing and food chain management. Between 2000 and 2010 Rheinland-Pfalz tripled its total area of organically managed land (5.3% in 2010) and doubled the number of organic farms.

## SPAIN: ENRICHING LANDSCAPES TO FIGHT AGAINST SOIL EROSION

In the Spanish region of Andalusia, climatic conditions and well as the presence of crops on sloping land are a major cause of soil erosion. Between 2000 and 2010, the CAAE Association devised a "Campaign for landscape diversification and conservation in rural areas". 4 million plants were distributed across Andalusia to around 6,000 farmers (of whom 65 % were organic). This included plant bushes, shrubs and windbreak trees. The aim was to restore and maintain the rural landscape, protect soils from water and wind erosion and better fight against droughts and floods. The programme also sought to increase crop production, fight naturally against

pests and increase wild-life habitats<sup>11</sup>. It included free training courses and technical factsheets to advise farmers about plant species and varieties best adapted to the needs of their farms.



REFERENCES: 1. Jones et al., (2012). [The State of Soil in Europe: A contribution of the JRC to the EEA Environment State and Outlook Report — SOER 2010](#). Brussels: European Commission. 2. OECD, (2008). [Environmental Performance of Agriculture in OECD countries since 1990](#), Paris, France. 3. European Commission, (2007). [Environment factsheet: soil protection – a new policy for the EU](#). 4. Keenleyside, C and Tucker, G.M., (2010). [Farmland Abandonment in the EU: an Assessment of Trends and Prospects](#). Report prepared for WWF. Institute for European Environmental Policy, London. 5. IFOAM EU Group and IFOAM, (2009). [High Sequestration, Low Emission, Food Secure Farming. Organic Agriculture: a Guide to Climate Change & Food Security](#). 6. Pesticide Action Network Europe, [Advantages of crop rotation & crop rotation embedded in integrated crop management](#). 7. Stolze et al., (2000). The Environmental Impacts of Organic Farming in Europe, in *Organic Farming in Europe: Economics and Policy*, vol. 6. Stuttgart: University of Hohenheim, Department of Farm Economics. 8. Based on the European Commission Proposal on Rural Development [COM \(2011\) 627 final/2](#). 9. Ministerium für Umwelt, Landwirtschaft, Ernährung, Weinbau und Forsten, Rheinland-Pfalz, [Programm Agrarwirtschaft, Umweltmaßnahmen und Landwirtschaft \(PAUL\)](#). 10. This shall be achieved by planting at least 5 different crops annually, whereby legumes make up at least 8% of agricultural area, and each individual crop should take up no less than 10% and not exceed 30% of total area. Two-thirds of the area should be devoted to cereal cultivation, and vegetables and other plants not exceed 30% of land. 11. CAAE Association, [Cuaderno 'Setos, Sotos, Herrizas y Bosques-Isla en Agricultura' Guía práctica](#).

