

## Cover crops in medicinal and aromatic plant production

### Benefits and implementation

Cover cropping is an important practice in organic farming. By producing additional biomass between two main crops, it improves fertility, structure and health of the soil and prevents erosion. Cover cropping is in line with organic farming principles which aim to conserve natural resources. It is also one of the main actions farmers can take to make their soils more resilient to climate change.

The guide provides an overview of the benefits and challenges of cover crop cultivation and gives practical guidance on species selection.



### Benefits of cover crops

Cover crops can provide many benefits to crop rotations in medicinal and aromatic plant (MAP) cultivation.



#### Nutrient supply for main crops

- Cover crops enrich the topsoil by drawing plant nutrients from deeper layers of the soil.
- Leguminous cover crops add nitrogen from the atmosphere to the soil, reducing the need for commercial fertilisers.
- Root exudates feed the soil organisms, stimulating microbiological activity in the root zone. This again improves soil pH and increases nutrient availability.
- Annual overall nitrogen (N) supply from cover crops ranges from 20 to 200 kg of N per ha. While non-legumes provide 2,5 kg per ha per ton of fresh mass, legumes release around 4 kg of N. The longer the growth duration of legumes, the more nitrogen is fixed.



#### Prevention of nutrient losses

In warm soils in autumn, organic matter is rapidly mineralised, increasing water-soluble nitrogen (nitrate) levels. Without plant uptake (if the soil is left bare over winter), this nitrogen is lost through leaching, polluting groundwater and waterways. Timely sown cover crops, especially non-leguminous species, can retain most of the soluble nitrogen.



#### Build-up of soil fertility

- Soil organic matter increases water infiltration and improves the soil's capacity to store and continuously release nutrients and water, creating better growing conditions and reducing plant stress during drought periods.
- Mature cover crops (of more 'woody' consistency) can increase soil organic matter levels.