

Inter-row cover cropping: Sown cover crops

The installation of sown cover crops is highly recommended when the establishment of spontaneous cover crop can be troublesome and needs to be changed. The most important factor is the correct selection of species adapted to local environmental conditions and agro-ecological targets defined by the farmer. Mowing date and killing methods are also key factors. Sown cover crops compete with the spontaneous flora and make weed control easier, helping to reduce herbicide use and tillage operations.

DID YOU KNOW?
They are highly recommended for application in the inter-row spacing for a certain period, as they improve the physical, chemical and biological properties of soils

Readiness for use: 

Efficacy: 

How it works

- It is crucial to choose species with a short phenological cycle, fast growth during the winter, shallow root system, short height and high biomass production.
- The most commonly sown cover crop species are grasses, crucifers, legumes, crucifers or mixtures. Given that soil conditions change and ecological succession takes place, it may be advisable to establish a cover crop rotation over the years.
- The soil must be carefully prepared to maximise emergence and a shallow tillage is recommended (vibro-cultivator) before sowing.
- The costs of seeds and sowing hinder their installation because the cover crop species have to be sown every year during the autumn (Figure 1). They are usually sown by centrifugal broadcaster and seeds need to be buried with a shallow tillage (cultivator or vibro-cultivator followed by a roller pass) after cover crop sowing.
- Fertilisation is very important to allow early cover crop growth and to compete with undesirable weed species, reducing the need for subsequent chemical or non-chemical control. The recommendation for cover crops in areas with an average rainfall of 500–600 mm is to apply a minimum of 50 kg of nitrogen per hectare.
- The cover crop must be controlled in early spring by herbicides or mechanical mowing. The optimal living cover crop can reach a height up to 50–80 cm and occupy around 50 % of the surface in the inter-row spacing (Figure 2).
- The optimum mowing date depends on climatic factors. An early sowing date (September) and, therefore, an early mowing date (February-March) seem advisable to reduce competition for water and facilitate its retention by the soil.
- They might be useful in no-tillage farms with herbicide use where the weed seedbank is depleted or residues of herbicides are present in the soil. They may be the best option in farms with traditional intensive tillage use where spontaneous flora is composed of short-cycle species with poor development. However, it is not possible to establish a sown cover crop in steep-sloped areas (>15–20%).

Figure 1.
Emergence after crucifer cover crop sowing.
Photo:
J.A.Lezaun
(INTIA)



Figure 2.
Crucifer cover crop development along the inter-row spacing.
Photo:
J.A.Lezaun
(INTIA)



Read more

[Cover crops in olive-field trials of southern and northern Spain](#)
[The most important management options for olive orchards in Spain](#)

CONTACT

José Luis González-Arrojlar
IAS CSIC (Córdoba)
arrojlar@ias.csic.es
+34 957 49 92 20

Verónica Pezraza
IAS CSIC (Córdoba)
vpezraza@ias.csic.es
+34 957 49 92 55

Juan Antonio Lezaun
INTIA (Navarra)
jlezaun@intiasas.es
+34 948 01 30 40

Irache Garrica
INTIA (Navarra)
igarrica@intiasa.es
+34 948 01 30 4

 **CSIC**
Consejo Superior de Investigaciones Científicas

 **IAS**
INSTITUTO DE AGRICULTURA SOSTENIBLE

 **INTIA**