Crop mixture: oilseed rape and companion plants

In order to spread crop mixtures knowledge on its area, Terrena wrote 4 articles for its employees. In this first article, discover a suitable solution for oilseed-rape management.

Terrena, as part of its branding strategy La Nouvelle Agriculture®, helps its members to develop technical solutions in order to optimize crops management, while reducing inputs (fertilizers and pesticides). Crop mixtures help to meet this challenge in a sustainable way that respects the environment.

Picture 1: Oilseed rape with companion crops (Terrena)

Why combine oilseed-rape (OSR) with companion crops

Oilseed-rape constitutes the larger part of the oleaginous crops on Terrena's territory. However, between sowing (at the end of August) and harvest (mid-July), oilseed-rape is competing and attacked in many ways. Thus, during 11 months, it requires about twice as much plant protection as a conventional wheat. The mixture (picture 1) aims to reduce three types of inputs: herbicides, nitrogen fertilizers and autumn insecticides.

Interview with Hubert BRUNET (picture 2), oilseed-rape expert at Terrena Agronomic Department.

Picture 2: Hubert BRUNET

First effect: herbicides

In this crop mixture, Alexandria's clover and spring vetch seeds are sown with oilseed-rape. No herbicide is applied during the sowing period. The emergence and growth speed of the companion plants allows them to grow faster than weeds, which limits their emergence. During autumn, clover and vetch do not compete with oilseed-rape, which settles quietly. Later, as they do not withstand the winter cold, clover and vetch freeze and disappear. However, this does not happen in 100% of cases because our ocean climate can sometimes be too mild in winter. Then it is necessary to go back to a small amount of herbicide to destroy them.
From our trials, conducted since 2008, we consider that farmers save an average of 27% on those herbicide inputs.

Second effect: saving nitrogen fertilizers

Leguminous (clover and vetch) are able to fix atmospheric nitrogen in their roots, which naturally loads the soil into nitrogen. It is a nutrient source for oilseed-rape and a saving source for farmers. With those companion plants it is estimated that farmers can reduce nitrogen inputs by 20 kg/ha on average.

Third effect: autumn insecticides

Lastly, Terrena Agronomic Department is currently monitoring in its microplots, the effects of this crop mixture on the reduction of flea beetle attacks (*Psylliodes chrysocephalus)*. This small beetle bites oilseed-rape's leaves in autumn until its death. However, following repeated observations, it seems that flea beetle attacks decrease in presence of companion plants. Insects are disturbed by this "functional biodiversity" within the fields: leguminous seem to protect the oilseed-rape.

Thus, to each crop mixture its benefits to overcome technical problems.

Picture 3: Oilseed rape attacked by flea beetle