LIVINGAGRO

Executive summary for a Field trial in Abdeh region (Akkar, Lebanon) (Activity 4.3.2)

Effect of soil management and different cover crops on soil characteristics, olive production and olive oil characteristics

The fruitful collaboration between the Lebanese Agricultural Research Institute and the Faculty of Agriculture of the Lebanese University (LU) within the LIVINGAGRO Project led to the establishment of a field trial to assess the effect of soil management and different cover crops on soil characteristics, olive production and olive oil characteristics. The experiment was established in November 2020 at the Lebanese Agricultural Research Institute (LARI)-Abdeh station (Akkar, Lebanon).

The main objectives of this trial were:

- Assessing the effect of soil management and different cover crops on soil characteristics in order to reduce alternate bearing behavior in "*Baladi*" olive tree, and improve productivity and oil yield and quality.
- Increasing farmers' income through multiple cropping.

The experiment consisted of five treatments and six replicates (trees):

- ✓ Faba beans (*Vicia faba*);
- ✓ Broccoli (*Brassica oleracea* var. *italica*);
- ✓ Mixture Barley (*Hordeum vulgare*) + Vetch (*Vicia sativa*);
- ✓ Fertilizers + Herbicide;
- ✓ Spontaneous vegetation.

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Preliminary results showed that there was no difference between Faba beans and the others in mineral nitrogen. This lack of difference could be linked to environmental conditions, especially the lack of rainfall and the availability of moisture.

On the other hand, the experiment showed that farmers may increase their income through selling the additional crops such as green Faba beans and Broccoli as in this region, these crops mature very early and farmers may sell their production with a very high price.

In conclusion, the adoption of cover crops as a soil management practice can be considered as a good practice to improve the soil composition and increase its fertility, especially by increasing the percentage of organic matter and the amount of nitrogen, and as a feasible way to reach sustainability in many olive orchards on a long-term basis. Moreover, the farmers can increase their income though the introduction of the new crops in their orchards.