



# LIFE Programme

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## News: September 2018

### Biodegradable films to save crops and cut farming costs



Photo: LIFE MULTIBIOSOL

**27 September 2018** Spanish researchers have created a plastic film that protects crops before biodegrading completely after harvest. Inventors at the **Aitiip Foundation**, a research centre near Zaragoza, Spain, claim that their new mulching film could reduce plastic contamination in the environment and cut running costs for European farms.

"Agriculture in Spain alone consumes over 60 000 tonnes of plastic mulching film each year," says Dr Carolina Penalva at Aitiip. "Most of these films either end in landfills or incinerators." She points out that contrary to the European **circular economy strategy**, disposing of

the waste in this manner depletes natural resources, while also releasing plastic contaminants into the ground and carbon dioxide into the atmosphere.

As part of the **LIFE MULTIBIOSOL project**, Dr Penalva and her colleagues have mixed biodegradable materials into formulations that are robust enough to withstand the elements but that break apart naturally when mixed with soil. Their adoption could shift European agriculture towards a more efficient use of resources, as set out in the EU's **environment action programme to 2020**.

### Saving soil

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Photo: LIFE MULTIBIOSOL

The innovative bioplastic also incorporates trace elements that nourish soils, such as zinc and iron. They enter the ground while the film decomposes, enriching the soil and resulting in higher quality produce in subsequent years. Upon studying the soil makeup of each site, and ascertaining which nutrients are lacking, Aitiip can now alter the chemistry of the mulching film to meet local needs.

Another key selling point of the material is that it does away with the labour-intensive disposal of conventional plastic mulching films. At present, this costly process squanders valuable soil. Some 90% of the waste discarded with old mulching films is fertile earth that clings to their plastic.

"Farmers are essentially paying someone to come and remove their top soil," explains Dr Penalva. In its current state, she says that the price tag of AITIIP's biodegradable film may be twice as high as conventional plastic alternatives, but cutting disposal costs and saving soil could easily tip the economics in its favour.

### Read the label

Various forms of purportedly biodegradable film have been on the market for over a decade, but many have disappointed farmers in the past, by either decomposing too soon or not biodegrading completely.

As part of **LIFE MULTIBIOSOL**, project partners **Cooperativa Agraria Aragonesa** and **GroenCreatie** have recruited farmers in Spain, France and Belgium to test the films on vegetable crops.



Photo: LIFE MULTIBIOSOL

Initial results are encouraging. In addition to proving the biodegradability of their prototype, field trials have shown that the quality of agricultural produce grown under the biodegradable mulching equals, and in some cases surpasses, that of conventional plastic films. Thus, the project has great potential to contribute to the goals of the **EU plastics strategy**, which calls for greater recycling of plastics used in agriculture.

To demonstrate the quality of the new biodegradable plastic, Italian project partner **Laboratori ARCHA** has been running preparatory tests to obtain the ON biodegradable SOIL quality label. This strict certification is only awarded to bioplastics that are proven to meet high standards, including full biodegradability and zero negative side-effects for the soil on which they are used.

"There are very few materials that comply with it," says Dr Penalva. "If we can label this plastic as ON SOIL OK, it would reassure farmers

considering buying it."