



Civil Dialogue Group Environment and Climate

Conventional and Biodegradable Plastics in Agriculture

DG AGRI Unit B.2
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Agriculture
and Rural
Development

Plastic consumption in agriculture

Commission study developed by Eunomia in 2021 (PlasticsEurope estimations)

- Agriculture used in 2018 around 3.4% of marketed plastics in the EU (source: PlasticsEurope estimations)
- Biodegradable plastics were in 2019, 1% of the total non-packaging plastics in agriculture (source: APE Europe)
- Around 63% of agri-plastic non-packaging waste generated in the EU was reported as collected in 2019. But only 24% are recycled (source: APE Europe)
- The destination of the remaining 37% is unknown (source: APE Europe)

Agriplastics consumption by market segment (source APE Europe 2019):

- 55% of plastics used in the livestock sector (bale net, twine, silage, stretch films)
- 45% used for crop production (oxo-degradable plastics that are forbidden since July 2021, biodegradable mulch films, protective nets, non-woven nets, drippers, irrigation pipes, small tunnels, mulch films, greenhouses)

Recycling of agriplastics:

- All conventional plastic films used in agriculture are more or less contaminated by soil and organic matter. Mulch films are the most difficult to recycle due to their high contamination (soilage)
- Biodegradable plastic mulch films present clear advantages compared to the conventional plastic mulch films. No collection is needed after use because films are directly ploughed in the soil. The time of biodegradation depends on soil temperature and moisture
- CEN standard EN 17033 establishes the requirements and test methods (e.g. ecotoxicity) for biodegradable mulch films. No plastic accumulation in the soil in max 24 months of biodegradation time (at 18°C as minimum)

Plastic level of soil and organic contamination

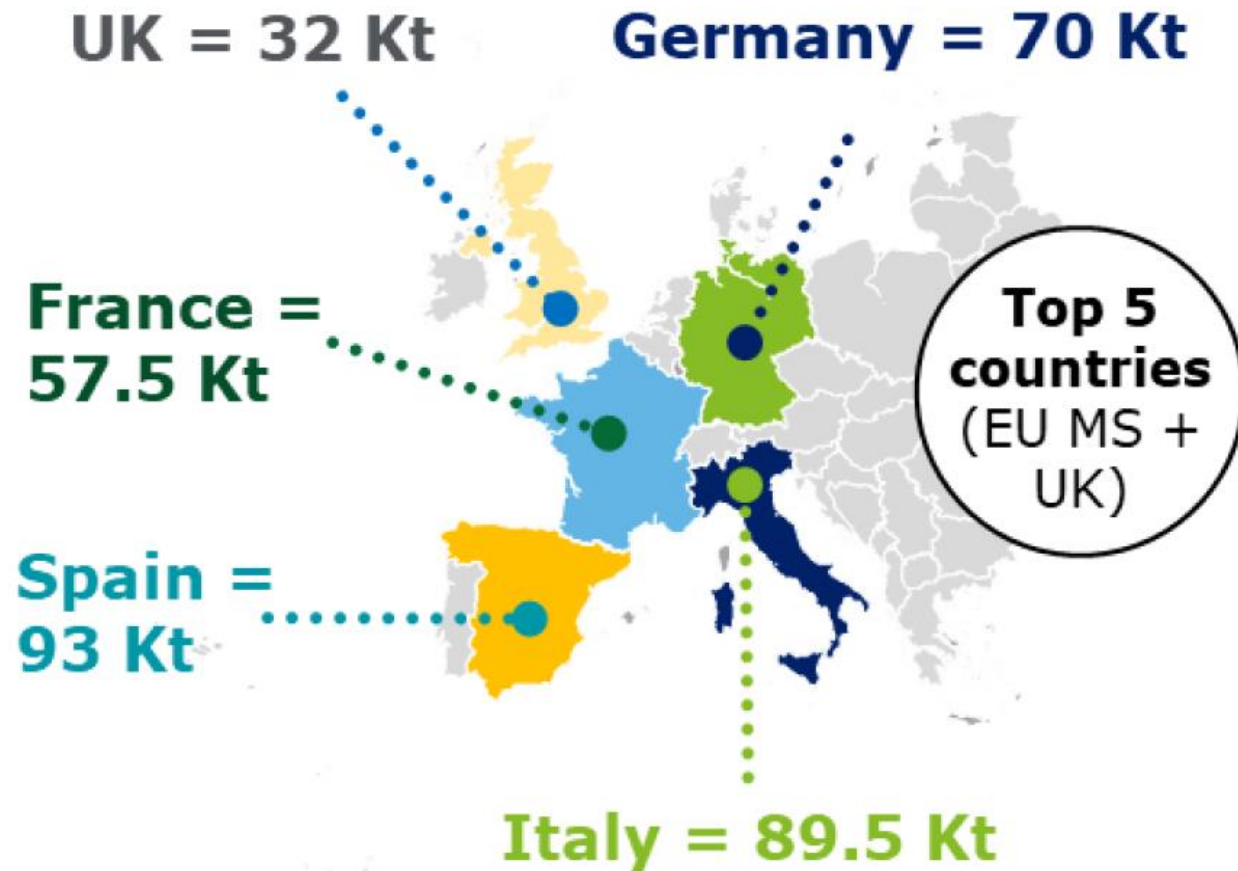
Table 1: Soilage Coefficients by Products

European Market Survey					
Plasticulture for	Soilage Coef.		Plasticulture for	Soilage Coef.	
Vegetable Production			Animal Production		
Greenhouse films	1.3		Silage sheets	1.5	
Small tunnel films	2.0		Stretch films	1.5	
Mulch films	3.0		Bale nets	1.5	
Biodegradables			Twine	1.5	
Irrigation pipes <400μ	1.2		Average		1.50
Tubes with drippers	1.2		By Category		
Non wovens	2.0		Films		1.70
Protective nets	1.1		Pipes		1.20
Average	1.8		Nets		1.47
			Twines		1.50
Source: APE Europe					

Biodegradation

- CEN standard says that 90 % of plastic organic carbon shall have been converted to CO₂ by the end of the test period
- The remaining 10% of biodegradable plastic material will be transformed in water and biomass of microorganisms that degrade bioplastics
- Composition of biodegradable mulch films is partially biobased. Polymer commonly used is starch blend
- All types of plastics contain additives. In biodegradable mulch films limits are established in EN 17033 standard and content have to be declared by the industry

Top 5 countries: agricultural films sales, 2018 (kt) excluding packaging



Source: APE Europe

Conclusion and Recommendations of the Study

- Data gaps on plastic use and the end of life. Statistics are missing
- Develop policy options to improve collection of plastics to reduce plastic leakage in the environment, forbid open burning, extend the application of EPR, mandatory application of standard EN 17033 for biodegradable plastics
- Further research for conventional and biodegradable plastics is suggested

The study: “Relevance of Conventional and Biodegradable Plastics in Agriculture” is published and can be found using this link:

<https://ec.europa.eu/environment/system/files/2021-09/Agricultural%20Plastics%20Final%20Report.pdf>

Next steps of the Commission

- 9 studies completed or currently open on plastics
- A Policy Framework on biobased, biodegradable and compostable plastics. To be adopted by next July
- Revision of the Packaging and Packaging Waste Directive
- Legislation to reduce the presence of microplastics in the environment
- Fertiliser legislation to allow the use of biodegradable coating for granular products and biodegradable mulch films



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