Plastics in soils: impacts on agriculture and food

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Sheet 12: Plastics in soils: impacts on agriculture and food

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Sources and extent of plastics pollution in soils

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The presence of microplastics in soils, revealed about a decade ago, remains relatively unknown. However, the masses of plastics accumulated in soils could potentially exceed those in oceans, particularly for the tiniest particles—microplastics[47]. These tiny particles in soils originate from various sources such as **illegal dumping, compost application, plastic mulching, wastewater irrigation, atmospheric deposition, runoff**, etc. In just over twenty years, certain agricultural soils have accumulated **several hundred kilograms of microplastics per hectare**[48].

Impacts of plastics in soils

Plastics and the chemicals they release into soils are harmful to biodiversity. Toxic effects have been notably evidenced on earthworms, which are essential for soil functioning. **Microplastics can migrate from soil to edible parts of plants, such as fruits and vegetables** (carrots, lettuce)[49].

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Pollution of soil with plastics can affect crop yields and food security [50]. Plastics can also be transferred from soils to water through various processes (erosion, infiltration, animal transport), contributing to aquatic pollution (see Plastic pollution, from rivers to oceans).

The fate of plastics in soils

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Once in soils, plastics degrade very slowly and are not degradable within a human lifetime. So-called biodegradable plastics do not necessarily biodegrade in soils and can also release toxic particles and chemicals (see Biodegradable and biosourced plastics). **Soils are therefore an accumulation medium where microplastics remain stable**[51].

There is currently **no remediation method for soil clean-up**. Hence, it is necessary to prioritize upstream measures to prevent this pollution (see Waste management).

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Plastics :
Poison most handy

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