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GIS mapping of agricultural plastic waste in southern Europe

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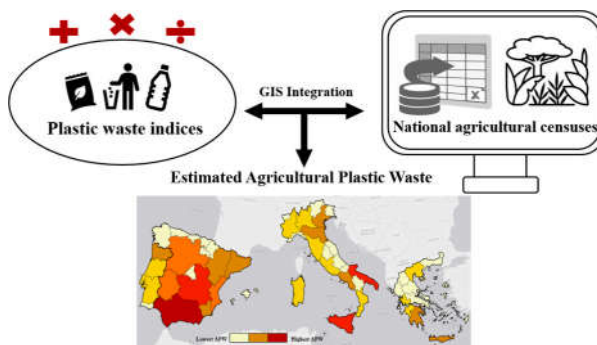
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HIGHLIGHTS

- Agricultural plastic waste inadequately addressed by the research community.
- Estimation of agricultural waste quantities, mapping in Southern Europe.
- Methods include Geographic information system, waste indices, agricultural census.
- Spain with the highest agricultural plastic waste generation in Andalusia region.
- Foundation for effective management of agricultural plastic waste and hotspots.

GRAPHICAL ABSTRACT



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ABSTRACT

The escalating use of plastics in agriculture, driven by global population growth and increasing food demand, has concurrently led to a rise in Agricultural Plastic Waste (APW) production. Effective waste management is imperative, prompting this study to address the initial step of management, that is the quantification and localization of waste generated from different production systems in diverse regions. Focused on four Southern European countries (Italy, Spain, Greece, and Portugal) at the regional level, the study uses Geographic Information System (GIS), land use maps, indices tailored to each specific agricultural application and each crop type for plastic waste mapping. Furthermore, after the data was employed, it was validated by relevant stakeholders of the mentioned countries.

The study revealed Spain, particularly the Andalusia region, as the highest contributor to APW equal to 324,000 tons per year, while Portugal's Azores region had the lowest estimate equal to 428 tons per year.

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