

Production of acidic / neutral composts by using large animal mortalities and other agricultural additives to serve circular economy of agro-livestock holdings.

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The management of large animal mortalities, is a difficult procedure and of doubtful appropriateness, mainly because the methods used: a) are not environment friendly b) are likely to disperse dangerous diseases to humans and animals and c) do not promote the circular economy of livestock units.

On the other hand, the management of plant raw materials from gardens, parks and tree-lined streets is also difficult, due to their high lignin content and the lack of efficient management plans by local authorities. Therefore, in the most of the cases, green wastes are discharged unexploited to landfill sites, causing: a) rapid filling of landfills, as these materials account for almost 65% of the total discharged wastes, b) increase, in fire risk; fires can be also spread from landfills to residential areas, c) burden municipalities with fees, which are related to transportation, to fuels for municipal trucks, routes to and from the landfill sites, machinery and vehicles damages, and (d) environmental and social impacts due to objections raised by residents when local authorities try to find new landfill areas.

This study aims to present and explain the advantages of developing a composting methodology of large animal mortalities by exploiting also green wastes (lignin-rich plant raw materials) from municipalities and the addition of agricultural additives (zeolite, sulfur) to produce a safe and environment friendly product, appropriate to be applied to agricultural and forest ecosystems.

For this purpose, three years experimentation was designed starting from collecting, characterizing and assessing available raw materials. The second stage of the study includes the preparation of three different feedstock mixtures containing cow mortalities, prunings, straw and zeolite up to 5%. These firsts results are presenting in this study.

After characterization of the materials, a greenhouse pot experiment will be conducted during which the prepared composts will be used as additives to soil for *Lactuca sativa* (var. romana) cultivation.

First outcomes are encouraging, showing great potential for managing such waste types and also recycling to agriculture, promoting the zero waste and circular economy approaches of the agro-livestock units.