



THE CHAIN BIOWASTE-COMPOST- SUSTAINABLE AGRICULTURE

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ABSTRACT

In the European Union more than 2000 million Tons of organic waste are yearly produced. The European strategy on waste management has established a hierarchy on the different options which in order are: (1), reduction of waste production, (2), recycling and composting, (3) termovalorisation, (2), landfill. This hierarchy is based on the effects that each option has on the environment and intend to reach the general aim the sustainability. To improve the integrated management of waste and to contribute to an increasing sustainability it is mandatory to respect the hierarchy above mentioned. A recent European Directive (EC 31, 1999) says that Member States shell set up a national strategy for implementation of the reduction to 35% of the biodegradable waste going to landfill. This will result in a big increase of recycling and composting plants in Europe. But if compost would play an important role in this scenario, it would be of priority importance to produce high quality products. Factors that affects the compost quality are: (1) starting material and its conditioning; (2), the composting system and process; (3), the control of the process. Only respecting all the requirements that a composting process needs, it is possible to obtain products compatible with agricultural crops and beneficial to biological fertility of soils.

In the Mediterranean area soils are depleted since 2000 years; climatic conditions and intensive agriculture reduce every year the organic matter content of soils. The introduction of compost in agriculture can overtake most of these problems. There are compost that can partially substitute to chemical fertilizers and to pesticides (suppressive compost), contributing to maintain a sustainable agriculture. In Table 1 the main benefits of compost utilization are reported.

Table 1. Compost utilization and benefits

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- Biological agriculture
 - Organic fertilizer
 - Soil conditioner
 - Contribute to chemical fertilization
 - Preparation of growing media
 - Horticultural substrates
 - Plant nurseries
 - Control of plant diseases
 - Beneficial effect on mycorrhiza and nitrogen-fixation
 - Mushroom production
 - Reclamation of sandy soils
 - Viticulture, pomology
 - Recovery of landfills
 - Biofilters for air depuration and odour control
 - Prevention of replant disease
 - Improve soil organic matter
 - Improve soil porosity and texture
 - Increase biological fertility of soil
 - Beneficial to microbial activity in soil
 - Improve plant nutrient availability
 - Prevent desertification
 - Prevent soil erosion
 - Increase water retention
 - Reduce leaching of nutrients
 - Enhance sustainability in agriculture
 - Reduced costs in organic waste management
 - Prevent pollution caused by improper waste disposal
 - Bioremediation
 - Degradation of toxic organic waste
 - Waste processing and regenerative life-support medium in human extraterrestrial exploration
 - Pollution control, public health benefit and resource recovery in developing countries
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