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BIOMASS EXPLOITATION FOR ENERGY SUPPLY AND QUALITY COMPOST PRODUCTION. AN EXEMPLARY CASE OF CIRCULAR ECONOMY IN THE NORTH EAST OF ITALY

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Abstract

The goal 12 of the 2030 Agenda for Sustainable Development takes into consideration the responsible consumption and production in the perspective of circular economy. The agri-food sector is more actively involved in these initiatives, because it offers the possibility to exploit waste and by-products, by adopting suitable biotechnologies. Such processes can be carried out either under aerobic conditions, for the production of compost, or anaerobically, for the production of biogas. In this work the case of a plant managed by Desag Ecologia, located in the municipality of Sedegliano, in the North-East of Italy, is presented. The plant started up in June 2016. Its main activity consists in exploitation of the organic fraction of municipal solid waste and urban forestry green waste coming from separate waste collection. The basin of provenance of collected materials consists not only of the province of Udine, but also of other areas of the Friuli Venezia Giulia region and other northern Italian regions. The plant ensures the production of both biogas (used in a cogeneration installation for producing electricity and heat) and quality compost, which can be used in agriculture, after submission to physico-chemical analyses to verify the end-of-waste status. In this way, the reduction of waste disposal in landfill is ensured. Thermal energy is partially recovered for the production of hot water to heat the anaerobic digester, the leachate collection tank and the plant rooms. Approximately 10% of electricity is self-consumed for the needs of the anaerobic facility, the remaining amount is fed straight into the public electricity network.

Key words: biogas production, cogeneration, compost production, integrated anaerobic-aerobic plants, organic waste management

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