First results of digestate spreading trials
in Mediterranean crops

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**Abstract.** Biogas production by Anaerobic Digestion (AD) is more and more widespread due on the one hand to the large quantity of biodegradable residues and by-products produced by livestock and agro-industrial activities and on the other to the growing interest in alternative energy sources. The by-product of the AD, the digestate, allows closing the production cycle: in fact, it is a stabilized bio-fertilizer with an amount of nutrients, both macro and microelements, dependent on feedstock features, that can be used as an organic soil improver and can contribute to organic soil matter turnover.

Before storage, transport and distribution, digestate is very often mechanically or physically separated into two fractions: a solid palatable fraction and a clariﬁed liquid one. The liquid fraction has a high rate of readily available nitrogen, while the solid portion has more amendment properties. However, to ensure high quality results, digestate as it is or its fractions should be spread at speciﬁc rates and at the most suitable time for the best plant uptake, minimizing losses to the atmosphere, ground and water.

In this paper the first results of digestate spreading trials are discussed. The digestate came from an electrical anaerobic digestion plant of 600 kW, which processes agri-food industry by-products, mainly citrus pulp. The digestate was separated into the two fractions by means of a mechanical separator. The solid fraction was spread in a vineyard and a citrus orchard under effective ﬁeld conditions, using implements provided by a local agricultural subcontractor and with spreader settings and operating parameters usually adopted by him. The liquid fraction, microfiltered at the digestion plant with an experimental innovative plant, was spread, after dilution and a further microfiltration, in another citrus orchard by means of a fertigation plant. First results suggest the need to improve the uniformity of application of the solid fraction and to carefully adjust the parameters of the final microfiltration of the liquid fraction so to reduce water consumption and the overall economic costs.