INTRODUCTION
Currently, industrial agriculture relies on continual inputs of phosphorus, which is non-renewable, and nitrogen. So, there is a strong need to increase the sustainability and close the nutrients loop in agriculture. In this context, reducing the use of mineral fertilisers and chemicals in agriculture are key priority objectives that can be achieved by recycling and reusing treated organic waste as compost and biochar products.

OBJECTIVE
The aim of this work is to present the REFERTIL results in Month 24 in terms of input materials selection and characterization, composting technologies and the compost, as well as the review of the main support policies to the compost in development. The aim of the Project is to improve and promote advanced treatment systems for bio-waste, with an effective nutrient recovery and towards zero emissions. This involves the production of compost and biochar (natural fertilizer) in a safer, economical, ecological and standardized way for its use by farmers.

EXPERIMENTAL
During first 24 months of the project, works which had been done, are in connection with:
• Identification of the main biowaste flows in the EU suitable for End-of-Waste compost production from quantitative (yearly generation) and qualitative (full accredited lab characterization) point of view.
• Set up input material criteria for EoW compost production in order to elaborate a “REFERTIL positive list”.
• Preliminary analysis of the current EU policy developments related to biowaste to contribute to common EU-27 compost quality standards.
• Survey the leading edge composting technologies and facilities across the EU (21 composting plants in 7 countries), working in EoW conditions.
• Analyze the quality of the compost produced in the surveyed composting plants, comparing it to current EU quality standards, future regulations and results from the JRC-IPTS FATE-COMES Programme.

RESULTS AND DISCUSSION
Input materials identification characterization for REFERTIL positive list. Critical issues with technology, REFERTIL survey of 21 composting plants in 7 EU countries: Odour emissions; Nitrogen transformation; Operational costs; Gate fees; Water management in process; Treatment time – Space demand; Flexibility; Leachate collection and treatment; Hygienisation; Compost quality...

Results of Compost Analysis
Significant differences, but EoW threshold values OK, extreme results indicating problems or singularities; regarding heavy metals punctual problems related to the input material quality:
• Dry matter: from 60 to 80% (45 and 86% extreme values)
• Organic matter: 45 to 55%: (19 and 76% extreme values)
• Bulk density: 310-730 kg/l;
• pH: from 62 to 7.2; (5.17 to 7.6 extreme values)
• C/N ratio: from 8 to 18 (7 and 22 extreme values)
• Total-N: 5 composts below 1%, 10 composts below: 1.5%;
• P2O5: 4 composts below 0.5%;
• K2O: from 0.5% to 1.5%; (0.36 and 2.42% extreme values)
• No problem with organic pollutants...only two compost over PAH: 6 ppm
• All compost complying with microbial indicators, no Salmonella, E. coli.

CONCLUSION
In relation to the proposed organic pollutant limits set up in End-of-Waste Third Working Document, the observation of REFERTIL results is consistent with the results of the JRC-IPTS FATE-COMES Programme of, showing that the proposed limits could be suitable with quality input materials of the future Positive list and with compost EoW products.

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