

## EIP-AGRI practice abstract

### Short title:

Technology for N&P recovery as digestate starting from vegetable oil waste with pig manure with "VALUVOIL" two-phase anaerobic digestion process

### Summary:

VALUVOIL technology demonstrates the viability of the improved two-phase anaerobic digestion process for biofuel production and the potential uses of the organic by-products for stimulating plant growth and as compost for improving soils.

In VALUVOIL technology the vegetable oil waste mixed with pig manure is transformed to obtain biogas and digestate.

This technology benefit due to reduction of water and soil pollution (1 L of waste improperly disposed could contaminate 1,000 L of water). It was achieved though biofuel production, bio-products used as fertilizers, and reductions in hazardous sludge and safe disposal in landfill sites. Besides, it also boost the oil recycling market with diversification of market by new environmental friendly bioproduct and valorization of residues generated in other industrial processes.

The current capacity of this process is 50 L/h. The digestate obtained is not ecotoxic and its macro and micronutrients content confers a fertilizing character and optimum agronomic quality. Plant growth assays were carried out in growth chambers with different species and soils, the results also confirmed in germination tests with the highest plant yields obtained at high rates (80 and 120 m<sup>3</sup>/ha). Germination tests were carried out to determine the phytotoxic effect, concluding that high doses had inhibitory effects, but when diluted at adequate doses a stimulating effect on root growth and seed germination was obtained. The effect of digestate on soils tended to increase the biomass and microbial activity, particularly at high doses. The applied intensity should depend on the characteristics of the soil and digestate.

For more information: [https://nutriman.net/farmer-platform/technology/id\\_259](https://nutriman.net/farmer-platform/technology/id_259)