BIOKOMP4 Project

Complex utilization of bioenergy plant wastes and by-products in agricultural and environmental management

Jedlik Ányos programme, 4th sub-programme, Liveable and Sustainable Environment

Supported by:

NKTH
Nemzeti Kutatási és Technológiai Hivatal

Aims

The main objective is the sustainable utilization of waste originated from biogas, bioethanol, biodiesel production as a soil fertility increaser product and as a useful and effective material for soil remediation processes.

The controlled composting technology

The first objective of the project was to develope a new controlled composting technology to preserve agronomic and energy value of digested municipal sewage sludge.

- Using newly developed micorbial additive and multi-layered mature compost based windrow cover to decrease N and C loss during the intensive phase of composting.

Products

- The new generation of compost based microbiological product for the effective soil improvement.

- Solid-phase microbial additive for controlled bioremediation of hydrocarbon contaminated soils.

Consortium members:

- Agrogeo Ltd..
- Geosan Ltd.
- Pilze-Nagy Ltd..
- Szent István University Gödöllő

Procedure for controlled composting of digested municipal sewage sludge

The field-scale experiment was carried out in the RotoComp system in 2009.

Forced aeration +

Encapsulated tunnel composting system

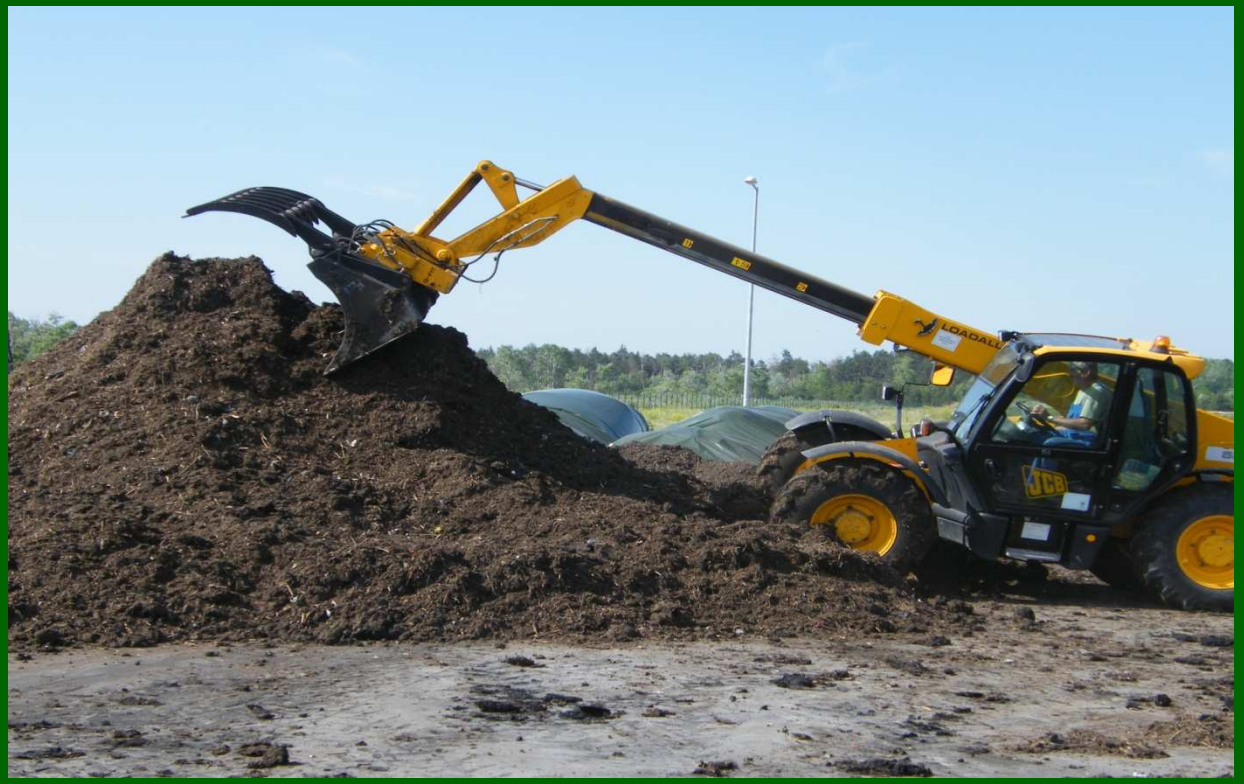
The controlled composting technology

Mixed municipal sewage sludge and chopped green waste

The controlled composting technology

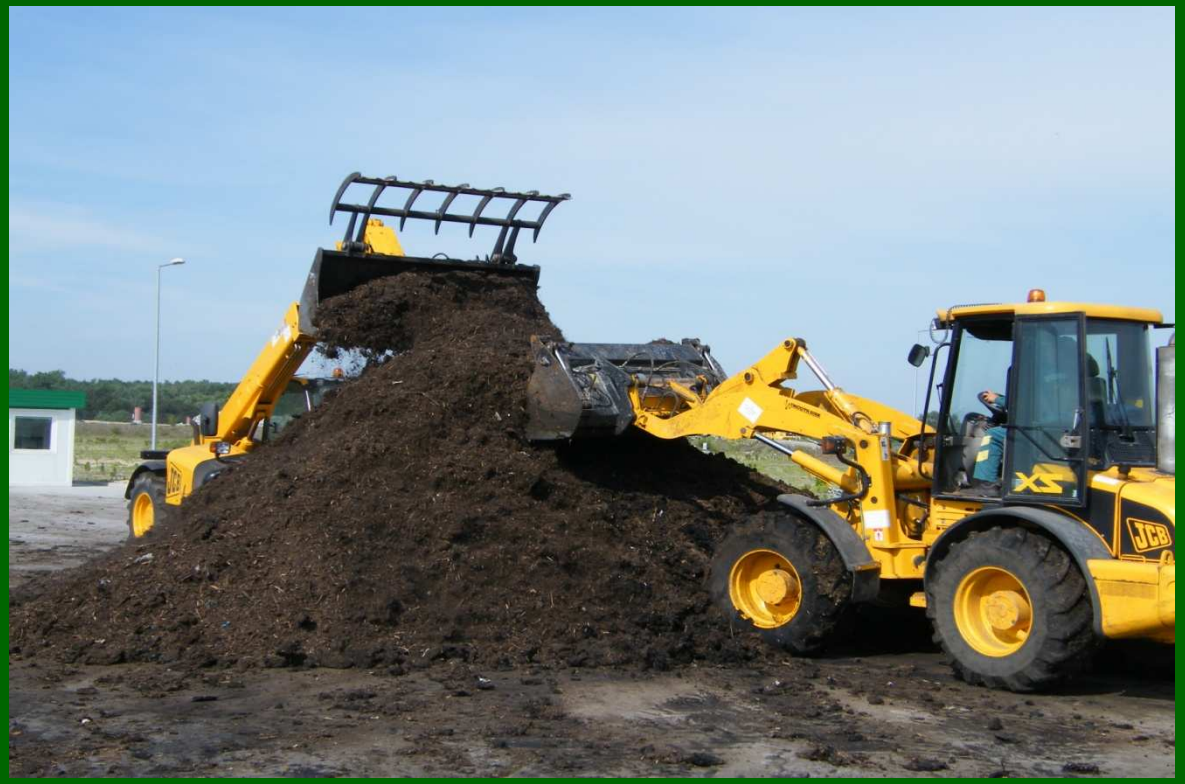
+Microbial additives for the intensification+

The controlled composting technology



Pre-treatment of input materials

The controlled composting procedure

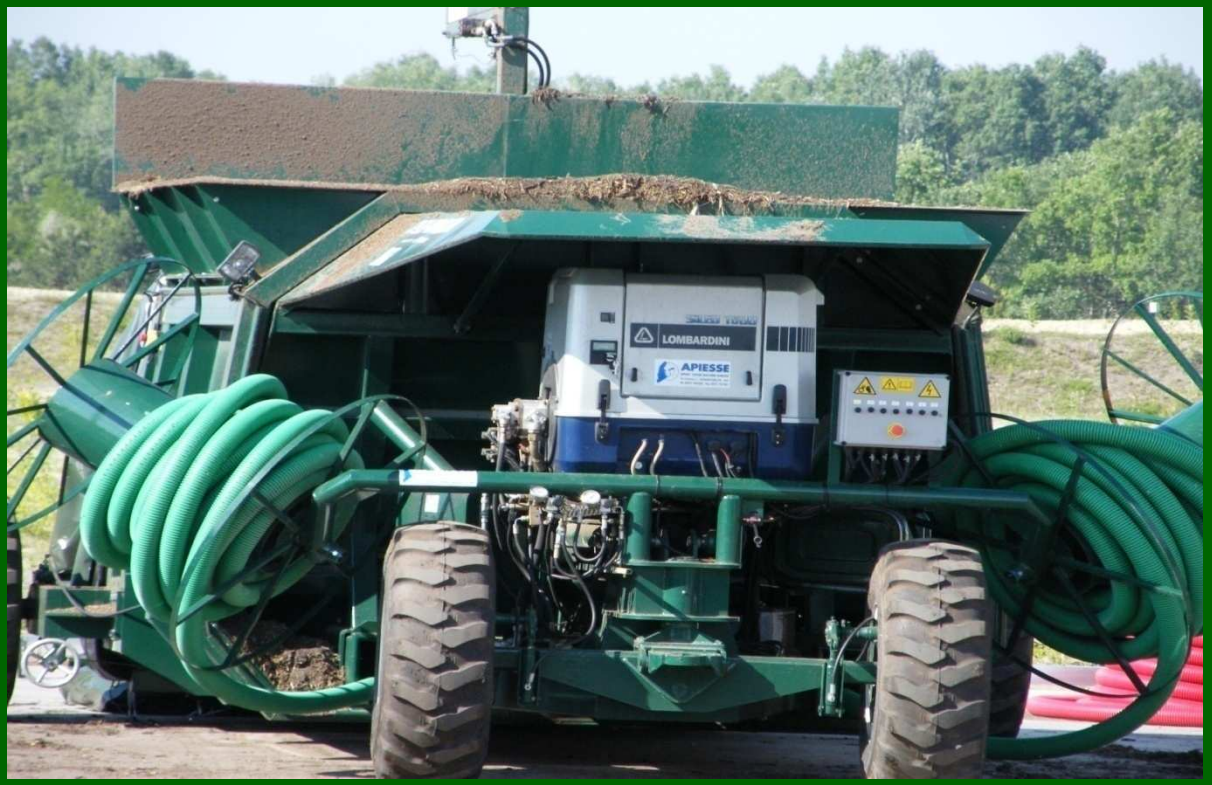


Homogenization of input by-products

The controlled composting technology

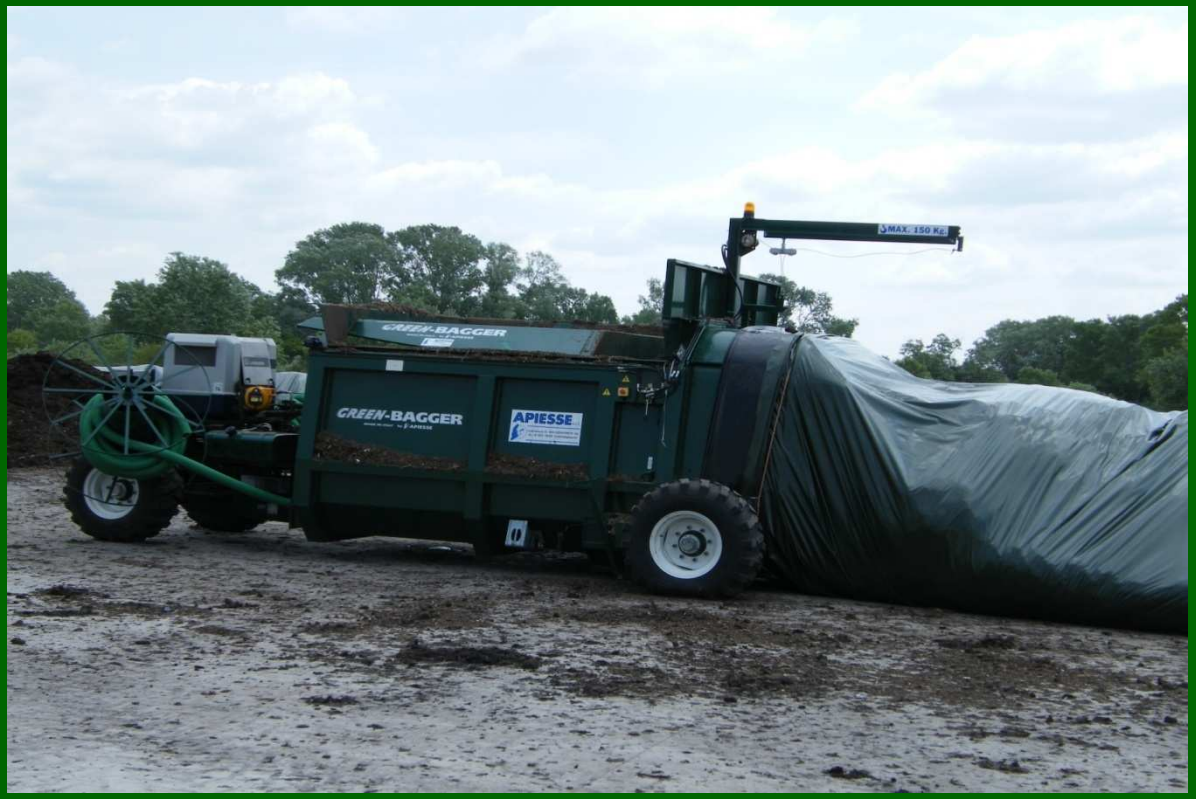
Good structure for the suitable air permeability

The controlled composting technology



GREEN-BAGGER loader

The controlled composting technology



GREEN-BAGGER

The controlled composting technology

Encapsulated tunnel system

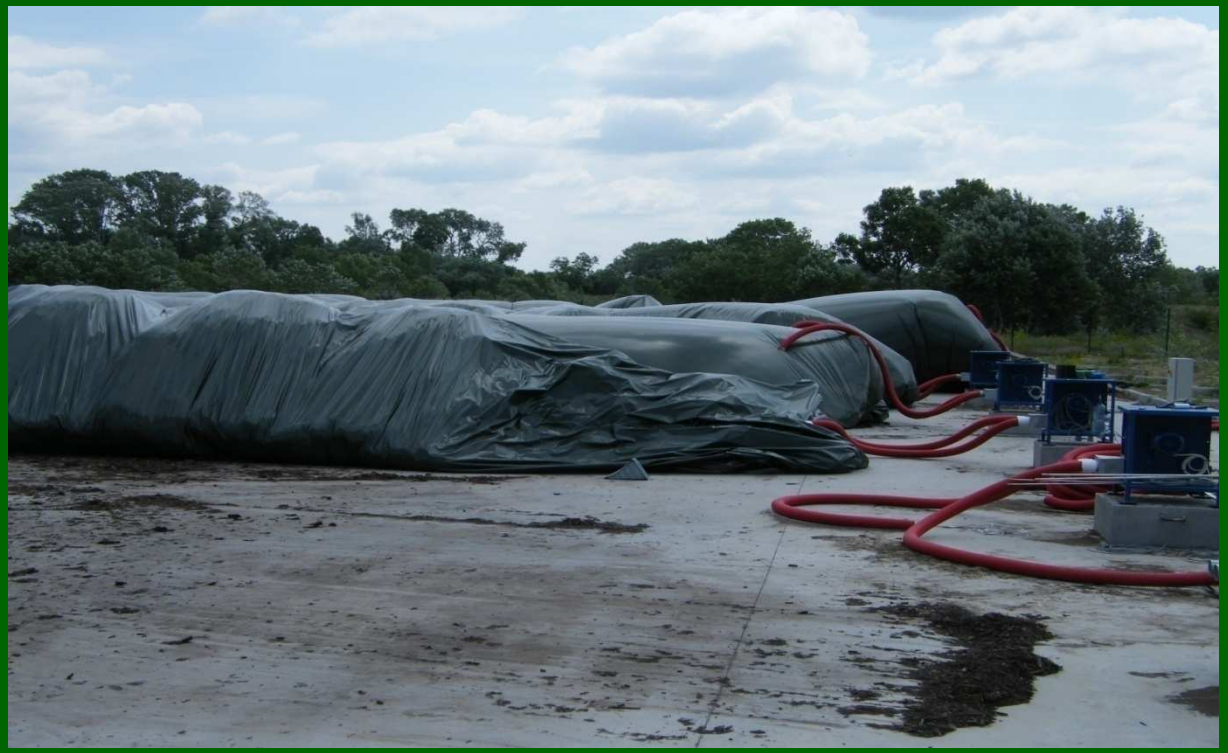
The controlled composting technology

Aeration system

The controlled composting technology

The RotoComp system 1

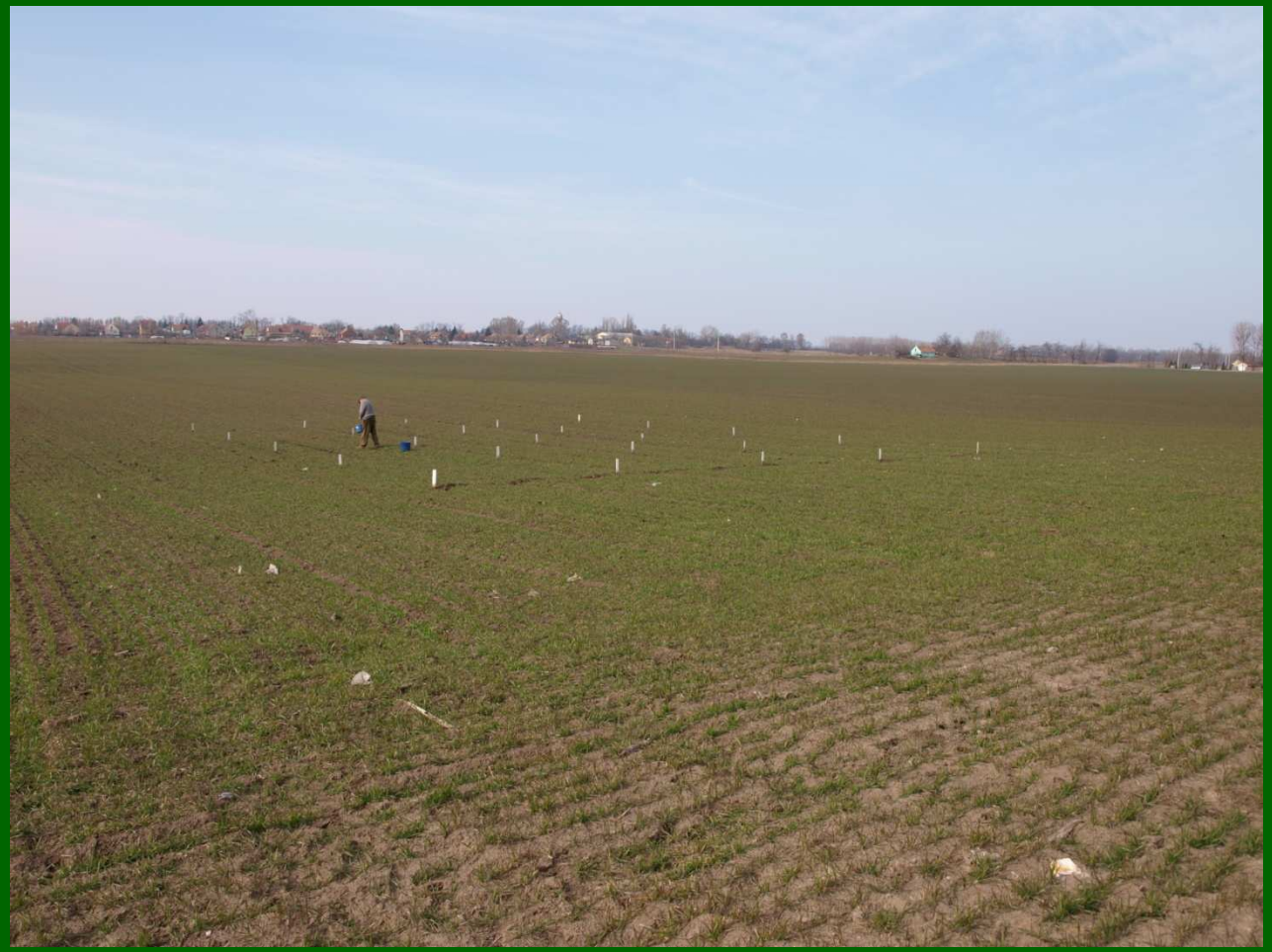
The controlled composting technology



The RotoComp system 2

Basal and top-dressing of winter wheat (Triticum aestivum sp.) with D-compost **originated from digested municipal sewage sludge and green waste**

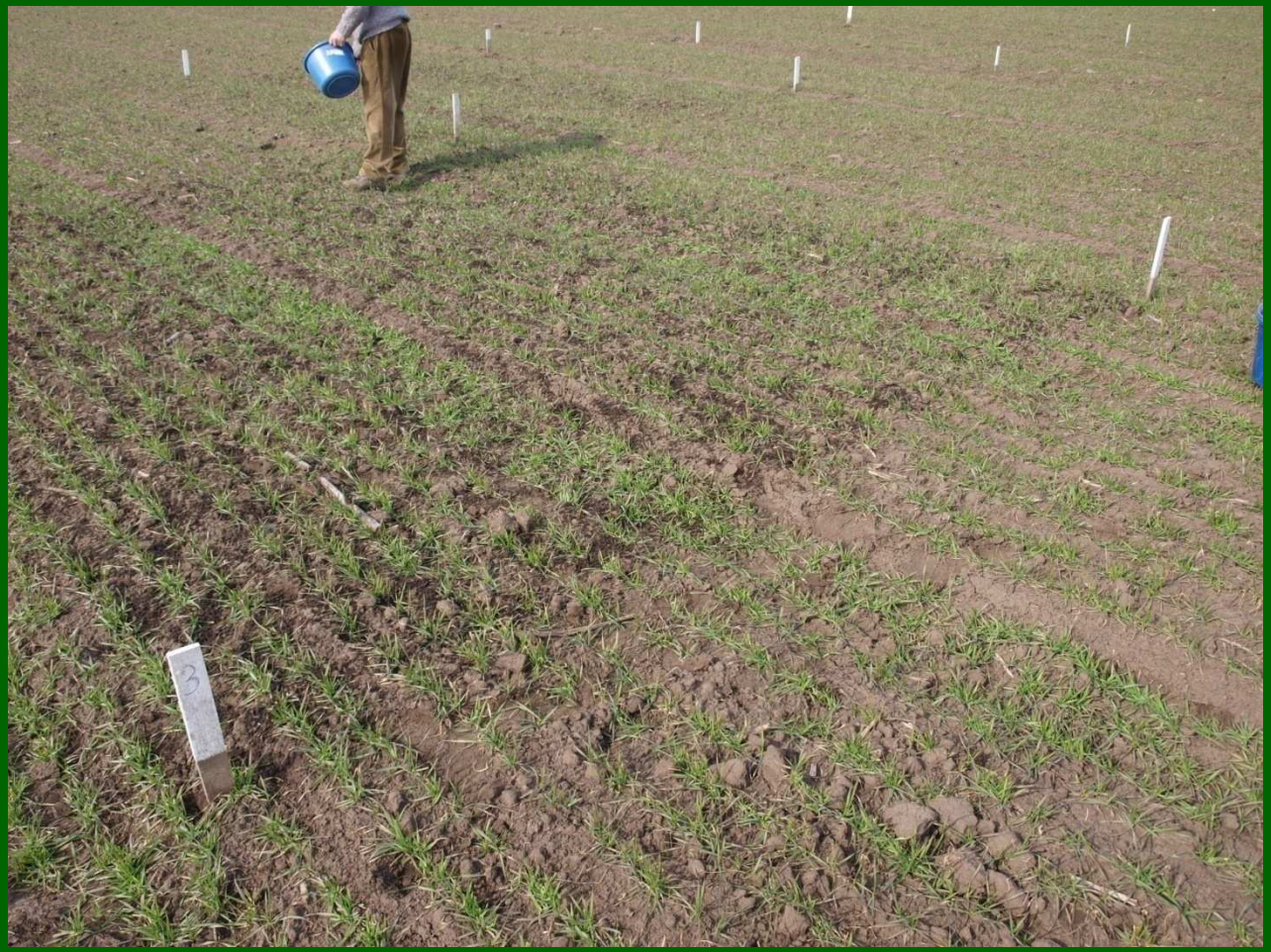
The field-scale top-dressing experiment was carried out in 2010.



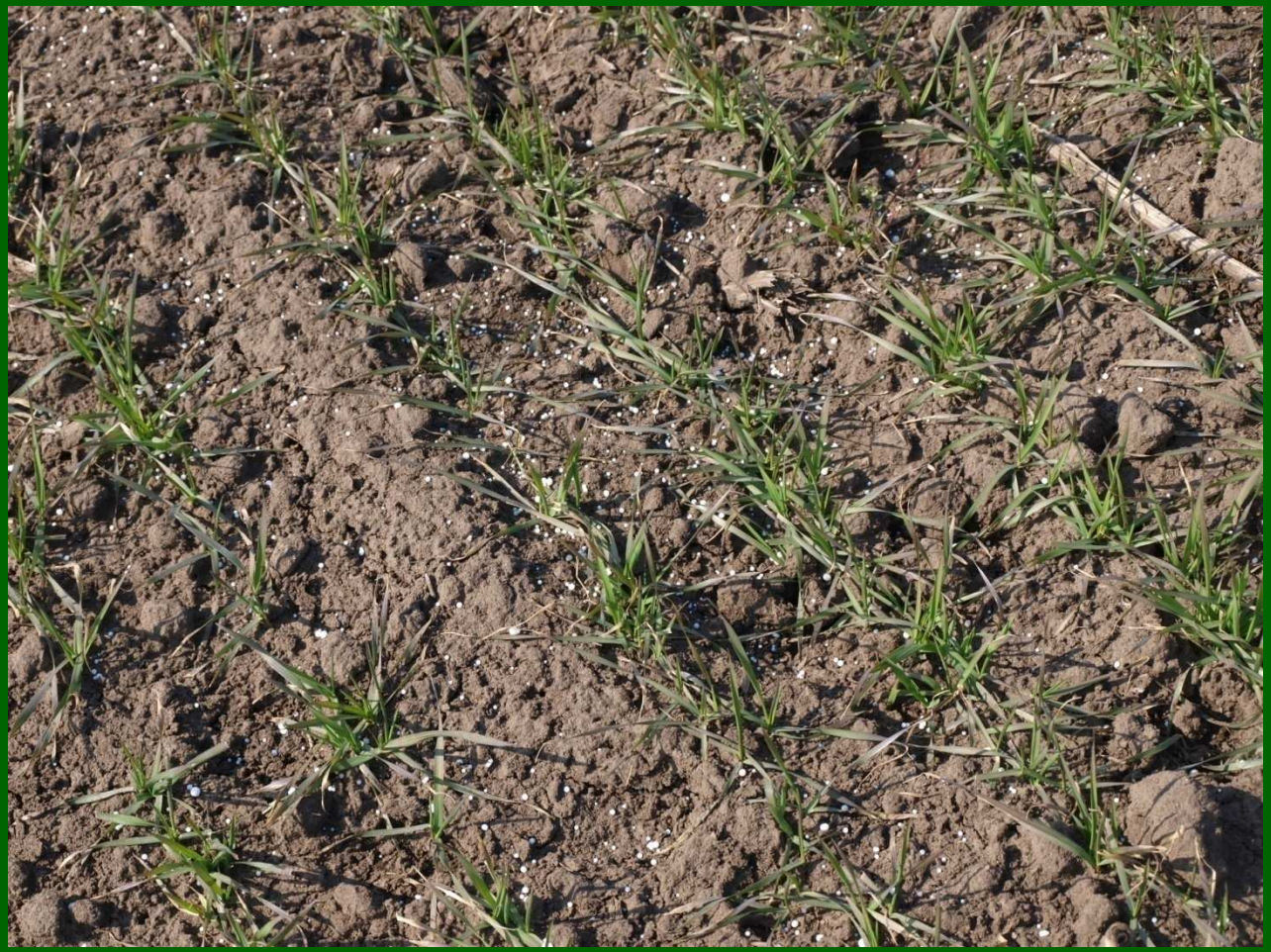
Test plants

D-compost product (2010)

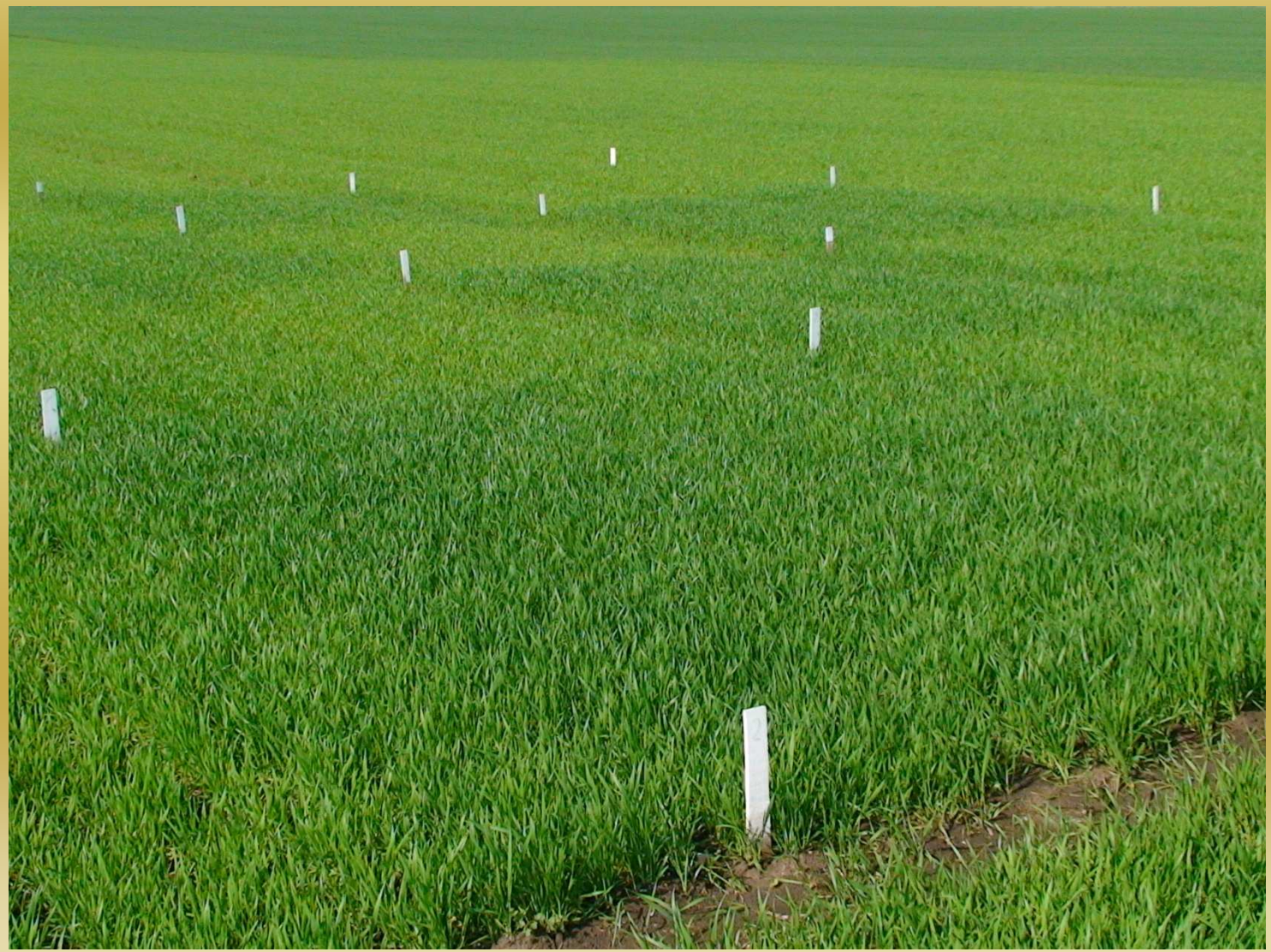
Top-dressing using D-compost



Top-dressing with D-compost + ammonium nitrate fertilizer



The Micro-plot Experiment, 2010

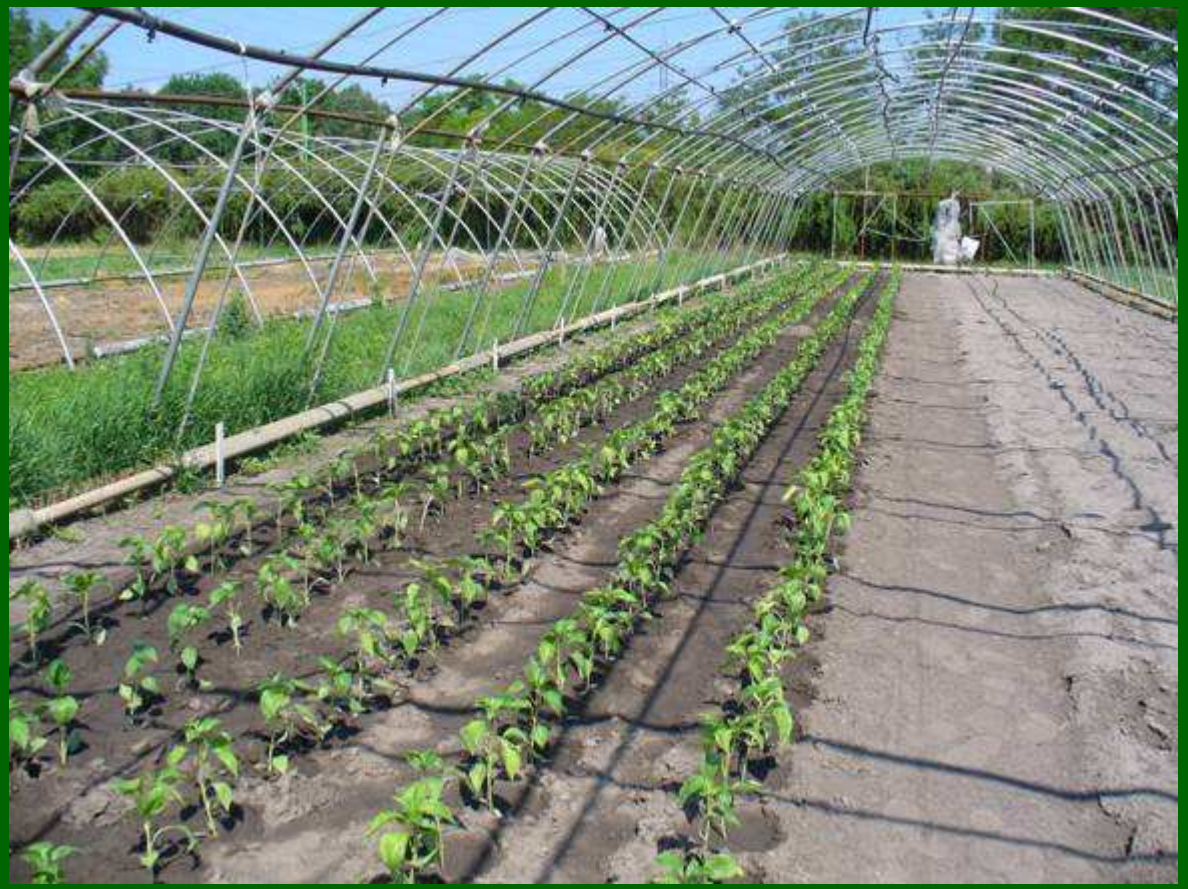


Soil manuring with B-compost originated from digested manure, molasses based vinasse, wood ash

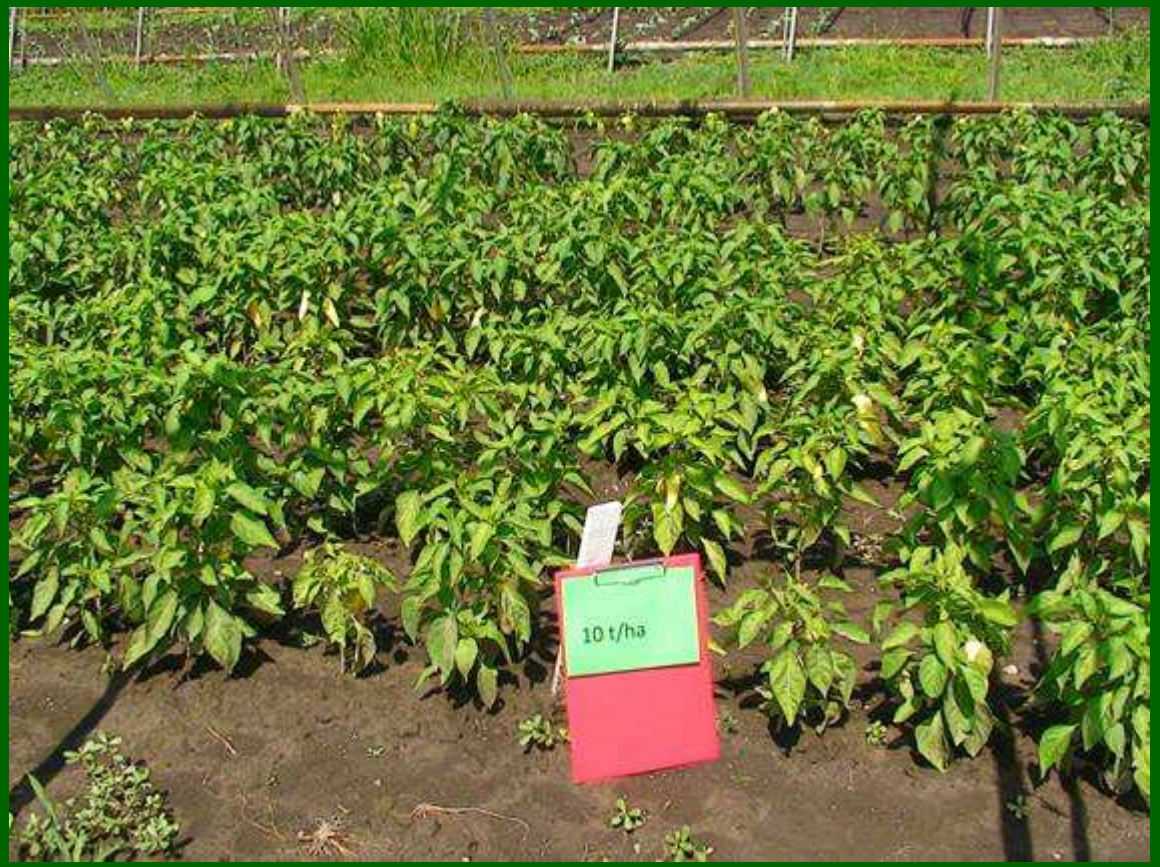
Test plant: green pepper (Capsicum annuum sp.)

2009

Four treatments in micro-plot system (in year 2009)



Compost treatment (10 t /ha)



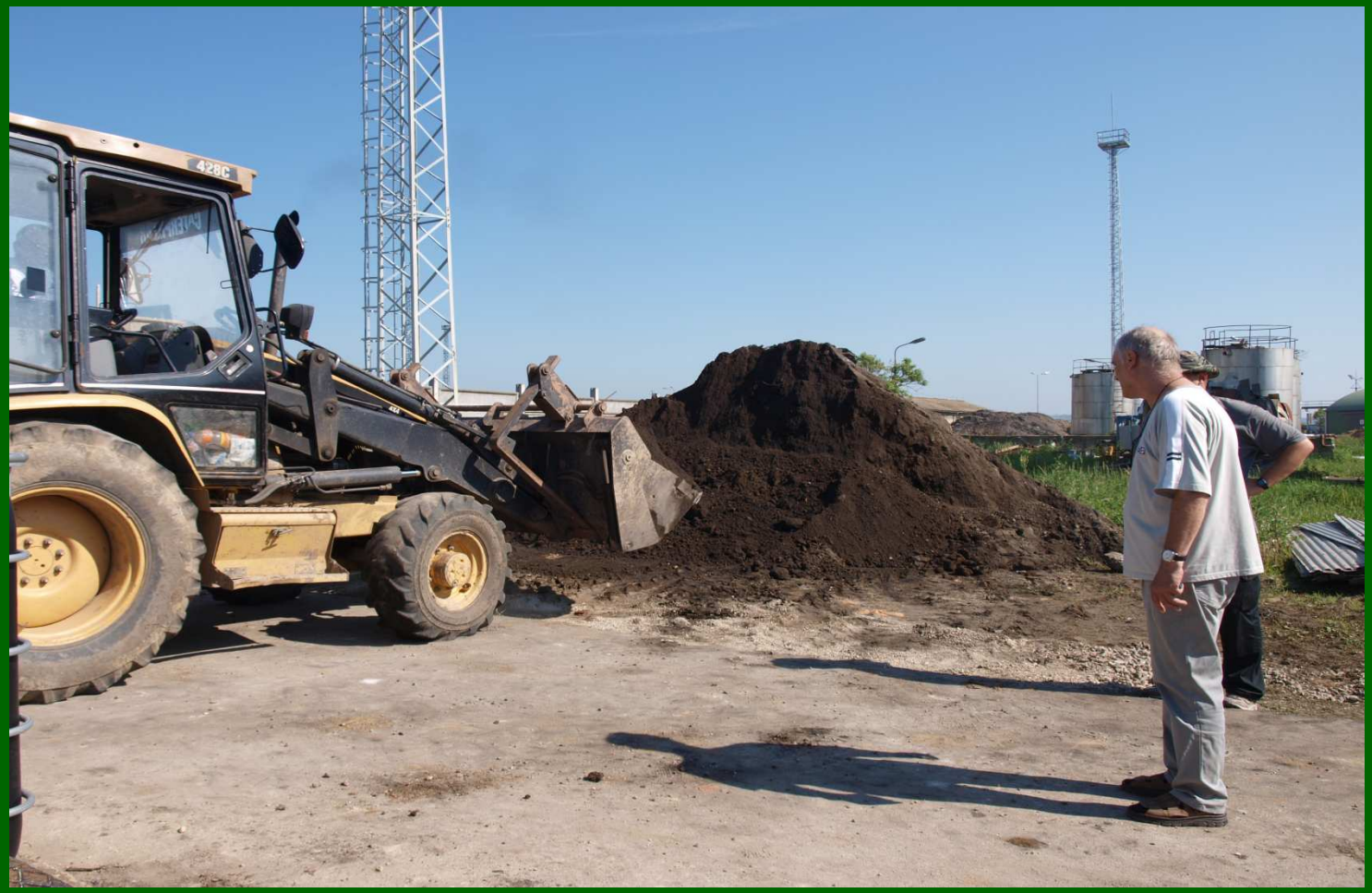
Green pepper production of compost treatment (10 t/ha)

Controlled bioremediation of hydrocarbon contaminated soil

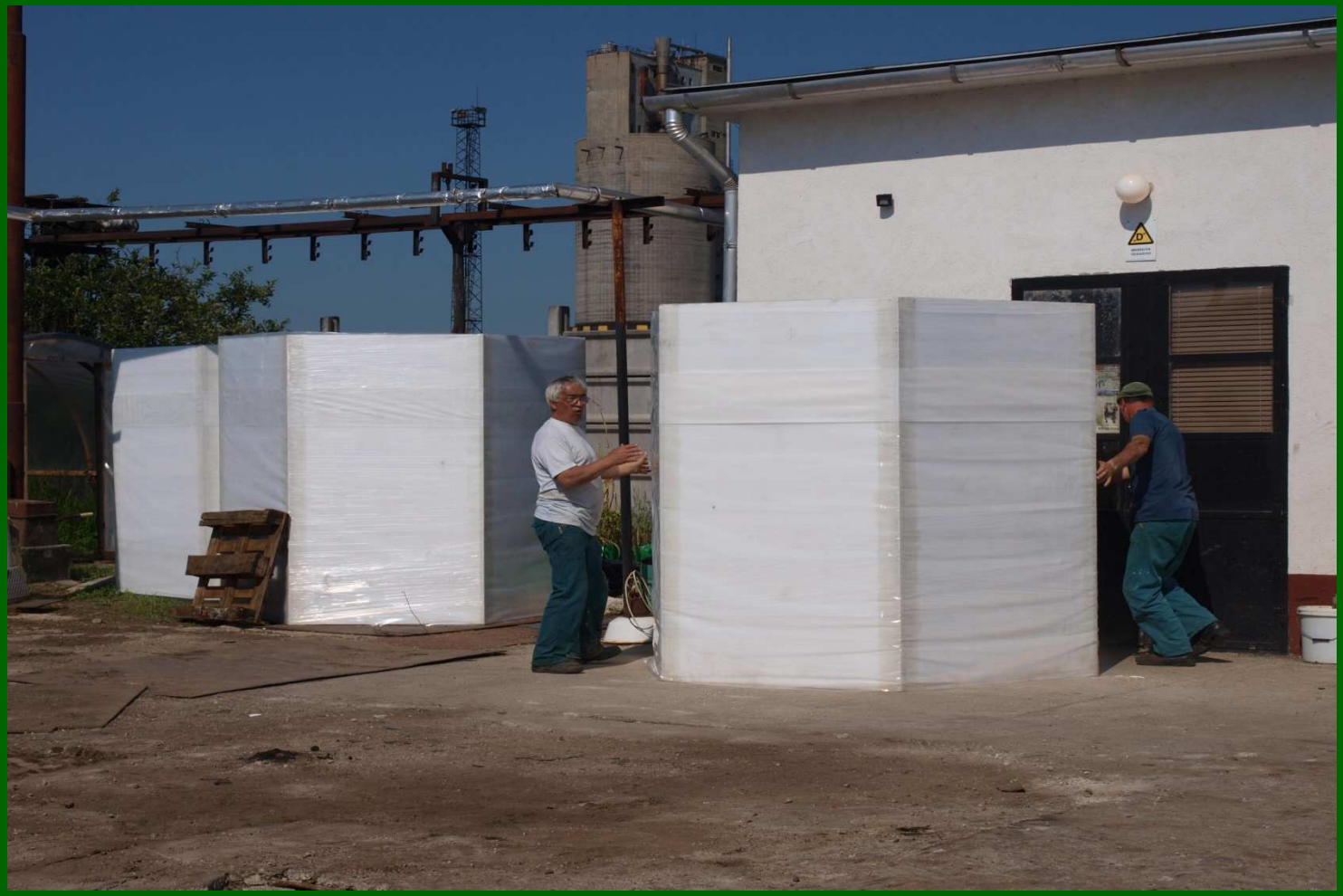
Combined use of D-compost and mircobiogical additives

2010

Pre-treatment and homogenization of hydrocarbon contaminated soil



The „Roaming-Cell” System



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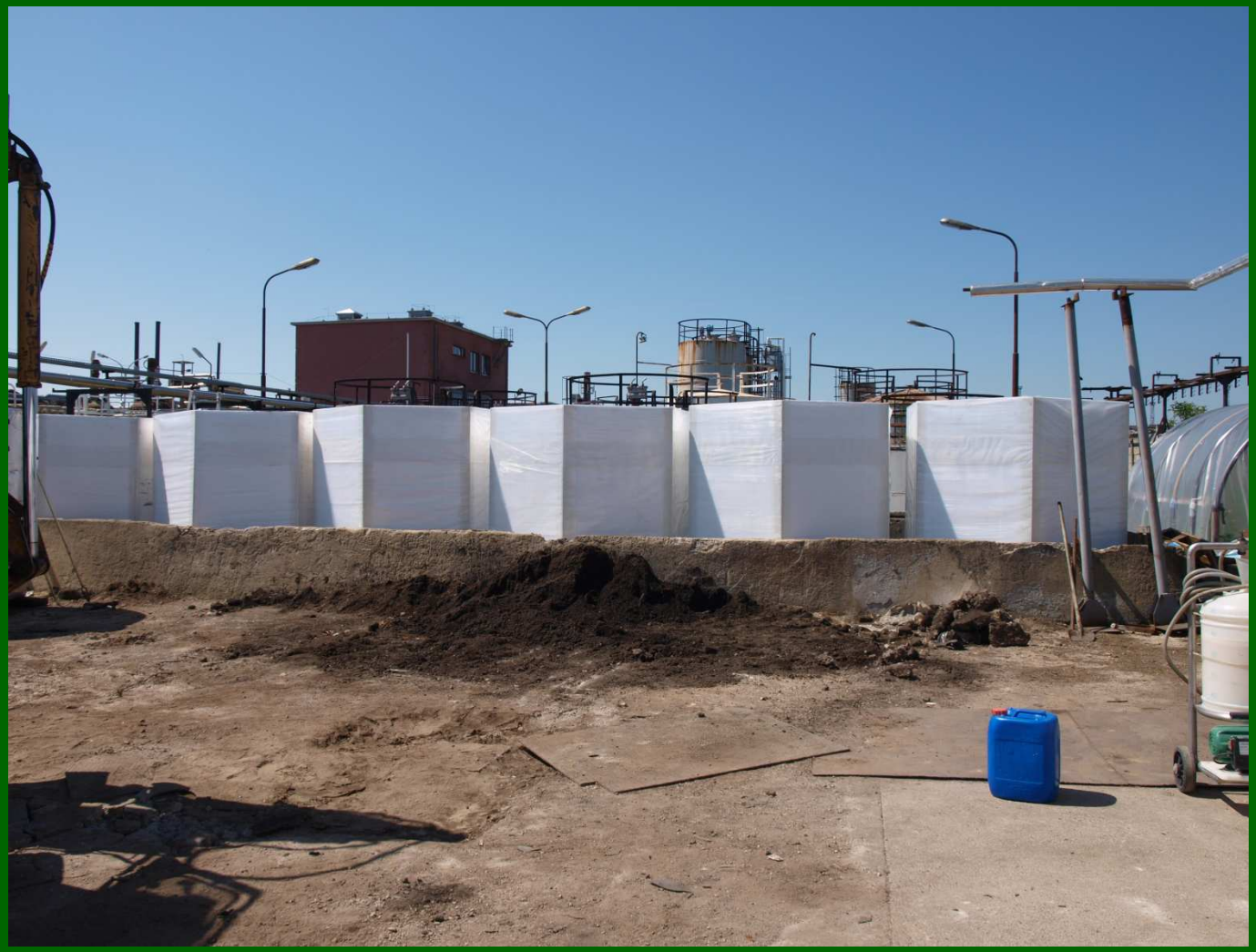
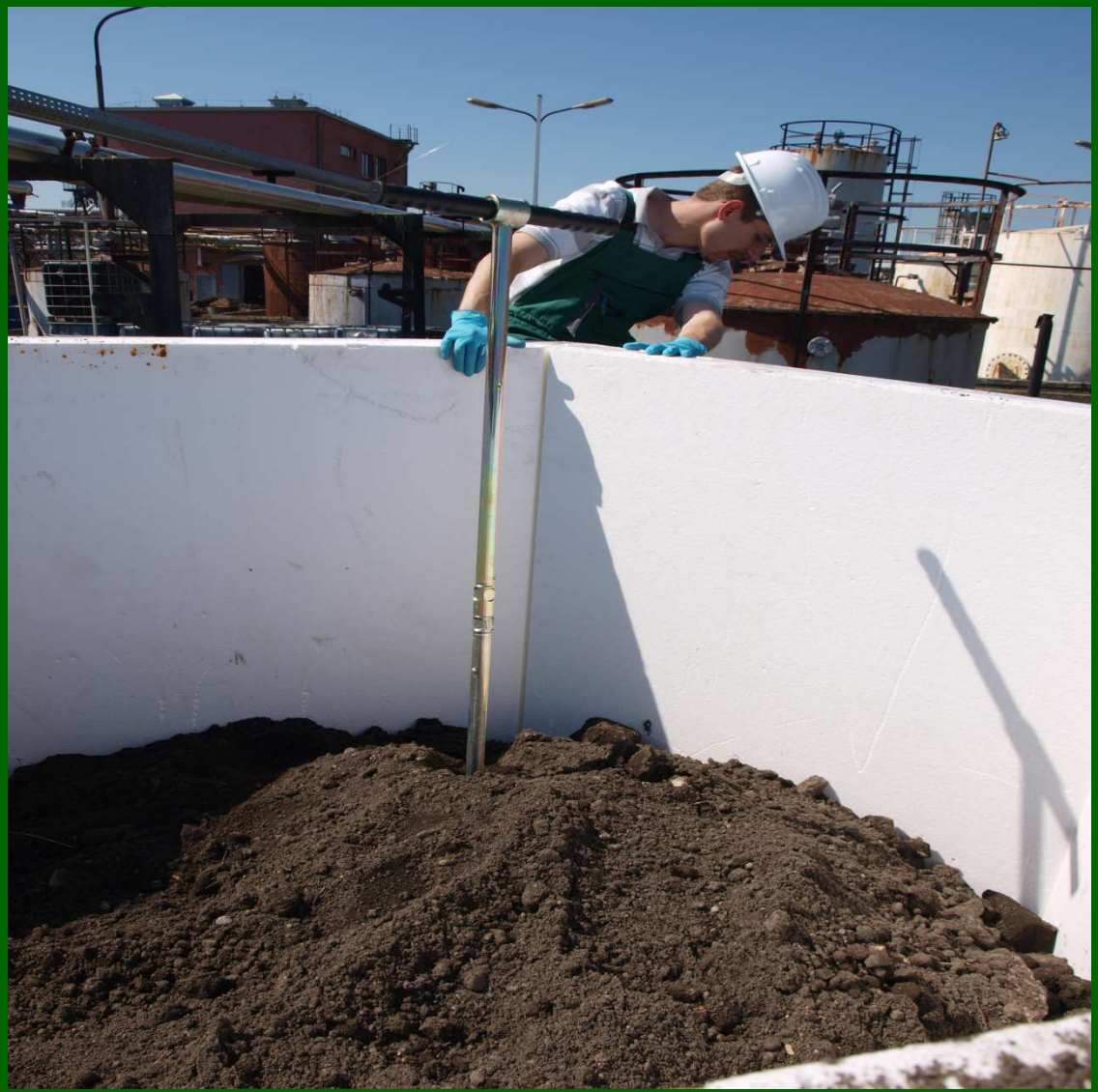


The „Roaming-Cell” System – Sample taking



Patents & Products

Procedure for the controlled treatment of municipal sewage sludge, 2010

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P1000437

Marketed products

- **MICROCOMP-GEOCELL** microbial product for intensification of the composting process,
- **GEOPETROL, PETROHUM, SAFEREMED** microbiological additives for the controlled bioremediation of hydrocarbon contaminated soils.

Thank you for your attention!