



Cattle Farming, Tilling and Plant Production Technology Research with Biochar, Effective Microorganisms and Minerals

Project Developer:	Green Living Matrix
Location:	Hungary
Timeframe:	2014-15
Budget:	EUR 2 000 000

SUMMARY

This Hungary based project targets the development and usage of a revolutionary agricultural technology based on the combination of

biochar + effective microorganism (EM) + minerals.

The research includes various fields of the agriculture attempting to to be developed in closed eco-cycle:

- ✓ large-scale cattle farming (+1000),
- ✓ small scale cattle farming (-500)
- ✓ organic manure treatment, composting
- ✓ animal forage
- ✓ large-scale land farming, tilling
- ✓ horticulture (fruits, vegetables).

The ultimate target is to develop a biologically sustainable, 100% natural production methodology. The Project Formula significantly **reduces the harmful GHG emission** and significantly **increases the related products' quality** both in the cattle farming (**meat and milk**) as well as the **cereal crops**, and horticulture products (**vegetables and fruits**). The **fertility of the soil** significantly increases, thus reducing or eliminating the need of artificial fertilizers. The emission reduction will be measurable and **standardized**, thus facilitating the **trade the reduction** on the CO2 quota market. The project largely contributes to the **international know how transfer**. The Project is supported by the Hungarian Government.

MEMBERS OF THE PILOT PROJECT

Although, the developer of the project, Green Living Matrix, as well as members of the project consortium are 100 % Hungarian based entities, the Project involves the respectful cooperation of international strategic partners.

MEMBERS OF PROJECT CONSORTIUM

Fino-Food Holding

Consortium Leader. Hungarian large scale cattle breeder and diary producer. The site of Fino-Food Holding is the central location of the Project on 4000 ha land and 2600 cattles. Both large and small scale cattle researches, manure treatment and composting researches will be executed in this site.

Representative: Mr. EGYED László





University of Corvinus, Department of Soil Science and Water Management

Member of Consortium. This Hungarian University executes the soil researches, measurements, evaluation of the Project. The results shall be of evidential proof and documented being acceptable on the market;

Responsible: Prof. Dr. BÍRÓ Borbála



Carbon Management Hungary Ltd.

Member of Consortium. This company obtains substantial experience and know how in standardized, marketable CO2 reduction methodologies. Results of the Project will be measured and standardized CO2, methane and N2O emission reduction methodologies will be set up

Representative: Dr. FOGARASSY Csaba



STRATEGIC PARTNERS

Iwamoto Inc.

Japanese developer and manufacturer of Super Stone Clean 530 pyrolysis reactor series biochar producing technology. This is the latest and highest standard biochar machine on the world. Iwamoto Inc. also provides minerals and production know how for Iwamoto Mineral Biochar, a series of highly effective targeted biochar blends. GLM has chosen Iwamoto as a strategic partner also because of the ideas of Iwamoto Inc on sustainable closed eco-cycle systems.

Representative: Mr. Tetsuomi IWAMOTO, President

Organic Standard

Swiss market leader of biochar researches in Switzerland. This company highly contributes to the international know how transfer.



Representative: Mr. Thomas RIPPEL, Founder

Soil Foodweb Inc

Dr. Elaine Ingham is an american soil biology researcher and founder of Soil Foodweb Inc. She is known as a leader in soil microbiology and research of the soil food web. In 2011, Ingham was named as The Rodale Institute's chief scientist. We work with this company on the various composting methodologies.

Representative: Dr. Elaine Ingham, Founder

Various farms

Napholdas Nonprofit Plc., Homokkert Plc., MacrO-TQI Plc. These companies represent the locations of the on farm horticultural and composting researches. These farms include organic lands in Fülöpjakab and the the Study Farm of the Szent István University of Gödöllő

PROJECT MANAGER

Green Living Matrix

The project manager and developer of the Project. GLM was based in 2011 and acts as an agricultural project incubator. We look for the best expertise, practices and know how around the world and combine those to reach 100 % healthy agricultural eco-cycle.

Representative: Mr. PETRÓ Tibor



BACKGROUND & FACTS

We can all experience serious problems in the overall agro-production chain:

Due to the lack of fresh organic matters and manure supply the hummus content of the arable lands have significantly degraded;

The land supply with fertilizers is not sufficient and does not bring in sufficient soil conditioners. The microbial life of the soil has almost diminished;

The infirm plants are kept alive on worsening quality „dead” soil with plant-health products;

Cereals are low in nutrition and micro-nutrient and can only be given to the animals after high heat treatment of 140 Celsius;

Farm animals are fed with antibiotics and drugs because their environment is surrounded with pathogen bacteria. Manure is handled with improper microbial life, which can only be treated as waste;

Due to these facts, manure is not suitable for soil condition supply and the processes are unsustainable without the exterior resources.

Because of the unhealthy sub-processes of the agro-production system, there is no healthy and sustainable biological life and circulation!

TERMS

Biochar Name for charcoal when it is used for particular purposes, especially as a soil amendment. Like all charcoal, biochar is created by pyrolysis of biomass. It is a substantial matter binding, absorbent and filtering features.



Effective microorganism (EM) Any of the predominantly anaerobic organisms blended in commercial agricultural amendments, medicines, and nutritional supplements based on the trademarked product originally marketed as EM-I Microbial Inoculant, aka Effective Microorganisms and EM Technology.

Minerals There are 4900 classified types in rocks, ores and gems. They are vital to keep up the healthy and balanced growth of all natural organism.

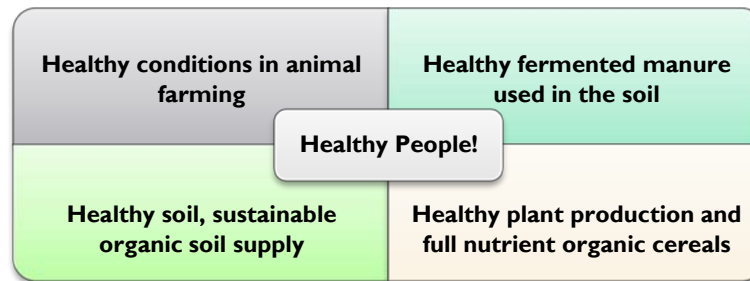


Compost Organic matter that has been decomposed and recycled as a fertilizer and soil amendment. Compost is a key ingredient in organic farming. The Project attempts to collect the international know how and upgrade results by using Alginit, Humic Acid, Pumicit and EM. Aerob and anaerob compost will be classified.

Formula The end product, know how of the research. Recipes will be determined for animal feeding, manure treatment and soil fertilization.

TARGET

With the systematic and programmed usage of biochar, EM, minerals and composts, we want to achieve:



SCOPE of PROJECT

A 4000-cattle farm and 4000 ha land of Fino-Food Holding is the prime location of the project. The on farm horticultural tests will be executed in a countryside land of Fülöpjakab and the Study Farm of the Szent István University of Gödöllő.



Major part of Project is the acquaintance of the Iwamoto Inc. Super Stone Clean 530 pyrolysis reactor series producing biochar. It is very important to produce clean organic coal that results the highest technological, ecological, economical and social achievements.

1) *Research of biologically sustainable microbiological processes of the cattle farm eco-cycle: animal health, zoology, forgery and manure treatment.*

The Formula is spread around the animals and added to the feedstock. The Formula binds the methane and N₂O content of the manure, thus releasing smell and its emission to the air. It supplants pathogenic bacteria enabling space for the life supporting bacteria. Target is to 1) reduce or eliminate drugs on animals, 2) increase weight and quality of milk and meat 3) decrease urine content of the milk.

2) *Manure treatment for composting*

The formula is given to the manure in the composting that enables quick and high quality organic compost. After the fermentation period the manure can be spread in the soil soaking it with organic nutrients. We have researches on various international technologies. We will add Alginit, Dudalit, Humic Acid, Pumicit to increase the efficiency of the best compost treatments of the world.

3) *Efficiently increase the fertility of the soil*

The Formula activated compost improves fertility of the lands. Moreover, we also research the usage of the Formula directly on lands both for cereals and horticultural. We research the balance of the soil microbiological life and the fertility keep up ability of the land.

4) *Plant health researches*

We want to prove that the high quality hummus content soil treated with the Formula will produce high quality plants. We will examine the nutrient contents of the cereals. Target is to reduce or substitute artificial fertilizers and toxic pesticides.

5) *Developing protocols for GHG emission reduction with the Formula*

The technology will be suitable for measuring the CO₂, methane and N₂O reduction in a standardized manner resulting in tradable CO₂- **Agro Carbon quotas**. Our technology can be certified in various quota systems. This provides further economic return on the investments.



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