

# STUDIES ON THE CONVERSION FROM A CONVENTIONAL AGRICULTURE SYSTEM TO AN ECOLOGICAL AND BIODYNAMIC ONE, WITHIN THE FARM „TERRA NOSTRA ECOLAND FARMS“ BAILEȘTI, DOLJ - ROMANIA.

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## ABSTRACT

Traditional and natural agriculture has been practiced for centuries in Romania. However, in recent years, agriculture has taken a different approach due to the fact that substance and medium sized farmers no longer have access to markets. The inception of cheap and highly subsidized industrial food is a reason for this phenomenon.

On the other hand, most farmers have moved away from traditional and indigenous agriculture, gradually losing their livelihoods due to the mass emergence of high-cost pesticides, use of hybrids and other agricultural resources which are also responsible for the low level of employment in rural areas. Simultaneously, traditional and indigenous agriculture has been negatively affected as a result of monopolistic and industrial marketing, thus depriving farmers of their rights to their own seed resources for farming. For this reason, it is important to support subsistence farms and agricultural production that originates in the region and can be managed efficiently with the resources at their disposal. At the end of the conversion period, it was discovered that farms designed in this way produce healthy food, through the resulting soil fertility, increased plant vitality as well as proper and efficient animal attributes.

At the same time, such farms develop a cultural landscape capable of development and regeneration in the sense of nature conservation. Thus, such a model can be successfully practiced by all farmers in the Oltenia Romania region, but also in all the country and of course in other European countries.

## INTRODUCTION

Installation of a Biodynamic project in South of Romania: Terra Nostra Ecoland Farms Băilești, Dolj, founded in June 5, 2015 by Cristina Bühler, in Băilești, Dolj County in Romania, very close to Danube (cca. 12 km). The farm has approximately 60 ha.

Terra Nostra Ecoland Farms is a pioneer in Ecological farming within the south of Romania who took the initiative to promote Biodynamic farming according to EU standards.

Partner farms: In Romania, for feed and manure exchange Popa Nicusor & Popa Marius farms.

In Germany: Sonnenhof (Biodynamic preparation work), Ecoland Herbs & Spices and the Bäuerliche Erzeugergemeinschaft SHA, (Agricultural Farmers Association).

*Principles and Philosophy of Terra Nostra Ecoland Farms:*

- the principles and philosophy of Terra Nostra includes old traditional and seasonal agriculture and food systems complemented with Biodynamic agriculture, which are very similar systems, promoting biodiversity, economic solidarity, sustainable marketing, solidarity educational biodynamic agriculture and food systems as well as social responsibility.

- preservation of the indigenous cultural character of agriculture and the production of autochthon seeds.
- creating economic value through the production of seasonal healthy food and high quality agricultural products for the purpose of nourishing the body, soul and spirit.
- supporting the responsibility of humanity and taking responsibility for the holistic development of the earth (ecology).
- cosmic and spiritual influences, which are reflected on the material and spiritual world, allowing mankind to deal with cosmic, earthly and substance forces.

*Biodynamic agriculture. Rudolf Steiner founded biodynamic agriculture in 1924.*

Demeter is a German association of organic and biodynamic agriculture, and registered in 1932 in Munich, Germany, for biodynamic products, based on the concept of organic farming and the anthroposophical background of Rudolf Steiner (Demeter, 2013, Steiner, & Adams, 2004).

According to Demeter International's statute, the full membership of an organization requires prior environmental certification in the EU.

The vision of biodynamic agriculture: traditional agricultural activities to preserve the cultural character of agriculture; supporting the responsibility of humanity, for taking responsibility for the holistic development of the earth (ecology); creating economic value through the production of healthy food and high quality agricultural products

for the purpose of nourishing the body, soul and spirit; human solidarity and social value, by supporting people to live together and work in dignity together, with mutual respect and tolerance; cosmic and spiritual influences, which are reflected on the material and spiritual world, allowing mankind to deal consciously with cosmic, earthly and substance forces (Wistinghausen, and all., 2003)..

## MATERIAL AND METHODS

Biodynamic preparations are classified according to their distinct applications: field spraying preparations: arable land and pastures; cow dung in cow horn (500) and silica in cow horn (501); compost preparations added to field manure & compost; prepared with compost: Yarrow 502, chamomile 503 (foto 1), stinging nettle 504, oak bark 505, dandelion 506, valerian 507; Treatment preparations: horsetail 508, valerian 507; Basic elements of biodynamic preparations: cow dung (Hornmist) (foto 2); silicon in cow horn (Hornkiesel); nourishes the soil and improves the plant-environment interactions

Producing Horn manure preparations: substance: fresh, well-formed manure from cows that have grazed or been fed alfalfa, hay and feeding straw; filling material: cow horns (horns from bulls or oxen are not suitable).

Producing Horn silica preparations (foto 3) : substance: very fine crystalline quartz (silicon rock crystal); filling material: beautiful, flawless cow horns (horns from bulls or oxen are not suitable).



**Foto 1. Chamomile 503**



**Foto 2. Cow dung (Hornmist)**



**Foto 3. Silicon rock crystal in cow horn (Hornkiesel)**

Application of preparations: mix the spray preparations in the field, by rhythmic, dynamic stirring. (Manual stirring is recommended)

Application dose: horn mist: 1 horn / hectare is used, application in 5-10 liters /ha

Horn silica: 2.5g / hectare is used, application in 5-10 liters / ha (foto 4).



**Foto 4. Application of preparations: mix the spray preparations**

Other biodynamic preparations: preparations of the yarrow plant are placed in the bladder of a red deer (Schafgarbenpräparat, 502); the

preparation fixes nitrogen, carbon, sulfur and potassium; materials used: Yarrow flowers and the bladder of a red male deer (foto 5).



**Foto 5. Preparations of the yarrow plant**

Nettle preparations (Brennesselpräparat 504) Baldrianpreparation (507) (foto 6,7)

The preparation regulates the balance of iron and nitrogen processes in the soil.



Foto 6. Brennesselpräparat 504



Foto 7, Valerian preparation Baldrianpreparation (507)

Preparation of oak bark in cow skull (Eichenrindenpräparat (505)  
Oak bark (*Quercus robur*) contains a large amount of calcium that protects against fungal growth and an amount of tannin acid that can repel insects. The oak bark preparation promotes the



Foto 8. Preparation of oak bark in cow skull

potassium processes of the plant and guides the forming forces.  
Materials: oak bark and cow skull (foto 8).  
Dandelion preparation, *Taraxacum officinalis*, in cow dung (Löenziahnpräparat 506) (foto 9).



Foto 9. *Taraxacum officinalis*, in cow dung (Löenziahnpräparat 506)

Sensitizes the plants so that the plant can attract the nutrients and forces it needs.

The preparation promotes the correct ratio between the process of potassium and the process of silica in the soil.

Materials: dandelion and cow dung  
Collective preparations according to Maria Thun

The barrel preparation is made from cow dung, eggshells and basalt flour, as well as by adding the various BD compost preparations ( Adodoadji, 2017).

## RESULTS AND DISCUSSIONS

*Effect of cow dung (Horn manure) and horn silica after 1-2 applications per year*

Horn manure: provides the soil with vital forces, which in particular promotes root growth and activates soil life.

Horn silica: promotes metabolism; strengthens growth and ensures uniform plant maturity and quality ; strengthens the formation of flavor and also improves the plants durability in storage.

Results from the study showed improved yields in alfalfa grass, resource use as well as improved soil characteristics. For this reason, it is important to support subsistence farms and agricultural production, that originates in the region and can be managed efficiently with the resources at their disposal. Generally since the admission of Romania into the European Union about 13 years ago, in 2007, small farmers have had less and less access to

markets not forgetting the level of bureaucracy and formalities that smallholder farmers have had to go through.

In order to promote this initiative, Terra Nostra Ecoland Farms SRL, from Băilești, took over the process of converting from conventional agriculture to organic and then to biodynamic agricultural farming methods, in order to achieve this purpose.

The Biodynamic conversion period: main crops

Lucerne (*Alfalfa grass*) - *Medicago sativa* and Alfalfa seeds and traditional grapes (Zaiber) are the main crops grown at the moment (foto 10).

Other crops such as traditional orchards trees (Sour cherries, apples, apricots, apple pear, mulberry, quince, plum, walnuts, linden and others) and traditional herbs such as peppermint, chamomile, kitchen herbs and rose plants, different flower plants and some garden vegetables.



**Foto 10. BD Preparations cycle: Mixing, transport & spraying of BD preparations on Terra Nostra farms**

## CONCLUSIONS

1. Farms designed in this way produce healthy food (the demand for Demeter products on the international

market, Germany, Switzerland, Austria is very high)

2. At the same time, such farms develop a cultural landscape capable of development and regeneration in the sense of nature conservation.

3. The geographical conditions and the very fertile soil, like chernozem, favors ecological land biodynamic agriculture in the south of Romania, but also all over the country.

4. At the end of the conversion period, it was discovered that farms designed in this way produce healthy food, through the resulting soil fertility, increased plant vitality as well as proper and efficient animal attributes.

5. Thus, such a model can be successfully practised by all farmers in the Oltenia Romania region.

6. Establishment of an NGO for Biodynamic agriculture in Romania, together with other farmers from all Romanian regions with the following objectives:

- Promotion Biodynamic agriculture in Romania.

- Solidarity biodynamic activities, such as preparation making, conversion support and assistance, consulting and exchange of experiences both national and international.

- Support for sustainable marketing and sales.

- Basic transparency in the biodynamic agricultural work in Romania, transparency and trust for the certification process and also for the market, sales and customers.

- Human solidarity and social value, by supporting people to live together and work with dignity and mutual respect, as well as tolerance.

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