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ISSUE: 135 SPRING 2021

Journal of the Biodynamic Association

ISSN No: 1472-4634





The Biodynamic Federation

ONE YEAR ON

ALYSOUN BOLGER

The Biodynamic Federation Demeter International was founded one year ago at the International Biodynamic Conference at the Goetheanum. So much has changed both in the biodynamic and the wider world that it is really valuable to take a moment to breathe and reflect.

I am sure you have read (and seen the map) that this worldwide movement is now connected in the Federation. Diversity, so valuable on a biodynamic farm, is now at the heart of everything that we do. Diversity is a challenge but it is also a blessing, and it strengthens biodynamic work around the world.

We have new committees, new projects and new employees. There is so much that has been begun and there is always so much to do. So, there are projects looking at animals on farms, their role in agriculture and practical ways to diversify enterprises on farms. We are working on social aspects of farming, in the understanding that a healthy social life on the farm is part of a healthy farm organism. We are trying to take this even further with exploring how associative economics can play a more visible role within biodynamics. All three of these are projects that bridge multiple areas of work.

At the same time, there are new committees that are working in specific areas. The Advisory,

Research and Training Committee are continuing to work with the Section for Agriculture at the Goetheanum to support the development of training all over the world. The Lobby and Public Relations Committee is developing position papers and strategies which can be applied locally in any member country. The Trademark Committee continues to look at how Demeter and biodynamic can be protected and used honestly in member countries. Having had a year of intense development we are now refocusing on the future. As a new organisation we have a vision, mission and principles, but we know we have

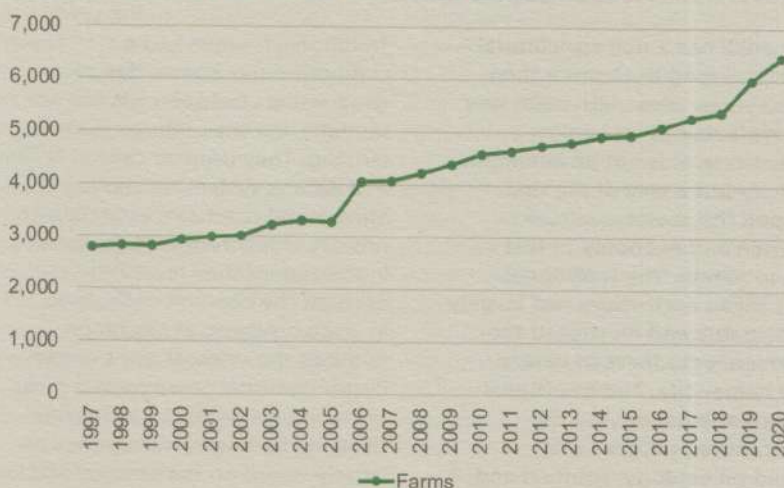
the opportunity to call on more diversity to inform the work that we do, so we are developing strategies for each area of work in consultation with committees and members, so that we can ensure that the federation is really working in service of biodynamics worldwide.

Meanwhile biodynamics worldwide continues to grow.

To find out more about BFDI see: <https://www.demeter.net/demeter-international>

Alysoun Bolger is a member of the BFDI Executive Board

Demeter certified farms worldwide



From 2000 onwards the initiatives certified by Demeter-International nearly doubled – from about 2,900 members to 6,429 members in 2020

Horn and Manure

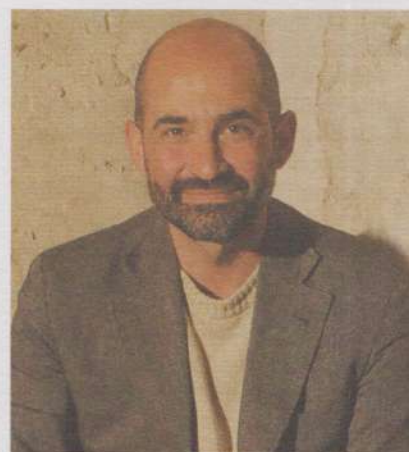
BY MARK MOODIE

Biodynamics is rarely a comfortable bedfellow for mainstream academia which shares so few basic assumptions. Either biodynamics has to assume the outlook of the mainstream or the parties overlap in the almost neutral territory of statistics. A recent Italian paper - *"Metabarcoding analysis of the bacterial and fungal communities during the maturation of Preparation 500, used in biodynamic Agriculture, suggests a rational link between horn and manure"* - has recently entered these choppy waters.

The authors - a coalition of BD practitioners, microbiologists, medics and technicians - used genetic analysis of bacteria and fungi to profile the transformation of cow manure into horn manure - 500. Homogenised assays of the transforming material were taken from the fresh manure and then from exhumed horns after 40 days and 85 days. After 150 days analysis

differentiated between the 500 near the horn sheath and 500 in the core of the horn. A similar analysis was made of the soil around the horns.

A large *'Materials and Methods'* section of the paper concerns the protocols and norms of genetic and statistical analysis, attesting to its academic rigour, before some results are delineated. There is a steady increase of bacterial types through the process whilst fungal variety reduces early in the process to recover as the 500 matures. The most significant aspect for the authors is that the fungal class knows as *Eurotiomycetes*, a member of the Onygenales order, is in a majority in the fresh manure and in the early stages of transformation. These degrade keratin which is also part of the epithelial cells of the GI tract and is especially abundant in the rumen. This is of great interest as Michele Lorenzetti one of the authors explains. *"The aspect that we*



Michele-Lorenzetti

Michele now has a 3 Ha vineyard in Tuscany and puts down around 60,000 horns of 500 every year at Carlo's farm for the biodynamic association.

find worth remarking is that in the horn manure practice the scats [the manure] are placed within the fallen horn. This operation joins a surface made of 100% keratin to a material which has been enriched with a specific keratin-degrading fungus throughout the whole intestine."

Michele Lorenzetti has been involved with biodynamics since the turn of the century. He was trained as a biologist but was not content with the approach of killing soils to try and promote life. He met Carlo Noro, a biodynamic practitioner and another co-author of the paper and they have collaborated ever since. (Andrea Squartini and Matteo Giannattasio are the other prime movers of this scientific committee of Professione Biodinamica & University of Padua). Michele now has a 3 Ha vineyard in Tuscany and puts down around 60,000 horns of 500 every year at Carlo's farm for the biodynamic association. He is quite particular in his method. After the hot Tuscan summers, the pastures come back to life with the autumn rains. The cows can scour with the flush of herbs but after a week or so the gut adjusts, the muck firms up, and that is the time for making 500. Given the unpredictability of having



all these aspects in order the horns didn't get made and interred until December one year.

Michele finds the link of the keratin degrading fungus and the choice of the horn almost incredible. That Dr Steiner intuited this is astounding but it also helps us form a link to our academic colleagues. Whilst 500 can be understood from many perspectives we can follow this cascade of microbiological populations as the transformation to 500 progresses. The manure becomes stable and the proteins degrade to peptides. *"We find that 100g in 40 litres of water sprayed over a hectare of land is enough to seed damaged soils as a biocatalyst of microorganisms and these peptides at concentrations of between 10^{-9} and 10^{-12} . This biostimulant can bring soils back to life in the concentrations that nature*

uses herself." He calls his 500 a pre-biotic and a probiotic which itself is not compost but which organises the organic matter in the soil."

The manure in the horn does not develop this same bacteriological and fungal populations if the horn is not put in the ground, nor if the horn is wrapped in plastic, or if a plastic cone is used. The crucial aspects appear to be the presence of the keratin horn and some access to micro-aerobic conditions via the aperture of the horn. This assists the drop in pH from 7.8 to 5.6 and a moisture drop from 85% to 72% over the winter months.

The paper concludes that there are 'some possible catalytic connections between the main representatives of the manure fungal community and the horns' composition.' However, this does not 'confer any academic seal of

endorsement or approval of the biodynamic method'. Michele is aware of the restrained conclusion that academia requires, but still considers this research a BD revolution. However, he is aware that what really brings people to biodynamic agriculture is to see practical results in the field.

This is a rational link to the mainstream but one cannot simply use this to do the same for horn silica for instance. Michele recognises this but hopes this paper is the first stage of three. He and his colleagues are already trying to find similar connections for the compost preparations and even for 501.

Mark Moodie is a biodynamic researcher living in the Forest of Dean, Gloucestershire.

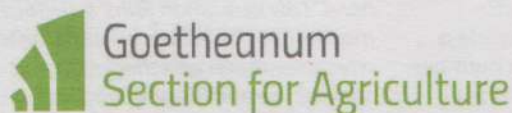
To read about his work visit:
<https://www.considera.org/>

The full paper:

Zanardo, M.; Giannattasio, M.; Sablok, G.; Pindo, M.; Porta, N.L.; Lorenzetti, M.; Noro, C.; Stevanato, P.; Concheri, G.; Squartini, A. Metabarcoding Analysis of the Bacterial and Fungal Communities during the Maturation of Preparation 500, Used in Biodynamic Agriculture, Suggests a Rational Link between Horn and Manure.

Preprints 2020, 2020080727 (doi: 10.20944/preprints202008.0727.v1), is available to download at <https://www.preprints.org/manuscript/202008.0727/v1>

To read more: <https://www.professionebiodinamica.org/> (In Italian - then set to Google Translate)



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