

Understanding and practical work with the biodynamic preparations, a view on history and present situation

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Introduction

In 1924, from June 7 to 16, Rudolf Steiner gave the Agricultural Course lectures. This course, one of the last of his lecturing career, had been repeatedly requested over the past two years by various people.

The reasons behind these insistent requests are twofold. On the one hand, there are the problems faced by an agriculture that is beginning to specialize and use new forms of fertilization. These changes are rapidly followed by observations of loss of fertility and increased soil compaction, crop and livestock diseases, reduced germination capacity of seeds, and lower food quality of agricultural produce. On the other hand, individuals nourished by anthroposophy and Steiner's understanding of the world are seeking to give their agricultural activity the depth of this insight and to connect with its background. The letter written by Immanuel Voegelé to Rudolf Steiner on January 24, 1924 bears witness to this.

Dear Herr Dr Steiner,

Please forgive me dear Herr Dr if, after all our previously dashed hopes – focused on receiving guidance about agriculture from you – I once again turn to you with the same plea. As long as the possibility still exists of an agriculture course according to spiritual scientific principles, it seems to me that I ought not to cease trying.

This is because I believe that fulfilment of my hope will enable me to engage in my profession as a whole human being in a way that accords with the spirit and with reality.

The more that spiritual science enables me to become aware of the interconnections between all existence and of things which the physical senses cannot tell us anything about, the more I feel modern agricultural procedures to be a transgression against nature that I should not participate in because I do not believe I can do so with full responsibility.

My anthroposophical outlook leads me to believe that the farmer's task and work involves creating conditions for the secret forces of nature active in mineral, plant and animal kingdoms which will enable these forces to work and unfold in ways which they otherwise cannot. At the same time, the produce resulting from such an approach is needed as agriculture's contribution to humanity's full and proper evolution.

A farmer who senses the existence of a certain inevitable relationship between human beings and the kingdoms of nature – the interaction and interpenetration of the forces of the earth, sun, stars, elementals and all other nature spirits – and who sees these interactions and interpenetrations sustaining mineral, plant, animal and human kingdoms, feels a host of questions assailing him at every turn in his daily work to which his current knowledge can supply no answers, and which therefore greatly trouble him as unresolved questions. He senses the fact of these forces and their interworking, yet knows nothing of the way they do so, nor of their essential nature. Since he does not have the guiding insights that can lead him to any goal, his work is plagued by wavering and uncertainty.

In relation to other farmers who perceive their path and objectives in clearly defined terms, he stands there with empty hands and, as yet, only a beautiful ideal.

The request I now take the liberty of putting to you, which accords with the wishes and longings of farmers who hope, similarly, for help and insight from spiritual science, is that you, dear Herr Dr, might help us move beyond our uncertainty, giving us a little illumination and showing us the direction in which a farmer ought to seek.

If it is already possible for spiritual science to offer guidelines to the farmer, with whose help he can undertake his work in accordance with the laws that obtain in the world, and should come to expression there, and if there are requirements which must be fulfilled before such communication can be given, then I beg you to inform me of this and, if possible, to agree to hold the agricultural course.

With profound esteem and regard,

Immanuel Voegele

Letter from Immanuel Voegele to Rudolf Steiner; January 24 1924¹

A – Historical background

1. - The beginnings

Contacted several times between 1922 and March 1924, Steiner finally gave a precise answer in April, announcing that the course would be held at the beginning of June. The Keyserlingk family prepared the reception, which was to be attended by 130 people at the Koberwitz estate from June 7 to 16, 1924.

Witnesses report that, when he arrived by train on June 6, Steiner was wearing a winter coat despite the summer conditions, and was clearly in a very poor state of health. His condition seemed to improve day by day during the conferences, despite an extremely busy schedule with no time for rest. Testimonials from course participants describe how Steiner seems to be getting younger and more energetic as the lectures progress.

On June 11, 1924, following the third conference, the Experimental Circle of Anthroposophic Farmers was created, marking the start of a research dynamic that continues to accompany the development of biodynamic agriculture today.

Following the Agricultural Course, there were many motivations for the implementation and experimentation of the indications given by Rudolf Steiner.

¹ Rudolf Steiner Archives – Dornach, in Selg Peter, Koberwitz, Pfingsten 1924

His death a few months later, on March 30, 1925, left the fledgling biodynamic movement without answers to the questions that might have arisen in its wake.

In the early years the focus was on the verification and concretisation of the indications Rudolf Steiner had given in his lectures (König, 1999²). Farmers, advisors and researchers all took on this task.

There are many subjects to explore: crop rotations, farm equipment, biodynamic preparations, plant teas, seed selection and breeding, animal breeding, farm organisation, the social and economic functioning of farms, composting, and so on.

Young people were actively involved in testing and developing the new method. These included brothers Erhard and Hellmut Bartsch, Immanuel Voegele, Franz Dreidax, Ehrenfried Pfeiffer and Almar von Wistinghausen. Other active members include Carl von Keyserlingk, veterinarian Joseph Werr, Lily and Eugen Kolisko, Ernst Stegemann, Ernst Jacoby, Max Karl Schwartz and many others.

The indications given by Steiner during the June 1924 lectures were kept confidential for the first few years, until they could be confirmed and refined through experimentation. It wasn't until 1938 that biodynamics became the subject of writings that were no longer intended solely for a restricted circle of people.

The "Anthroposophical Farmers' Experimental Circle" was first run by Carl von Keyserlingk, then by Ernst Stegemann.

The tool for disseminating information is the *Bulletin of the Anthroposophical Farmers' Research Circle*. Its distribution began in July 1926 under the direction of Erhard Bartsch.

Later named *News from the Anthroposophical Farmers' Research Circle*, the magazine became the monthly *Demeter* in January 1930.

Among the many topics covered, we will focus on the development of knowledge of biodynamic preparations.

2 König U.J., *La recherche sur les préparations biodynamiques* – classeur pédagogique, IBDF/MCBD 1999

Here is a list of writings in which we find descriptions of the making and/or application of preparations:

Wilhelm SPIESS: *Einblick in die pharmazeutische Technik, soweit diese für die Mitglieder des Versuchsringes zur Herstellung von Präparaten von Nutzen sein kann*, Lecture of January 8, 1926 – Meeting of anthroposophical farmers in Dornach. Appendix to the Rundbrief des landwirtschaftlichen Versuchsringes of March 4, **1926**

Almar von WISTINGHAUSEN: *Praktische Anleitung zur Anwendung der biologisch-dynamischen Wirtschaftsmethoden*, **1928**

Naturwissenschaftliche Sektion "Praktische Anleitung zur Anwendung der Düngungshilfsmittel", *GÄA-SOPHIA Band IV Landwirtschaft*, **1929**

Franz DREIDAX: Art. "Spritzmittel, Allgemeine Fragen der biologisch- dynamischen Düngungshilfsmittel, Düngerezusätze", *Interner Rundbrief des Versuchsringes*, **1930**

Hellmut BARTSCH: Art. "Zur praktischen Anleitung", *Demeter 5/8*, **1930-1931**

Ehrenfried PFEIFFER: *Practical Guide to the use of the Bio-dynamic Preparations, 1935 Using the biodynamic compost preparations and sprays in garden orchard and farm*, **1938**

Franz LIPPERT: Art. "Anleitung zur Herstellung und Verwendung der Heilpflanzen-zusätze in den Betrieben der natürlichen Landbauweise", **1941**, *Lebendige Erde*, 1967

Marna PEASE: *Instructions for the making of Preparations*, **1942³**

Eugen & Lily KOLISKO: *Agriculture of tomorrow*, **1947**

Immanuel VOEGELE: *Anleitung zur Herstellung der Dungerpräparate*, **1950**

Harald KABISCH: Art "Guide pratique de la méthode Bio-Dynamique en agriculture", *Revue Triades*, **1976**

Christian v. WISTINGHAUSEN and Wolfgang SCHEIBE: *Arbeitsheft Nr 1- Anleitung zur Herstellung der biologisch-dynamischen Präparate*, **1981, 1998, 2007**

C.v. WISTINGHAUSEN, W. SCHEIBE, H. HEILMANN: *Anleitung zur Anwendung der biologisch-dynamischen Präparate*, **1991** (later editions)

Alex PODOLINSKY: *Practical notes*, **1993** (and subsequent editions)

Pierre MASSON: *Guide pratique de la biodynamie*, **2003** (and subsequent editions)

Vincent MASSON: *Manuel pour l'élaboration et la mise en œuvre des préparations biodynamiques*, **2021**

The first preparations experiments were carried out by Gunther Wachsmuth and Ehrenfried Pfeiffer at the Goetheanum research laboratory founded in 1921.

³ Document mentioned by W. Stappung, but not found to date (July 2024).

Trials were also carried out in other places, in particular at Ernst Stegemann's (example cited by Walter Stappung: Letter from Ernst Stegemann to the Board of the Allgemeinen Anthroposophischen Gesellschaft Dornach. Marienstein, Nörten at Hannover 5.3.1924 "In *April 1923, he mentions burying cow horns filled with horse manure*. See also: Peter Selg" *The Agriculture Course, Rudolf Steiner and the beginnings of biodynamics*").

Among the earliest writings on biodynamic preparations is a transcript of a lecture given by pharmacist Wilhelm Spiess in 1926, in which he talks in particular about the quality of the water to be used.

In 1928, Almar von Wistinghausen wrote a few pages on the state of knowledge following the first years of trials. In it, he discusses the various preparations and composting. He concludes with the following words: "*The indications gathered here on the application of biodynamic fertilization methods can of course only be given on the basis of the experience of the first 4 years of experimentation, and these indications cannot therefore be considered as standards fixed for all times. They will have to be improved and perfected from year to year.*" This conclusion remains valid today, as a humble observation of past and future developments.

Other documents followed in 1929, 1930, 1931, 1935, 1938 and 1941. Then Kolisko in 1946, then Voegelé in 1950.

The elements found in these documents show an evolution towards ever greater precision, but all remain in the same line, following one another with coherence, for example on the subjects of the moist quality of preparations, the importance of the quality of the water to be used, its temperature, energetic stirring involving a limited volume, and so on.

Another topic that has been present in the literature over the years is that of *compound preparations*, which can be found as early as 1928 by Almar von Wistinghausen, then by Max Karl Schwarz in the 30s with the *birch pit preparation*, followed by Pfeiffer with the *compost starter* and *biodynamic field spray*, then Remer with the *Sammelpräparate*, then Maria Thun's barrel preparation, and finally Podolinsky with *prepared 500 (500P)*. All offer different ways of bringing compost preparations via a spray preparation.

2. - Some outstanding personalities

The following personalities have made important contributions to the work with preparations: Lily Kolisko, Ehrenfried Pfeiffer, Alex Podolinsky, Pierre Masson.

From 1924 onwards, at Rudolf Steiner's request, **Lily Kolisko** carried out "*all the necessary scientific investigations in connection with his Agricultural Course*".⁴ She relied on "*the shorthand notes I was entitled to make during this course, [...] and the innumerable personal suggestions I received from Rudolf Steiner*".

Lily Kolisko began her work at the Biologisches Institut am Goetheanum in Stuttgart (from 1920 to 1936), then at the Biological Institute in Bray, England.

Economic conditions and support for the Kolisko couple's work had already deteriorated after Rudolf Steiner's death. Their departure for England followed the memorandum of 1935, which provoked a schism in the Anthroposophical Society and further sidelined them.

In 1947, Lily Kolisko published in English the results of her research into agricultural indications, the Moon's influence on plant growth and the influence of "infinitesimal entities of substance". The book *Agriculture of Tomorrow* also presents the work of her husband Eugen Kolisko. The book was published in German in 1953 under the title *Die Landwirtschaft der Zukunft*.⁵

Through countless scientific experiments, the Koliskos demonstrate that what Rudolf Steiner drew from the spiritual world for agriculture is right.

Ehrenfried Pfeiffer, who was involved in the very first trials in Dornach, continues to work on the development of biodynamics. He is concerned with making biodynamic farming available as soon as possible over the largest possible surfaces, and offering quality food to as the masses.

Where Kolisko conducted experimental field and laboratory trials, he studied the application of the new method on an agricultural scale through his research, consultancy and work on various farms in Europe and, from 1940 onwards, in the United States of America.

⁴ Kolisko E. & L., *L'agriculture du futur*, Editions Biodynamie Services, 2017 - Foreword

⁵ This major work is out of print in German and English. Computerized versions in both languages are available on soilandhealth.org

It is available in Italian from Agribio Piemonte and in French (see previous note).

In 1935, he published the *Practical Guide to the use of the Bio-Dynamic Preparations*⁶, based on pioneers work and initially reserved for the inner circle of biodynamic practitioners, then in 1938 *Using the biodynamic compost preparations and sprays in garden orchard and farm as well as Soil fertility*, published almost immediately in five languages. With these books, biodynamics now had manuals that could be widely distributed and referenced. Pfeiffer worked to establish links between anthroposophical and classical science. He maintained relations with the world of agronomic science of his time. In post-World War II France, but also in the USA, his name was known in agronomic circles, and through him, biodynamics too. As Céline Pessis, historian of agronomy in France, reports, he was one of the key figures in the early years of organic farming in France.⁷ "*Biodynamics is something discussed in the most legitimate scientific spheres, [...] Pfeiffer is the figure of biodynamics at that time.*"⁸

Numerous lectures and articles were published, particularly in English, as well as the book *The earth's face* (1942 in German, 1947 in English and 1949 in French).

Few of his writings produced in the USA were translated into German or French. Entire areas of Pfeiffer's work remain unknown. Much criticised despite the richness and diversity of his work, he seems to have been sidelined by some anthroposophists. Among other reasons, his privileged relationship with Rudolf Steiner seems to have crystallised a great deal of jealousy.

From the 1950s onwards, **Alex Podolinsky** developed biodynamics in Australia on his farm and with a group of farmers.

Between 1952 and Ehrenfried Pfeiffer's death in 1961, the two men exchanged views on the making and application of biodynamic preparations. According to Podolinsky, "*Pfeiffer was commissioned by Steiner to refine the methods for making and applying biodynamic preparations*".⁹

The work carried out in Australia has led to major advances in the development of high-quality colloidal and transubstantiated preparations, as well as in their storage and rigorous application. The quality of stirring, and in particular the development of rhythmic machines and the limitation of volumes to allow sufficiently vigorous chaos, are decisive factors. Another important innovation is the prepared 500, a combination of the 500 preparation and the six

6 "*This book should not be regarded as the result of the author's personal inspiration alone. It contains the practical experience of the pioneers who experimented on the basis of the indications given by Rudolf Steiner, and therefore this valuable practical experience belongs to everyone.*" Preface to the 1938 reprint.

7 "*By the early 50s, [...] Pfeiffer and Bauer had gained a foothold in agronomic debates and were soon being discussed in chambers of agriculture as well as at the Académie and the Société des agriculteurs de France.*" In *Lessons from American agriculture? Motorization and concern for the soil under the IV^e République*, Céline Pessis 2022

8 Céline Pessis on the internet program "C dans l'sol", September 27, 2022 "*Les sols vivants, une notion pas si récente*".

9 *Bio-Dynamics a practical introduction*, Alex Podolinsky, Ed. Porter, 2011

plant-based preparations.

Podolinsky's contributions on plant nutrition, humus and good agronomic practices are also invaluable.

In the early 1990s, Alex Podolinsky was asked to advise farms in Europe using the methods he had developed in Australia. He presented photos of Australian soils showing a striking evolution in one year with just two applications of prepared 500. For biodynamic practice, he proposes precise elements concerning the making, storage and application of preparations, elements little known until now in Europe.¹⁰

On these farms, soils rapidly evolved towards greater fertility and improved structure, and the differences were visually apparent. In Italy, Carlo Noro, then in France, Pierre Masson, followed this path to make the preparations they distributed. Australian-type dynamizers soon started being manufactured in Italy, then in France by Ulrich Schreier.

Despite his major contributions to biodynamics, Alex Podolinsky has received too little recognition. His harsh attitudes, direct comments and his very high level of requirements have led to friction and conflict, overshadowing the richness of the changes he has brought to the biodynamic movement.

Pierre Masson, first a farmer, then a consultant, trainer and producer of biodynamic preparations, found in this encounter a new path of evolution. His preparations, which were already humic and moist, progressed following the advice of Alex Podolinsky, with whom a solid relationship was established.

In 1997, he offered a translation of Podolinsky's 1993 booklet, *Bio-dynamic practical notes*, which contains elements for implementation.

From 2003, he published a *Practical Guide to Biodynamic Agriculture*.¹¹

His quest for precision and observable results, and his links with the medical and pharmaceutical world, lead him to conceive of biodynamic preparations as remedies for the earthly organism, and to develop and use them as such.

He works to establish precise criteria for the making, implementation and evaluation of the effectiveness of biodynamic preparations.

His curiosity and desire to gain political and scientific recognition for biodynamic agriculture led him to set up and observe numerous comparative field trials and collaborate with various research institutions in France and other countries.

¹⁰ See on this subject: Roger Chaussepied, 1995, Archives Pierre Masson

¹¹ From 35 pages in its first edition, the book has grown to 238 pages, and is now available in several languages.

When he passed away in 2018, we began writing to transmit our way of making preparations. The *Manual for the making and use of biodynamic preparations*¹² was published in French in 2021. In addition to the practical aspects, we offer an in-depth look at the understanding of these substances. Those who were present at Pierre Masson's February 2018 lecture in Dornach will have knowledge of this. There, he presented his conviction that preparations should be seen as remedies to heal the Earth and prevent the forces of degeneration from advancing any further. In his view, they should be developed and implemented according to a best practice guide and lead to visible results.

He has seen these results many times in his consulting practice. I've been observing them too, and the changes we've seen over the last ten years are speeding up. Sometimes in a matter of weeks, we can see extraordinary soil evolutions.

3. - Two major streams

Biodynamics has spread throughout the world in a variety of ways, which can be traced back to two distinct origins. On the one hand, practices that follow the path traced by Kolisko, Pfeiffer and Podolinsky; on the other, the path that developed in Germany, in the second half of the 20th century. We'll take a brief look at this part of history.

In 1941, biodynamic agriculture was banned by the Nazi regime, after a few years during which biodynamists tried to find a place for themselves in a Germany moving towards totalitarianism. The war period and the years that followed left biodynamic agriculture very weakened.

Up until around 1950, the literature remained consistent with that of the preceding years, but after a few blurred decades, the literature of the 1980s and 1990s seems to have lost much of its precision, particularly on the subject of instructions for the use of preparations. For example, the description of the stirring process has evolved, with chaos, a central element of the process, gradually being forgotten.

Outside continental Europe, in the 1930s and following decades, work continued in England with Lily Kolisko and in the USA with Pfeiffer. The writings published after the war by these two personalities are surprisingly little known in Europe.

12 *Manuel pour l'élaboration et la mise en œuvre des préparations biodynamiques*, Vincent Masson, Editions Biodynamie Services, 2021

Yet they are a continuation of the work and writings that preceded them. Subsequently, Alex Podolinsky's practices and writings will clearly follow this line.

In Germany and Europe, the key figures in the development of biodynamics in the 1970s and 80s were Maria Thun and Christian von Wistinghausen. This trend, whose reference work is the booklet *Arbeitsheft Nr 1* published in 1981 by the latter and its subsequent editions¹³ is spreading throughout the world. It is characterized by a large number of sprays of preparations, the use of Maria Thun's barrel preparation, the use of dry preparations, little precision in the application of preparations to be sprayed, and great attention paid to lunar and planetary rhythms.

When he started out in the 1970s, my father, who had trained with Christian von Wistinghausen, quickly distanced himself from his way of doing things. He evolved towards a very qualitative and demanding approach to the making of colloidal preparations and the choice of substances used. His practice and his encounter with Alex Podolinsky also led him to adopt a more demanding approach to both materials and application conditions.

We can also see the evolution of his practice and recommendations concerning the use of lunar and planetary rhythms. In the 1980s-90s, he referred to them a great deal, in line with what he had initially learned, then, over the course of numerous tests and observations, he gave them a much more secondary importance.

Alex Podolinsky's visits to Europe in the early 1990s revealed an uncompromising biodynamic approach to the wet and colloidal quality of preparations, water temperature, vigorous stirring, compost monitoring and, above all, agronomic conditions. The use of 1 or 2 applications of prepared 500 per year – instead of the 3 applications of 500 and 3 applications of Maria Thun's barrel preparation usually used – is also an interesting development, since it enables to seriously reduce the number of sprays while improving agronomic results. These results are rapidly observable and indisputable.

The personalities driving the development of biodynamics in France at the time were Xavier Florin, François Bouchet, Nicolas Joly, Claude Monziès, Thomas Kuhn and others. Podolinsky soon came into conflict with the first three. In Germany, tensions arose with Maria Thun and Christian von Wistinghausen, among others.

Where European and non-European currents could have been brought together on the basis of the best contributions from each side, positions became entrenched. Based on these events, the story is no longer based on observable facts, but on conflicts between people.

The changes brought about by the Australian trend, in terms of both the quality of the preparations and their implementation, should have won the support of others, had relations not been blurred by these tensions. An objective view, combined with comparative trials, would have

¹³ *Arbeitsheft Nr 1* and 2, see full references and co-authors in bibliography

shown the obvious effectiveness of these practices: less work, rapid and observable results, quality of the agricultural products.

In my opinion, it's only this relational dimension that explains why it wasn't done.

In the last decade, however, we've seen these conflicts gradually relegated to the past, as the biodynamic movement increasingly embraces the positive contributions of both of the above paths.

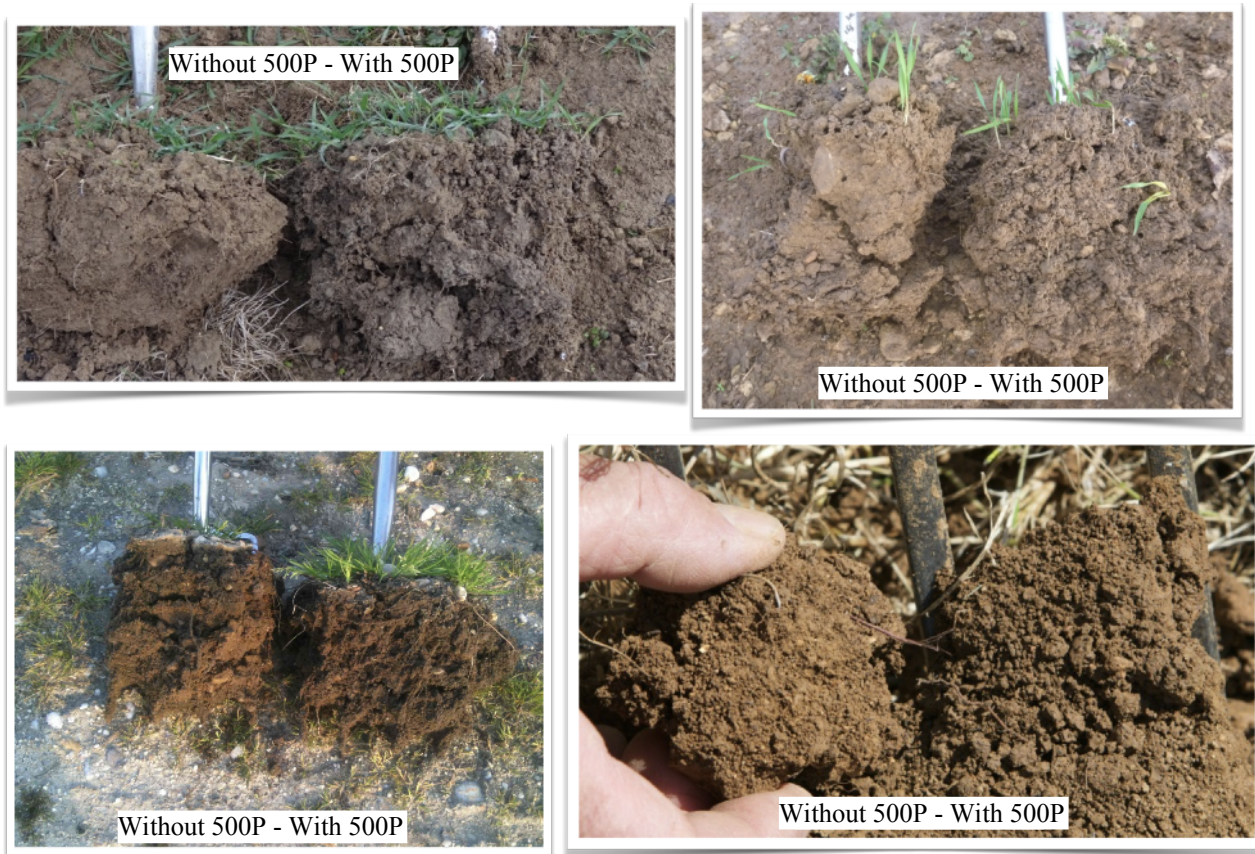
4. - Comparative results: organic – biodynamic practices

a – Field results

Here are some photos comparing organic and biodynamic (organic +prepared 500 and 501 preparations) situations on the same plots.

Each time the preparations are used, an increase in the density and depth of the root systems, a browning of the soil, and change towards a more crumbly and aerated soil structure are observed

These changes can be seen within a few months, or even a few weeks, which is very fast.



Fork-spade profile on comparative organic and biodynamic plots

b – Evaluation of biodynamic practices – Ecovitisol

In addition to the comparative field trials that are common to our practices, we are increasingly carrying out research in collaboration with institutions.

Here are a few recent results.

The project, called Ecovitisol, is being carried out in partnership with INRAE in Dijon – the French national institute for agronomic research – and more specifically with the team led by Lionel Ranjard, a recognized specialist in soil microbiology.

Between 2019 and 2022, soil microbiology analyses were carried out on 150 vineyard plots, a third of which were conventional, a third organic and a third biodynamic. This work, carried out in Burgundy and Alsace, showed that "*all indicators improve when plots are managed biodynamically*", even when agronomic practices are less than ideal. Some indicators are even surprising, such as the interaction networks between micro-organisms, which are much more abundant in biodynamic viticulture which results in more stable and functional communities than in other agricultural practices.

Over and above the differences between conventional, organic and biodynamic growing methods, we assessed the quality of biodynamic practices related to the application of spray preparations.

Evaluation is based on the quality of the preparations, their conservation, and the various aspects of their application (quality of water, heating, stirring, spraying and parameters used to choose application times). *There is* a clear correlation between the biological state of the soil and the quality of biodynamic practices. A better microbiological balance is obtained when biodynamic practices are good or very good according to our criteria. These criteria have been established on the basis of our field observations over the last twenty years.



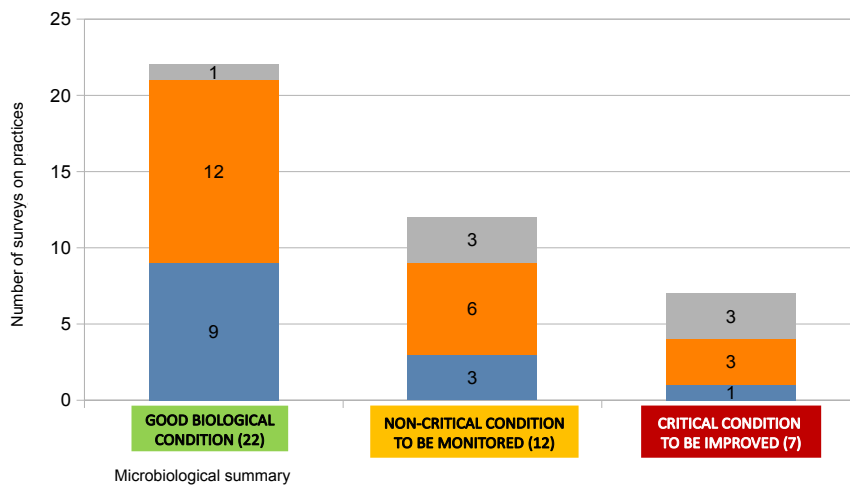
5 items evaluated

- **BD Preparations:** type and conservation
- **Water:** qualité, stockage et chauffage
- **Stirring:** quality, storage and heating
- **Spraying:** equipment
- **Conditions of implementation**



Out of 41 surveys

Diagnosis / quality of biodynamic practices



Microbiological quality of soils

- (-): Bad practices (17%; 7)
- (0): Good practices (51%; 21)
- (+): Very good practices (32%; 13)



B – Where are we today in terms of know-how?

For the making of biodynamic preparations, here are some broad outlines:

Choose top quality substances (plants, cow manure, quartz, organs)
Follow processing protocols according to proven knowledge
Transformation of the initial substances into colloidal preparations

Some personalities who guide us to understand this:

Walther Cloos
Rudolf Hauschka
Friedrich Benesch

Essentials to consider to put into place field spray preparations:

- 1 - Quality of the preparations
- 2 - Storage of the preparations
- 3 - Quality of the water to be stirred
- 4 - Temperature of the water
- 5 - Stirring
- 6 - Spraying
- 7 - Choosing the right time
- 8 - Observable results

Some personalities that guide us to act:

Lilly Kolisko
Ehrenfried Pfeiffer
Alex Podolinsky
Pierre Masson

1. - Quality of preparations: the colloidal state of the substance

Various documents contain practical information on the making of biodynamic preparations, and often reference the quality of the substance obtained.

Here is a non-exhaustive look at the indications concerning the desired substantial state. Pfeiffer in *Practical Guide to the use of the Bio-dynamic Preparations* (1935) writes: "*Preparations 502 to 506 are themselves plant substances under humic conditions*".

Harald Kabisch in his *Grundzüge eines biologisch-dynamischen Land und Gartenbaues* (1963) speaks of "*semi-solid*" compost preparations.

Herbert Koepf, in *Bio-dynamic sprays* (1971), writes about the preparations: "they should not be allowed to dry out".

In 1980, Nikolaus Remer in *Organic Manure* (1996 german edition, 1980 english version) talks about keeping the medicinal plant preparations "in well dried condition" (page 52).

C. v. Wistinghausen and W. Scheibe in *Anleitung zur Herstellung der biologisch-dynamischen Präparate* (1981) suggest that the preparations should be preserved either by the dry or the wet method.¹⁴

In the 2007 re-edition of this booklet, see Wistinghausen (C. & E.), Scheibe and König still propose these two possibilities, but this time they clearly indicate a preference for the dry approach.¹⁵

Alex Podolinsky states in *Practical notes* (2006) that preparations "*must be kept at the same colloidal humus condition as it was when lifted from the ground [...] like fresh worm casts, otherwise effectiveness is lost*"

Almar von Wistinghausen, who attended the 1924 conferences, writes in *Erinnerungen an den*

14 "*The question of whether the compost preparations 502 to 506 should be stored earth-moist or dry (like drugs) is open. Here the decision is made individually. Both methods can be justified by their reasons: Moist: The preparations should stimulate the conversion processes in the moist compost environment. All soil organisms need this soil moisture. The organising powers of the preparations are effective. Dry: The effect of the preparations should remain preserved at the stage of extraction by drying and only be reactivated when they are rewetted and added to the compost or liquid fertiliser. Here, too, the organising powers of the preparations become effective.*"

15 "*Moist as earth: preparations must stimulate transformation processes in the moist compost environment. All soil organisms need this earthy moisture. The organizing forces of the preparations are effective in the moist environment. The disadvantage is that the preparations can decompose until they become humus crumbs. They have then become a product of the metabolism of soil organisms, and the transformation process is complete. The preparations are altered and can no longer be distinguished from one another. They are still effective. Dry products: The effectiveness of the preparations must be preserved by drying at the time of extraction, and only rewetted and activated when placed in moist compost or liquid fertilizer. This is when the organizing forces become more effective, thanks to the invigorating humidification of the preparations. Preparations keep for several years in their original state and remain effective. One disadvantage may be moth colonization. Preparations can lose their effectiveness if left open too long during drying. Medicinal herbs have always been dried in pharmacies and stored as drugs. They only become curative when they are rewetted to stimulate the process.*"

Anfang der Biologisch-Dynamischen Wirtschaftsweise (1982, p. 58):

“So that the forces described in the agricultural course can communicate themselves in the correct way to the manure or compost, the organic substance should be so constituted that it is able to take up these forces. As soon as the substance is too wet or too dry, or the air cannot enter it in the right doses, the earthly matter may close itself against the absorption and communication of life forces. In this process certainly also the constellations play a big role. It is not easy to recognize the spirit work on earth. Mankind stands in the middle of an age completely turned to matter alone.”

Numerous researchers linked to the anthroposophical movement in the domain of agriculture, pharmacy and geology (Rudolf Hauschka, Friedrich Benesch, Walther Cloos, for example) have referred to the importance of the colloidal state for the living world, and also in the processes of evolution and metamorphosis of the Earth, both in its past and its future. Here are some quotes:

“As carriers of life, all the fluids in human, animal and vegetable organs are colloidal.” Rudolf Hauschka, *The Nature of Substance*¹⁶.

About the colloidal nature of clays and humus:

“This means that they would slip out of reach of the life forces, for these can be alive and formative only on substances in the colloidal state [...] Salts destroy the colloidal state of the soils because colloids are flocculated by salts. They can then no longer be a vehicle for life forces.” Walther Cloos, *The Living Earth*, Chap 4.

On the present state of our Earth, which is in a densified mineral state due to the earth's ageing organism, W. Cloos says: *“According to the many indications given by Rudolf Steiner, the most important now is to recognise that this macrocosmic nature is already completely dead and basically lives only in echoes that in the processes of the nature realms become more and more muffled.”*¹⁷

Yet the passage of substances, particularly those in the soil, through the colloidal state can allow a kind of rejuvenation of the soil itself and more generally of the earth's organism.

The colloidal state is the basis of all evolution, of all metamorphosis. It is a state open to the action of shaping forces from the cosmos, a life-receptive state as described by Friedrich Benesch in the two quotes below:

“The colloidal state means that in a given gel there are laws that still exclude the laws of the conventional states of matter from coming into force. It is a medium, unpredictable state of

16 Hauschka, Rudolf, *The Nature of Substance*, Chapter XIX, Sophia Books, Rudolf Steiner Press, 2008, p.125

17 Cloos Walther *Menschengamässe Heilmittel*, 1971, page 11

“Nach den vielfachen Hinweisen Rudolf Steiners ist es nun das Wesentliche, zu erkennen, dass diese makrokosmische Natur schon abgestorben ist und eigentlich nur noch in Nachklängen lebt, die im Geschehen in den Naturbereichen immer mehr verebben.”

matter which can oscillate in a labile and sensitive way between dissolution and solidification, life and devitalisation, and is receptive to the influence of infrasensible forces (electricity, magnetism, nuclear forces) as well as to that of suprasensible forces (vivification, organisation, impregnation by the soul and spirit).

Looking at the colloidal state of matter leads to the question of the essence of the living in relation to what is dead, of the organic in relation to the inorganic. [...] the living arises exclusively from the living, what is dead is a rejected part of a living whole..." Benesch Friedrich, *Apocalypse*¹⁸.

"For example, in potentizing, by continuously increasing the dilution of a substance in a medium, the operation crosses a threshold beyond which the mineral-physical substance leads to an etheric-supraphysical operative - a process - and shows properties exclusively connected with the organic and living. The bridge between substance and process is the colloidal condition of matter. Colloidal silica, colloidal calcium, and colloidal aluminium, each are in a condition receptive to life. We can also call this the material condition on one hand and the physiological condition in the realm of life on the other hand." Benesch Friedrich, *Silica, Calcium and Clay*¹⁹.

The idea of a model, which is dear to anthroposophic medicine, is also valid in agriculture. If we look at biodynamic preparations as a kind of model for the development of organic matter in the soil, their colloidal quality, welcoming forces from the cosmos and for life, is of primary importance. Indeed, all life is transmitted and transformed in the colloidal state, and as soon as we leave this state we are heading towards illness and death. This is true for living organisms, soils and preparations.

Here we see the crucial importance of the colloidal state for the living. Biodynamic preparations produced and stored in this state can act powerfully on the soil and plant colloids to stimulate the forces active in them.

We now can understand why the colloidal state of the substance during making, storage and processing is of the highest importance for the effectiveness of biodynamic preparations.

18 Benesch Friedrich, *Apokalypse*, pp. 82 - 83. Ed. Verlag Urachhaus 1981, "*Der kolloidale Zustand besteht darin, daß in einem eigentlichen Gel Gesetzmäßigkeiten herrschen, wo im Grunde die Gesetzmäßigkeiten der Aggregatzustände noch nicht auftreten können. Es handelt sich um einen unberechenbaren mittleren Zustand des Materiellen, der zwischen Lösung und Verfestigung, zwischen Belebung und Entwitalisierung labil und sensibel hin und her schwingen kann und sowohl für die Einwirkungen untersinnlicher Kräfte (Elektrizität, Magnetismus, Kernkräfte) als auch für das Einwirken übersinnlicher Kräfte (Belebung und Gestaltung, Durchseelung und Durchgeistigung) zugänglich ist.*

Der Blick auf den kolloidalen Zustand der Materie führt erst recht zu der Frage nach dem Wesen des Lebendigen im Gegensatz zum Toten, des Organischen im Unterschied zum Anorganischen. Es kann auch heute beobachtet werden, daß Lebendiges ausschließlich aus Lebendigem hervorgeht und Totes immer nur aus Lebendigem herausfallen kann. Nirgends kann beobachtet werden, daß aus Totem Lebendiges entsteht; wohl aber, daß Totes in Lebendiges aufgenommen und belebt werden kann."

19 Benesch Friedrich, *Silica, Calcium and Clay*, p.3, Schaumburg Publications Inc, 1995



Dry 500 preserved in peat



Colloidal 500



504

2. - Preparation storage

Preparations are substances that have received special information through the action of certain natural processes during their production. This quality must be preserved by avoiding any disturbance, in particular by sound, electromagnetic field emissions, odours, vibrations (electric fields, radio, vibrations from cold room compressors, wifi, mobile phones, petrol fumes, sulphites or essential oils for example).

The 501 is stored in a glass container exposed to soft sunlight. We often choose east or north-east exposure to avoid too strong a sun.

The 500, 500P, Barrel compost (CPP) and compost preparations are kept moist and colloidal in jars placed in boxes insulated with peat.

The peat used is sphagnum peat moss, dried and kept dry.

We want to avoid any contact between the peat and the preparations so that the models contained in these very different substances do not mix. Peat must envelope each preparation on all sides.

Peat prevents the forces contained in the preparations from being lost ("*so that the very high concentration is maintained*" Rudolf Steiner, *Agricultural Course, Answers to questions of June 12, 1924*) and ensures that there are no interactions between them.

On the subject of the radiation effect of preparations, see the eloquent work of Hagel in 1988 (reported by König in 1999)²⁰.

Peat does not protect against external pollution, storage boxes must therefore be kept in a healthy place, out of reach of the pollutants mentioned above.

The preparation must always remain under aerobic condition and not be hermetically sealed. It must be placed in a non-porous container to maintain its original humidity and avoid drying out. In fact, if you use a low-fired clay pot (such as a flowerpot), the porous wall absorbs the moisture from the preparation, which then dries out and loses quality. Glass, stoneware or enamelled iron containers are suitable.

Care must be taken during storage to ensure that the preparation is always kept in an optimal moisture state, it should never be allowed to dry out, not even partially, nor should it be soaked in excess water which would cause anaerobic evolution.

3. - Water quality for stirring

Almost all the authors whose writings we have been able to consult are in agreement on a preference for the use of rainwater, or if not, of pure spring, river or dam water.

Since the 1990s, concerns about rainwater pollution began to appear in the literature. To address this issue, the elimination of the first millimetres of each rainfall is proposed.

Generally speaking, we can consider the following elements:

Ideally, the water should be slightly acidic with low mineral content (pH between 5.5 and 6.5, at least below 7 and with the lowest possible water hardness).

²⁰ König U.J., *La recherche sur les préparations biodynamiques – classeur pédagogique*, p.23, IBDF/MCBD 1999

Limestone waters should be avoided because of the blocking effect of limestone.

Granitic or sandstone spring water is suitable unless it is too rich in iron.

Stream or dam water can be used if they are clean.

Tap water or borehole water, if they are the only ones available, should be exposed to the air for one or two days before use.

Rainwater is ideal, as it's the liveliest and most familiar to plants. It is, however, loaded with pollutants, and the first 5 to 6 millimetres that fall should be discarded (depending on the type of roof on which rainwater is collected).

Clean rainwater can be stored in concrete tanks (without plastic lining) which are tartaric acid-treated to prevent any migration of calcium compounds from the concrete into the water. It can also be stored in stainless steel or enamelled metal tanks. Plastic and fiberglass should be avoided.

Properly filtered, i.e. stored clean, water can be kept for a long time.

4. - Warming the water before stirring

The use of lukewarm water is mentioned by Rudolf Steiner and confirmed by almost all the authors who have described how to apply the preparations. The indications and work of Pfeiffer, Hauschka and Podolinsky, among others, help to refine understanding and practice.

To make the water as receptive as possible, it must be brought to a suitable temperature of around 35°C before any stirring (the ideal temperature is 37°C).

The quality of the heat that penetrates the water is important. Wood and gas can be used, but direct electric heating should be avoided, as it damages the quality of the water.

We refer to Rudolf Hauschka's experiments on this subject.²¹

If the water exceeds 37°C, its quality is diminished and cannot be restored by lowering the temperature. Therefore the whole must be brought up to the right temperature, there is no question of boiling a small part of the water to mix it with cold water.²²

21 Rudolf Hauschka, *Nutrition Course (Ernährungslehre)*, V. Klostermann Verlag, 1951

22 Podolinsky Alex, *Biodynamics a practical introduction* – Porter / Podolinsky 2011, Appendix B, p. 114 and Pfeiffer 1938, *Using the BD compost preparations and sprays in garden orchard and farm* p. 7

5. - Stirring

In the fourth lecture of the Agricultural Course²³ Rudolf Steiner describes stirring as follows:

"You must make sure, however, that the entire contents of the horn have been thoroughly exposed to the water. To do this you have to start stirring quickly around the edge of the bucket, on the periphery, until a crater forms that reaches nearly to the bottom, so that everything is rotating rapidly. Then you reverse direction quickly, so that everything seethes and starts to swirl in the opposite direction. If you continue doing this for an hour, you will get it thoroughly mixed"

Then in the answers to the questions following this lecture, he adds:

"It is of the utmost importance to achieve intimate interpenetration. You're a long way from achieving real interpenetration if you simply pour the substance into the water and stir. You have to achieve intimate interpenetration, and if you pour a slightly thick substance into the water, or stir without vigor, you'll never achieve perfect mixing."

Ehrenfried Pfeiffer later described Rudolf Steiner's demonstration of stirring when digging up the first 500 preparation in the spring of 1924:

"Dr. Steiner came back to us, asking for a bucket of water, and showed us how to dilute and stir the contents of the horn into the water. He used my cane for stirring, as he had nothing else at hand. Dr. Steiner attached great importance to showing us the energetic stirring, the formation of the funnel on the surface and the rapid reversal of the direction of rotation, i.e. the formation of chaos due to the energetic stirring." Pfeiffer, L'impulsion de Rudolf Steiner en agriculture.²⁴

The importance of CHAOS

In Steiner's description, the formation of the vortex as well as bubbling chaos are clearly defined. In the anecdote reported by Pfeiffer, there is also mention of the eddy and the energetic stirring.

To achieve energetic stirring and bubbling chaos, the shape of the container is important and the volume is necessarily limited.

As early as 1931, Hellmut Bartsch described that to be sufficiently vigorous, hand stirring can-

²³ Editions Novalis: 2003 p.105 / 2013 p.120

²⁴ Triades 1989 37th year n°1. Extract from *Wir erlebten Rudolf Steiner Erinnerungen seiner Schüler Verlag Freies Geistesleben*, Stuttgart 6th edition 1980 french translation Geneviève Bideau. This text has been published as afterword in the edition of *Cours aux agriculteurs*, Editions EAR, in a different translation.

not involve large quantities and that "*the intensive stirring of 30 litres (by hand) requires an effort that cannot be maintained for a whole hour*".

Podolinsky determines the maximum volume of 270 litres to be stirred mechanically for sufficiently energetic chaos.

In the making of homeopathic remedies, we find a similar process with stem substances, diluted and potentised. Yet potentising also has the desired effect of producing chaos; the formation of a vortex makes it possible to generate chaos, "the opening"²⁵ without which nothing happens.

The cavitations that form during dynamisation give rise to the formation of clusters, which are structured aggregates of molecules. Certain forms of informations are stored in the substance during these reorganisations.

"We have thus grasped two fundamental forces of any evolution whatsoever: the heat which is found at the passage from the spiritual to the physical and inaugurates all becoming and all disappearance of becoming, and the rhythm which is born by the fact that the forces of becoming of the spiritual intervene in what has become in order to make possible all evolution in the alternating play between what has become and what is becoming..." Walther Cloos²⁶

"This use of rhythms and heat to transform substances given by nature into medicines is only one example of what can be learned from Rudolf Steiner's indications regarding medicines." Walther Cloos²⁷

Stirring with machines: the importance of rhythm.

Manual stirring may be preferred as it allows the intention and enthusiasm of an individual to accompany the process.

All the documents written following the 1924 course prefer the "human effect"²⁸ associated with hand stirring. Discussions then focused on the pros and cons of using a utensil that cuts off direct contact between the person and the liquid. In 1955, Pfeiffer expressed a preference for using a neutral object to limit interference, as he observed the effects in his sensitive crystallisations and chromatograms. He did not reject mechanical stirring, as long as it was "*not centrifugal but vortex-like*". It can also be seen that stirring machines allow the preparations to be sprayed onto many surfaces which would otherwise not be treated.

In the reply to the questions at the 4th lecture, Steiner indicates that it is impossible today to refuse machinery in agriculture, but he specifies that for the stirring, "*one should not approach*

25 Etymology: from Greek *Χάος*, meaning opening, abyss; Sanskrit, *kha*, cavity.

26 Walther Cloos *Menschengemässe Heilmittel*, 1971, Verlag Die Kommenden, p. 14

27 Walther Cloos *Menschengemässe Heilmittel*, 1971, Verlag Die Kommenden, p. 76

28 Franz Dreidax 1930

such an intimate process of nature with something purely mechanical'. It is these words "*purely mechanical*" that are important to us, as they leave the door open, to allow the use of machines provided that a kind of sensitivity is sought in using them.

Systems with timers are purely mechanical. They are electrically controlled for a given identical duration of stirring in one direction and then in the other. We are dealing here with the world of cadences and frequencies which are not able to support the living, but on the contrary rigidify it and are foreign to it²⁹.

Systems with sensors such as those developed in Australia, which reverse movement according to the height of the water, enable rhythmic, sensitive and evolving stirring in relation to external conditions, oxygenation and water fluidity. Our field experiments and comparative trials show that rhythmic systems are more effective than timed systems for activating preparations.

Water, heat, movement and rhythm are inseparable from life, and are necessary to activate the preparations, to bring them to life, in relationship with the living.

6. - Spraying

As noted by most of the authors consulted, spraying equipment should be used exclusively for the application of biodynamic preparations.

Quantity of water for spraying preparations

The amount of water required to apply spray preparations is 30 to 35 liters per hectare. These quantities have varied over time and between authors: from 24 to 40 liters for Pfeiffer and Kolisko, from 40 to 80 liters in the German literature of the 1980s-90s, and a minimum of 32.7 liters of water per hectare for Podolinsky. Indications from Germany in the 2010s suggest that 5 liters per hectare would be sufficient, but this does not correspond to our observations. We propose a volume of 25 to 40 liters per hectare, with an optimum of 30-35 liters.

Quantity of preparations per hectare and per application

500 and prepared 500 are used at 100 grams per hectare, Maria Thun'barrel preparation at 240 grams per hectare, and 501 at 4 grams per hectare. Although these quantities may have varied slightly from place to place and from person to person, they remain the reference. For the 500 and prepared 500, spraying is done using large drops, at low pressure (1 bar maximum) with no return to the tank; the tank must be made of metal.

²⁹ See on this subject: Edwin Hübner, *La téléphonie mobile*, APMA, 2007

Spray immediately after stirring, ideally within an hour or two hours at the most. After that, the preparation has lost too much of its effectiveness.³⁰

These preparations are applied in the late afternoon or evening.

For 501, a fine mist is required. There is no pressure limit, and spraying is done upwards to shower on the plants. Spraying takes place within 3 hours after the end of stirring.

This preparation is applied early in the morning, except in cases of spraying to accompany ripening on annual plants.

7. - Choosing the right time

Rhythms

The trials carried out over the years have led us to work according to the following indications:

- The rhythms of the day are of major importance.

Working with 501 in the morning to reinforce the growth and health of the plants, in the morning or evening depending on if we need to accompany the maturation process, and in the late afternoon or evening for the 500 or prepared 500. These rhythms have demonstrated their effectiveness.

They can be understood by a qualitative approach to these times of day, but also by observing the breathing of the earth or plants.

We can also deepen this insight by referring to Rudolf Steiner's information for the Pisces-Virgo therapeutic axis.

"With the consideration of the morning and evening forces in the making of medicines, as Rudolf Steiner himself recommended, we are now in the realm of the cosmic polarities which manifest themselves in an extraordinarily varied way in the whole of nature. It is a question of the combined action of the forces of Pisces and Virgo, which act in nature every day in the morning and evening respectively, and in the course of the year at the spring and autumn equinoxes. The forces of Pisces are thus active every day in the morning and in the year in spring, the forces of Virgo are active every day in the evening and in the year in autumn."
Walther Cloos³¹

30 Pfeiffer (1935) mentions three hours according to tests carried out at the Goetheanum Research Institute, Podolinsky indicates one hour, Masson two.

31 Cloos Walther *Menschengemässe Heilmittel*, 1971, Verlag Die Kommenden, p. 64.

– Experience shows that it's best to avoid lunar and planetary nodes and eclipses when working with preparations, and more generally – whenever possible – for operations that give impetus to the living.

– We do not recommend taking into account the sidereal rhythm (root/leaf/flower/fruit days) when working with preparations, nor when working on soils or plants.

Conditions

When spraying the 500 /prepared 500, priority is given to agronomic conditions: a warm, moist soil surface, at sowing time or when vegetation starts and/or at the end of the season after harvesting.

For 501, it's the plants' physiological conditions that need to be observed: from the start of periods of strong plant growth (to stimulate robustness and structuring), and in the period of maturation to reinforce the qualitative aspects

Conclusion

The broad outlines we have described here are open to improvement, but observation shows that they are already delivering reliable results. Their importance for both the present and the future means that we have a responsibility to act.

Among the elements that are brought together to activate the preparations, we find the fundamental bases of life: the **colloidal state** of the substance that allows the forces of life to take hold of it, **water**, the support of all life, the right amount of **warmth** that is essential for each organism to be at its equilibrium, **oxygenation**, and the setting in **motion** and in **rhythm** by stirring.

It is a matter of getting the preparations from a state of substance to an active state, of bringing them into direct contact with the living. The colloids can address the colloids of the soil and the plant, and the acting forces can be stimulated.

Our responsibility

We observe that biodynamic preparations made and applied according to certain criteria offer impressive results in terms of evolution of soil structure and fertility, but also in terms of plant robustness and product quality.

Intention, inspiration, personal sovereignty, the will of the individual at work or creativity can complement these good practices, but they do not replace them.

Biodynamics has suffered in many places from having few visible results. Consuming biodynamic products is unfortunately not always a guarantee of the quality that one might expect.

We believe that if good practice was better known and more widely recommended, the whole movement would benefit in terms of results, image and recognition.

This is what we would like every farm and every garden to benefit from.

**This is our responsibility and duty to act on current knowledge
and to continue to improve it.**

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