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Biodynamic Agriculture: Integrating Humus Farming with Bio-Energy

**Acres USA Conference
December 5-7, 2018
Louisville, Kentucky**



**Steve Diver, Farm Superintendent
UK Horticulture Research Farm
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Background to this PowerPoint Presentation

Invited presentation at the 43rd annual Acres USA Conference, December 5-7, 2018, held in Louisville, Kentucky. The author has been an occasional speaker and attendee at Acres USA conferences since 1985 when he was the Extension Horticulture Agent in Muskogee County, Oklahoma.

The author speaks from 30 years of experience providing technical advisement to farmers and Extension Agents and teaching on topics such as soil testing, alternative soil testing laboratories, sources of organic fertilizers and amendments, farm-scale composting, compost quality, compost teas & extracts, microbial inoculants, humus management, and the soil foodweb.

He has attended seminars and short courses on biodynamic farming with Michael Maltus, Hugh Lovel, Peter Proctor, Greg Willis, Glen Atkinson, Hugh Courtney, Harold Hoven, Jeff Poppen, Allan Balliet and published "Biodynamic Farming and Compost Preparation" through NCAT-ATTRA. He taught the first consultancies on biodynamic agriculture through USAID's Farmer-to-Farmer Exchange program, held in both Russia and India.

The author became interested in bio-dynamic agriculture after visiting and observing bio-dynamic farms producing on-farm compost, building soil humus, and growing quality crops, not as a student or scholar of Rudolf Steiner.

He was formerly a soil and crop consultant in Texas and is currently the Farm Superintendent at the University of Kentucky's Horticulture Research Farm in Lexington.

Background to this PowerPoint Presentation

This lecture presentation has been edited and re-formatted for viewing on a computer or tablet. Yellow text boxes have been added to provide supplemental lecture notes for conference attendees and others.

Disclaimer: The information shared is presented from the author's broader experience as an ag professional working in sustainable agriculture and does not represent the views or findings associated with his university position. No endorsements are implied.

Perspective: The author teaches a spectrum of agricultural and horticultural production methods and emphasizes the integration of science and practitioner knowledge – the science and art of agriculture -- in the production of crops and livestock with viable economic returns.

Attention: This lecture was delivered to an audience familiar with organic farming and eco-agriculture. Some of the bio-energetic practices mentioned in this lecture do not meet the requirements of Demeter, which is the certification label for Biodynamic products. The purpose of this lecture was to review the concepts and practices of bio-dynamic agriculture – as well as highlight practitioner and scientific results -- and provide a range of options to growers.

The Future of Agriculture is Regenerative:

Sustainable (e.g, USDA-SARE, USDA-NRCS)

Permaculture (e.g., ecological design)

Organic (e.g., USDA-NOP)

Korean Natural Farming (Asia and Hawaii)

Zero Budget Natural Farming (India)

Integrated Crop-Livestock and Holistic Grazing

Eco-agriculture (e.g., *Acres USA*, *Albrecht-Reams*)

Bio-dynamic (e.g., Steiner, Pfeiffer)

Three Common Themes:

- 1. Agro-ecosystems that mimic nature**
- 2. Organic and Biological soil amendments**
- 3. Healthy consortia of beneficial microorganisms**

The way media portrays agriculture as either Conventional or Organic is a false dichotomy. Farmers are more varied and interesting. For example, in regenerative agriculture you'll see a spectrum of alternative farming systems being employed, usually represented by a school of philosophy and a set of unique farming practices. However, in practice, farmers often borrow and modify from several systems.

Three Pillars of Eco-Agriculture

- **Minerals**

- *Soil tests, rock minerals, rock dusts, mineral balancing, foliar fertilization, fertigation*

- **Biology**

- *Composts, cover crops, crop rotations, grazing, proper tillage, microbial inoculants*

- **Energy**

- *Photosynthesis, Brix, EC, biofield, electromagnetic & scalar, paramagnetic & subtle energies*

Bio-Dynamic Farming

Biological Practices

- Cover cropping
- Green manures
- Composting
- Companion planting
- Integrated crop-livestock
- Proper tillage

Dynamic Practices

- BD compost preparations
- BD spray preparations
- Planting by calendar
- Peppering for pest control
- Homeopathy
- Radionics

Adapted and Modified from:

Lorand, Andrew Christopher. 1996. Biodynamic Agriculture — A Paradigmatic Analysis. The Pennsylvania State University, Department of Agricultural and Extension Education. PhD Dissertation. 114 p.

Goethean Scholar

Philosopher

Literary Critic

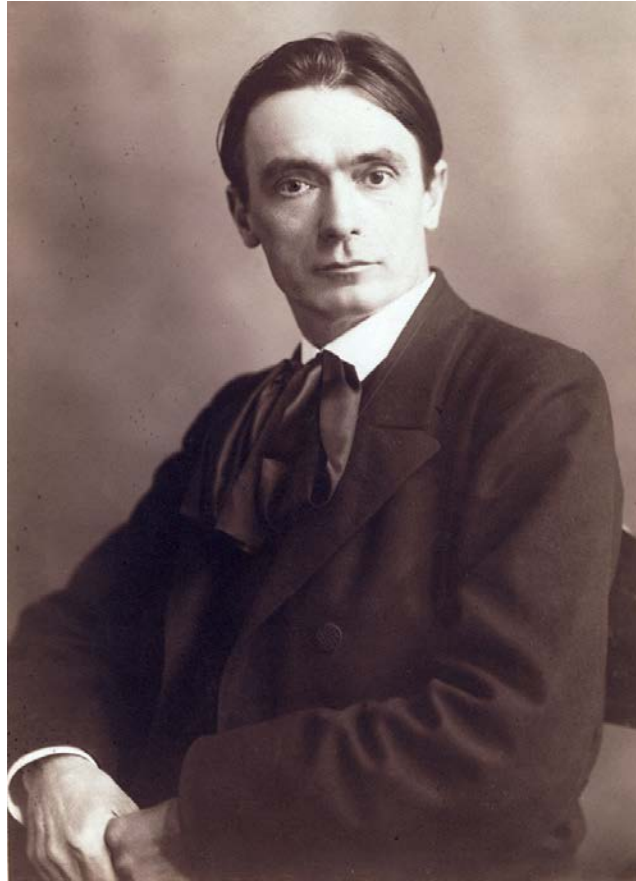
Science Writer

Lecturer on:

Theosophy

Rosicrucian

Anthroposophy ☸



Arts & Eurythmy

Architecture

Education

3-Fold Social Theory

Science Section:

Projective Geometry

AP Medicine

AP Agriculture

Rudolf Steiner (1861-1925)

☸ **Anthropos + Sophia = Human Wisdom**

Commentary on Slide 9: Steiner Chronology

Early Influences: Rudolf Steiner grew up among peasant farmers and villagers in Austria, circa 1860s-1870s. As a boy he spent time in nature (beautiful meadows and forests) and at age 18 he studied with an herbalist (Felix Kogutzki) and learned esoteric knowledge from a mysterious "Master" (probably Alois Mailander, a Rosicrucian adept).

Scholarly Years: Steiner attended Vienna University of Technology and was proficient in mathematics, the natural sciences, philosophy, history, literature, languages, architecture, and more. Following technical college he made a living as a scholar, writer, and literary critic. He became well known as a scholar of Johann Wolfgang von Goethe, but other influences on Steiner included Paracelsus and European alchemists and mystics who made practical contributions to the natural sciences. At age 30, he earned a PhD in philosophy at University of Rostock.

Full-Time Lecturer: At age 40, Steiner spent the remainder of his life as a full-time lecturer (23 more years). His early lectures addressed Theosophy and Rosicrucian. After he split from Theosophy in 1912 (age 51), he spent the rest of his life formulating and lecturing on Anthroposophy.

Anthroposophical Sciences: In the latter part of his life, Steiner developed three main scientific platforms: Projective Geometry, AP Medicine, and AP Agriculture. Projective Geometry has resulted in Flowform Technology which uses path curve geometry to design rhythmic water movement flowforms which remediate and revitalizes water. Anthroposophical Medicine uses herbs and natural substances, prepared via alchemical and homeopathic dilutions. Anthroposophical Agriculture, or Bio-Dynamic Agriculture, uses preparations of herbs, silica, clay, manure, and compost to improve the health and vitality of soils, crops, and livestock.

While the Agriculture Course lectures were delivered in the last year of his life, one can see how Steiner's early experiences living among peasant farmers and studying with an herbalist -- as well as his training in esoteric and technical sciences -- shaped his teachings on bio-dynamic agriculture.

Rudolf Steiner's Lectures by Year				
Year		No	Year	
27 years old →	☯ 1888	1	1908	207
↓	1889	2	1909	198
Goethe Scholar / Writer	1891	2	1910	197
	1892	1	1911	165
	1893	1	☯ 1912	192
	1894	1	1913	190
	1897	1	1914	148
Married, 1st / →	☯ 1899	1	1915	193
Joined Theosophy	1900	1	1916	151
40 years old →	☯ 1901	21	1917	145
Full-time Lecturer	1902	22	1918	169
	☯ 1903	37	1919	302
Theosophy/ Rosicrucian ↓	1904	140	☯ 1920	373
	1905	155	1921	384
	1906	177	1922	346
	1907	172	1923	425
			☯ 1924	421
Total		4941		

Split from Theosophy / Created Anthroposophy ←

← Married, 2nd

← Medical & Agriculture Lectures

Key Books that Explain Rudolf Steiner's Approach to Esoteric and Agricultural & Medical Sciences

- **The Philosophy of Freedom: Intuitive Thinking as a Spiritual Path (1894)**
- **Mysticism at the Dawn of Modern Age (1901)**
- **Theosophy: An Introduction to the Spiritual Processes in Human Life and in the Cosmos (1904)**
- **How to Know Higher Worlds: A Modern Path of Initiation (1905)**
- **An Outline of Esoteric Science (1910)**
- **Pastoral Medicine (1924)**
- **The Agriculture Course (1924)**

Modern day Mind-Body-Spirit practices such as meditation, breath control, and heart coherence are akin to the concentration and consciousness practices Steiner taught his students in "How to Know the Higher Worlds". In practical application, how can we integrate knowledge of these higher, supersensible realms (subtle energies beyond the five senses) in medicine and agriculture.

A Synopsis of Steiner's Approach to Holistic Medicine & Agriculture:

Active pursuit and integration of spiritual-energetic (esoteric) science with material (exoteric) science to enhance health & quality in medical and agricultural practice.

Healthy, balanced nutrition from bio-dynamic foods will preserve our ability to think clearly, enhance our spiritual and creative pursuits, and influence our ethical choices

Bio-Dynamics = Biological (life) + Dynamic (energy)

Agriculture Course

THE BIRTH OF THE BIODYNAMIC METHOD



EIGHT LECTURES BY
Rudolf Steiner

TRANSLATED BY GEORGE ADAMS

Biodynamic Field Sprays

BD 500 – Horn Manure

BD 501 – Horn Silica

Biodynamic Compost Preparations

BD 502 – Yarrow

BD 503 – Chamomile

BD 504 – Stinging Nettle

BD 505 – Oak Bark

BD 506 – Dandelion Blossoms

BD 507 – Valerian

BD 508 – Equisetum

BC – Thun's Barrel Compost

Peasant Farmer Wisdom in Almanacs

When the cock crows on the old manure pile, it'll rain soon – or in a long while.

“It is astonishing to read the farming rules contained in the old peasant almanacs and see the remarkable wisdom they expressed in clear and simple terms.... Enough humor is mixed in with this instinctive wisdom to ward off superstitiousness.”

- Rudolf Steiner

Radiant energy in BD 502

Pick fresh yarrow flowers

Place in bladder of a stag deer

Hang in sunny spot thru summer

In autumn, place in ground thru winter

BD 502 is one of the Compost Preparations used to treat manures & compost piles

“The radiant energy in it is so strong that it will influence the entire quantity of manure, or liquid manure, or compost.”

- Rudolf Steiner

Commentary on Slides 16-18: Hugh Lovel & Glen Atkinson

While the Agriculture Course book is the basis of bio-dynamic agriculture, Steiner's writings (actually transcribed lectures) are hard to understand due to his scholarly, esoteric language (translated from German) that would be familiar to his anthroposophical students, but not the average farmer or agricultural scientist.

Bernard Lievegoed's "The Working of the Planets and the Life Processes in Man and Earth" (1951) provides a synopsis of the energetic forces behind planetary processes (the Inner and Outer Planets) and the BD Preparations. However, in the modern context of organic and bio-dynamic farming – as well as quantum physics – I suggest these books by Hugh Lovel and Glen Atkinson.

Hugh Lovel teaches Quantum Agriculture, which utilizes all of the bio-dynamic practices and BD Preparations to promote soil humus, humified compost, and rich soil biology; however, beyond these basics he employs quantum practices such as dowsing, radionics, and broadcast towers. On a practical note for soil fertility geeks, Lovel utilizes modern soil testing methods (Total and Available) and published the Biochemical Sequence Chart.

Glen Atkinson was trained in homeopathy and astrology and ran a commercial kiwi plantation in New Zealand. Atkinson frames his approach as Secular Esoteric Biodynamic Agriculture. In this context, Atkinson interprets and associates Steiner's esoteric language into the widely-known electromagnetic spectrum (EM) along with "As Above, So Below".

Slide 17, Layers of Creation, explains Steiner's terminology around Spirit, Astral, Etheric, and Physical as the formative forces. Atkinson cautions against the simplified terminology used in bio-dynamic circles, "etheric formative forces".

Slide 17, based on an original drawing by Schmidt and Endmerger (1971) and recently modified by Atkinson (2017-2018), summarizes the Cosmic and Earthly forces that influence plant growth.

Slide 17 and 17 provide a synopsis of Steiner's energetic activities described in the Agriculture Course.

Grasping Steiner's Bio-Dynamic Agriculture by the Tail

Bernard Lievegoed, 1951. *The Working of the Planets and the Life Processes in Man and Earth: Contributions to the Understanding of the Working of the Preparations Indicated by Rudolf Steiner for the Treatment of Soil and Plants* (Study Material, Experimental Circle of Anthroposophical Farmers and Gardeners).

Hugh Lovel, *Quantum Agriculture: Biodynamics and Beyond* (2014)

Glen Atkinson, *Biodynamics Decoded* (1989)

The Energetic Activities (2011)

Glenological Chemistry – The Organization of Matter (2014)

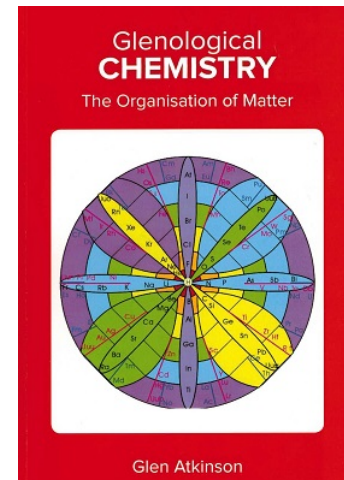
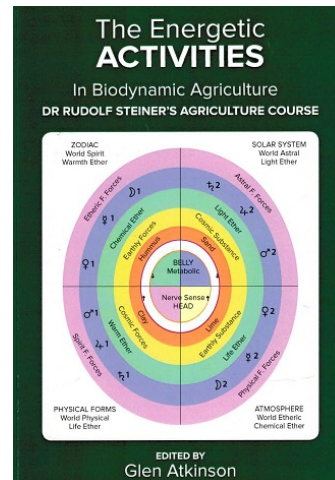
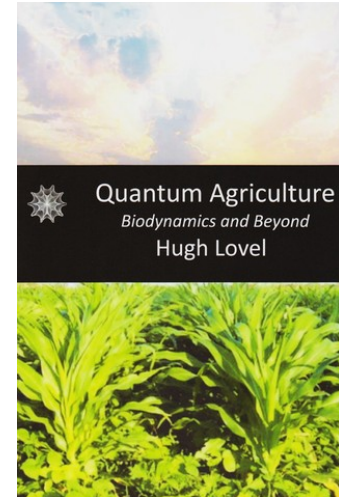
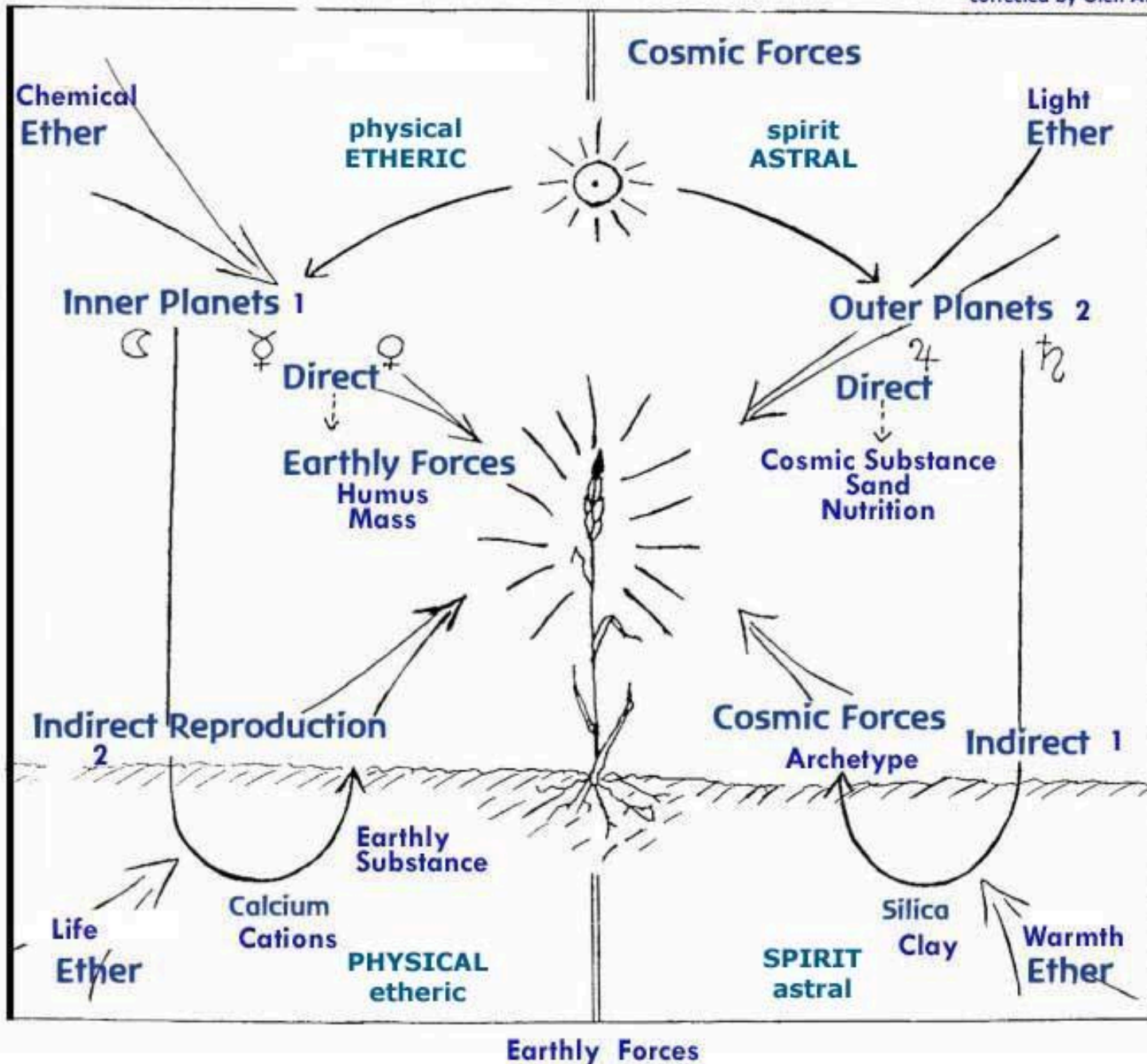


Figure 2: How the etheric forces affect plant growth, according to G. W. Schmidt, E. Erdmenger, 1971





Commentary on Slide 21: The Biodynamic Compost Skin

The author has observed the Biodynamic Skin used with compost piles and windrows in several different countries. Slide 21 illustrates the usage of Straw, Clay-Dung Slurry, and Compost Fleece. Farmers can thereby adapt this practice to local conditions and scale of production. The skin provides protection and thus facilitates the composting process and is often associated with a static aerated compost pile, although fleece is adapted to frequent turnings. Another suggestion, from the author's perspective, is the concept of bio-energy circulating inwards and outwards to the boundary of the skin.

The usage of a Clay-Dung Slurry to make a compost skin is commonly practiced in India. A recipe I learned during my USAID consultancy in India can be summarized as follows. A mixture of soil clay is mixed with cow dung to make a paste and seal the compost heap. The paste is made from 1/3 soil + 1/3 clay + 1/3 cow dung. A space of 3 inches is left unplastered near the ground to allow for air infiltration and promote aeration.

At a biodynamic demonstration site managed by an NGO in the Himalayas, they showed me six random compost windrows; three were treated with the BD Preps and three windrows were left untreated. They asked me if I can tell which three windrows had been treated with the BD Preps. I studied and observed the compost windrows, then pointed to this pile, this pile, and this pile.

They replied with some amazement, "that is correct, how did you know that"?

The skin on BD-Preps-treated windrows had a cracking pattern in the dried clay-dung paste which indicated increased levels of biological activity and thermophilic temperatures from usage of the BD Preps. This cracking pattern had an interesting, radial pattern. (Alas, my 35 mm camera was unavailable to capture this demonstration).

Covering the Biodynamic Compost Pile with a Protective Skin



BD 500 (Horn Manure)



Pfeiffer Field & Garden Spray

- Calcium influence
- Spray afternoon & evening
- Spray on freshly tilled soil
- Coarse drops

Horn Manure BD 500

Barrel Compost (BC) or Cow Patty Pit (CPP)

- Promotes lateral growth
- Promotes humus formation
- Enlivens soil and growth
- Etheric and Physical bodies

➡ Indigenous Microorganisms

BD 501 (Horn Silica)



**Grinding Quartz
Crystal**

- Silica influence
- Spray dawn till mid-day
- Spray in air, fine droplets



**Horn Silica
BD 501**

- Promotes upright growth
- Promotes flowering / seed
- Astral & Spirit bodies



**Horsetail / Equisetum
BD 508**

➡ **Indigenous Microorganisms**

BD Liquid Herbal Teas (Manures)

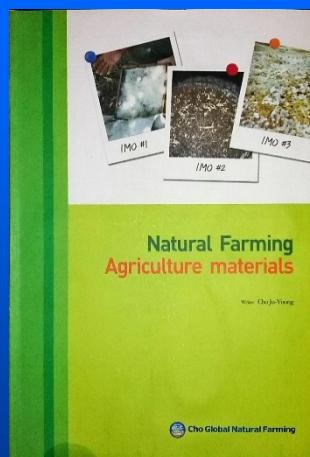
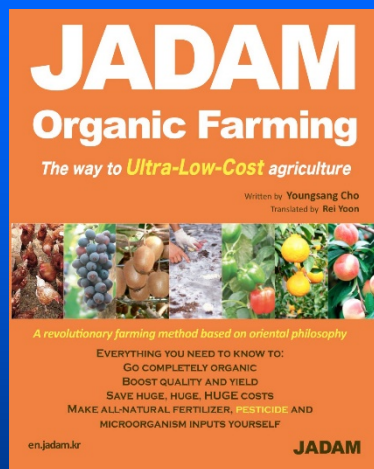


kenskitchengarden.com

BD Liquid Herbal Teas: Use BD Compost Preparation
KNF Fermented Plant Extract: Use sugar and seal for anaerobic
Outcome: Soluble Nutrients + Bioactive Substances + Microbes
—————> Indigenous Microorganisms

Korean Natural Farming (KNF)

- IMO** = No. 1, No. 2, No. 3
- FPJ** = Fermented Plant Juice
- FFJ** = Fermented Fruit Juice
- FAA** = Fish Amino Acid
- LAS** = Lactic Acid Bacteria Serum
- OHN** = Oriental Herbal Nutrients
- BRV** = Brown Rice Vinegar
- WS-PA** = Water-Soluble Phosphoric Acid



KNF teaches farmers how to make their own extracts and microbial inoculants from on-farm biomass resources. These KNF recipes contain synergistic soil and crop health promoting Bioavailable Nutrients, Bioactive Substances (e.g., organic acids, enzymes, metabolites, hormones), and Indigenous Beneficial Microorganisms.

Natural Farming in India — Vedic Krishi

Amrit Pani (ghee, honey, Vitex & Neem leaves, cow urine)

Beejamrit (cow dung, cow urine, cow milk, limestone, water)

Dasagavya (Panchagavya with plant extracts)

Jivamrit (cow dung, cow urine, jaggary, pulse flour, soil, water)

Kunapajola (fish, sesame oil cake, rice husk, cow urine)

Matka Khad (cow dung, cow urine, jaggary, earthen pitcher)

Pachagavya (cow dung, cow urine, cow's milk, curd, ghee)

Sanjibani (cow dung, cow urine, water)

Vermiwash (earthen pitcher, worm compost, earthworms, water)

Steve Diver, 2018

Vedic Krishi is the 1,000 year-old agriculture knowledge of India. Modern farmers and NGOs have adapted and modified these ancient recipes to make on-farm extracts and microbial inoculants from local biomass resources. Similarly: Bioavailable Nutrients, Bioactive Substances, and Indigenous Beneficial Microorganisms

Stirring the BD Preps (Dynamization)



Hand Stirring & Tripod Stirring

Machine Stirring is Common on Working Farms



Natural Science Organics (New York)
Photo by Steve Storch



Domaine de Cigalus (France)
Photo by Kelly Magyarics

Flowforms

The Rhythmic Power of Water

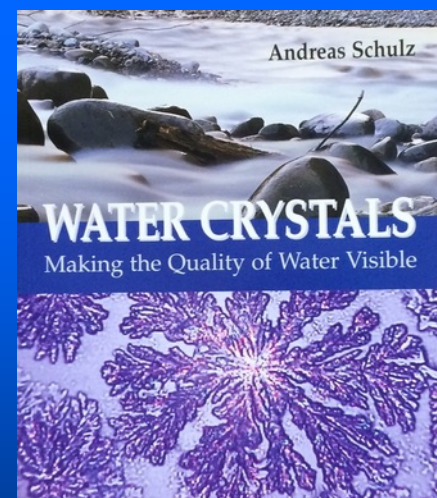
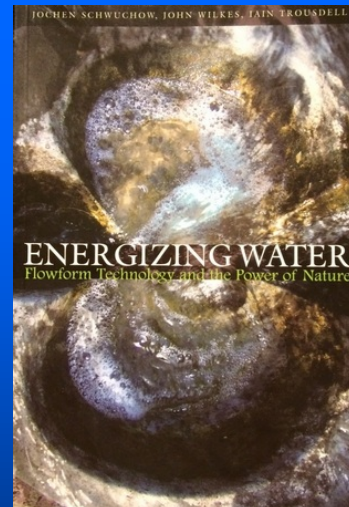
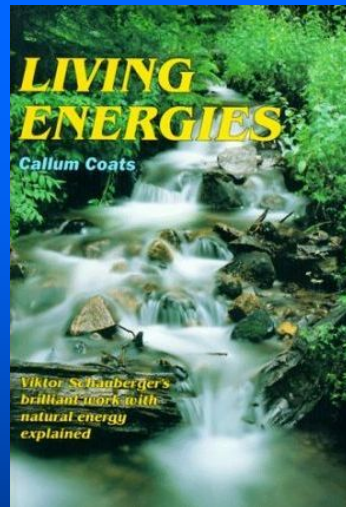
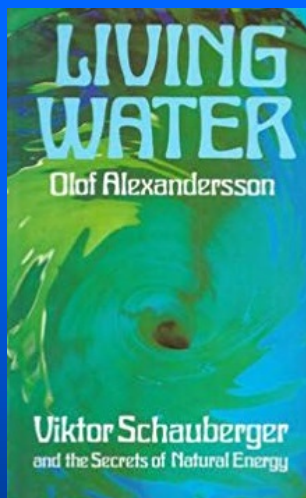
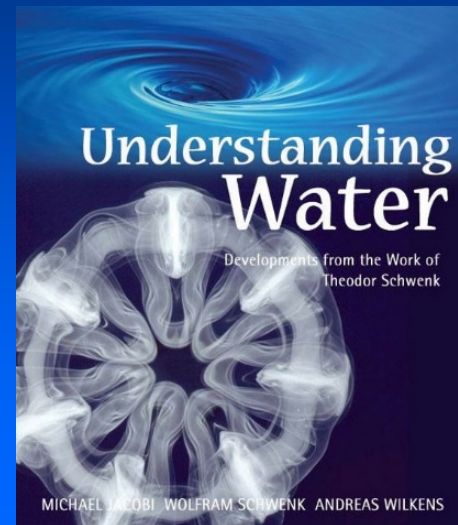
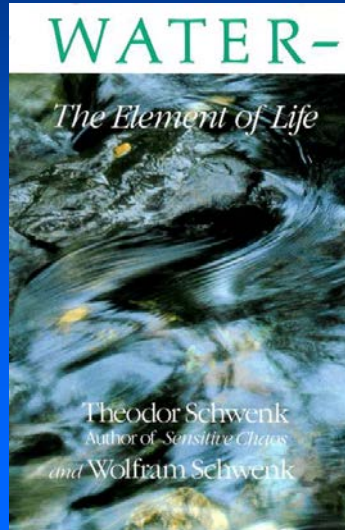
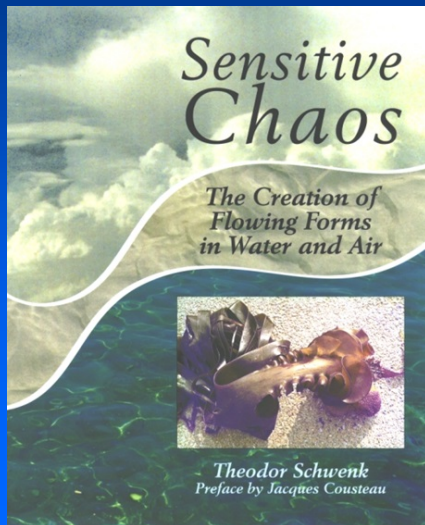
John Wilkes



Steve Diver, 2018

Flowforms are Common on Working Farms

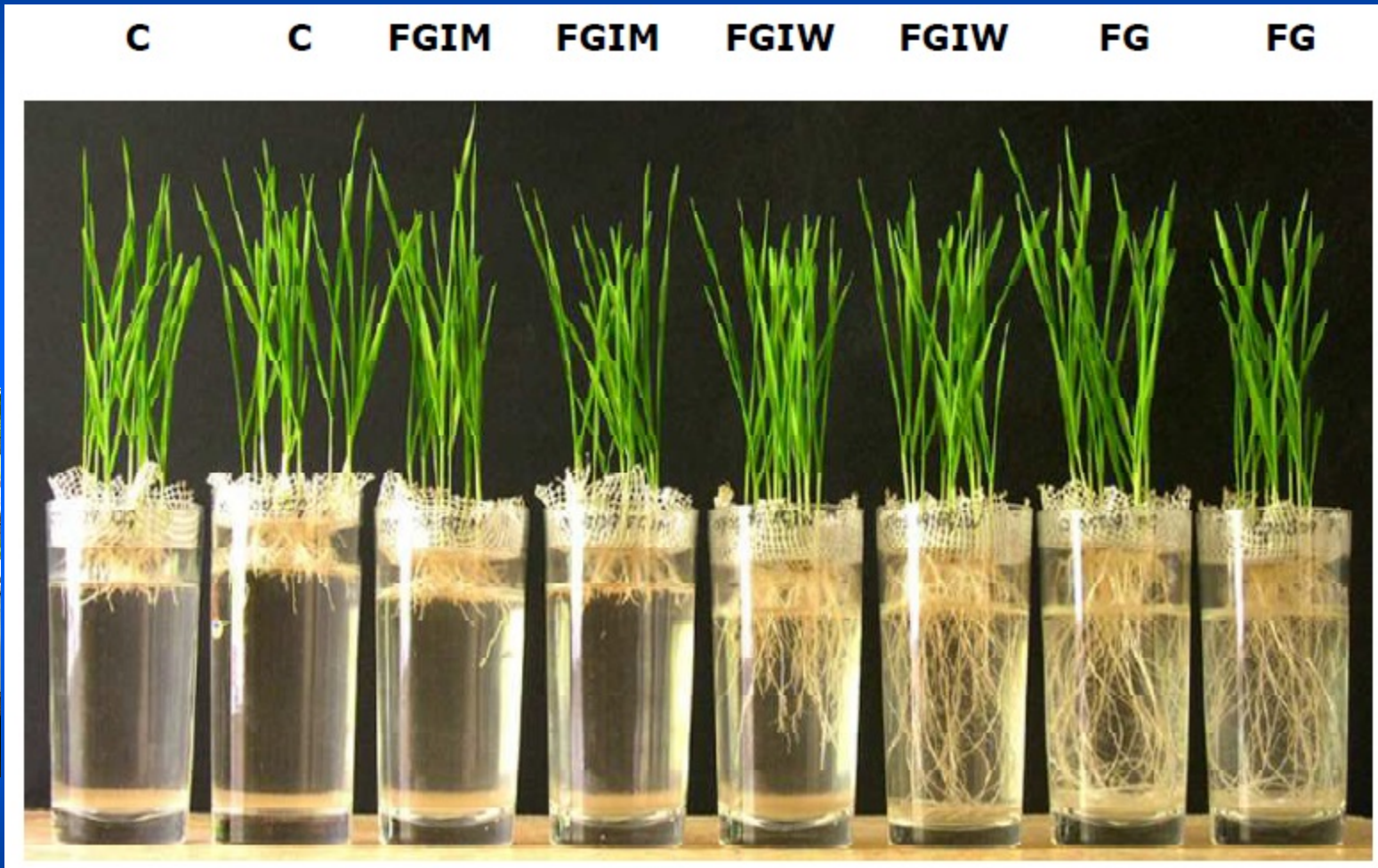
Water Vortex & Dynamization



Rich history pursuing the science of centripetal water implosion, dynamization & potentization, qualitative analysis, structured water, carrier of information

Path-Curve Geometric Shape & Rhythmic Movement Influences Water and Thereby Wheat Seed Germination

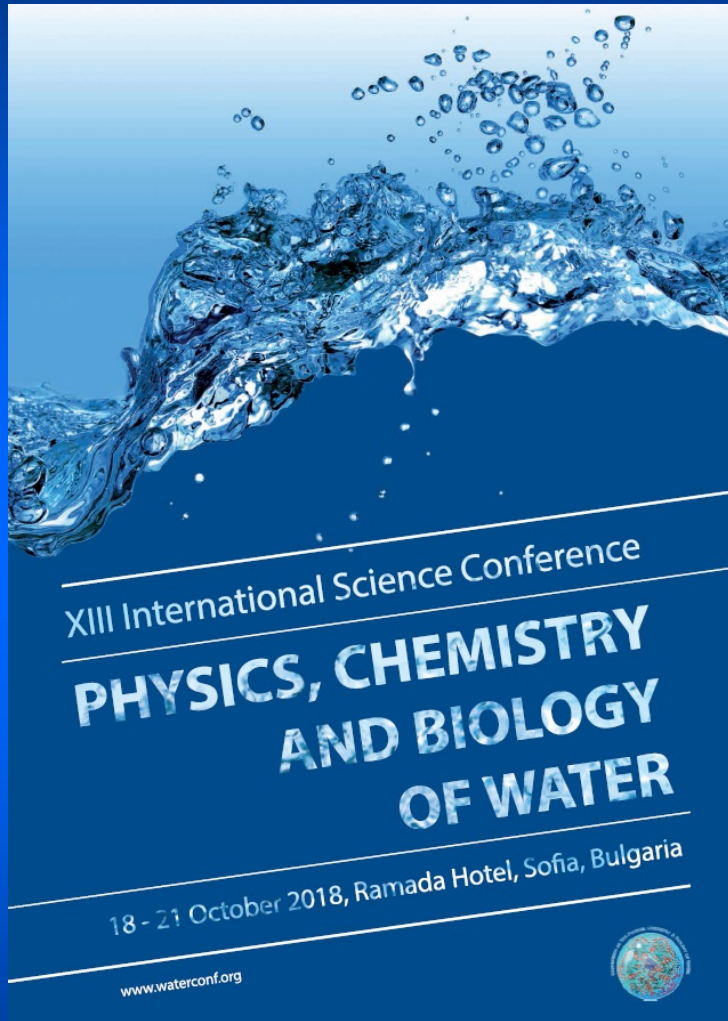
Flowforms
The Rhythmic Power of Water
John Wilkes



Healing Water Institute, Flowform Research 1970-2007

Steve Diver, 2018

International Conference on the Physics, Chemistry and Biology of Water (Sofia, Bulgaria), 12th annual 2018



Gerald Pollack, Luc Montgnier, John Steward Reid, Ernst Zucher, James DeMeo, Glen Rein, James Oscham, Igor Jerman, Emilio Del Giudice, Vittorio Elia, Alberto Tadeschi, et al

Presentations, papers, journal articles, books

Water has anomalous properties (e.g., phases, liquid crystalline structure, dipole, dielectric properties) which lends itself to function as an information carrier (aka the "memory of water") .

Technical support for dynamization of BD preparations, agro-homeopathy, bioremediation, implosion, revitalizing of living systems.

Now What

Summary: To quickly grasp bio-dynamic farming, think of it as organic farming plus the BD Preps

Common: Make BD 500 and BD 501 on your own farm (indigenous microorganisms), buy the Compost Preparations or use Pfeiffer Compost Starter

Key Concept: The Farm is viewed as an Organism. Thus, design the farm so that it has built in fertility, product marketing, and ecological & economic resiliency

Outcome No. 1: Keeping grazing animals on the farm implies the best kind of agronomic husbandry for soil health, soil humus, soil biology, and resiliency; e.g., integrated crop-livestock management includes sod-forming pasture forages that re-structures soil in between cropping cycles

Outcome No. 2: Quality cow manure for making BD composts and BD humus preparations (hard to find un-contaminated manure in modern industrial agriculture); i.e., one of the reasons bio-dynamic farming has flourished in India

Integrated Crop-Livestock for Soil Health

Basic Reasons for Crop Rotation

- Alternate vegetable families for disease control
- Alternate N-fixing legumes with heavy-feeding crops
- Alternate with cover crops

Soil-Building Crop Rotations Include:

- 5-year and 7-year crop rotations that integrate crop-livestock with sod-forming forages composed of grasses & legumes
- 2-3 years of a green fallow – grazed for income – to rebuild soil structure, fungal biomass, and natural SOM Functioning and SFW Functioning
- A balance of “soil depleting” and “soil building” crops & forages

Short and long-term crop rotations advocated by pre-1960s land-grant universities and USDA-SCS were based on sod-forming grasses and legumes that promoted SOM with soil aggregation. The obvious farm enterprise to make this economically profitable was green cover crop fallows and pasture fallows combined with livestock grazing. Now USDA-NRCS promotes integrated crop-livestock for soil health.

Bio-Sprayer Technology



Jackto Backpack Sprayer



Stihl SR450 Backpack Mist Blower



Sustainable Growth Texas, LLC
Liquid Biological Amendment Technology
Bio-Augmentation and Bio-Stimulation on Farms, Ranches, Landscapes

Bio-Sprayer Technology utilizes standard ag equipment to apply soil & foliar sprays (e.g., compost extracts & bioferments, liquid fish, soluble minerals and trace elements, microbial inoculants, BD Preparations)

Humus Management Practices with Bio-Sprays



Pfeiffer Field & Garden Spray, Josephine Porter Institute, over 50 species of SOM digesting and humifying microbes, plus the BD Field Spray Preparations

Humus Management Practice: Bio-inoculating green manures & crop residues



Gerald Wiebe, Manitoba (Canada), compost extract with microbial food additives to enhance microbial digestion of crop residue incorporation

Soil Humus Improvements



Image: Pierre Masson (France)

Humus transformation in vineyard soils in France with Pierre Masson, first year after BD 500

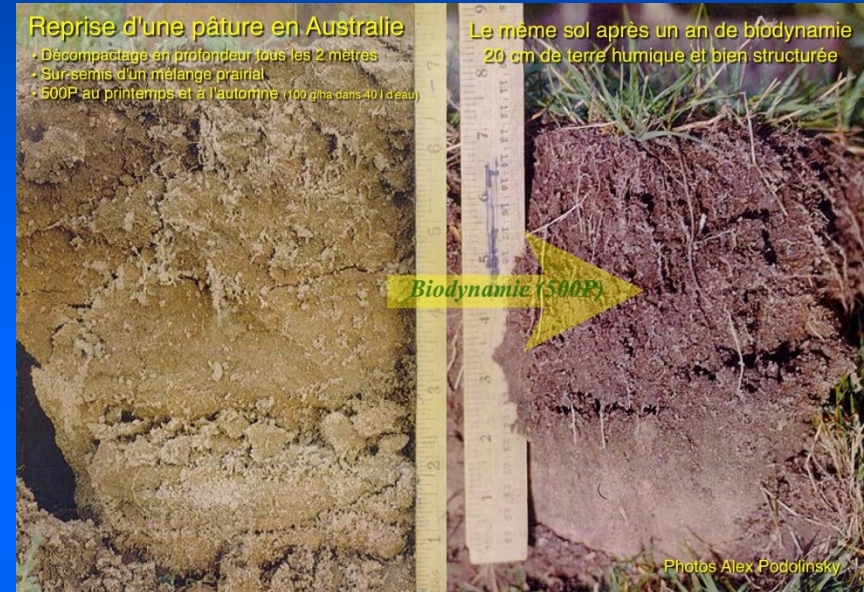


Image: Soin de la Terre (France)

Humus transformation in pasture soils in Australia with Alex Podolinsky, first year after BD 500

Farmers and vineyardists like the soil humus improvements – with attendant structural porosity, soil biology, and nutrient cycling – from use of the BD Preparations

Soil Humus Improvements



Image: Soin de la Terre (France)

Adjacent comparison soil in cereal rotation,
managed organically

Photos taken same time in hot, dry July



Image: Soin de la Terre (France)

BD 500 and BD 501 managed soil in cereal rotation
after 3 years

Photos taken same time in hot, dry July

Farmers and vineyardists like the soil humus improvements – with attendant structural porosity, soil biology, and nutrient cycling – from use of the BD Preparations

Biodynamic Research & Qualitative Bioassay Methods

The Picture-Forming Methods

- **Capillary Dynamolysis / Steigbild**
- **Sensitive Crystallization / Bio-crystallization**
- **Circular Paper Chromatography / Pfeiffer Method**
- **Water Droplet Method**
- **Evaporative Water Droplet Method**

Commentary on Slide 41-42: Lili Kolisko (1889-1976)

Early Years: Lili Kolisko was a volunteer in a military field hospital in 1914 when she met her future husband, Eugen, who was already a medical doctor. They met Rudolf Steiner following a lecture in 1915. Eugen Kolisko went on to write extensively on Anthroposophic Medicine, while Lili became a lifelong bio-dynamic researcher. The Kolisko's first research collaboration was finding a natural, anthroposophical cure for hoof and mouth disease at The Biological Institute at the Goetheanum (Stuttgart), in 1920-1921, which propelled Lili's expertise in microscopy and agro-homeopathy.

Agro-Homeopathy: Based on suggestions from Rudolf Steiner in the years preceding The Agriculture Course held in 1924, Lili Kolisko's research resulted in two major contributions to early agro-homeopathy: (1) testing potencies of substances through seed germination studies, and (2) developing potency growth curves which showed a rhythmic, sinusoidal response – the maxima and minima -- to smallest entities (homeopathic dilutions), known today as Kolisko Curves. Over the course of her lifetime, Lili Kolisko generated thousands of these potency graphs which contributed to our understanding of growth-enhancing bio-dynamic preparations and anthroposophical medicines.

Capillary Dynamolysis: In 1920, Lili Kolisko developed the Capillary Dynamolysis method, also known as Steigbild or Rising Picture Method, a type of vertical paper chromatography. Early research focused on metal salts, then proceeded to various plant juices. Kolisko proved the value of the Steigbild method as a means to demonstrate the influence of cosmic planetary forces (i.e., unseen "formative forces" emanating from outer space) in "Workings Of The Stars In Earthly Substances" (1927), as illustrated in the following slide.

Agriculture of Tomorrow: While Lili Kolisko's original articles and books from her pioneering research were published in German, in 1936 Eugen and Lili relocated to England where she began translating her publications into English.

Agriculture of Tomorrow, first published in 1939, summarizes the great extent of her research on homeopathic potencies, potency growth curves, capillary dynamic studies, moon and plant growth, planetary influences, and the BD Preparations with over 300 chromatogram plates, potency graphs, and pictures.

Lili Kolisko (1893-1976)

Capillary Dynamolysis and Agro-Homeopathy

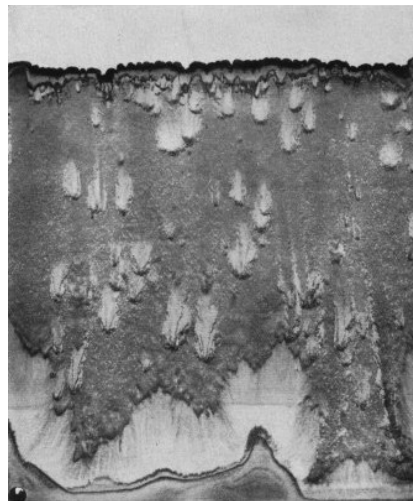
Workings of the Stars In Earthly Substances (1927)

Agriculture of Tomorrow (1939)



AgNO₃+FeSO₄+Pb(NO₃)
during Sun-Saturn Conjunction,
November 22, 1926

Chromatogram expression is
blocked by the Sun, proving
planetary cosmic forces
interact with metals in solution
on earth.



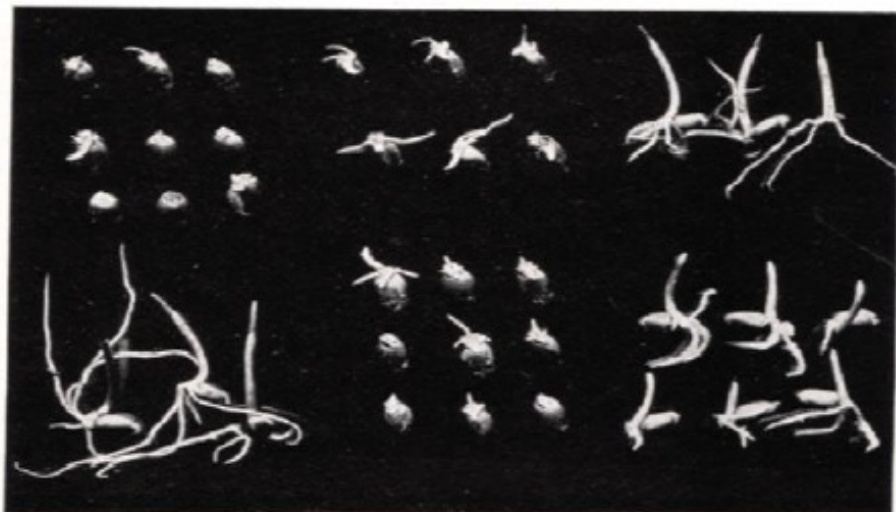
AgNO₃+FeSO₄+Pb(NO₃) **before
and after** Sun-Saturn Conjunction,
November 22, 1926

Working of the Stars in Earthly
Substances (1927)

17

18

19



20

21

22

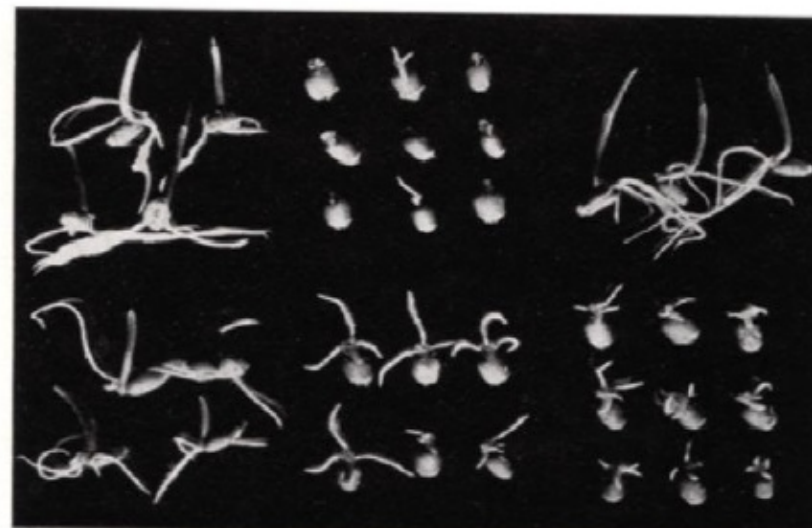
Abb. 65

17.—22. Dezimalpotenz

23

24

25



26

27

28

Abb. 66

23.—28. Dezimalpotenz

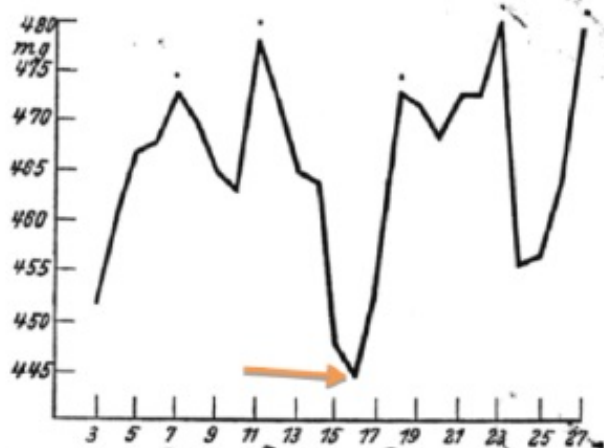


Abb. 209 Kurve des durchschnittlichen Gewichtes der Weizenpflänzchen in 8 Kolisko'schen Potenzverdünnungsreihen mit Schwermetallsalzen.



The Kolisko Validation™ Method:

Improving the Quality Control of

Homeopathically Potentized OTC Drugs

Ross Rentea MD, Mark Kamsler MD

Research Article

Open Access

Capillary Dynamolysis Image Discrimination Using Neural Networks

Mehmet S. Unluturk^{1*}, Sevcen Unluturk², Fikret Pazir³ and Firoozeh Abdollahi⁴

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²Izmir Institute of Technology, Food Engineering Department, Izmir, Turkey

³Ege University, Food Engineering Department, Izmir, Turkey

⁴1510 - 1360 York Mills Road- North York ON-Toronto-M3A 2A3-Canada



Conventional Tomato (processed)



Organic Tomato (processed)

Conclusion: The capillary rising picture method is 100% accurate for discriminating between organic and conventional tomatoes whether fresh or frozen.

E.g., Gram-Charlier Neural Network (GCNN) Architecture

Glen Atkinson

New Zealand kiwi grower

BDMax Homeopathic Preparations



Broad Bean, Upright Leaf Growth
SilicaMax (Silica-Warmth)



Broad Bean, Round Larger Leaves
Etherics 1000 (Calcium-BD500)

**Leafing Spray, then
Flowering Spray**

Flowering Spray

**Leafing Spray
Bloomed 2nd year**

Glen Atkinson, BDMaz (New Zealand)

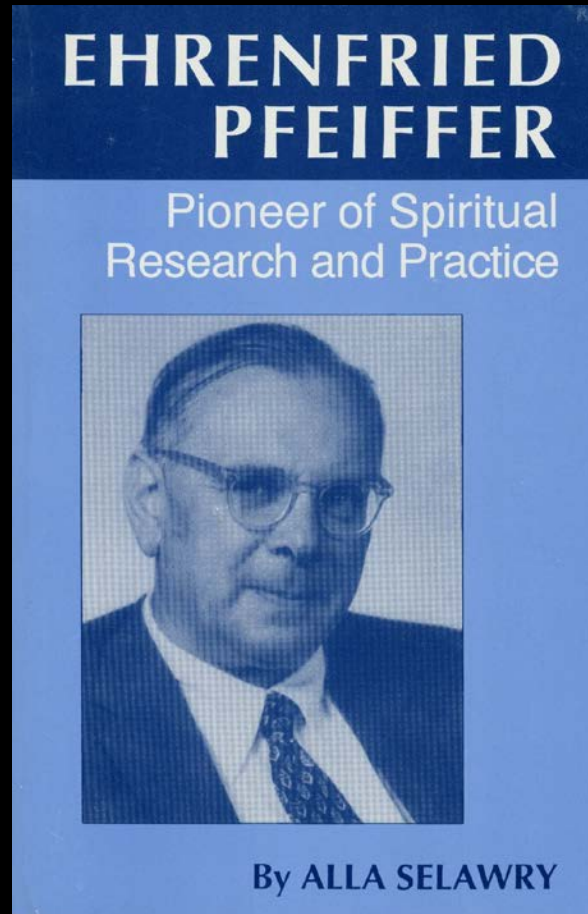
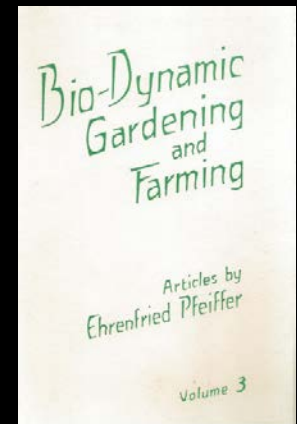
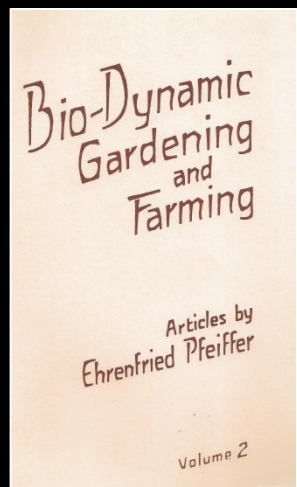
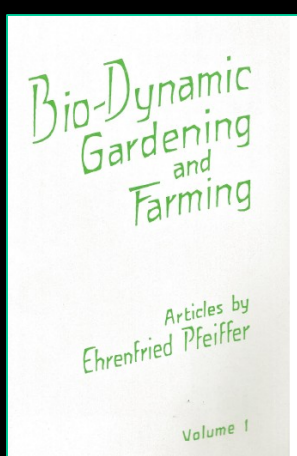
Commentary on Slide 47-55: Dr. Ehrenfried Pfeiffer (1899-1961)

Early Years: As a young boy, Ehrenfried Pfeiffer learned herbalism, chemistry, and laboratory techniques from his grandfather who owned an apothecary. He liked to spend time in woods and meadows and fell in love with Nature. From 1919 until Rudolf Steiner passed away in 1925, Ehrenfried Pfeiffer worked closely with Steiner at the Goetheanum in Dornach, Switzerland. During this time Pfeiffer took courses in physics, electrical engineering, chemistry, minerology, botany, plant geography, and ecology at the Technical College in Stuttgart, based on curriculum advice from Steiner.

Biodynamic Preparations and the Birth of Bio-Dynamic Agriculture: The first experimental BD 500 (Prepared Manure or Horn Manure) was made by three people in 1921-1922: Ehrenfried Pfeiffer, Dr. Gunther Wachsmuth, and Rudolf Steiner.

Sensitive Crystallization: In 1925 Pfeiffer developed the Sensitive Crystallization method, now widely known as Biocrystallization, in concert with Erika Sabarth. When a solution of copper chloride is mixed with aqueous extracts of plants, biological and mineral substances then allowed to dry, unique crystalline patterns emerge. While primarily a qualitative bioassay, modern researchers use digital scanning technology to analyze treatment differences. Pfeiffer published *Sensitive Crystallization: A Demonstration of Formative Forces in Blood*, in 1936. Because this technique proved extremely accurate in early detection of cancer in blood samples, Ehrenfried Pfeiffer was awarded an honorary M.D. degree from Hahnemann Medical College (Philadelphia) in 1939.

Compost, Humus, and Circular Paper Chromatography: Following the Agriculture Course, Ehrenfried Pfeiffer became the leading agricultural scientist investigating and teaching the bio-dynamic method. From 1940 until his death in 1961, Pfeiffer lived in the United States. His books and articles (*Biodynamic Journal*) provide guidelines for practical humus management, preparing quality humified compost, improving soil humus, microbial properties, and food quality. He developed the Circular Paper Chromatography method in 1953, now in worldwide use. He published *The Compost Manufacturers Manual: The Practice of Large Scale Composting* in 1956, which influenced the modern compost industry and is referenced by land-grant universities such as Cornell University.

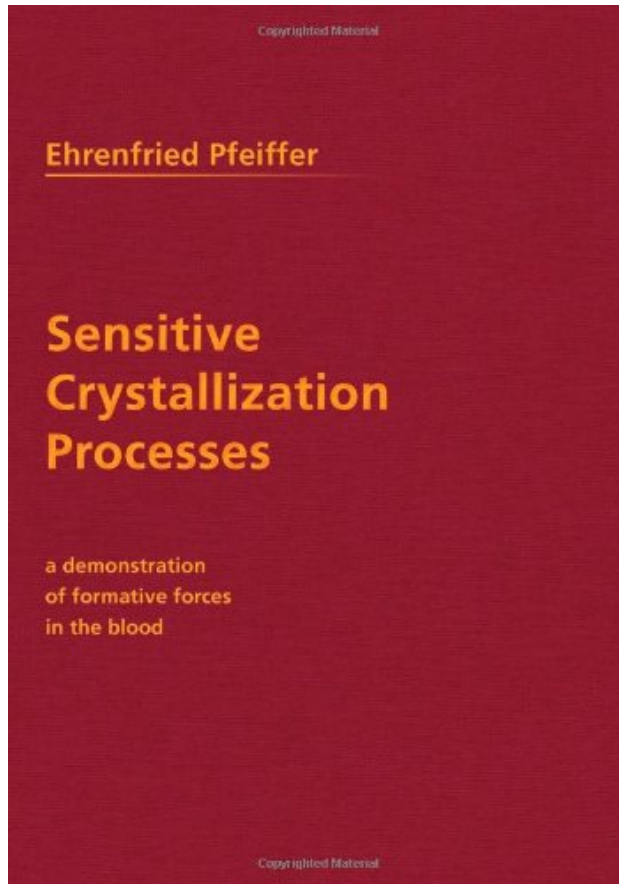


Ehrenfried Pfeiffer (1899-1961)

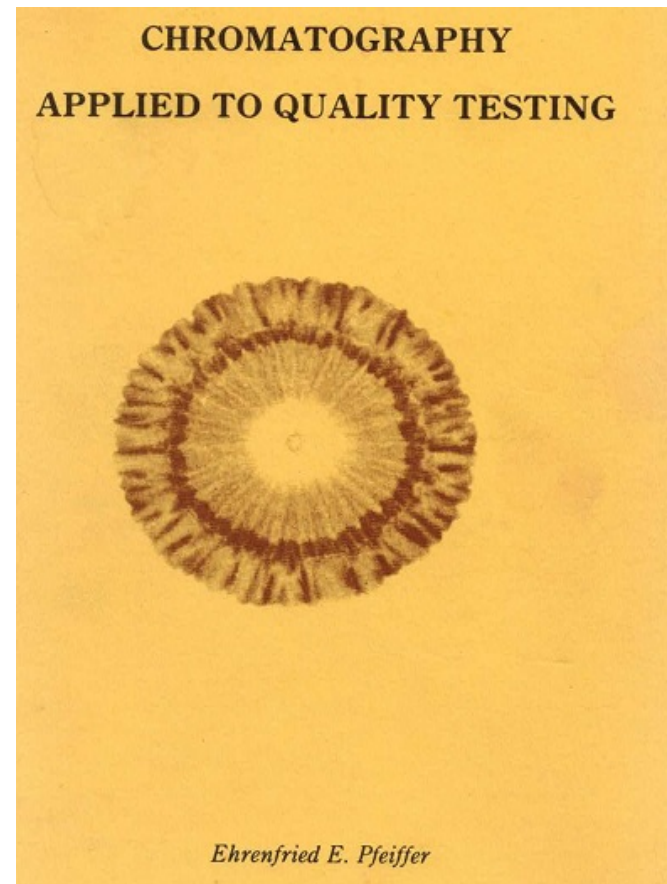
Dr. Ehrenfried Pfeiffer's contribution to our knowledge of Humus Management, Composting, and Quality Evaluation

- Raw humus vs Mature colloidal humus
 - Humus management (soil-building and soil-depleting rotations)
 - Break-down and Build-up phases of aerobic, thermophilic compost
 - Addition of rock minerals to compost
 - Importance of microbiology and enzymes in compost and soils
 - Amending compost windrow with soil
 - Large-scale windrow composting
 - Pfeiffer BD Compost Starter
 - Pfeiffer Field and Garden Spray
-
- Sensitive Crystallization
 - Circular Paper Chromatography

Pfeiffer's Quality Assessment Methods



Sensitive Crystallization



Circular Paper Chromatography

LIFE



WIMPLE

JANUARY 2, 1939 10 CENTS

SCIENCE

DISEASES ARE DIAGNOSED BY CRYSTALLIZED BLOOD



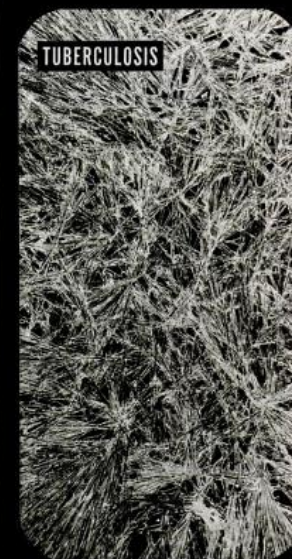
What may be one of the most invaluable discoveries in the field of medical diagnosis was announced recently before the French Academy of Medicine in Paris. Developed by Dr. Ehrenfried Pfeiffer, a well-known Swiss chemist, the new method makes it possible to tell in 15 min. from what disease a patient is

suffering simply by examining his blood crystals. Basis of the discovery is that crystallized material often shows a definite pattern of crystallization by which it may be identified and that when even the most minute quantity of a foreign body is added to the material its crystalline structure is immediately changed. Dr. Pfeiffer, many years ago, decided to see how this rule worked with blood. After completing thousands of experiments he claimed that crystallized blood of a normal healthy person invariably showed a certain design (below), but when the person became diseased the design was modified and took on a pattern characteristic of each disease (right).

To make a diagnosis according to this theory, the doctor simply takes a drop of blood from the patient's finger (above), mixes it with copper chloride and lets it crystallize. By examining the crystallization pattern under a microscope, the doctor can instantaneously tell what disease, if any, the patient has.



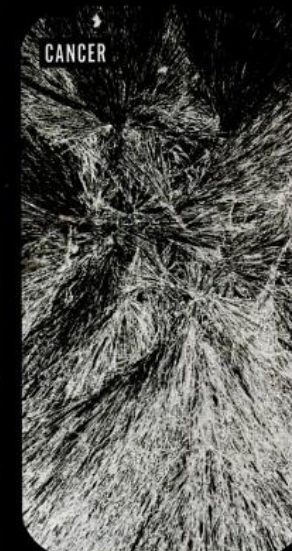
Magnified view of normal, healthy blood shows a regular pattern in which the thin crystals tend to be parallel.



Maltese cross pattern is the characteristic design that appears in crystallized blood of a tuberculous person.



Pointed, fanlike structure of the crystallized blood specimen usually signifies that the patient is epileptic.



Intersecting angles of the crystal pattern in this blood specimen indicate that the patient suffers from cancer.



Slightly-bunched crystals are typical of diabetic blood. Insulin treatments quickly bring blood back to normal.

The Canadian Medical Association Journal

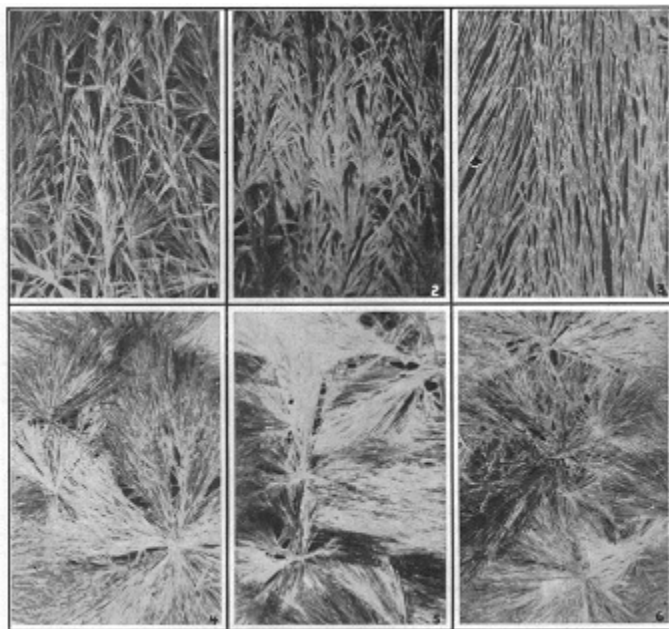
Vol. 43

TORONTO, AUGUST, 1940

No. 2

EXPERIENCE WITH THE PFEIFFER CRYSTALLIZATION METHOD FOR THE DIAGNOSIS OF CANCER*

BY O. C. GRUNER, M.D.



Top Row, Left to Right:
Calendula, Chrysanthemum, Healthy Blood

Bottom Row, Left to Right: Cancer in Blood

Conclusion: Pfeiffer method is 90% accurate;
n = 208 samples

Efficacy of crystallization test for screening of oral squamous cell carcinoma with clinico-pathological correlation

Sachin C Sarode, Gargi S Sarode, Suresh Barpande¹, Jagdish V Tupkari¹



Control Group,
Healthy Cells



Grade I OSCC
+TF Formation



Grade II OSCC
+TF Formation

Conclusion: Crystallization test is 96% accurate; simple, reliable, less invasive screening procedure (TF = Transverse Form formation)

DUQUESNE UNIVERSITY LIBRARY
PITTSBURGH 19, PA

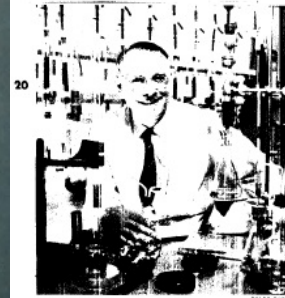
Collier's

May 31, 1952 • Fifteen Cents

Anti-Trust Laws Are Crippling America

By
David E. Lilienthal

THE CITY WITH GOLDEN GARBAGE



Dr. E. Pfeiffer, who isolated magic bacteria,
at his laboratory in Spring Valley, New York

The City with **GOLDEN GARBAGE**

Trained bacteria, turned loose on the refuse of Oakland, Cal., produce a rich, sweet-smelling fertilizer that's guaranteed to perform near miracles for farm land. It's like back-yard compost, and it could save the nation billions of dollars

By A. W. MARTINEZ



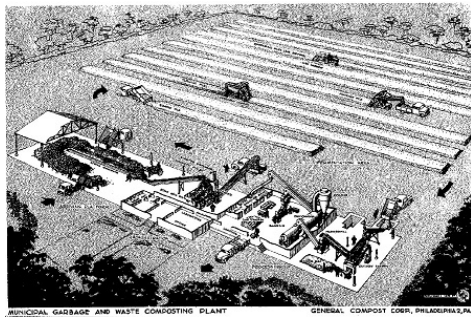
They're Learning to Talk
(See Page 24)

THE COMPOST MANUFACTURERS MANUAL

The Practice Of Large Scale Composting

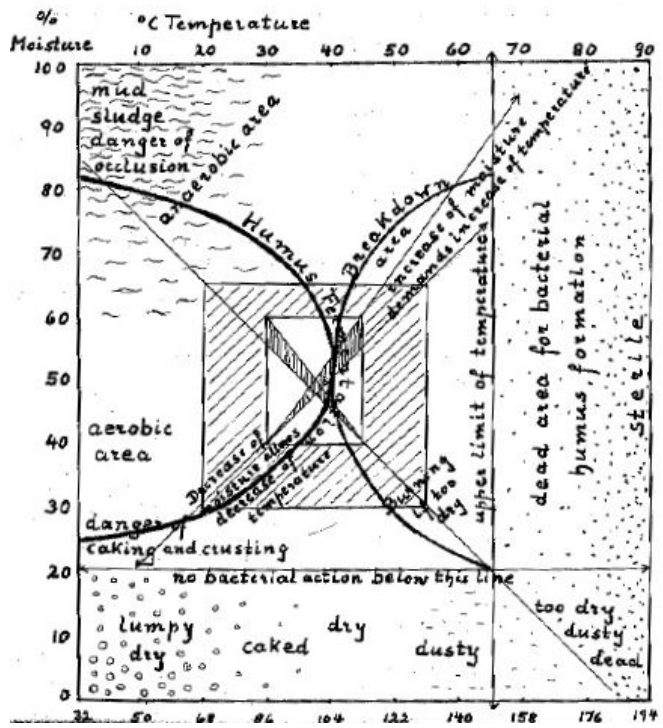
by
 Ehrenfried E. Pfeiffer, M. D. (Hon.)
 Director, Biochemical Research Laboratory
 Consultant in Agriculture and Biochemistry

Published by
 THE PFEIFFER FOUNDATION INC.
 226 South 16th Street
 PHILADELPHIA 2, PA.
 1956

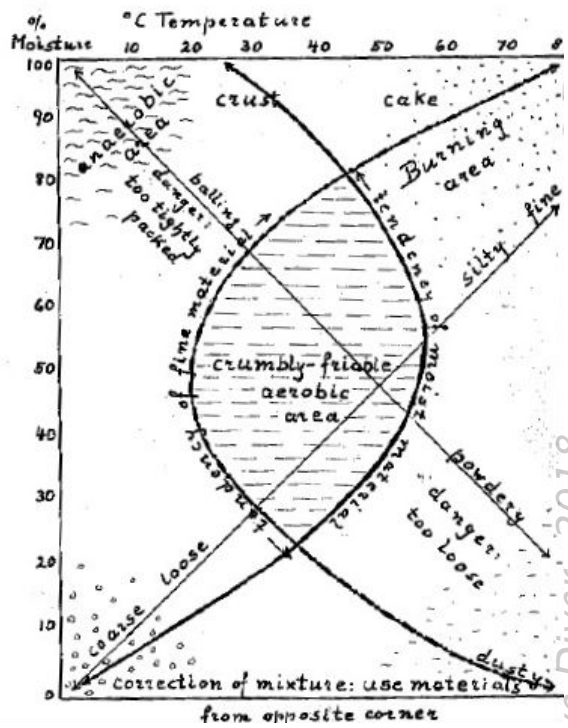


Key to proper Compost Fermentation

Relationship of moisture and temperature



Relationship of moisture and structure



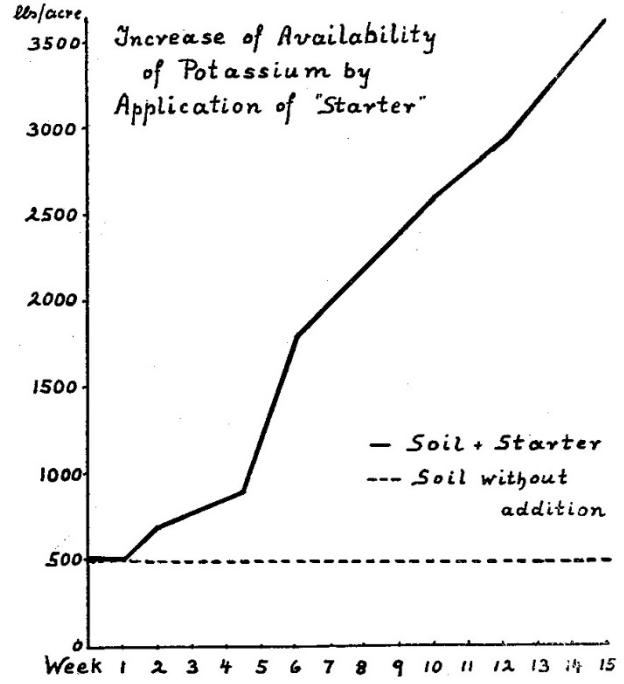
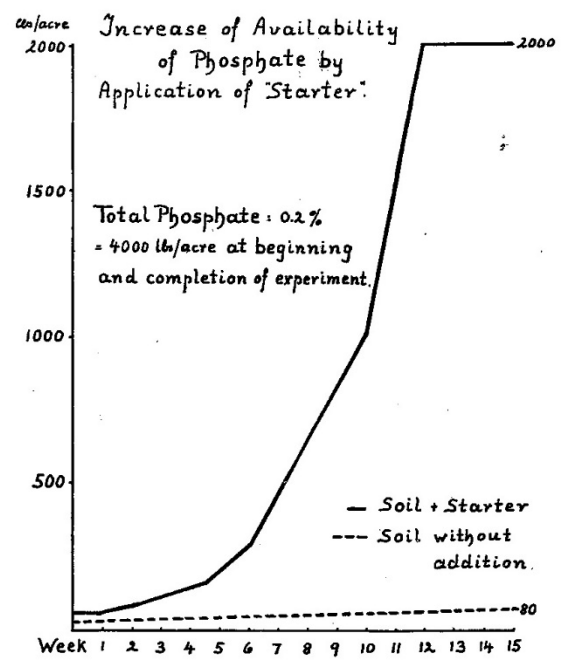
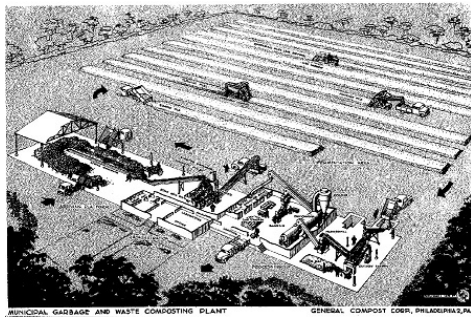
Steve Diver, 2018

THE COMPOST MANUFACTURERS MANUAL

The Practice Of Large Scale Composting

by
Ehrenfried E. Pfeiffer, M. D. (Hon.)
*Director, Biochemical Research Laboratory
Consultant in Agriculture and Biochemistry*

Published by
THE PFEIFFER FOUNDATION INC.
226 South 16th Street
PHILADELPHIA 2, PA.
1956



Compost Quality Matters

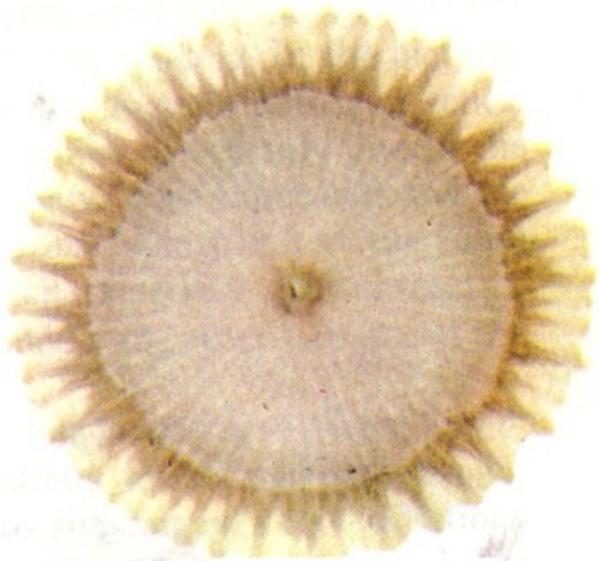


Standard Manure Compost
Non-structured, fluffy



BD Humified Manure Compost
Structured, colloidal

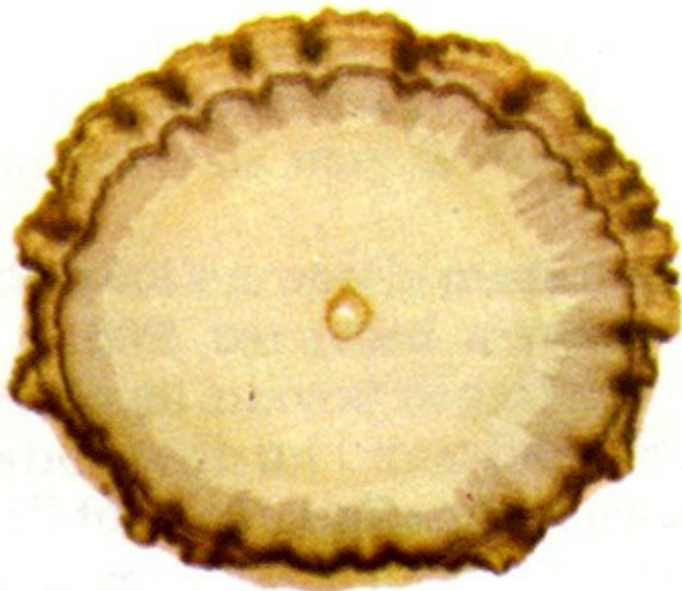
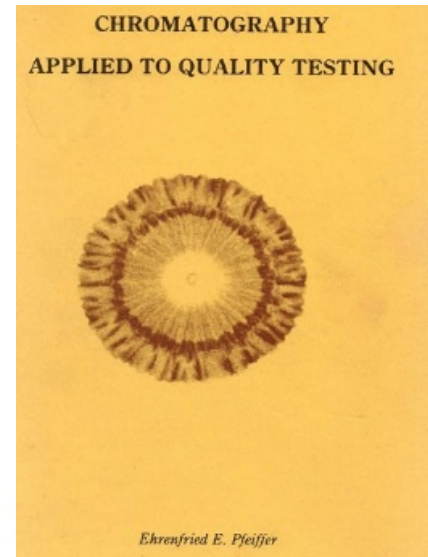
Message: Humified compost is amended with clay or clayey-soil, microbially inoculated, and “managed” to achieve a finished, humus-rich, premium-grade compost. Biodynamic compost preparations, or the Pfeiffer Compost Starter, are used to make BD Compost.



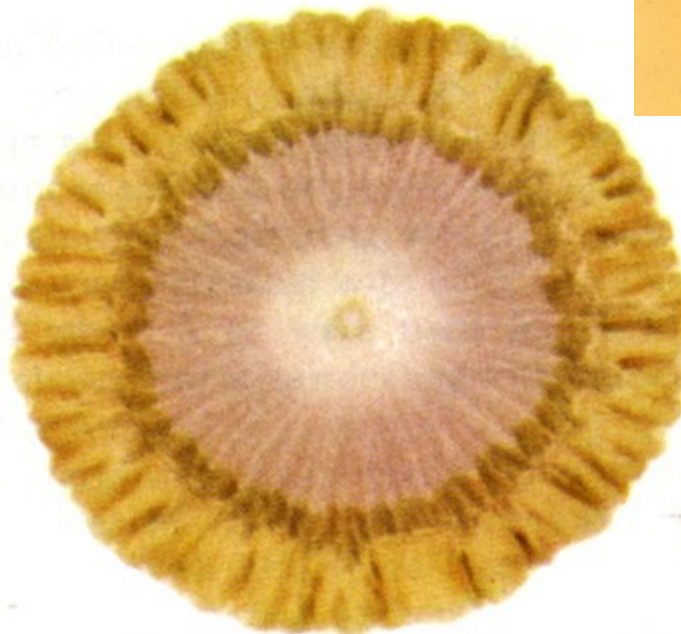
2. ADOBE SOIL, DEAD.



1. VIRGIN SOIL, VERY FERTILE.



**10. RAW BROILER POULTRY.
MANURE. UNTREATED.**

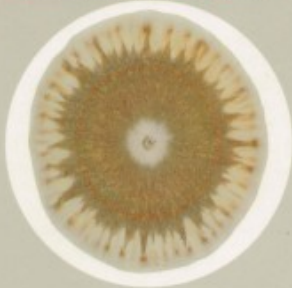


**12. COMPOST FROM POULTRY MANURE
(SEE ABOVE). B. D. TREATMENT.**

Helmut Voit/Elisabeth Guggenberger

Der Chroma-Boden-Test

Die Bodenqualität
bestimmen, bewerten und verbessern
Ein unentbehrlicher Ratgeber für Landwirte,
Berufs- und Hobbygärtner



Orac

UMWELT
PROBLEME
LÖSEN

Siegfried & Uta Luebke
Controlled Microbial Composting Group
Austrian farmers

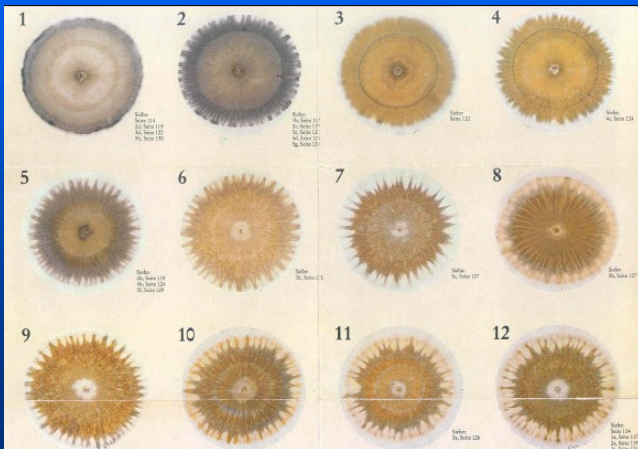


Vitality Theory of Soil Fertility

“Soil life is the basis of fertility”

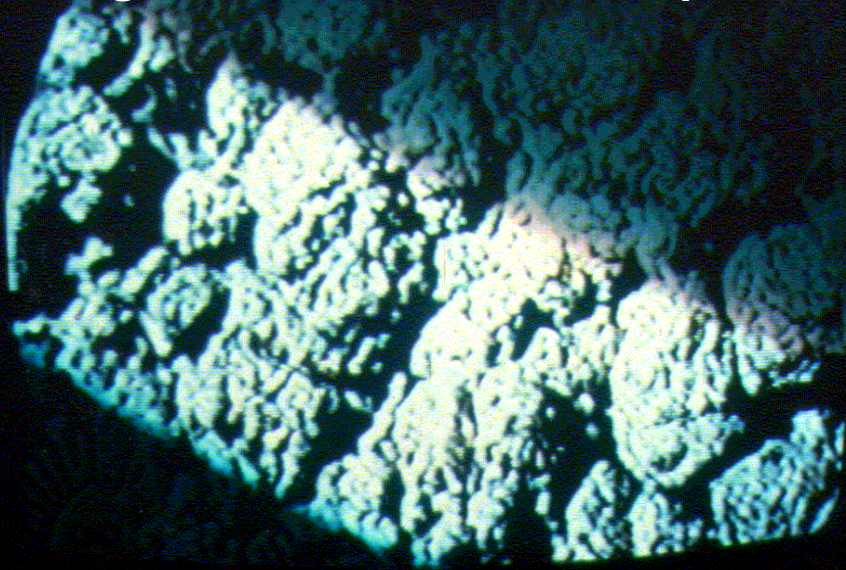
“The greater the quantity and variety of life
growing and feeding in and on the soil, the better
its fertility”; i.e, microbial density & diversity

- Worldwide evolution of Pfeiffer compost & paper chromatography
- Led to MEND concept in Australia
- Led to Cromatografia in South America
- Led to innovations in humified compost with offshoots in compost turners, microbial inoculation, fleece covers, clay-humus compost



Clay-Humus, Seat of Soil Fertility

Siegfried Luebke, CMC Compost



Clay-humus under microscope



Luebke “humified” compost, based on Pfeiffer, amended with clayey soil, rock dusts, microbial inoculation

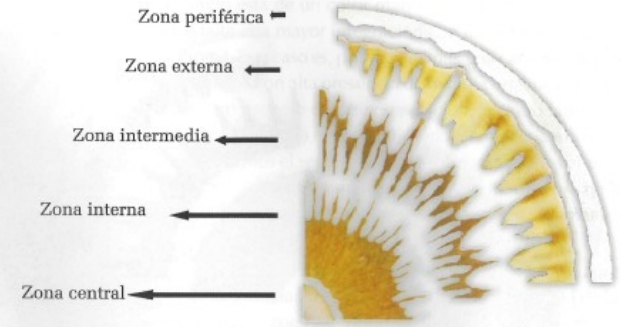
Clay-humus surface area; Negatively-charged exchange sites with chelation & microbial habitat

Organo-mineral-microbial complex

JAIRO RESTREPO RIVERA
SEBASTIÃO PINHEIRO

CROMATOGRAFÍA

IMÁGENES DE VIDA Y DESTRUCCIÓN DEL SUELO



SEIS CARACTERÍSTICAS DIFERENTES DE LA TERMINACIÓN DE LOS DIENTES DE UN CROMATOGRAMA

Terminación ideal, en forma de explosión y lunares enzimáticos.

Terminación no ideal en forma de granos de maíz.

Terminación no ideal en forma plana circular y sin bordes.

Terminación no ideal en forma de agujas irregulares.

Terminación no ideal en forma de dientes de caballo.

Terminación no ideal en forma de dientes puntiagudos.



Biofermentations at Leti Fruit (RegenAg Latin America Tour)

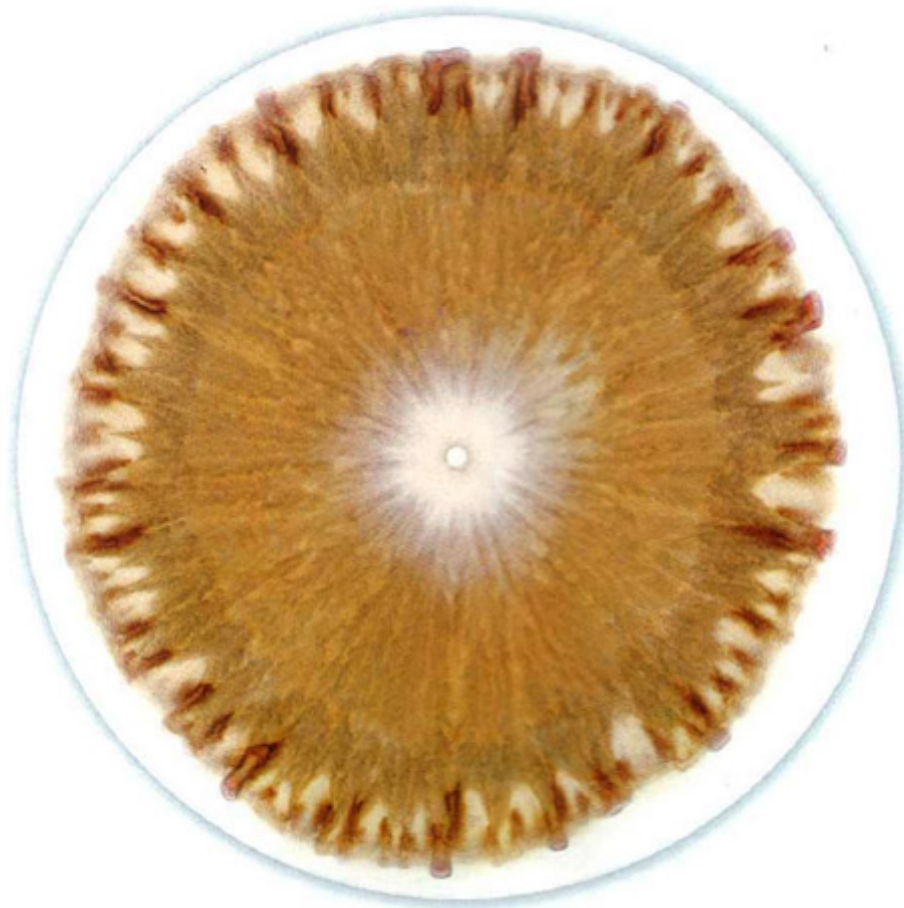
COMPARACIÓN ENTRE DOS CROMATOGRAMAS DE LA PULPA DEL FRUTO DE MANGO



Cromatograma de la pulpa del fruto de mango convencional, cultivado con la aplicación de venenos, fertilizantes químicos y herbicidas.

Cromatograma de la pulpa del fruto de mango orgánico, cultivado con la aplicación de biofertilizantes, caldos minerales y cobertura vegetal.

COMPARACIÓN ENTRE DOS CROMATOGRAMAS DE SUELOS CULTIVADOS CON BANANO (Sin herbicidas y con herbicidas)



Análisis de una muestra de suelo
sin la aplicación del herbicida Roundup.



Análisis de la misma muestra del suelo
dieciocho horas después de ser tratada con el
herbicida Roundup.

The Bio-Energetic Pillar of Eco-Agriculture

- Quantum Agriculture & Holistic Health
- Bioresonance, biofield, biophotons, PEMF, scalar, torsion field, plasma (i.e., known and emerging physics)
- Etheric, prana, chi (i.e., ancient and re-emerging physics)
- Increasing the energetic vitality of living systems
- Scalar devices (pendants, plates, coils), ORMUS, agro-homeopathy, BD Preparations, radionics, seed treatments (pyramid, orgone, magnetic), vortexed & structured water, geometric shapes and structures, plasma

Bio-Energetic Practices



Basil in tap water
After 1 Week

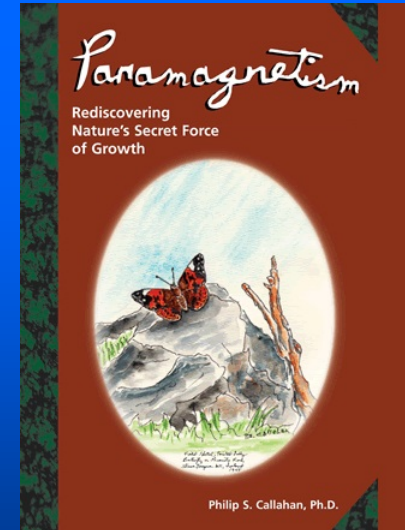
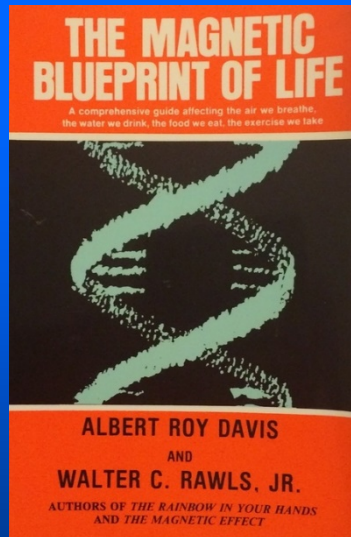
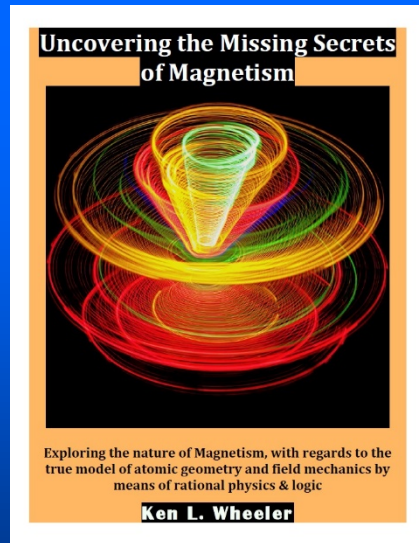
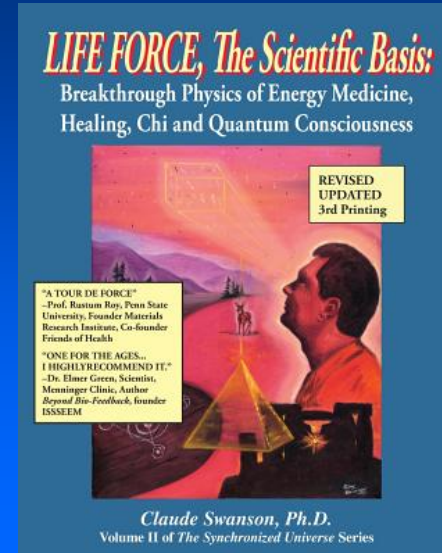
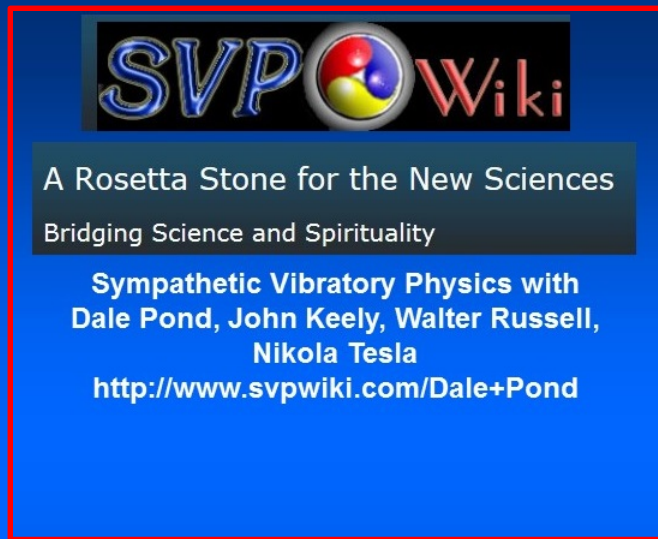
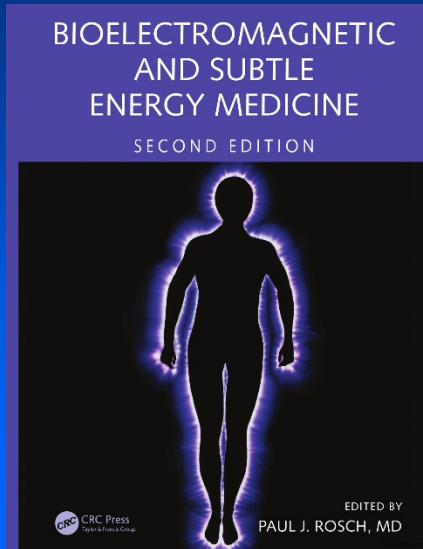


Basil in Structured Water
After 1 Week

Steve Diver, 2018

Comprehend and copy Nature ~ Viktor Schauberger

Quantum Agriculture & Holistic Health



Bio-energetic concepts and practices are expanding the fields of holistic health & eco-agriculture; i.e., cross-over technology with references and how-to knowledge

Summary, 1

- **Bio-dynamic farming is the oldest organic farming system in modern agriculture, originating with Rudolf Steiner in the 1920s.**
- **Bio-dynamic farming has a proven track record of well-designed and managed farms and vineyards, with improved soil humus and food quality.**
- **Research outcomes of bio-dynamic farming include the picture-forming methods, agro-homeopathy, humified compost, microbial compost inoculants, and qualitative & quantitative food quality analysis.**
- **The BD Spray Preparations, placed in horns and buried in the ground, are viewed skeptically by many farmers and academics, but are gaining recognition for microbial properties associated with on-farm indigenous microorganisms.**
- **New generation bio-dynamic farmers are integrating technologies such as EM (Effective Microorganisms), KNF (Korean Natural Farming), Eco-Agriculture (soil testing & mineralization), and radionics.**

Summary, 2

- **Bio-dynamic practices have evolved into general usage in regenerative agriculture such as clay-amended humified compost, Pfeiffer chromatography, biocrystallization, silica for plant disease control, and humus management.**
- **Eco-agriculture – Minerals, Biology, and Energetics – is similar to bio-dynamics without the BD Preparations.**
- **It should be noted that in spite of the historical roots of bio-dynamics which is based on the integration of humus farming and bio-energetic farming practices – such as the early agro-homeopathic research by Lili Kolisko or the modern day agro-homeopathic research by Glen Atkinson in New Zealand, as well as the radionic broadcast methods developed by Hugh Lovel (a fellow speaker at this Acres USA conference) – Demeter does not recognize these methods as valid applications of the BD Preparations.**

**“The science of the future will be based on Sympathetic Vibrations”
~ Rudolf Steiner, 1913**

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Thank You!



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