

Notes Towards Bio-Dynamic Farming and Certification – Alex Podolinsky

- It is a philosopher's task to examine the process of consciousness in his lifetime -

Serious problems are facing Earth and mankind presently, but there is hope that the organic agricultural movement and Bio-dynamics may exert some relief.

1. Rising ocean water affecting climate change. The as yet insufficiently recognized major contributor being soil compaction – as proven by comparative university examinations in Australia.¹
2. **Genetically Modified food** demonstrated as so dangerous to be **recommended** for **immediate withdrawal** from sales (69.5% in USA) .² The supposed number one nation of Earth affected, not just a few footballers.

Lack of action by Governments to this, quite contrary with some Australian Governments only recently permitting some GM crops, **endangering citizens** and the **agricultural future** of Australian soils.

3. The introduction of “Terminator Genes” permitted by governments, even so promoted, without prior consultation with affected farmers and consumers, ie sterile wheat forced upon the daily bread of consumers to the financial benefit of commercial companies.
4. Only democratic Switzerland (no “party politics” but an independently voting parliament and several plebiscites per year) offered vote on GM modification – rejected. Italy recently rejected privatization of water by referendum.
5. “Thalidomide”(with catastrophic “side effects”) registered by Governments, as have been other modern medical drugs with “unknown ” side effects, ditto chemicals used in agriculture.

“Evidence” by “studies” lack scientific methodicity. One medical authority claimed side effects prove the drug is effective.....

6. Consumers believe organic product is “guaranteed” whereas only the production method is certified, the product or soil it derives from is not examined ie only a desk audit is involved.
7. Australian Agriculture Minister Simon Crean promised implementation of a domestic Standard for organic and bio-dynamic products similar to the export standard in 1992.

This has not been implemented since, enabling animal feed to be used on the domestic market **not** permitted in the existing export standard without the appropriate Australian authority (**DAFF Biosecurity**) **being able to forbid such inappropriate marketing as “organic”**.

8. Exhaustion of Phosphate reserves, endangering future of farming in Australia, and selenium deficiency in cattle causing sterility.

Socrates' battle with the atomist Democritus provided Plato and Aristotle the holistic base towards European culture. However, in recent centuries atomism crept into science, a mechanical, particle approach. Science changed from an honouring respectful approach to gaining insight into “creation”, Nature, to, for instance, one of *synthesizing* vitamins out of separate parts (atomism) –cheaper than extraction.

In 1945 leading physicists still debated whether the obvious “something” should be expressed as waves or particles. Today the Atom is taught as a “reality”, as is the Molecule, both basic to modern scientific atomism, yet never seen.

In earlier, semi-historic times, mankind existed in nomadic groups. Population increase and abuse of land gradually brought about demise of Earth. Incredibly admirable is the instinctive skill of our European forebears to have produced food for some 2000 years, whilst rather building soil fertility than destroying it. Original impulse from such as the Greek Goddess of fertility, Demeter, may have played a role, later eastern and western monasteries cultured soils. Farmers, mainly serfs of aristocrats, performed positively “by instinct”.

¹ Dissertations under Dr. John Russell La Trobe University Bendigo. “2011 Lecture” A Podolinsky; Film by Maria Luisa Foreza : “Italy”, of Podolinsky lectures at Italian Universities in 2011 (enclosed).

² Press release 21 January 2013: “Hidden Viral Gene revealed in GMO's”, and in “La Repubblica” National Newspaper, Italy 19 July 2013: “Possible consequences of overlap between CAMV35S promoter regions in plant transformation vectors used and the viral gene VI in transgenic plants”

Such peasants still existed isolatedly, and, observing them in my childhood, taught me a lot. Especially differing soil cultivation methods with single mulboard ploughs drawn by two cows or a horse, “breaking” as yet good soil structure into “crumbliness” with bent down long plough nose (to avoid hard pan).

This period ended with the discovery by Justus von Liebig that plants can take in only water soluble elements, which opened the possibility of supplying plants artificially with large amounts of NKP, ie of “feeding” hydroponically and, virtually able to “grow” plants faster and bigger on any type of soil, factually just a medium in which to hold the plants up. Commercial interests took over, plants were “pushed” and for reasons outlined in my literature, especially the 2011 Lecture, eventually leading to the compacted soils as shown in pictures 1 and 2.



1. Rocks of soil, monster “plough” pulled by crawler



2. Same soil as above, after the lumps’ mechanical “breakdown” with “cruncher” (left side of picture)

Modern science works with “models” synthesized from atomistic particles. Soils are analysed for deficiencies and supplied accordingly, often causing new “imbalances”. In my childhood vitamins had not been discovered. Only later trace elements became known. It can be safely assumed that other essentials, because not yet known, are not identified as deficiencies.

Conventional agricultural science has built up a hypothetical mechanical system, not based on Nature’s

system, ie disregarding the humus process and white feeder roots directed by Sun Warmth akin to reinventing a fifth wheel as a second Nature. A highly detailed and very intelligent system, but it can be shown how the disregard for the humus process and the materialistic supply of water soluble elements has reduced the biological activity of soil by robbing worms and microbes of their task to convert insoluble NPK from rock or plant material to humus, therewith structuring and aerating soil. In conjunction with plant diseases arising from overfeeding, reducing photosynthesis, chemicals having to be applied, water being polluted, heavier and heavier machinery having to be used, more and more often, etc, has this atomistic system of modern agriculture contributed to the compacted soils and other problems.

The producer of possibly the best bio-dynamic vegetables I have seen, with the sole input of a thin layer of early cut clover pasture hay applied as a light mulch (where commonly black plastic is used) has been informed that future certification is in doubt, as his input is insufficient to produce his vegetables according to their system of calculations. They have not visited his vegetable production. They do not know **how little NKP** his production requires, when produced according to Nature’s design with humus and Sun and natural photosynthesis involved.

In Bio-Dynamics we don’t take an atomistic, hypothetical approach, but endeavour to gain respectful insight into the organization of Nature or Creation. This is the real definition of “organic”, not, that only “organic” (animal) manures be used.

In 1949 I had to flee Europe with urgent aid from the French Sureté as the Communist Russian Repatriation Commission was trying to catch me – a descendant of an historic family, with direct ancestry to Kutuzov (Napoleon) ; my father worked with his uncle Stolypin (Prime Minister of Russia) in the sole positive move against communism - agrarian reform, offering ex-aristocratic serfs 200 hectares of best Ukraine soil. I arrived in Australia as last male of my family (communists and Hitler) with no means and started farming 1952 on an eroded shale hill. Without use of Phosphate in phosphate starved Australia or of any other fertiliser, I sowed, ripped pasture with the use of 500 as developed by Ehrenfried Pfeiffer – a co-worker of Rudolf Steiner. In 1919 Steiner recognised that the young German student Ehrenfried Pfeiffer, after studying appropriate subjects, was suited to scientifically develop the bio-dynamic preparations as moist colloids and regarding their application, storage, quantitative use etc. He housed Pfeiffer like a son for the remaining 7 years of his life. Pfeiffer was also engaged in organizing the stage lighting of the Goethanum and the bio-dynamic preparation work was not completed at the time of Steiner’s death. However others were jealous of Pfeiffer and Pfeiffer moved to Holland,

England and eventually, completed the preparation task in the USA.

No other person in Dornach was conversant with Steiner and Pfeiffer's bio-dynamic developments. And the three "streams" of bio-dynamic preparation making: Bartsch, the Vögels and Stegemann commenced making dry preparations, which don't perform like Pfeiffer's, but were used on the continent. In Australia we used the moist, very effective Pfeiffer preparations and exchanged preparations with Pfeiffer of which he found some more effective than his own. He intended visiting us in 1958, but had to return home from Honolulu because of ill health.

Pfeiffer became a world leading microbiologist and a pioneer of the emerging science of Nutrition. He was not a farmer and did not benefit from aid by professional farmers. As microbiologist he discovered: in one gram of moist well made 500, 500 Million aerobic bacteria, many of which were formerly unknown, ie not recognised or totally new, whereas in the cow manure originally used for 500 making, there were no such bacteria. For this reason he named this new colloidal product "500".

As Australian Bio-Dynamics demonstrates, moist 500, after compacted soil has been ripped to allow air penetration with a plough first conceived 50 years ago (manufactured by Mike Fix in Australia and – so far – by Angeloni in Italy) can overcome the modern world wide problem of compacted soils, whereas conventional agricultural mechanical "breaking into dust" increases the compaction from year to year.

500, properly applied, can save the future fertility of soils.

My Jersey stud herd was tested for butterfat and milk monthly by Agricultural Department Dairy supervisors, who reported "never a sick cow, no feed supplements, only grass fed and own hay used with record production resulting." Two senior agronomists came to investigate. On being shown the basic bio-dynamic soil spray 500 and being professionally inducted to Justus von Liebig's water solubility attitude, they questioned "what of this dark humus substance can a plant take in?" and supposed that it could only be the water soluble humic acid.

In response, I took a large glass fruit preserving jar, filled it with 500 humus and buried it, with open top 8cm below a Spring pasture sod. In six weeks the entire dark substance in the glass had vanished and the jar was tightly packed with white hair roots, not one darker root. On pulling the white roots out, there was a notable "plop", like a piston out of a cylinder.

In later years I once lost many thousand acres of 500 preparation, when white roots from a tree outside the

500 storage shed accessed the content, emerging in the storage from under a concrete path, through peat moss base and the small drainage holes at bottom of the bin. No 500 was to be seen, only a spooky vortex of quite large and small white roots.

This realistic experiment established the existence of two root systems, white feeder roots and darker, larger and older water intake roots for transpiration purposes – the "breathing" of plants.

Further on very important was the recognition that 500 is, physically, a colloid, which can hold 70% of its volume as water without any of this liquid draining out or evaporating (see picture 3 and 4, following page).

The membrane of humus colloids can take water in and hold it. At the same time white hair (feeder) roots can "eat" humus and take in liquid stored NPK.

Humus colloids enable soil with humus content to provide a *separate* liquid storage to the general water reserve in the soil.

Humans and most animals have an independent warmth organisation. The coldest spot being on our forehead or knee caps, the warmest, presumably, in the liver. To health the variations of specific temperatures are vital. Plants have no such independent warmth organisation. And it is SUN WARMTH INSIDE the plant (not shining from outside) that – in Nature's design- activate the white feeder roots to take in humus.

Elements, in Nature's design, first appear in rock and are not available to plants. Rock is very gradually permeated in cracks by the roots of Lichens opening access to minute roots and preparing access to the roots of mosses and so onwards to more advanced plants, shrubs and eventually trees. In this gradual development biological, and some chemical activity results, and insoluble elements become water soluble, but, all water soluble elements finally being made soluble by such as worms and microbes are *encased* in a *colloid*. (Worm casts are typical colloids.)

In Nature's design NO *free* soluble elements occur. Ground water is pure and available, free of NPK salts, for transpiration.

There are of course no colloid lumps in soils such as the 500 I hold up to an audience, but picture 3 and 4 can give an indication. Picture 3 is a typical compacted Australian sheep run. The sand-clay loam shows only weeds on top, and no roots in mid picture. A soil that already would be unable to take in rainwater readily. When the photo was taken 60 years ago this soil could have had sheep on for only 120-40 years. Australian graziers had come up with the idea that sheep should be



3. Compacted sandy-clay loam soil



4. Same soil as above after one year under Bio-Dynamic management

permanently on the one paddock or a metabolic upset (causing broken wool) could occur if sheep were moved elsewhere.

It was a battle to change this attitude and to alter the ideas and to introduce other managements (see film: Dairy Farming).

Original pastures in Gippsland – as told to me 60 years ago by 80 year old farmers – produced quite well, but as, after decades, phosphate reserves were used up under wrong pasture management, pastures declined rapidly and only picked up when water soluble phosphate was introduced, which had to continuously be increased and then potash and eventually nitrogen having to be added. Today, many dairy pastures show only grasses (which look as large as oats), no clovers, and nitrogen is reapplied after each grazing.

Whereas picture 3 suffered set stocking causing permanent “topping” of plants by sheep, no rotation, and pasture species, typically, getting smaller and smaller, and roots shallower and shallower, until at the next dry spell (three to five summer/autumn months) the desirable species vanish and only the sparse weeds shown on top of picture 3 remain. Typical destruction in less than 200 years.

Picture 4 shows the same soil as picture 3, ONE year later. A deep ripping one meter apart to let AIR in so soil creatures could live, no top cultivation, seed sprinkled on and a spring and autumn prepared 500 application. The DVD “Soil Development with Chromas”, shows further such development on pasture after six years, with nothing added other than general rotational dairy farming as outlined in the “Dairy Farming” DVD.

The proportion of humus in soil is not identified in conventional agricultural science, it is shown as organic matter, whereas in Bio-Dynamics, we can assess humus via chromas or crystallisation pictures. In soil 4, it shows up as comparative darkness and the colour glow. The increased darkness compared to picture 3 shows a considerable increase in humus. This humus of course is not in one lump like the 500 I held in my hand but in small particles. The following will bring this to clearer understanding. On an inspection visit to the West Australian northern inland region, the low rainfall region, in April had four mm rain earlier in the morning. The still intense sun and a near constant wind had dried this amount of rain up by 10 o'clock, but when we reached our bio-dynamic farm, there was, on a generally darker soil (similar to picture 4) still moisture to be seen on the also generally lumpier soil, and the shapes of the lumps had typical bio-dynamic structural expression.

Farmers in these sandy regions have to wait for autumn opening rains before sowing. These rains can come any time from April to June, obviously the earlier the better. July rains can be too late to expect a crop. Under the prevailing 4mm of rain no conventional farmer would decide to sow. And so was the reply of our farmer who was then only in his early years of bio-dynamic

experience. He expressed doubt in so little rain being suitable. My assistant, Frances Porter, suggested he look at the soil. To everybody's surprise, the 3 to 4 cm lumps of soil were visibly moist throughout, and the soil obviously moist to 15cm depth.

The 4mm of rain had thus penetrated like into blotting paper which under conventional conditions would immediately escape in the sun warmth and wind, whereas the humus colloiddiness of the bio-dynamic soil held this moisture and sucked it down to the 15 cm. I suggested that under the conditions I would risk sowing down a smaller paddock. The seed would germinate in the held moisture of 15cm, and as soon as even small wheat tips would arise what we call "dew irrigation"(Bernard Righetti) would occur and keep the newly emerged plant alive, even allow for minimal growth, especially of bio-dynamic seed which mill workers in conventional mills (ditto with rice) recognise by "glow" and "active look". In that region there is an unusually high variation between night and day temperature (from 2°C to 28°C is not unusual) which makes for intensive amounts of dew running down along the seedlings being caught and held in the soil by bio-dynamic humus. The opening rains may only arrive in June and the already established plants will kick off quickly and numerous and be far ahead of conventional seeding and, perhaps, cold soils or lack of interim follow up rains.

Bio-Dynamic humus in pastures acts similarly. See pictures 5 and 6, early summer pasture three months without rain: Bio-Dynamic Pasture (5) still growing and 6, conventional neighbour only 20 meters distant. Because of fire danger to crops in the weeks before early summer harvesting, Australian grain fields are surrounded by fire-breaks approximately 10m wide, ie soil is ploughed bare and a quick fire which can rush past on heavily grazed pasture one is standing on, will be felt as a bit of warm air and in one moment the short eaten pasture has blackened and so would the crop without such a fire-break.

I examine soil structure with a garden digging fork. The sandy fire-break is not sprayed with 500 and can't be held up with a garden fork. The sand runs through. Whereas the planted ground sprayed with prepared 500 a meter away, with some soil structure coagulation and lumps developing can be held up with the fork.

In market garden conditions, there may be very obvious bio-dynamic structure (see Italian Maria Luisa Forenza film: "Agrilatina" and with Alberto's green manure) in the green manure preceding the first crop, often followed in warmer climates by two or even three further crops. By then, travelling the soil with however caring weed deterring implements, picking of vegetables, tractors –all however kind and selected – soil structure will suffer considerably and it would require extra experience and expertise in soil handling to still

show the difference between conventional soil despoilt to dust, and bio-dynamic soil worked to break into particles (to be able to germinate carrots). But, especially in support to even minimal particle soil management the upper bio-dynamic plant growth expression on still bio-dynamically active soils looks as shown on pictures of many of our leading international bio-dynamic market gardens: Maria Bienert, Taucha near Leipzig, Agrilatina south of Rome, Alberto de Lasanta in Latina, and equally in Australia, Darren Aitkens, the Harms and many others.

Conventional science today uses Models. The model used in agriculture is based on tests for the availability of elements and other particles – as far as they are known. The soil as such, and especially the purpose of humus is not considered adequately. The amounts of NPK etc supplied is arbitrarily determined and huge amounts of applied NPK run off into rivers.

A comparative test requested³ and conducted by the senior soil scientist of the Victorian Agriculture Department and his local veterinary colleague, comparing ten district bio-dynamic commercial dairy farms with ten neighbouring conventional commercial farms (1990-93) considering 44 tests of soil, plant and carcass – with the bio-dynamic dairy farms having had **NO** inputs for an average of 16 years in a summer irrigation area with a huge conventional health problem of liver fluke, with conventional cattle having constant chemical treatment, but bio-dynamic cattle not requiring any such; Huge run-off of NPK and chemicals from conventional farms and no run-off from the bio-dynamic farms; **the latter having a future in farming**, with soil development etc. The conventional requiring constant chemical inputs, ditto fertilisers with no future, especially, when **phosphate has totally run out**: the results spoke utterly for Bio-dynamics, but, although the tests were sought and performed by senior staff of our Agricultural Department, the results were not permitted to be published. The selenium in the bio-dynamic cattle was double that of the conventional cattle, from which the Vet explained the much higher rate of infertility of the conventional cattle (average 2.4 lactations contra bio-dynamic cattle with production age of 15 years).

More recent research indicates that selenium is not *higher* with bio-dynamic cattle, but critically *lower* in all cattle subject to high phosphate fertilisation. An internationally recognised fact and the further result of irrational fertilising with superphosphate, factually wasted into the oceans, obviously poisoning the cattle

³ I agreed as this was a realistic comparison of commercial units ie not results of little experimental plots with bio-dynamic examples handled by incompetent, untrained personnel. This was the best realistic comparative test I know.



5. Trevor Cobbledick's Bio-Dynamic pasture, 3 months no rain



6. Neighbour's conventionally grown pasture, 3 months no rain

and wasting an irreplaceable essential element. **And Governments again do not act.**

Furthermore: there is an enormous increase in CO₂ incorporated into bio-dynamic soil (see enclosed DVD: *Soil Development with Chromas*).

Bio-Dynamics uses as model the original design of Nature: The Sun determines the amount of NPK the white feeder roots of each plant take in, which is incredibly little compared to the materialistically recommended wasteful conventional quantities. There are at least 300% more white feeder roots on bio-dynamic plants than on conventional plants which are grown in soils lacking humus. Furthermore, the conventional model “decrees” that the NPK exported from a farm has to be replaced by brought in fertilizer. The conventional model does not consider photosynthesis as a supplier, or the small amounts acquired through transmutation or the NPK addition via sheet composting and general biological activity.

The conventionally grown cabbage, tomato etc is larger than the natural or bio-dynamic equivalent. As the NPK fertilizers are salts – with unnatural amounts of salt, forced into plant cells, having to accommodate excess water in each cell, to balance the salt pressure, which explains the size and amount of leaves on all conventional plants, vines, cabbage, tending to fungal problems, cabbage with large white ribs, swollen leaves (water growth), tomatoes cut open – big ribbing, little pockets of red water, bitter taste (salts) compared to red, fleshy, sweet natural or bio-dynamic fruit; bitter oranges with thick section skins, compared to sweet natural or bio-dynamic fruit.

But, most importantly, the larger cabbage, because of the salty cell problem *transpires* less water than the smaller natural or bio-dynamic cabbage, ditto all other so affected plants. The greatest plant flavours and health giving food values come through sun energised photosynthesis necessitating the natural and appropriate transpiration from the physical side of the otherwise cosmic process: water transpiration: to receive from above Nitrogen, phosphate and ever so much else. Much higher percentage of Nitrogen in air than oxygen.

The reason why humus is a colloid and supplies the possibility for white feeder roots to access sun directed quantities of NPK compared to materialistic “feeding” of plants by ungoverned quantities of finance stimulated and controlled, irrational quantities of NPK, poisoning waterways.

Furthermore, regarding Australia’s soil salt problems: The salt is in the soil because much of Australia was once covered by sea water. As soils became more and more compacted (in only 200 years!) capillary action,

induced by Sun Warmth, drew salt from deep down below root zone to the top making it impossible for plant growth to continue. As bio-dynamics restructures soil, drainage to deep down develops again and plant growth re-emerges. Aerial photographs from Western Australian government surveys, show the redemptive evidence of this on bio-dynamic soils (John Cashmore, Hyden WA). Yet no notice was taken by government of this, whilst their own redemption of salt areas is utterly limited and very costly. (Refer also to lecture “*Living Agriculture*”).

When I first commenced with Bio-Dynamics in Australia in 1952, not only the two senior Department of Agriculture agronomists showed interest, but also a US based fertilizer and chemical multinational. First there was a request to obtain “the rights” to bio-dynamic preparations, I replied there were no such rights. Then I was offered a very substantial weekly retainer for the rest of my life if I stopped with bio-dynamic work, which I refused. More recently a major multinational obtained copies of all my literature, DVDs and films.

In early Australian bio-dynamic development times, several attempts were made to produce and market a 500 substance substitute. One was named 5000. They all proved ineffective and were too costly. And not recognised by these businesses, or the European bio-dynamic proponents, was the power of effective stirring of 500 and 501.

Alex’s article will be concluded in the June 2015 edition of Biodynamic Growing.

DEMETER BIODYNAMIC INTRODUCTORY FIELD DAY

Saturday, May 9th, 2015 9.30 for 10am start

BALLARAT STEINER SCHOOL

(cnr Moss Ave and Midland Hwy, Buninyong)

Single \$80 Double \$130 Concession \$60

INCLUDES morning tea, lunch and cuppas

Proceeds to aid the school.

Trainer: Keith McCallum

For details, phone Johanna Schiebel

03 5342 4373 or 0458 223 048

Participation enables membership of the Biodynamic Gardeners Association. This allows access to Demeter quality BD preparations, seed bank, library and future training

