Bio-dynamic agriculture – a powerful renewal of Nature
by John Bradshaw

A mere 210 years after the beginning of European settlement, Australia faces an environmental crisis of immense proportions. Amongst the major problems are – salinity, soil degradation and erosion, degradation of rivers and streams, blue-green algae, pressure on scarce water reserves and the progressive loss of native vegetation. There are other problems which are less widely acknowledged – Australian mainstream agriculture relies on high inputs of phosphate fertilizers but the Earth's easily accessible phosphate reserves will run out in 200 years and less accessible reserves will last only a further 200 years. Most superphosphate is contaminated with cadmium, whose rising levels in soils and produce may soon cause problems with consumer health and with exports. Most of these environmental problems are directly or indirectly caused by conventional agriculture.

In response to these problems, the federal government sold one third of Telstra to provide a billion dollars for environmental restoration – the CSIRO has stated that it would cost more than the value of Australia's entire annual agricultural production ($37 billion) to fix the current damage, let alone ongoing problems. Many of Australia's best scientists are engaged in ongoing research but have come up with no practical solutions.

Scientists from CSIRO and other organisations repeatedly warn that these problems are catastrophic and that we face the imminent loss of vast areas of farmland. If this is allowed to happen, not only will these areas cease to be productive, but their entire ecosystems (including the associated communities of native plants and animals) will be devastated!

Whilst having great respect for the ability of Australian scientists, I am afraid that the profession as a whole is guilty of unscientific
closed-mindedness in regard to our environmental problems.

In Australia there exists an agricultural association whose members successfully farm three million acres, from the most fertile areas (eg.Yinnar River flats, Victoria) to the driest, most difficult areas that can be farmed (eg. Ceduna, S.A.).

These farmers use very little phosphate or other fertilizers (some use none at all), thus responsibly conserving Earth's limited reserves. Their soils are progressively improving in terms of organic matter content, biological activity, structure and depth. They maintain high production levels, producing food of highest quality and flavour without using chemical pesticides, fungicides or herbicides. And most significantly they *either solve or do not contribute to* Australia's critical environmental problems.

These farmers are Bio-dynamic farmers, members of the Bio-dynamic Agricultural Association of Australia, which was first formed in the 1950s, as a result of Alex Podolinsky's development of the method to suit professional, low labour/large acreage conditions in Australia.

Agriculture departments have been well aware of Bio-dynamic agriculture for over 40 years, and are also well aware that the farmers are viable and that the movement is steadily growing. They know that Bio-dynamic farmers claim to have solutions to many of our serious environmental/agricultural problems. However, they show a singular lack of interest in scientifically investigating Bio-dynamic farming despite acknowledging their own lack of answers to the problems.

The few mainstream scientific investigations which have been undertaken have established that the method works well. In 1991, the Victorian Dairy Research and Development Corporation sponsored research comparing Bio-dynamic and conventional dairy farms in Victoria. Amongst its many findings, the research established that BD (Bio-dynamic) dairy farms were successful and economically viable. They had better soil structure, good nutrient levels in soils, grass and livestock (despite using no fertilizers), and healthier and more fertile animals without any chemical usage.

Other research has shown that BD irrigation farms have **30 times less** nutrient runoff than conventional farms. Nutrient runoff from farms is a prime cause of blue-green algal blooms which are devastating our rivers and lakes.

Salinity has been acknowledged as Australia's worst environmental disaster – much of Australia was under the sea in the past, and salt now lies under much of the country. Over-clearing and modern agricultural practices are bringing salt up into root zones, destroying the land. 40 million acres will be lost if the problem is not solved.

Many Bio-dynamic farmers have completely rehabilitated salt affected areas on their farms! Although many factors contribute to rising salt, one which does not seem to have received adequate attention is soil compaction. Under native forest, soils are relatively open and well structured, but when land is cleared and soils poorly cultivated and fertilized with water soluble fertilizers, soil compaction develops. Salt is then drawn up by capillary action activated by the sun. On BD farms, humus levels increase and soil structure and openness develop far more than existed even under native forest. Salt is then able to gradually filter back down out of reach of the roots, and healthy productivity is restored. These results are there to be seen and studied by scientists.

Most of Australia's critical environmental problems – salinity, greenhouse gases, overuse of water and pollution of waterways – are being overcome *now* by the professional farmers of the Bio-dynamic Agricultural Association. Alex Podolinsky and the BD farmers have developed and refined the method over the last 50 years. It has been proven in all parts of Australia for all agricultural enterprises. It represents the only practical way forward for agriculture and the environment.

One must seriously question why key scientific bodies such as the CSIRO, and state and federal agriculture and environment departments, are spending large sums of money desperately seeking solutions to problems such as salinity while studiously ignoring a farming method which justifiably claims to have solved them.

Many Australian scientists, by neglecting to investigate Bio-dynamic agriculture (perhaps because it doesn't fit the agricultural theories which they have been taught), are in the same position as Copernicus' contemporaries in regard to his astronomical discoveries. It has been said of them that "instead of endeavouring to estimate the value of his conclusions for themselves, many people were content merely to adhere unquestioningly to the beliefs of the Ancients". This is unjustifiable scientifically and is tantamount to Nero fiddling while Rome burns.

Alex Podolinsky, after years of non-response by the federal agriculture minister (then John Anderson), wrote to the Prime Minister, John Howard, noting the lack of response from the agriculture minister, outlining the solutions offered by Bio-dynamics, and offering to show him an example of farm salt reduction close to Canberra. The PM wrote back saying that he had forwarded the letter to his agriculture minister!

Bio-dynamic agriculture offers the hope of a healthy, productive agriculture in a newly blossoming nature environment. We owe it to future generations and to nature itself to ensure that it is properly investigated and widely adopted as *the* modern farming method.

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GREENHOUSE GASES REDUCED BY BIODYNAMICS

Another major world-wide problem is that of greenhouse gases building up in the atmosphere and causing climate change. Carbon dioxide is one of the main greenhouse gases, and many governments are trying to reduce emissions and create carbon sinks (tree planting being one method).

BD farms develop greatly increased organic matter levels without bringing materials in from outside. One Victorian Bio-dynamic farm (that of Alex Podolinsky) recorded an increase over six years from 0.9% to 11.4% in the top 100mm., and from 0% to 2.4% at 1000mm. Now organic matter locks up carbon dioxide. In 1989, a Victorian Agriculture Department scientist calculated that the organic matter developed in this soil over six years had locked up 1614 tonnes per hectare of carbon dioxide, or 269 tonnes per hectare per year!

The only estimate I can find of carbon dioxide locked up in new plantation forests is 5 tonnes per hectare per year. BD farmers should be recognised for their significant contribution to greenhouse gas reduction, and be allowed to trade carbon credits as can plantation forest developers.

WATER RETENTION ASSISTED BY BIODYNAMICS

Australia's water resources are under severe strain due to the demand for irrigation water in agriculture. Bio-dynamic farms build soils of exceptional fertility with high levels of humus and vibrant biological activity. Soil depth and structure develop rapidly – soil scientists have commented that changes achieved in BD soils over a few years would take nature thousands of years to achieve. These soils can hold much larger volumes of water than degraded conventional soils – colloidal humus holds up to 75% of its volume as water. Thus BD soils develop some very useful qualities:

- Plants continue to grow and remain green long after conventionally grown plants have dried off.
- BD irrigation dairy farms need only between one third and one half of the water used by their conventional neighbours.
- BD soils, by absorbing and holding back large amounts of water, assist in lessening the severity of floods.
- On BD farms, the newly developed humus and open structure allows the delicate vein system which extends far back from a river to restore itself. The whole district is then involved in a healing process. Streams which have dried up in summer and autumn for 80 years have begun flowing again year round.