

BIODYNAMIC FARMING

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Biodynamic farming is an innovative and potentially sustainable method of farming developed in the 1920's by Dr. Rudolph Steiner. It was developed in order to tackle the growing problem of soil erosion that was occurring at the time. Biodynamic farming disallows the use of chemical pesticides and fertilizers and instead opt to use something very unique: preparations. These preparations are made up of totally natural substances which are usually sourced from the farm itself.

INTRODUCTION

Over the past century agricultural researchers have widely recognised that sustainable agricultural production systems are becoming increasingly more important as land becomes more scarce and population increases. Presently, the human population is increasing. As it increases the demand for food will also rise in direct correlation. It is estimated that the global food demand will double over the next 50 years. This could result in substantial environmental damage.

A universal definition for sustainable does not currently exist, so for the purposes of this research this definition of sustainable development will be used. Sustainable development is "development that meets the needs of the present, without compromising the ability of future generations to meet their own needs".

"The management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such

development conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable."

"Biodynamic agriculture was introduced as a possible solution to farmer's concerns about their weakening soils and overall well-being of their fields and crops".

The main principles of Biodynamic Agriculture are:

- To create a diverse and balanced farm ecosystem that can support itself from within the farm
- To restore the soil through the incorporation of organic matter
- To treat soil as a living system
- To create a system that brings all factors which maintain life into balance
- To encourage the use and importance of green manure, crop rotation and cover crops
- Treat manure and compost in a biodynamic way, and have knowledge of enzymes and hormones.



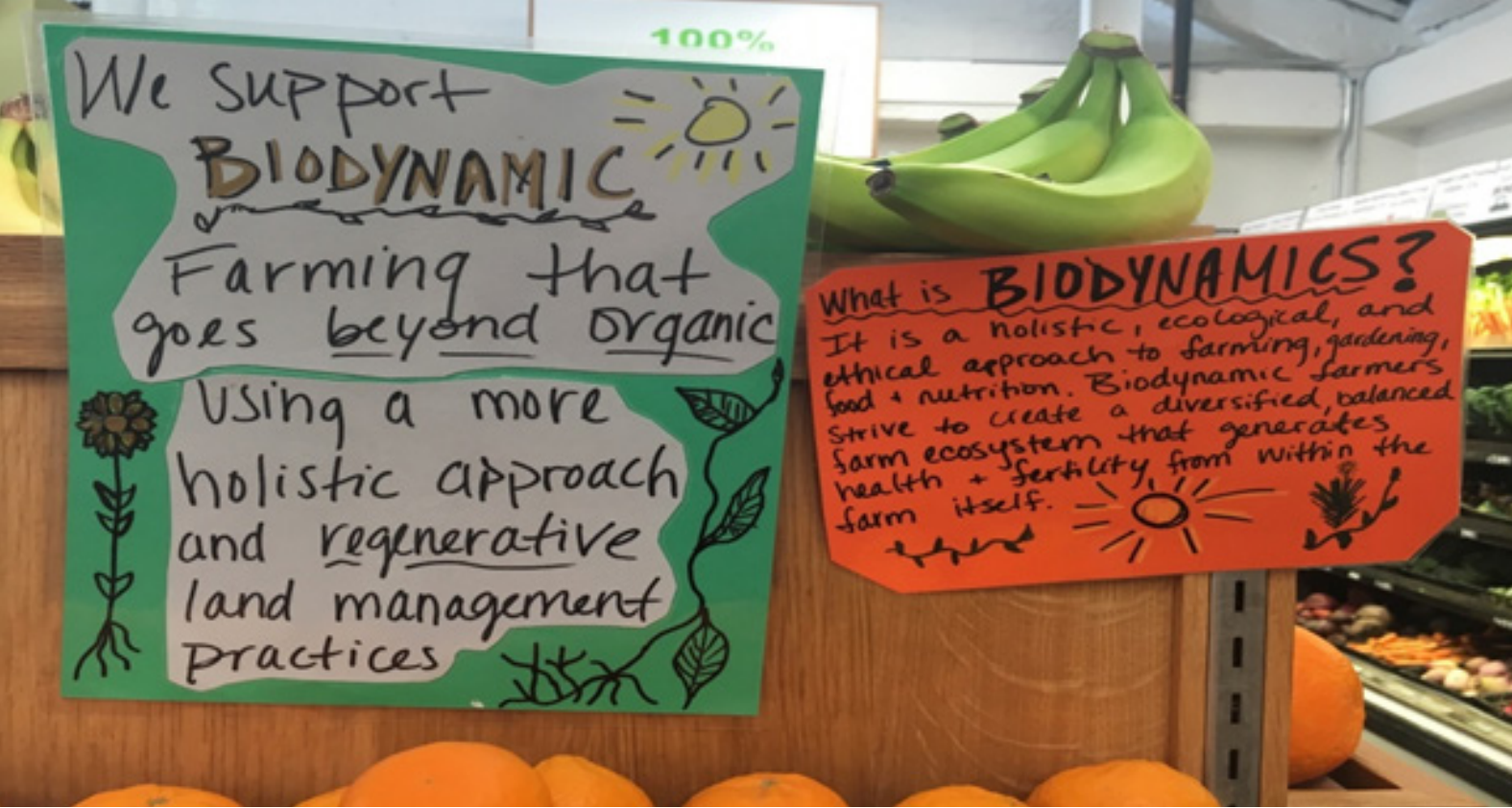
VALIDITY OF BIODYNAMIC FARMING

Biodynamic farming faces a lot of criticism about its credibility, and has been referred to as pseudoscience by Turner (2014) and Saltini (2010). In terms of research, Biodynamic farming is still in its infancy, as there is a lack of additional and scientifically reviewed research to suggest that these preparations do have any benefit to the soil and the produce of the farm. Research has found that there is an increased microbiological movement within the soil, in addition to having a higher level of nutrients and an increased rate of crop development when biodynamic preparations were used in comparison to a conventional farm.

OPINION

The objects of this work was to define sustainability and assess how sustainable biodynamic farming is in relation to the definition. To investigate the effects of preparations on soil quality, and assess whether it would be feasible for biodynamic farming to be the sustainable agricultural practice of the future.

In terms of sustainability biodynamic agriculture is one of the most sustainable agricultural practices in modern day farming. It has no adverse effects on the environment, produces no waste, as everything that would typically be deemed as waste, is recycled to other parts of the farm. Generally, most biodynamic farms are run as a community effort and tend to run alongside residential schemes that aim to support the needs of individuals with a wide range of learning difficulties and mental health issues.



TO DEFINE SUSTAINABLE AGRICULTURE AND DETERMINE TO WHAT EXTENT, BIODYNAMIC FARMING IS SUSTAINABLE.

Sustainability is all about surviving for the long term. This is why the desire for sustainable agriculture is universal, however how to progress towards it remains elusive.

Even with a basic infrastructure for delivering sustainable development, is still difficult to find an agricultural practice that does not deplete natural resources such as soil fertility. The desire for sustainability is centered on the growing concern and need to develop technologies that enable farming to take place without the depletion of natural resources and accommodates practices that do not have detrimental effects on environmental.

The question of whether biodynamic agriculture is sustainable or not will now be assessed in relation to the 3 pillars of sustainability:

- Environmental Sustainability
- Economic Sustainability
- Social Sustainability

TO ASSESS WHETHER BIODYNAMIC FARMING IS A SUSTAINABLE OPTION FOR THE FUTURE?

Currently, there is an ever-growing range of sustainability claims and indicators. Collectively however, all fail to establish operational and practical ways to understand what sustainability actually means, and to deliver it effectively. This means more land will need to be utilized for farming. Land shortage is one of the biggest issues surrounding the eminent increase in food demand. How humans choose to use land has a great impact on environmental quality and the state of ecosystems and socio-economic development. Generally, land use is considered to be sustainable if the environmental

pressures of human activities do not exceed the ecological carrying capacity. Our already existing farming land needs to be treated in a more sustainable way. If we nurture our land, instead of exploiting it, the likelihood of it being able to farm it for years to come increases. This is where biodynamic agriculture can be of a massive advantage to the agriculture sector.

CONCLUSION

Biodynamic agriculture has been around since the 1920's, however it is still very much in its infancy. Everyday it is being developed and is slowly becoming incorporated into the modern agricultural world. Despite the mystery and criticism that surrounds biodynamic agriculture, the practice itself is as sustainable and self sufficient as you can get in this current era.

The research taken place in this dissertation has shown that biodynamic agriculture is indeed a very sustainable agricultural practice.

Where this practice lacks in economic sustainability, it makes up for in environmental and social sustainability. It is one of the most environmentally friendly farming practices in the world and is well on its way to being one of the sustainable options for the future. From literature analyses it was found that biodynamic preparations 500-508 do have beneficial effects on the soil quality. The benefits identified were increased microbiological movement, higher organic matter content and higher concentrations of dehydrogenase enzyme activity. Finally the research highlighted that there is a need for more sustainable agriculture to exist and that a large-scale move to sustainable agriculture may be the way forward.

Nonetheless, the world still lacks the basic foundation for delivering sustainable development. Until this changes the world will still need to rely upon conventional agriculture in order to meet the current and further food demand.

