

Biodynamic Farming: Holistic & Ecological Approach toward Sustainable Farming

M. H. Chavda^{1*} and Y. B. Vala²

^{1*}Department of Agronomy, C. P. College of Agriculture, S.D.A.U., Sardarkrushinagar-385 506

²Young Professional-II, KrushiVigyan Kendra, S.D.A.U., Deesa-385535

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Introduction

Biodynamic agriculture refers to the agriculture science that recognises basic principles at work in nature and applies this knowledge of life forces to bring about balance and healing in the soil. It is a method of farming that aims to treat the farm as a living system which interacts with the environment, to build healthy living soil, and to produce food that nourishes, vitalises and helps to develop humanity.

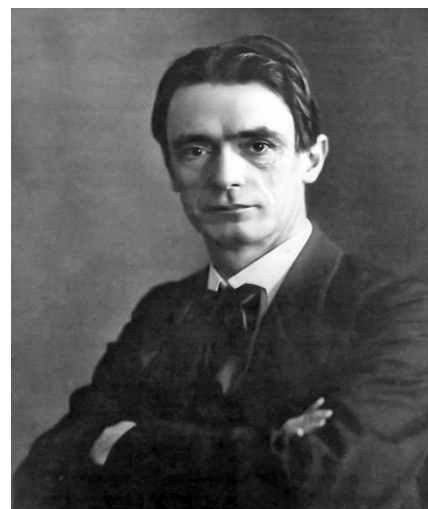


Biodynamic derived from two Greek words, *bios* (life) and *dynamis* (energy). The name “Biodynamic” refers to a working with the energies which create and maintain life.

Biodynamic is a holistic, ecological and ethical approach to farming, gardening, food and nutrition. Biodynamic agriculture as one of the organic methods could provide ecological, economical and physical sustainability (Uzunova and Atanasov, 2017). Biodynamic method at first; they call it as biological-dynamic and it leading to “Biodynamic”. The use of the word “method” indicates that certain principles are involved, in which their practical application secure a healthy soil and healthy plants which in turn produce healthful food for man and healthy feed for animals. The ideal of the biodynamic is the cycle management in which the farmer holds as many animals (number and species) as he can feed with his land. Their dung (and its diversity) ensures high soil fertility, which produces the best food for humans. With the help of biodynamic preparations, the producer arranges natural processes. Thus, the farm becomes a unique organism (a living system) in which each organ (component) needs the other like man, plant, animal and soil work together.

History of Biodynamic Agriculture

The biodynamic method came into practice based on the suggestions given by Dr. Rudolf Steiner in a series of lectures called the Agriculture Course Steiner has been rated as only intellectual of the twentieth century who has combined the spiritual and the scientific. Steiner's answer to the farmers call for help during the beginning of chemical farming in Europe (1920's) when they noticed the rapid degeneration of the soil, the quality of the produce and seed viability by which biodynamic agriculture born. The practice and philosophy of the biodynamic method are based on the worldview of anthroposophy. Anthroposophy is a modern path of knowledge and a spiritual science, which enables the human being to gain a deeper understanding of their own true nature and of the world. The word anthroposophy comes from the Greek language means wisdom of the human being. This wisdom ultimately leads to the connection of the spiritual in the human being to the spiritual, which pervades the universe. The heart of anthroposophy is the recognition that the human being (manushya) is a spiritual being (purusha).



Thus, biodynamic agriculture was the first ecological farming system to develop as a grassroots alternate to chemical agriculture. As of 2019, biodynamic techniques were used on 202,045 hectares in 55 countries (Demeter Monitor).

Principles of Biodynamic Agriculture

- ✓ Farm as a living system
- ✓ Seed & biodynamic plant cultivation
- ✓ Biodynamic generates on-farm fertility
- ✓ Biodynamic sprays enhance soil and plant health
- ✓ Working in rhythm with earth and cosmos cycles
- ✓ Biodynamics approaches pests and diseases holistically



- ✓ Biodynamics brings plants and animals together
- ✓ Biodynamic nutrition
- ✓ New economic and social design

Zodiac Principles of Biodynamics

- Cosmic forces
- Energies from cow
- Energies from plants

Features of Biodynamic Farming

- The main goal of biodynamic farming is to maintain the soil fertility which in turn helps us get back to the previous environment.
- The harmony between mankind and the ecology are being destroyed these days and Biodynamics focus on this point. So it works on repairing the depleted soil and helps to get back its balance by producing a crop which is good in terms of health as well as nutrition.
- Biodynamics will never allow the destruction of forests in order to get land for farming. Biodynamics strives to maintain the habitats and diversity of the plants and animals.
- Diversification of crops is the main factor of biodynamic farming. The farmer will produce crops which are different from each other instead of going with monoculture. This is because growing of only one crop in a field causes a decrease in the soil nutrients.
- The cultivation of crops should not be done too much so that the soil will regain its nutrients. Moreover, careful measures should be taken to prevent the erosion of soil.
- Biodynamic farming will deliberately avoid the use of treatments with chemicals to the soil and inputs which are not prepared on the farm.
- The main motto of biodynamic farming is to use green manure for farming. It also uses preparations and practices of Biodynamics such as the integration of livestock.



- Even the disease control methods and pest control methods should also be followed with the things available at the farm.
- Few factors such as the extent of penetration of light into the farm, time of cropping and the understanding of the habitats of the pests will help the biodynamic farmers to control the pests naturally.
- The control of weeds should also be done with proper planning. This can be done by understanding the weed life cycle and making a few adjustments in terms of fertility of the soil.
- The saving of water and the feed for the livestock present in the farm are the main features of biodynamic farming.
- Similarly, weed control can be achieved with the help of proper timing of planning, shade canopy, understanding the life cycles of weeds and making soil fertility adjustments that could inhibit weed growth.

Benefits of Biodynamic Farming

- The produce will be organic and healthy.
- The soil pollution and water pollution will be prevented completely.
- This method of farming will improve the efficiency of energy of the environment.
- Biodynamic farming will be able to take any kind of changes in the environment.
- When the crops which are produced by using biodynamic farming are consumed, there would be a good impact on the life of mankind and also for the ecology.
- The inputs to the soil in order to achieve fertility will be decreased.
- The products produced in biodynamic farming will have very good quality and can be termed as premium.
- The production of crops in biodynamic farming will be consistent and the returns will also be high.

Differences between Organic Farming and Biodynamic Farming

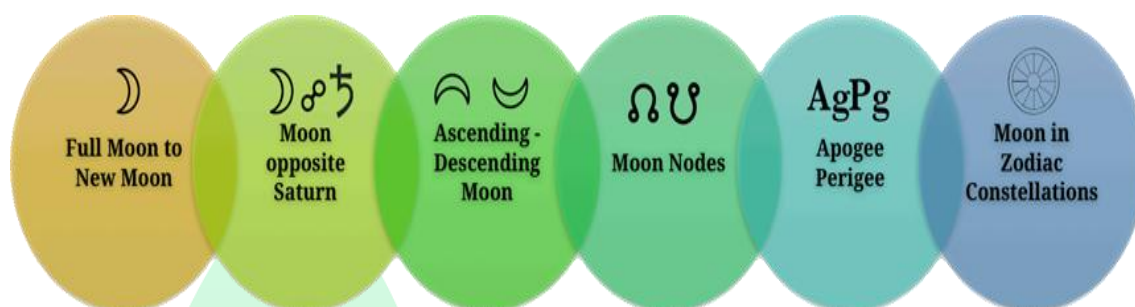
- The main principle of organic farming is to get the food which is rich in nutrition and is also sufficient to mankind by using the organic way of growing. Biodynamic farming is similar to organic farming but it is one step ahead of organic farming. This grows the plants by using organic content like green manures, etc. but it interlinks the crops with the forces of life such as cosmic forces, solar system, etc.

- Organic farming will add fertility to the soil by not using any kind of fertilizers which are made of chemicals, whereas the biodynamic farming adds vitality to the soil by increasing its sensitivity.
- Organic farming will protect the soil from being depleted whereas the biodynamic farming helps the soil to heal and replenish itself.
- Organic farming will work to create ecological balance in the farm, whereas biodynamic farming creates the ecological balance externally too.
- Organic farming is done mainly to get the crops in a healthier way, but the biodynamic farming will be working according to the changes in nature and through careful observations of nature.
- Organic farming uses the manure which is obtained from waste generated from crops and livestock whereas biodynamic farming will prepare the fertilizers which are made up of herbs and minerals. This is completely similar to homeopathy.
- Organic farming works based on environmental influences. Biodynamic farming also gets influenced by the changes in the environment, but there are also astrological influences added to it.

Biodynamic Calendar

- This calendar is based on the suggestions given by Rudolf Steiner. But one can conduct experiments with different rhythms, different locations and different cycles of the seasons based on our location.
- Biodynamic agriculture works from two poles - the cosmic and earthly. Planetary influences stream from the macrocosm onto earth, the microcosm.
- Planets near to earth are carriers of earthly (calcium) forces and planets further away from earth are carriers of cosmic (silica) forces.
 - **Earthly forces** (calcium): Moon, Mercury and Venus
 - **Cosmic forces** (silica): Mars, Jupiter and Saturn.
- The planting calendar is about rhythms - cosmic, solar, lunar rhythms and earthly rhythms. It is an aid to our conscious and purposeful participation in these rhythms.
- These are rhythms that sustain all life on earth. Biodynamic farmers strive to bring life back into the soil, so that the food produced from this living soil has increased life force, vitality, nutrition and enhancing the quality of human life.

- This can be accomplished when the rhythms of our farming activities are aligned with the natural cosmic and earth rhythms.
- The planting calendar indicates the important days for farming activities during these **6 different rhythmic** cycles each month.



New Moon-Full Moon

- When the moon is close to the sun and almost invisible. As the moon moves away from the sun we see it more clearly, first as a slender very beautiful crescent in the sky, the new moon.
- Just over 7 days later it reaches first quarter, followed by full moon which is about 12 times as bright. After approximately 29.5 days the rhythm begins again.
- The element most affected by the moon energies is water element (E.g., sap in plants).
- 48 hours before full Moon is suitable time for sowing seeds and applying liquid manures including CPP as foliar spray.
- Avoid sowing seeds in New Moon day.

Moon Opposite Saturn

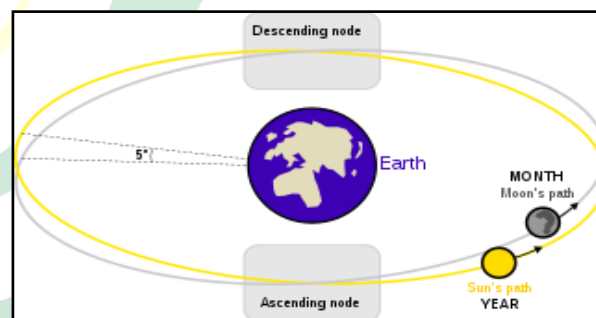
- The Moon and Saturn are on opposite sides of the earth and their respective forces are raying into the earth from opposite directions.
- It's simply when Moon and Saturn are standing opposite side to earth at 180° .
- The Moon forces bring in the calcium processes (earthly), while the Saturn forces bring in the silica processes (cosmic).
- The balancing effect of these two influences streaming into the earth produces very strong plants from seed sown at this time.
- This position occurs in **27.5 days**. Seed sowing, transplanting and BD 501 (horn silica) spraying at early morning are recommended. It is auspicious day for all important agricultural activities.

Ascending and Descending Moon

- When the Moon moving in an arc from east to west and we see these arcs getting higher in the sky every day, the Moon is *ascending*. The distance between Moon and Earth increases day by day for 13.6 days approximately.
- Sowing seeds in direct seed sowing methods or raising the seedlings, spraying liquid manures as foliar spray, spraying BD 501 (horn silica) up to 10.00 a.m., harvesting leafy vegetables, fruits and transplanting the seedlings.
- When we see the arc of the Moon path getting lower every day the Moon is *descending*. The distance between Moon and Earth decrease day by day for 13.6 days approximately.
- Making compost, compost application to the field, ploughing, BD 500 (horn manure) + CPP, liquid manure application in the soil, harvesting bulbs and roots can be done.

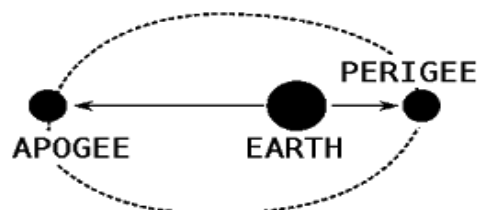
Moon nodes

- As it ascends and descends, the Moon crosses the path of the Sun (the ecliptic). The crossing points are called nodes and are the only places and times where eclipses can occur.
- The ascending or north node is where the Moon crosses from south of the ecliptic to north of the ecliptic.
- The descending or south node is where it crosses from north of the ecliptic to south of the ecliptic.
- The Moon makes one complete nodal cycle every 27.2 days, so there is a node approximately every 14 days, which is two nodes every month.
- Biodynamic farmers avoid important agricultural activities to due to its negative influence works into the soil.



Apogee and perigee

- When the Moon is closest to the earth is called perigee and the farthest from the Earth is called apogee.





- The Moon moves from perigee to apogee and back again in 27.5 days approximately. There is one perigee and one apogee every month.
- Apogee and perigee times bring a stress period and seed sowing should be avoided 12 hours on either side of these times except potatoes.

Moon in zodiac constellations

- The zodiac is a belt of fixed stars that are grouping called as constellations. This belt of stars lies behind the ecliptic path of the sun. All the planets and the Moon, move in front of the zodiac constellations.
- We are concerned with the Moon, which passes quickly in front of all 12 zodiac constellations in just 27.3 days.
- The influences of the constellations are passed on reflected by the Moon, through the four classical elements of nature - warmth/fire, light/air, water and earth.
- When the Moon is in earth sign are suitable for root development. When the Moon is in air sign are suitable for flower development. When the Moon is in water sign are suitable for cultivating leafy plants. When the Moon is in fire sign are suitable for cultivating fruits, pulses, paddy, groundnut, cotton, etc.

Certification

- Demeter is the international brand for products from biodynamic agriculture. Only strictly controlled and contractually bound partners are permitted to use the brand.
- They exclude the use of synthetic fertilisers and chemical plant protection agents in agricultural crop production or artificial additives during processing but also require very specific measures to strengthen the life processes in soil and foodstuffs.
- Demeter is the only ecological association that has built up a network of individual certification organisations worldwide. Presently, Demeter international has 18 members and 5 guest-members from Europe, America, Africa and New Zealand.
- Since 2008, the Biodynamic Association of India hosts and manages the Demeter certification office, India.
- Demeter stands for top quality products produced by the biodynamic method. Globally, it ranks as a top brand for the food sector. Europe and the United States have the most loyal and aware.

Conclusion

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Use of biodynamics improved yield and quality of field crops/fruits and vegetables. Improvement in soil chemical properties such as nutrient content, pH, CEC available N, P and K achieved with application of biodynamics.

References

Uzunova, R. B. and Atanasov, D. 2017. Biodynamic farming method for sustainable production of quality food. *Agriculture Economics and Management*, **62**(3): 40-48.

