



Biocyclic-Vegan Farming

Introduction

The change of values that has been on-going for decades in our modern societies has reached a new critical stage. More and more individuals become conscious of the fact that – from a global point of view – the boundaries of ecological resilience, the so-called "planetary boundaries" have already been attained or even crossed and that the conservation of the natural basis of existence can no longer be considered as being assured, if the production and consumption patterns which are typical for the advanced industrial societies are maintained or if they are adopted by developing and emerging countries,

The challenges regarding the ever increasing consumption of resources, the advancing climate change and the global extinction of species as well as the disruption of the global nitrogen cycle which belongs to the most serious environmental problems of our age, are sufficiently known by now. In this context intensive agriculture as well as the globally increasing consumption of animal products such as meat, dairy products and eggs play a decisive role. The number of scientific findings is growing which illustrate the fact that the excessive consumption of animal products causes disease whereas a purely or predominantly plant-based diet has a beneficial effect on human health. Furthermore, in many countries the awareness is growing that animal husbandry can no longer be justified from the perspective of animal ethics, and that beyond this its future economic viability is uncertain, seeing that it is socially more and more rejected.

On the consumer side this change in awareness has resulted in the fact that the number of people following a vegetarian or vegan diet – and as a consequence also the demand for food products that are certified accordingly – is constantly increasing. During the last years the food industry and trade have already reacted accordingly. This is reflected by a significant growth of the market shares of products declared as "vegetarian", "vegan" or even "vegan organic".

The designation "vegan organic", however, is actually mainly used to express the fact that the ingredients of products declared as such originate from organic agriculture and that for their production no ingredients of animal origin were used. Up to now, however, the consumer cannot be sure that **the actual cultivation of such a product is nonetheless not linked to animal husbandry**, or that e.g. for the fertilization no products of animal origin were used such as solid dung, slurry or slaughterhouse waste like blood and feather waste, horn meal, pig bristles and certain preparations made from parts of animal bodies. He can thus normally not recognise if the product he has bought as "vegan" has ultimately not been paid for with the suffering of animals or with the negative effect that animal production has on the environment.



It is true that there is a large number of organic farms that are also stock-free and that – mostly for pragmatic and economic reasons – refrain from keeping animals for meat, dairy and egg production. On these farms, however, often fertilizers of animal origin are used that are purchased externally, because it is widely considered that it is not possible to do without substances of animal origin if one wants to increase the yield of the crops and at the same time to achieve a long term sustainable soil fertility. Even if it is possible to refute such a view on the basis of practical experiences which have been on-going for decades particularly in the area of biocyclic agriculture, there is yet a certain uncertainty and scepticism among farmers and sometimes even open rejection which prevents that stock-free agricultural operations recognise and take advantage of their orientation as being an opportunity for a new future oriented "vegan" approach.

At this point **biocyclic-vegan agriculture** sets in.

The idea of a future oriented agriculture without slaughter animals and without animal cruelty already formed the basis of the "Biocyclic Standards" which had been developed since the 1950s by Adolf Hoops in Germany at "Bio-Modell Walsrode" and which later, in cooperation with Dr. Johannes Eisenbach, were adapted to the Mediterranean climate zone in Greece and Cyprus, where today they are successfully practised by a large number of approximately 100 farmers. These standards describe a stock-free farming method which works in the sense of an ecologically oriented circular economy and which for the improvement of soil fertility attributes a great value to the use of **a purely plant based compost in substrate quality as well as to the use of wild and medicinal herbs**. The use of animal manures was strictly rejected and up to now has only been tolerated in practice if certain requirements were met.

With respect to the paradigm shift referred to above as well as to the increasing demand for products grown in a "vegan" way, it is now a logical step to take back the Biocyclic Standards to the principles of their initial philosophy and to give them a new frame under the form of the **Biocyclic-Vegan Standards**. This will also provide the possibility to farmers who are interested in finding a new orientation to free themselves from the constraint to produce food products exclusively by the means of animals.

The Biocyclic-Vegan Standards will shortly be entered as a stand alone standard into the **IFOAM family of standards**. Farmers wishing to be certified according to these standards will then have the possibility to become a member of the planned Biocyclic-Vegan Growers' Association and in the future to market their products under the biocyclic-vegan label.



The Biocyclic Idea

The meaning of the term "biocyclic"

The form of agriculture that is prevailing today is characterized by a production method which is based on an unclosed system where man uses the resources of nature without providing any compensation in exchange that would guarantee him a durable and unlimited availability of these resources also in the future. In opposition to this non-sustainable approach stands the biocyclic idea whose aim is the conservation or the rehabilitation of healthy cycles of life (Greek: "bios" = life + "kyklos" = cycle, circle) in a global sense, which means in all areas of the human existence. This concerns the relationship of the human being to his entire connatural world – to humans, animals and also plants – and it requires a responsible interaction with the environment that he uses and influences. All personal and economic activity should thus take place in a holistic context with the goal to make a conscious and sustainable contribution for a development fit for the future also in the area of the agriculture and food industry.

In order to produce natural products issuing from healthy circles, an approach is needed, that starting from a healthy soil and passing by a healthy plant will lead to a healthy human. Only in such a way the biocyclic "circle of the living substance" (Dr. med. habil. Hans-Peter Rusch) can be seamlessly influenced and enhanced in a sustainable manner and in harmony with the laws of nature. Only an activity that puts a strong emphasis on the cyclic concept will at the same time yield a multiple benefit in different areas such as health, environment, global food supply and animal ethics.

For this reason it is desirable that the biocyclic idea of the integration of human behaviour into vital circles that are in harmony with the laws of nature becomes a fundamental pillar for the activity of each organically working farmer. In this respect the production and supply of nutritious and tasty food issuing from healthy and, if possible, closed circuits, is an essential element. Furthermore it will be useful if a partnership between producers and consumers comes into place, in the sense of a food production that complies with the social, ethical and global responsibility towards fellow human beings, animals and the environment.

The biocyclic standards in the context of organic farming

The biocyclic standards have emerged from the endeavours of Adolf Hoops (1932-1999) and Dr. Johannes Eisenbach to promote organic agriculture with a particularly emphasis on the biocyclic principles. They address those organic farmers and gardeners who have become aware of the importance of restoring and maintaining the natural vital circles as well as the natural soil fertility being a starting point for a sustainable agricultural production in the overall sense.

The aim is to activate the self-healing potentials of an agricultural ecosystem – that mainly occur on the level of the macromolecules and soil life – in providing conditions of growth as ideal and close to nature as possible and to thereby increase the ecosystem services altogether. This can subsequently have a positive influence onto the entire food chain up to the human being.



The biocyclic standards stand in the scientific tradition of renowned researchers from the 18th, 19th and 20th century (Albrecht Thaeer [1752-1828], Justus von Liebig [1803-1873], Sir Albert Howard [1873-1947], Dr. med. habil. Hans-Peter Rusch [1906-1977]) and they combine them with the practical experiences available today in the area of organic farming and composting as an indispensable factor for a durable improvement of soil fertility. The biocyclic standards are characterized by the fact that they attach a particular value to the consistent use of **substrate compost** and **humus soil**, whereas, owing to the biological and microbiological processes that take place in the soil and inside the plant, they emphasize at the same time the importance to the integration of **wild and medicinal herbs** into the humus circle.

Furthermore, in order to be able to offer the crops growth conditions that are as natural as possible, it is necessary to drastically increase **biodiversity** on and around the cultivated areas. Companion planting, catch crops and extensive crop rotation as well as the implementation of semi-natural habitats that are not used for farming or gardening within the boundaries of and/or on the land adjacent to the operation, provide a further basis for successful biocyclic-vegan agriculture. In order to make measurable the degree of the ecological interconnectedness of an operation with its surrounding natural ecosystem or with semi-natural habitats that are to be artificially created within the area that is used for farming, and in order to make it comparable between different operations, the **Biocyclic Farm Index (BFI)** has been developed. It provides information if the starting position of a farm is sufficient to make use of – or to successfully activate – the natural self-healing potential of the ecosystem inside and outside the operation to the advantage of the crops. Possible ecological deficits determined by means of an index that varies according to a scale from one to ten need to be compensated, before the operation is allowed to participate in the biocyclic-vegan control and certification procedure.

From the biocyclic standards to the standards for biocyclic-vegan farming

The necessity to turn away from keeping animals for slaughter

An increasing number of scientific studies from different areas give clear evidence that the actual production and consumption of food of animal origin comes along with severe negative effects on the environment, climate, health, social justice and food security – also on a global scale. Besides that, from an ethical perspective, the production conditions resulting from the way animals are commonly bred, kept, transported and slaughtered have not been acceptable any more for a long time already.

It is true that there are attempts to reduce the consumption of animal products and also to organise the conditions under which livestock is kept in a way that is more appropriate to their species. If however the regional and global challenges are taken into consideration as well as the ethical valuation of the status of animals which is actually strongly progressing in our societies and which is based on an advanced scientific insight with respect to the potentials of the intelligence, sensitivity and thus capacity to suffer of animals, and which leads to a fundamental reappraisal of the relationship between humans and animals, such initiatives for "animal welfare" or "animal friendly" livestock management are not really convincing. It



rather becomes more and more evident that from an ethical point of view it will be necessary in the future to completely give up the consumption of animal products. This target however is entirely opposed by a form of agriculture that according to its own fundamental principle is bound to the production of animal products.

Biocyclic-vegan farming as a global alternative

It has been widely accepted by now that a global extension of ecological agriculture could make an important contribution to a sustainable development. But it is rarely taken into consideration that this extension of organic farming which is certainly to be welcomed with respect to its fundamental approach, will eventually not lead to the desired result if it maintains the methods practiced so far, which are based on the combination of plant and live-stock production.

In contrast the biocyclic idea considers that is necessary and possible **to preserve or to build up a natural soil fertility to its highest possible extent even without breeding or keeping animals for slaughter and without using inputs of animal origin** and at the same time to create a holistic biocyclic operating unit on an ecological basis. Thereby the farmland that is used for food production for human consumption must not be fertilized or treated with any solid or liquid animal manure, be it fresh or in the form of compost, nor with slaughterhouse waste of any kind nor with any preparation of animal origin.

These principles were postulated already in the 20s and 30s of last century by the first agricultural pioneers within the early vegetarian and health movement. They were further developed in the 1950s by Adolf Hoops in Germany, and since then they have in many cases proven successfully in practice. Today, as "biocyclic standards", they are in full compliance with the requirements concerning a vegan-organic form of farming as they were formulated during the last decades by other parties. To illustrate this aspect, they will henceforth be called "Biocyclic-Vegan Standards".

The biocyclic-vegan principle of farming does not only present itself as an alternative in temperate climate zones with classical mixed crop-livestock operations but particularly also in regions where traditionally a combination of crop production and animal husbandry does not exist or is not possible.

The central role of composting for biocyclic-vegan farming with respect to the protection of soil, water, climate and resources

Biocyclic humus soil

An essential characteristic of the biocyclic-vegan farming principle is the use of mature compost in substrate quality which offers the condition for the development and preservation of a permanent soil fertility. Compost, even in organic farming, is often not yet considered as a component of basic fertilising, but rather first and foremost as a soil improver. Among many farmers there prevails the erroneous opinion that animal manure contains more nutrients. According to this the application rates of compost as they are usually practised remain too



low. Last but not least this is also caused by the use of fresh compost not yet sufficiently mature (rotting degree II-III), which should be used with caution. The real benefits of using compost exponentiate only when the compost undergoes a post-maturing process which leads it to a soil-like state beyond substrate maturity, which makes it turn into **humus soil**. Humus soil is characterised by a state of balance between degrading and synthesising organisms, which means that it finds itself in a state of complete stability and that it exerts a stabilising influence on the soil environment. Its organic substance consists almost exclusively of pure humus. Thus humus soil is so root-friendly, that it is even possible to use it to raise young plants and seedlings without adding other materials (e. g. peat, perlite, etc.).

Whereas composts that are not completely rotten, thus half-mature, can either still be harmful to the roots or are still partly at risk to be washed out, humus soil unfolds totally different properties. In order to obtain humus soil on the basis of a purely plant-based compost it requires a controlled rotting process and a longer post-maturing period than commonly assumed. By this means a degree of maturity is attained which goes beyond the level of V which is the rotting degree that has been defined for substrate compost. Whereas humus soil produced in accordance with the biocyclic-vegan standards will mainly be used for intensive horticulture, in the case of arable farming and/or special crops at least finished compost (rotting degree IV-V) or substrate compost (rotting degree V) should be used according to the requirements of the respective cultivated plant as well as the legal requirements. In biocyclic-vegan farming, however, the use of biocyclic humus soil forms the focal point of all production processes and is the principal foundation of plant nutrition and plant protections. For its production only primary materials of plant-based origin are used.

The three properties of biocyclic humus soil: soil improver, carbon buffer and nutrient battery

Biocyclic humus soil as a soil improver

Owing to its physical properties compost is commonly referred to and used as a "soil improver". The reason for this designation is its faculty to contribute to a better aeration of the soils as well as to an increased water retention capacity and an acceleration of soil tilth. In addition, the high concentration of microorganisms of various kinds it contains, makes a significant contribution to the enhancement of soil life. Therefore compost is generally considered as an important factor for the improvement of natural soil fertility, especially on soils that are cultivated organically. The humus content within the upper 25 cm of soil layer is increased by mulching, surface composting and in applying finished or substrate composts at various degrees of maturity. The higher the degree of maturity is, the more the compost becomes efficient.

Biocyclic-vegan farming goes beyond this. It aims that on the cultivated areas as much humus soil as possible is applied, which can also be used as a substrate for direct planting without the addition of any other soil.



In this way, through the deliberate use of large quantities of humus soil on the basis of purely plant based composts (possibly in substrate quality,) biocyclic-vegan farming can also be considered as an instrument to terminate and reverse the degradation and erosion of soils.

Biocyclic humus soil as a carbon buffer

Agriculture – owing to the use of mineral fertilizers, as well as to intensive livestock farming and the application of livestock manure (solid and liquid) – agriculture can be considered as one of the principal causes of green house gas emissions, especially nitrous oxide and methane, and thus of climate change. In the future organic and in particular biocyclic-vegan farming, which entirely refrains from animal husbandry and the use of inputs from animal origin, will have an important role to play in this respect.

Beyond this, biocyclic-vegan farming will also be able to make a contribution to the **reduction of carbon dioxide that already exists in the atmosphere**, especially if one starts to consider the humus content of the soil as the main foundation for the agricultural and horticultural production of plants – and not merely as a marginal phenomenon which is used for the evaluation of soil fertility. In the practice of biocyclic-vegan farming, depending on the respective crop plant, very high amounts of humus soil are used for the purpose of plant nutrition and in the sense of a sustainable improvement of the natural soil fertility. By the virtue of the fact that humus contains approx. 40 to 60 % carbon (C), **considerable amounts of carbon can be sequestered in the organic substance of the soil**, when humus is increasingly applied to the land. When using raw materials of exclusively plant based origin, this procedure has the potential of **transforming farmland into carbon sinks** (until today only forests, moors, permanent grassland, savannahs, steppes and oceans were considered as such), and in this way make a **significant contribution to climate protection**.

Biocyclic humus soil as a nutrient battery

In biocyclic-vegan farming the function of humus soil as a nutrient source is of great importance. Humus soil is a comprehensive, balanced and long lasting reservoir of organically bound nutrients ("nutrient battery"). The fact that in humus soil almost all nutrients are organically bound in clusters and do not occur in a water-soluble form is of vital importance for its possible applications. Many years of experience have shown that when biocyclic humus soil is used, owing to the stable aggregates it contains, no nutrient loss by leaching does occur and thus no emission of any reactive nitrogen compounds which are detrimental to the environment and health. This represents a significant contribution towards the solution of the actual global nitrogen issue. Particularly with respect to the excessive nitrate levels in ground and surface waters, biocyclic humus soil as a "N-binder" is the ideal source of nutrients, e.g. in water protection zones.

A further aspect is that the plant growing on humus soil is prompted to activate the absorption mechanisms provided by nature for non-water soluble nutrients, which leads to a physiologically optimal shape and at the same time, due to the mobilisation of the intrinsic immune system, to a palpably improved health of the plant. Experience has shown again and again that, owing to the abundant availability of micronutrients, plants growing on humus



soil are of excellent taste. Furthermore, if during the rotting phase wild and medicinal herbs or plants with an increased share of antioxidants (e.g. stinging nettle, comfrey, horsetail, olive leaves) are added to the maturing substrate, humus soil contains additional potentials that are beneficial to the consumer's health.

Practice has shown that through the use of humus soil in adequate quantities all the plant's needs for macro- and micronutrients as well as phytochemicals, natural auxins and other natural hormones boosting the metabolism are covered. Due to the fixation of nutrients in humus complexes that are not soluble in water, any over-fertilization is excluded, even if large quantities are applied. The larger quantities of humus soil can be used, the better the natural genetic potential of the crop can be exploited.

Owing to its totally different characteristics compared to fully mature substrate compost, the use of biocyclic humus soil is not subject to possible restrictions of any national fertilizer regulations.

Biocyclic humus soil as a part of an economy based on recycling

Furthermore, the use of biocyclic humus soil is of particular importance when it comes to the closing of nutrient cycles. In line with the biocyclic idea, it makes sense that beyond internal source materials, also the residues generated in large quantities by the ecological food processing industry as well as other waste materials of plant-based origin issuing from food production, trade, biogas production etc., are integrated into the agricultural nutrient cycle through systematic composting, as long as the process – by the means of a controlled rotting process and post-ripening treatment – eventually leads to the production of humus soil. In biocyclic-vegan agriculture even so-called absolute grasslands or other areas previously used for the production of forage or for extensive grazing on the grounds of landscape conservation can make an important contribution for the supply of plant-based raw material for the production of biocyclic humus soil.

Outlook

Along with the upcoming establishment and spread of biocyclic-vegan agriculture, besides the above mentioned potentials with respect to ecological issues and animal ethics, there is also a large field for advanced research projects beneficial to ecological farming on a general level, which may contribute to a better understanding of microbiological mechanisms leading to results that can be observed in practice in connection with the use of biocyclic humus soil, and which will provide new indications for the further development of the method.

Furthermore, research projects will play an important role regarding the optimisation of different procedures for the formation of humus in the sense of biocyclic-vegan agriculture (e. g. mulching, surface compost etc.). In the context of these research projects it is essential that the most suitable procedure for the various climate and soil conditions is found.

In the context of biocyclic-vegan agriculture, biocyclic humus soil and its extensive use will be in the focus of all efforts towards the protection of soils, water, climate and resources.