Version 1.02
09.10.2017

BIOCYCLIC-VEGAN STANDARDS

Biocyclic-Vegan Standards

EN

Version 1.02 (Edition 09.10.2017)

- S T R U C T U R E -

.	**PART**
0	**Section**
0.0	**Chapter**
0.0.0	**Subject**
0.0.0.0	**Topic**
0.0.0.0.0	Sub-Topic
i	*Introduction*
ii	**Principle**
iii	***Recommendation***
iv	Requirement
v	Exceptions

A INTRODUCTION

1 The Biocyclic Idea

1.1 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 the aim of which 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 natural and 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 to 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 being. 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.

1.2 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 Thaer [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 of integrating 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 inter-connectedness 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 to make it comparable between different operations, the Biocyclic Operation Index (BOI) 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.

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

2.1 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 anymore 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 intelligence, sensitivity and thus capacity of animals to suffer, 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.

2.2 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 it is necessary and possible to preserve or to build up natural soil fertility to its highest possible extent even without breeding or keeping animals for slaughtering 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, neither 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 been 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.

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

3.1 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 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 the erroneous opinion that animal manure contains more nutrients prevails. 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 become evident 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. In order to obtain humus soil on the basis of a purely plant-based com-post 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.

While uncomplete rotted, i.e. half-mature composts can either cause damaging effects to the crop's roots or be susceptible to nutrient leaching, humus soil unfolds effectively other properties. For the purpose of producing humus soil on the basis of a purely plant-based compost, it is necessary to maintain a directed course of the rotting process and a longer after-ripening phase than commonly assumed. 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.

3.2 The three properties of biocyclic humus soil

3.2.1 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.

3.2.2 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 greenhouse

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.

3.2.3 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 phytokinins, 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.

3.3 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 to the supply of plant-based raw material for the production of biocyclic humus soil.

3.4 Outlook

Along with the upcoming establishment and spread of biocyclic-vegan agriculture, apart from 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.

B GUIDELINES

1 General Preconditions

1.1 Criteria for entering the 'Biocyclic-Vegan' control and certification system

A producer's decision to comply with the principles of organic and particularly of biocyclic-vegan farming must be widely founded on a global perspective which encompasses all aspects of life. As a result, this decision concerns the totality of all his operating units and activities. Thus the focus of interest is not the individual product but the producer himself and his farm as a whole including his interaction with the ecosystem and the social structures of his environment.

1.1.1 Ability and willingness of the producer to fulfill the requirements of the Biocyclic-Vegan Standard

The operator proofs his willingness and ability to meet the requirements of this standard and to adopt the advices as well as to correct non-conformities which have been observed during the last inspection within the time frame published in the Certification Letter.

The need to proof the above does not exist for operations which are to be audited against the Biocyclic-Vegan Standard first time. If non-conformities occur, the operator has to declare that he has been informed about the specific requirements of the standard and that we will meet them from now onwards

1.1.2 Whole Farm Approach

On a biocyclic-vegan operation, on all plots and in all sections of the operation the guidelines for organic farming in the sense of the IFOAM-Norm for Organic Production and Processing, version 2014, or equivalent standards which are part of the IFOAM Family of Standards (e.g. Regulation (EC) No 834/2007), apply.

The biocyclic-vegan operation as a whole (with all plots and sections of the operation) has to undergo an organic inspection and certification procedure for organic farming in the sense of the IFOAM-Norm for Organic Production and Processing, version 2014, or equivalent standards which are part of the IFOAM Family of Standards(e.g. Regulation (EC) No 834/2007).

Sectors and activities of the operation that for economic, legal or other reasons officially cannot undergo the organic control and certification procedure (e.g. forestry), even though the regulations for organic farming

are also applied on them. In case that previously existing animal husbandry cannot be immediately ceased with the implementation of biocyclic-vegan farm management, it must either be ceased within a period of two years or at least be in accordance with exception of Topic 2.4.6.2 by that date.

1.1.3 Conversion period

A conversion period enables the establishment of a biocyclic-vegan management system and the enhancement of soil health and fertility.

1.1.3.1 Fulfilment of the standard's requirements during conversion period

All the requirements of this standard shall be met for the duration of the conversion period.

1.1.3.2 Start of conversion period

The start of the conversion period shall be calculated from the date that an application has been received and agreed to by the control body.

1.1.3.3 Length of conversion period

The length of the conversion period shall be 24 months before sowing or planting in the case of annual production and 36 months before harvest for other perennials.

In case of conversion from an organic production standard to biocyclic-vegan production, a conversion period may be omitted, if at the time of the first biocyclic-vegan inspection it is verified through the operation's documents, that it has been following the Biocyclic-Vegan Standards throughout the vegetation periods of the crops that are to be certified.

1.1.3.4 Labelling of products grown during the conversion period

Products grown during the conversion period may be labelled as "produced in conversion to biocyclic-vegan agriculture" if harvested 12 months after begin of the conversion period.

1.1.4 Switching of production systems

Biocyclic-vegan production systems require a permanent commitment to biocyclic-vegan production practices.

The production system shall not rely upon continuous switching between biocyclic-vegan and conventional and/or organic but non-vegan management.

1.1.5 Biocyclic Operation Index (BOI)

The biocyclic-vegan operation actively contributes to biodiversity and the protection and enhancement of species inside and outside the cultivated area by adding special value to the ecosystem, in which the operation is active. This effect becomes measurable by calculating the Biocyclic Operation Index.

Each cultivated plot of a biocyclic-vegan operation has to be evaluated as to its interaction with its natural and anthropogenic environment by the Biocyclic Operation Index (BOI). The requirements regarding enhancement of biodiversity and the protection of species are considered to be fulfilled if the BOI has a score of at least 6.

Operators that fail an overall score of at least 6 and are not able to improve it by other social and general criteria checked by the BOI, shall design and implement measures to maintain and improve landscape and enhance biodiversity quality, by maintaining on farm wildlife refuge habitats or establishing them where none exist. Such habitats may include, but are not limited to:

(a) extensive grassland such as moorlands, reed land or dry land;
(b) in general all areas which are not under rotation and are not heavily manured: extensive pastures, meadows, transitional areas between cultivated land and forest or wasteland, extensive orchards, hedges, hedgerows or groups of trees and/or bushes, forest and woodland;
(c) ecologically rich fallow land or arable land;
(d) ecologically diversified (extensive) field margins;
(e) waterways, pools, springs, ditches, floodplains, wetlands, swamps and other water-rich areas which are not used for intensive agriculture or aquaculture production;
(f) areas with ruderal flora;
(g) wildlife corridors providing linkages and connectivity to native habitat.

1.1.6 High Conservation Value Areas

Areas that are officially recognised as High Conservation Value Areas (HCV) are not used for agriculture.

Clearing or destruction of High Conservation Value Areas is prohibited. Farming areas installed on land that has been obtained by clearing of High Conservation Value Areas in the preceding 5 years shall not be considered compliant with this standard.

1.2 Legal framework

In order to prove that an organic operation fulfils the requirements of the Biocyclic-Vegans Standards, the operation has to join an organic producers´ associations recognised by BNS Biocyclic Network Services Ltd and to undergo a control procedure conducted by an independent accredited control body. Both, membership approval and a valid certificate enables the operation to participate in marketing programmes or initiatives that are based on the Biocyclic-Vegan Standards and are performed by selected licensed marketing partners, thus offering the opportunity to point out the special quality of biocyclic-vegan agriculture using the registered Community Trade Mark "Biocyclic" (EUIPO No. 006670905).

1.2.1 Membership in a biocyclic-vegan organisation

The biocyclic-vegan operation is a member of a producers' association the members of which are obliged to follow Biocyclic-Vegan Standards.

In order to be able to obtain certification and to participate in a programme based on the marketing of biocyclic-vegan products, the operation has to become a member of an association which obliges their members to comply with the Biocyclic-Vegan Standards.

1.2.2 Certification and labelling

Only fully certified operations with a valid trade mark agreement can market their production as biocyclic-vegan.

Products labelled as "from biocyclic-vegan agriculture" have to originate from operations that have been controlled by an accredited control body according the Biocyclic-Vegan Standards having obtained a valid certificate and bare a valid trade mark agreement ruling the right to use the registered Community Trade Mark "Biocyclic" (EUIPO No. 006670905) with BNS Biocyclic Network Services Ltd. The marketing of biocyclic-vegan products labelled as "from biocyclic-vegan agriculture" by a distributor other than a certified licensed marketing partner is prohibited. In case the operation markets its products directly, it is itself considered as a licensed marketing partner.

1.3 Social Standards

Social justice and social rights are an integral part of biocyclic-vegan agriculture and processing. The fairness principle of biocyclic-vegan agriculture emphasizes that those involved in biocyclic-vegan agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties involved. Production that violates human rights and social justice requirements in the following chapter cannot be declared as biocyclic-vegan.

1.3.1 Indigenous land rights

Operators shall not violate indigenous land rights.

1.3.2 Nonpermissive operations

Operators shall not use forced or involuntary labor or apply any pressure such as retaining part of the workers' wages, property or documents.

1.3.3 Right to trade unionism

Operators shall not interfere with the right of their employees, suppliers, farmers and contractors to organize and to bargain collectively, free from interference, intimidation and retaliation.

1.3.4 Protection from discrimination

Operators shall provide their employees and contractors equal opportunity and treatment, and shall not act in a discriminatory way.

1.3.5 Dismissal protection

Operators shall have a disciplinary procedure with a system of warning before any suspension or dismissal. Workers dismissed shall be given full details of reasons for dismissal.

1.3.6 Well-ordered working hours

Employees shall be granted the right to take at least one day off after six consecutive days of work. Operators shall not require workers to work more than the contracted hours and the national or regional sectorial legislation. Overtime shall be remunerated in the form of supplementary payments or time off in lieu.

1.3.7 Worker's rights in case of illness

Operators shall never require an employee to work who is ill or requiring medical attention and shall not sanction an employee for the sole fact of missing work due to illness.

1.3.8 Ban of child labour

Operators shall not use child labour.

Children are allowed to experience work on their family's farm or business or a neighbouring farm according to applicable judicial norms, provided that:

(a) such work is not dangerous or hazardous to their health and safety;
(b) it does not jeopardize the child's educational, moral, social, mental, spiritual and physical development;
(c) children are supervised by adults or have authorization from a legal

guardian.

1.3.9 Fair wages

Operators shall pay employees wages and benefits that meet at least legal minimum requirements of the operation's jurisdiction or, in the absence of this minimum, the sectorial benchmark.

1.3.10 Employees right to written terms and conditions

Operators shall provide written terms and conditions of employment to both permanent and temporary employees, in a language and presentation understandable to the worker. The terms and conditions must specify at least: wages, frequency and method of payment, location, type and hours of work, recognition of workers' freedom of association, disciplinary procedure, health and safety procedure, eligibility and terms of overtime, holiday pay, sickness benefit and other benefits such as maternity and paternity leave and worker's right to terminate employment. Operators shall ensure that the workers understand the terms of their employment contract. Operators shall respect the terms of the contract in good faith, including timely payment of wages.

In cases where:

(a) the operator is unable to write, or
(b) workers are hired for periods of less than 6 days, or
(c) emergency labour is needed to address unpredictable problems oral mutual agreements on the terms and conditions of employment are sufficient.

1.3.11 Access to potable water

Operators shall ensure adequate access to potable water.

1.3.12 Safety training and equipment

Operators shall provide appropriate safety training and equipment to protect workers from noise, dust, sunlight and exposure to chemicals or other hazards in all production and processing operations.

1.3.13 Appropriate accommodation for residential employees

Operators shall provide residential employees with habitable housing and access to potable water; to sanitary and cooking facilities and to basic medical care. If families reside on the operation, the operator shall also enable access to basic medical care for family members and to school for children.

1.3.14 National social requirements

Operators shall comply at least with minimum national social requirements in the countries of operation.

1.3.15 Transparent employment policy

Operators with more than 10 employees must have a written employment policy and maintain records to demonstrate full compliance with the requirements of this section. Workers will have access to their own files.

1.3.16 Third-party services under the same terms

Requirements in this chapter 1.3 apply equally to all workers on the operation regardless of how they are employed, except for subcontractors performing non-production core business functions such as plumbing, machine repair, or electrical work.

2 General guidelines for crop production

2.1 Protection against contamination risks from air or water

Many regions are dominated by either intensive or extensive monocultures. Given that there might be common borders between biocyclic-vegan and conventional plots, special emphasis has to be given to possible reciprocal effects of the different cultivation techniques both between different plots as well as within the same plot.

2.1.1 Secure plot borders

Biocyclic-vegan plots are efficiently protected against risk of contamination through air or water originating from surrounding areas.

Biocyclic-vegan plots have to be separated precisely by artificial borders (e.g. fences) or natural barriers (e.g. read, hedgerows, broad flower strips, trees, bushes) or other borders (e.g. dirt roads, terraces, ditches, rivers etc.), so that the danger of contamination by sprayings from neighbouring conventional fields can be excluded or at least minimized.

If there are no or insufficient natural borders, the operator shall submit a written declaration wherein he states that the neighbour field under consideration has not been sprayed with any substances which are forbidden in organic agriculture, or that the first row of trees that have a common border with a conventional plot will not been harvested together with the other products of the same plot and that the fruits of the excluded row will not been marketed as biocyclic-vegan or passed together with other partitions of the same plot to the processing unit. In case the whole plot consists of only one or two rows or cannot be protected efficiently, the specific plot may be excluded from the Biocyclic-Vegan Marketing Program without affecting the certification procedure of the other plots of the operation.

2.1.2 Protection against contamination risks from water

Biocyclic plots are efficiently protected against any risk of contamination from air or water originating from surrounding areas.

If a biocyclic-vegan plot is located in an area with high level of ground water (e. g. near river beds, wetlands, planes with water stagnation etc.) or with a high risk of flooding and if the biocyclic cultivation is in danger to be contaminated by water soluble nutrients or synthetic chemical substances used as fertilizers or plant protection agents and which are not allowed in

biocyclic-vegan agriculture from the neighbour plot, the plot shall be protected by a drainage ditch alongside the border with the neighbouring conventional field with a depth that is capable to protect the root system from entering into the possibly contaminated ground water zone or to absorb the superficial water in case of flooding.

If the creation of a drainage ditch is practically impossible, the recommendations and exceptions as laid down under 2.1.1. are valid. In case of uncertainty as to the risk of exposition to non-conform substances (e.g. due to the direction of water flow), a leaf analysis shall be conducted for the affected crops.

2.1.3 Protection against contamination risks from farm equipment

Farm equipment used in the biocyclic-vegan operation is free from substances or materials that are not allowed in the framework of this standard.

In case the biocyclic-vegan operation needs to use farm equipment which has been shared with conventional farmers it has to be secured that the equipment has been properly cleaned before being used on the biocyclic-vegan operation, so that no part of the equipment that comes into contact with soil or plants of the biocyclic-vegan operation is a source of contamination with non-allowed substances or materials.

2.2 Enhancement of biodiversity

The enhancement of biodiversity is one of the most fundamental principles of the Biocyclic-Vegan Standards. Measures which directly or indirectly help to conserve and to strengthen biodiversity have for their part a positive influence on the conditions under which the crop grows which in turn influences the kind and frequency of the cultivation measures with respect to the crop. The use of wild and medicinal herbs is of particular importance, owing to their specific biological effects. Measures for the enhancement of biodiversity can be classified on three different levels:

(a) Activation of soil life (e.g. by the use of compost and low-impact tillage).

(b) Increase of biodiversity above the soil level (e.g. by the use of mixed crops, crop rotation, agroforestry, or permaculture as well as specific measures to improve the composition of wild and medicinal herbs in permanent crops).

(c) Promotion of biotopes outside the cultivated areas (e.g. by the use of buffer zones and strips, landscaping measures etc.).

2.2.1 Ecological compensation area

The intention of an ecological compensation area is to achieve the highest possible degree of biodiversity within an ecosystem influenced by man,

and thereby to contribute to the development of a resilient ecological system that finds itself in a state of equilibrium (homeostasis). In order to adequately determine the ecological compensation area of an individual operation, the specific local conditions have to be taken into account.

Otherwise the operation has to create areas inside the operation which function as an ecological compensation area. Depending on the individual situation of the operation, the following measures can be taken:

1. Planting of bushes or hedges and/or other natural barriers,
2. Creation of biotopes within a plot of land (e. g. wetland habitats, wasteland, reforestation zones),
3. Measures to connect different biotope inside and outside the operation (e.g. tunnels for reptiles),
4. Installation of nesting aids (on buildings or other facilities),
5. Toleration of wild herbs and weeds as long as the development of the crops is not affected),
6. Protection and support of wild vegetation on permanently uncultivated areas,
7. Postponement of the incorporation of crop residues and weeds into the soil until the next cultivation period.

In case the Biocyclic Operation Index (BOI) reaches or exceeds a score of six (6), the operation meets the requirement of an ecological compensation area, owing to the anthropogenic or natural conditions of the environment in which the cultivated areas are integrated, and the creation of an artificial ecological compensation area will not be necessary.

2.2.2 Promotion of a flora rich in species

Wild and medicinal herbs, under certain conditions even weeds, are an integral component of the ecosystem of an operation working according to the biocyclic-vegan guidelines. They enhance biodiversity and thereby counteract the epidemic spread of disease and profuse insect infestation. Beyond this, they enrich the food chain by positively influencing the health conditions of plants and thus the quality of the final product by means of a multitude of physiologically effective substances which can partially be absorbed by the crops.

The operation has to provide sufficiently large habitats within and outside the cultivated plots by the means of systematic mixed crops or in reconverting parts of the land to allow wild and medicinal herbs presence of which is beneficial to the development of other crops to grow and to reproduce in a controlled manner. Additionally it is desirable that, whenever possible, freshly cut wild and medicinal herbs are used for mulching or other forms of compost preparation.

2.2.3 Promotion of a fauna rich in species

The fauna, too, in the same way as the flora, needs to be rich within and outside of the cultivated plots. This will allow a stable ecological balance necessary to achieve the target of a land management using a minimum of external resources according to the biocyclic-vegan principle. On the operation specific measures are taken to enhance the fauna so that it can support the cultivated crop.

Birds, if they exist in adequate numbers and different species, can substantially contribute to the control of insect populations in special crops and perennial outdoor crops. Different species of birds have different needs for nesting. In order to provide birds with an appropriate environment, the operator shall keep alive or plant trees within the borders of the plot which have a different size with respect to the prevailing crop. High wooden structures can also be installed where birds of prey can sit.

2.2.4 Targeted measures against insect infestation with respect to maintaining natural equilibrium

Any insect infestation beyond the damage threshold is an indication for a loss of balance within the system state in which the crop should find itself. Therefore, apart from emergency measures which might be necessary in case of imminent danger for the survival of the crops, measures are to be taken which will lead to the restoration of the state prevailing before the damage threshold was reached, or which will lead to an improvement of the overall stability of the system. The medium and long-term development of an agricultural ecosystem leading to a state of homeostasis must not be impaired by these measures.

Under the aspect of a short-term restoration of a balance between insect populations responsible for damages and their antagonists on a plot of land and/or its wider environment it can be approved that in the case of infestation that, e. g. when growing vegetables, beneficial insects are released or selective insect traps are installed which have a minimum impact on the ecosystem of the crop plants. The application of broad-spectrum insecticides or the use of non-specific traps is prohibited. It is preferable to use repellents and passive protective measures that have a small efficiency range and at the same time a targeted effect. The products that can be used for this purpose and that comply with the Biocyclic-Vegan Standards, are mentioned in the "Green List" which is continuously updated and which is part of the present Standards.

2.3 Soil and Water Conservation

Organic as well as biocyclic-vegan farming methods conserve and improve the soil, maintain water quality and use water efficiently and responsibly.

2.3.1 Protection against erosion

Operators shall take defined and appropriate measures to prevent erosion and minimize loss of topsoil. Such measures may include, but are not limited to: minimal tillage, contour ploughing, crop selection, maintenance of soil plant cover and other management practices that conserve soil.

2.3.2 Slash and burn agriculture

Land preparation by burning vegetation or crop residues is prohibited.

Exceptions may be granted in cases where burning is used to suppress the spread of disease, to stimulate seed germination, to remove intractable residues, or other such exceptional cases.

2.3.3 Salinization

Operators shall prevent or remedy soil and water salinization where these pose a problem.

2.3.4 Use of water

Operators shall not deplete nor excessively exploit water resources, and shall seek to preserve water quality. They shall where possible recycle rainwater and monitor water extraction.

2.4 Soil fertility

According to the motto: "From healthy soil through healthy plants to humans' health", soil fertility is the basis of any sustainable and successful economic activity. All production techniques used in agriculture should therefore serve the aim of creation and maintenance of a diverse and active soil life which to a great extend is responsible for plant health and development. A healthy and resilient plant is capable to react adequately to most stress factors, as long as it grows in a natural environment or in an environment that corresponds to its physiology.

Inseparably interconnected with soil fertility is the notion of material cycles (recycling) as a fundamental operating principle of nature that aims to maximize the efficiency of exhaustible resources. Recycling of organic substance and its enhancement that leads to biocyclic humus soil is therefore regarded as a central measure for all types of crop. Considering that in many cases, when cultivating crops, a large part of organic substance is permanently removed from the field, the loss of natural soil fertility has to be stopped with the help of methods and procedures that are specified in the following.

2.4.1 Soil coverage all the year

Ideally the soil is covered all year round, which has a beneficial effect on the development of humus and the protection of micro-organisms against adverse weather conditions, and which at the same time helps to improve the physical characteristics of the soil.

The operation has to provide a sufficient and possibly permanent green cover with the purpose to protect the topsoil against direct sunlight, wind and humidity. This ground cover can be achieved through dense planting (shading of the soil by the crop plant itself), through green mulch or dry mulch (leaves, bark) or with the help of a plastic sheeting. The latter can only be approved when other plants or materials for adequate soil coverage are not available. These materials must originate from the operation's own resources. The use of external materials needs prior approval by the competent advisor of the Biocyclic-Vegan Association.

2.4.2 Gradual increase of organic substance in the soil

Of particular importance is the humus content of the soils, which depending on the local conditions, needs sometimes to be strongly increased. Maximum humus content does not only guarantee equilibrium among the nutrients available for the plants, but – due to its increased water retention capacity – it also minimizes the danger of nutrient leaching and erosion as well as the degradation of soil life during dry seasons. The achievement and conservation of a high humus content is based on a regular supply of organic substance through the cultivation of legumes, through mulching and surface composting as well as through the application of substrate compost at a possibly high degree of maturity, whereby soil tests, the humus balance of different crops as well as the fertilisation plan of the operation within the framework of the legal requirements are to be taken into account. Regarding the organic substance, a particular attention should be paid to the diversity of source materials as well as to their origin and distance from their point of use in order to avoid unnecessary long distance transports. The quality of the source materials has a decisive influence on the entire material cycle of the operation and thus on its biocyclic proprieties.

At regular intervals the operation has to add organic substance to the soil in order to compensate the loss of humus due to the cultivation and use of the cultivated crops for food purposes. The doses of organic substance need to be sufficiently large so that the humus content of the soil will steadily increase. In order to be able to better observe the increase of the humus content by at least 5 % within a layer representing a soil depth of up to 25 cm, a soil test on the same plot should be carried out once every 4 years. Legally stipulated limits for the application of fresh and/or finished compost should not apply for the use of biocyclic humus soil.

2.4.3 Use of compost in combination with medicinal and wild herbs

The organic substance added to the soil will even unfold therapeutic properties, when wild and medicinal herbs are added to the maturing compost deriving from the plant remains that accrue during the production process. The more of these herbs are used, the higher the therapeutic effect will be. In this way the raw material base of the humus soil emerging from it at a later stage as a crucial link in the "cycle of a living substance", can be extended beyond the use of culture crops. The wild and medicinal herbs develop a physiological effect which can be compared to the metabolic processes in the human digestive system (cf. Hans-Peter Rusch, Natural Sciences for Tomorrow).

When biocyclic humus soil is produced within the operation, as many fresh or dried wild and medicinal herbs (or parts of them) should be added, which may come from permanent grassland, biodiversity pockets, artificially created ecological compensation areas and/or controlled wild collection.

2.4.4 Use of substrate compost and humus soil

The goal for the operation is to allow the largest possible amount of the compost produced on its premises to ripen until the material has attained the state of biocyclic humus soil and therefore can be applied without any restriction. Should this not be feasible on a larger scale or should it be impossible, due to particular climatic conditions or specific characteristics of the source materials, to directly supply the soils with organic substances by means of the sowing of legumes, the implementation of a groundcover or the growth of wild herbs that do not compete with the cultivated crops, and subsequently integrating them superficially into the ground or creating a mulch cover and/or ploughing in harvest residues, it must be guaranteed that soil life, by the use of finished compost (maturity level IV according to RAL) or substrate compost (maturity level V) – within the legal limits – is furthered at least to the same extent as if the measures towards humus formation described above were applied. If external organic substance is used, that kind of materials should be preferred which derive from other certified organic operations or at least from operations that are managed extensively. In case preparations of vegetal origin must be used that have been produced on the basis of raw materials issuing from conventional agriculture (e. g. sugar beet molasses, citrus peels, grape marc, etc.), the suitability of the compost has to be proved by means of a residue analysis which should cover a possibly large range of active agents.

In case of the use of finished compost the operation must verify the composition and origin of the source materials and demand relevant evidence from the supplier. Finished compost can only be used, if its source materials are listed in APPENDIX A and if it does not contain any animal

manure or other ingredients of animal origin and/or none of such materials have been integrated into it.

2.4.5 Soil based production systems

As soil is the natural medium for plant growth on the surface of our planet, biocyclic-vegan crop production systems are as matter of principle soil based.

Soil is the growth base of all natural vegetal communities on earth. Biocyclic-vegan crop production systems have to be designed in a way that allows imitating to the highest possible degree natural growth mechanisms which rely on the supply of nutrients through microorganisms and molecular structures living in the soil. Soil-less systems such as hydroponic production or container growing, even if they use only natural organic sources of growth stimulants, are not considered compliant with this standard.

Growing biocyclic-vegan plants in containers or pots is allowed only if the whole plant has to be carried on another place in order to be sold (e.g. potted spices and herbs or young trees). The substrate used in the containers or pots has to be at least 60% humus soil as the main source of nutrition which stimulates the activation of all basic natural defense mechanism that are responsible for plant health and continues growth.

Under special conditions, growing plants in containers or bags with the intension to sell parts of the plants (roots, leaves, branches, flowers or fruits) may be allowed, if (a) the substrate used is 100% humus soil and (b) the root system of the plants has the possibility to penetrate into the natural underground either through holes in the containers or bags or by decomposing a biodegradable material.

2.4.6 Stockfree agriculture

Because of the principles of biocyclic-vegan agriculture, animal husbandry on biocyclic-vegan operations is generally excluded. Under totally different circumstances and for different purposes than on animal breeding farms, it may occur that animals live also on biocyclic-vegan premises. The special conditions, under which this is possible whilst fulfilling the requirements of the Biocyclic-Vegan Standards, are explained in the following paragraphs.

2.4.6.1 Prohibition of the use of animal manure

.

The use of animal manure is generally prohibited. This regulation does not apply for the excrements of animals and soil organisms that live freely and voluntarily on the premises of the operation.

No animal manure from commercial and/or external forms of animal husbandry may be applied on the operation. Animal manure does not only include solid dung and slurry, but also all preparations – produced on the operation or purchased externally – that are to be used for fertilization, plant fortification and/or soil improvement and that contain ingredients of animal origin (e. g. egg shells, dairy products etc.) or that have been elaborated in using parts of the bodies of animals (e. g. horn shavings, feathers, animal meal, vermicompost on the basis of animal manure, hydrolysis products of animal origin).

2.4.6.2 Prohibition of animal husbandry for commercial purposes

On a biocyclic-vegan operation no animals may be kept for slaughter or any other commercial use.

The operation does not keep animals for slaughter or any other commercial use.

If for other than commercial reasons animals are present on the premises of the operation this is only permitted, if the following conditions are met:

(a) The animals must not be kept, raised or bred for slaughter or animal testing, nor for any commercial use, including but not limited to sports and entertainment, food, clothing or any other animal-derived product;

(b) The total number of animals kept on the premises of the operation must not exceed 0.2 livestock units per ha. Freely and voluntarily living wild animals on the premise of the operation are exempt from this measure;

(c) The way in which animals are kept on the premises must be in correspondence with the IFOAM norms regulating organic animal husbandry;

(d) Animals kept on the premises must not be sold. If the adoption of these animals by third parties is intended, it has to be on the basis of a liable foster care agreement in which the same conditions as stated in 2.4.6 must be provisioned;

(e) Each animal kept on the premises must be documented, providing name, sex, birth date, date of acquisition, natural identifying characteristics (both generic and unique) and tagged identification mark;

(f) The total number of livestock must be documented for inspection purposes;

(g) In case of death of animals kept on the premises, the cause (natural, killed by wild predator, euthanized by veterinary for medical or animal welfare reasons) must be documented and verified by a veterinary to pass plausibility checks at inspection;

(h) No substance derived from the carcass of such an animal is allowed to be used in the operation or to be sold.

2.4.6.3 Preparation and use of manure form animals living on biocyclic-vegan operations

. **Excretions of animals living on biocyclic-vegan operations may be used for fertilizing purposes only after being composted in a special manner and under certain conditions at dedicated areas of the cultivated area.**

The collectable manure of these animals has to be treated in the following way:

(a) The manure must be composted separately from other plant-based composts.

(b) During the production process, which should last at least 12 months, plant material of at least double of the initial volume of manure has to be added, so that not more than one third of the fully ripe compost is of animal origin.

(c) Such treated animal manure based compost may only be used in permanent crops which have to be indicated for control purposes.

(d) It must not be used however as fertilizer on fields for field crops and vegetables.

2.5 Plant health

Measures for the enhancement of soil fertility can be considered as measures for the enhancement of plant health, given the fact that a harmonious and thus healthy development of the crop plant can only be assured if the life of the soil is invigorated. The manifestation of phytopathological phenomena in the form of diseases or strong insect infestation shows first of all the necessity that the growth conditions of the affected plants should be controlled and, if necessary, corrected.

2.5.1 Mixed crop systems

The cultivation of appropriate intermediate crops (crop rotation), under sawn crops (soil coverage) and parallel crops (companion planting, agroforestry, permaculture) is a prerequisite to be able to make the best use of the diverse positive effects that an interactive plant community has on the crop plants in a particular situation and to support the deployment of the self-healing capacities of the ecosystem of agricultural land.

Beyond a sufficient humus supply to the soil, the operation has to ensure an appropriate crop rotation (annual cultures on arable land) and a species-rich mixed crop system (horticulture), which in the long run will contribute to an increase of biodiversity. In the case of permanent crops, mixed and parallel crops have to be integrated wherever this is possible, at least there should be created an adequate and species-rich vegetation cover.

2.5.2 Creation of an optimum environment for plant growth

Like the measures mentioned above, the following items regarding the strengthening or health conservation of plants mainly tend to eliminate the causes and not in the first place the symptoms of plant diseases.

The operation must first of all try to imitate the growth conditions that prevail in nature and that are generally optimal for natural vegetation, and it should try to transfer them to the location that is to be cultivated. The following measures are to be implemented in order to offer the plants the best possible growth conditions:

2.5.2.1 Soil tillage

Soil tillage has to be careful and has to take into consideration the time when the work is carried out, the local micro-climate and the character of the soil that is to be cultivated.

2.5.2.2 Choice of varieties and propagation

2.5.2.2.1 Organic Seeds

Operators shall use seed and planting material produced according to the biocyclic-vegan standards or other IFOAM conform organic standards, whenever available in appropriate varieties and quality.

When biocyclic-vegan or organic seed and planting materials are not available in sufficient quantity or quality for the required variety or equivalent varieties, in-conversion materials may be used. When none of these are available, conventional materials may be used provided that they have not been treated with post-harvest pesticides not otherwise permitted by this standard. Each one of these exceptions requires the approval of the control body and/or responsible authority.

2.5.2.2.2 Propagation

Seeds and plant materials - either vegetative or derived from various plant organs - shall be propagated under biocyclic-vegan management for one generation, in the case of annuals, and for perennials, two growing periods, or 18 months, whichever is the longer, before being certified as biocyclic-vegan seed and plant material. All vegetal propagation materials, bedding materials and substrates shall only consist of substances listed in ANNEX A und ANNEX B (Green List).

All multiplication practices on the farm, except meristem culture, shall be under biocyclic-vegan management.

2.5.2.2.3 Adequate varieties

Species and varieties cultivated in biocyclic-vegan agriculture systems are selected for adaptability to the local soil and climatic conditions and tolerance to pests and diseases.

2.5.2.3 Nutrient supply

Nutrient supply from other sources than humus soil has to be moderate, if possible in the context of measures to support the development of humus (legumes, humus soil), especially with respect to the supply of nitrogen.

2.5.2.4 Water supply

Water supply as well as soil and air humidity has to be optimized according to the crops needs and permanently monitored.

2.5.2.5 Light and heat supply

Temperature and light management (open air and greenhouse has to optimized and monitored. Energy needed for this has to be from renewable sources.

2.5.2.6 Mixed culture and companion plants

The cultivation has to be designed as a mixed culture system or at least in such a way that the development of accompanying plants with positive physiological effects are enhanced. Beyond a sufficient humus supply to the soil, the operation has to ensure an appropriate crop rotation (annual cultures on arable land) and a species-rich mixed crop system (horticulture), which in the long run will contribute to an increase of biodiversity. In the case of permanent crops, mixed and parallel crops (companion plants) have to be integrated wherever this is possible, at least an adequate and species-rich vegetation cover should be created.

2.5.2.7 Beneficial insects

The biocyclic-vegan operator has to create conditions favourable to the formation of populations of beneficial insects, in order to prevent the development and/or proliferation of epidemics and uncontrolled insect infestation.

If the formation of populations of beneficial insects does not take place at a sufficient extend after a period of 2 months, the liberation of beneficial insects populations may be allowed after consulting the local adviser responsible for technical support in biocyclic-vegan agriculture.

2.6 Inputs

According to the principles of biocyclic-vegan agriculture growth and health of the crop plants are causally influenced by soil life. Therefore all measures that aim to enhance plant growth and the strengthening of plant health must start by creating the most ideal conditions for the development of a diverse and balanced soil life as well as of a possibly large overground variety of species. In the first place this is achieved by a controlled humus management and the introduction of mixed crop systems. Nevertheless, it will be necessary in agricultural practice to encounter imbalances, which negatively influence the nutrient supply or the natural defence mechanisms of the plants against decomposers, pathogenic agents and parasites. That is why, in case of need, it has to be discussed with the local advisor for Biocyclic-Vegan agriculture, which factors have led to the building-up of such imbalance, and beyond this, which corrective measures (fertilization, plant treatment, plant strengthening) will have to be undertaken as soon as possible. For these measures particular emphasis should be placed on inputs produced on the operation itself.

2.6.1 Self-produced preparations

In the sense of the creation of an operational cycle as closed as possible, the target should be that the operation itself produces the inputs which it will need for a direct or preventive correction of imbalances or disorders which have induced a critical state of the crop or which are likely to induce it in an immediate future. These substances should be produced in using resources available on the operation or in its natural environment.

For the prevention and treatment of deficiency symptoms, fungal, virus and bacterial diseases or insect infestation, primarily self-produced preparations are to be used. In this process, compost teas, plant extracts as well as preparations of wild and medicinal herbs play a particularly important role. All substances used must be listed in the Appendix A. Substances that directly or indirectly derive from animal husbandry are not admitted. Prior to use, the composition and administration of the preparations have to be agreed upon with the advisor.

2.6.2 Green List

Only in case that the prophylactic and holistic measures taken have not been able to prevent the development of a situation critical to the crop (disease) and self-produced preparations are either not available or did not achieve a satisfactory result, the use of certain crop-treatment products as they are mentioned in the Green List can be permitted. If certain diseases or epidemics occur repeatedly and regularly, medium and long-term measures should be in the focus of the efforts. The admission criteria according to which the individual preparations commercially available are

to be assessed under biocyclic-vegan aspects refer to the following aspects: (1) origin and characteristics of the individual components (active substances, inerts and synergists) (2) traceability and knowledge of the production process, (3) mode of action and (4) cost effectiveness.

At the operations only preparations can be used that are contained in the Green List. The selection criteria for the auxiliary agents mentioned in the green list are described in the introduction of the Green List which is updated every year.

If the operator wants to use a preparation different from those mentioned in the Green List, he will have to consult beforehand with the advisor of the Biocyclic-Vegan Farming Association and will only be permitted to use the substance, if this has been expressly approved by the advisor or, depending on the mode of action of the proposed preparation, by the certification committee.

2.7 Inappropriate technologies

Biocyclic-vegan agriculture are based on the precautionary principle and should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones.

2.7.1 GMOs in agricultural inputs

The deliberate use or negligent introduction of genetically engineered organisms (defined by Directive 2001/18/EC) or their derivatives is prohibited. This shall include animals, seed, propagation material, feed, and farm inputs such as fertilizers, soil conditioners, or crop protection materials, but shall exclude human or veterinary vaccines.

2.7.2 GMOs in processing materials

Organic operators shall not use ingredients, additives or processing aids derived from GMOs.

2.7.3 Traceability of substances in preparations and other inputs

Inputs, processing aids and ingredients shall be traced back one step in the biological chain to the direct source organism from which they are produced to verify that they are not derived from GMOs.

2.7.4 Nano particles

The use of nanomaterials is prohibited in biocyclic-vegan production and processing, including in packaging and product contact surfaces. No substance allowed under this standard shall be allowed in nano form.

3 Crop related guidelines

3.1 Crop production

3.1.1 Nutrient supply

The nutrient supply for land used for agriculture is ensured by means of green manure and the targeted use of compost. All agricultural measures must aim to permanently increase the humus content of the soil. All fertilization measures are undertaken with the aim to offer the possibly best growth conditions to soil life. In this context a particular importance is attached to a large-scale application of biocyclic humus soil. By this it is possible to make better use of the natural growth potential of the plants and to stabilize the yields on a satisfactory level.

3.1.1.1 Green manure

The sowing of legumes on a regular basis does not only ensure the development of organic substance in the soil, but it also provides a sufficient nitrogen supply for the plants.

The operation has to cultivate legumes at least once within the period of a three-year crop rotation. It is important that the cultivated legumes are not used as market crops but exclusively for the purpose of green manure. The species used and the time of sowing depend on the location (the pH-values of the soil are to be taken into consideration) as well as the climate conditions). In order to optimize the fertilization effect, the legumes have to be tilled into the soil when flowering, or at least before fructification.

3.1.1.2 Biocyclic Humus Soil

Besides the use of green manure, the application of substrate compost (maturity degree not less than V) complying with the legal requirements or, first of all, the production of biocyclic humus soil in large quantities can be considered as the second important pillar of nutrient supply in biocyclic-vegan farming. In this way the soil is supplied not only with significant quantities of non-water-soluble nitrogen but also with other macro- and micro-nutrients as well as with a diversity of other growth stimulants.

Apart from the sowing of legumes on a regular basis the operation has to ensure that the humus content of its arable farm land is permanently increased. For this purpose, large quantities of preferably self-produced biocyclic humus soil shall be applied. As there do not occur any over-fertilisation or any noteworthy washout effects, owing to the fact that in biocyclic humus soil all nutrients are present in a non-water-soluble form, the quantity of biocyclic humus soil to be applicated solely depends on its availability. A ceiling for the application of this agent does not exist. In the case of culture crops that have a high consumption of nutrients, such as

potatoes or turnips, the humus soil has to be applied in the direct proximity to the root system of the culture crop, in order to increase the fertilization effect with a limited availability of humus soil for the crop plant in question.

3.1.1.3 Mulching

Soil life is particularly active in the areas that are not exposed to day light. For this reason a permanent cover of the top has to be provided, which will protect soil life and at the same time offers a constant supply of nutrients.

The operation covers all areas of its fields with a layer of mulch, wherever before or during the growing period of the main crop open soil becomes apparent. For this mulching, preferably release of nutrients will take place that will become available for the culture crops.

If for particular technical reasons or if due to the lack of appropriate plant-based source materials mulch is not available in sufficient quantities, exceptionally other materials can also be used for soil covering on a temporary basis.

3.1.1.4 Foliar fertiliser

With the ripening of the fruit, the composition of its ingredients is increasingly influenced by the availability of nutrients in the leaves and no longer in the soil. Sugar, starch and potash compounds are thus more and more transferred directly from the foliage to the ripening fruit. This natural process is supported by the application of foliar fertilisers.

In order to support the natural ripening process, the operation should apply specific nutrients in liquid form directly to the leaves, depending on the stage of development of the culture crop as well as a on the climatic and weather conditions. A key importance, also with respect to plant health and to the prevention of fungal diseases, is to be attached to the use of compost tea, which should preferably be produced by the operator himself. Furthermore, the application of algae preparations may essentially contribute to support growth and maturity. The use of these preparations helps to a considerable extent to close the global nutrient circle including nutrients originating from the sea. Beyond a direct supply with a diversity of micro-nutrients that determine flavour, preparations on the basis of lactic acid have a proven antifungal effect owing to their low pH value, and are therefore a part of the targeted, crop protection oriented nutrient supply in biocyclic-vegan farming. In addition different plant extracts that can occasionally be self-produced should be applicated. All preparations and substances used as foliar fertilisers have to be listed in the Green List (APPENDIX B).

3.1.2 Mixed culture

Not only in vegetable cultivation but also in arable farming the introduction of systems of mixed culture is of particular significance. In this way can be combined the advantages of mutually beneficial crop communities and the possibility to increase the variety of species in the farmland ecosystem.

3.1.2.1 Extended crop rotation

Extended crop rotation is a form of successive mixed cultures through which the different potentials of soil life can be activated one after the other, thereby helping to develop a soil-borne ecological balance.

The operation has to introduce a crop rotation with rotation periods as large as possible, that should preferably not be shorter than two years. This crop rotation should include the sowing of legumes at least every three years, which will take up the function of a fallow as it used to be customary in former times.

3.1.2.2 Creation of crop strips

The creation of crop strips for the concurrent cultivation of crops having a mutually beneficial effect on each other, as well as similar requirements for care, increases biodiversity without affecting the possibility of mechanical cultivation. In biocyclic-vegan agriculture even large areas of arable land have to be organized in a way that they become highly diverse biotopes.

On a crop area there have to be cultivated in the course of one vegetation period at least 2 different annual crops that grow together for at least 3 months. The crops arranged in strips have to alternate as much as possible. The width of a crop strip depends on the working width of the machines (seed drill, sprayer, harvester) and should not prevent a reasonable mechanization of the production. Further factors that determine the number, width and frequency of the crop strips to be created are the light conditions, topography as well as the form of the plot in question.

If for technical, climatic and geographical reasons the creation of crop strips should not be possible, this has to be agreed with the advisory service of the Biocyclic-Vegan Farming Association and has to be justified on a case-by-case basis.

3.1.2.3 Catch crops

Catch crops are an important measure for the promotion of biodiversity, for an extended crop rotation, for the increase of the yield per unit of area and the enhancement of plant health. Additionally they will reduce the periods when the soil remains uncovered.

Depending on climate, soil conditions and workflow the operation has to integrate into its rotation plan the possibility of having catch crops.

3.2 Protected vegetable production

Protected vegetable production according to the Biocyclic-Vegan Standards requires from the operation that it completely readjusts its cultivation methods practiced so far. The difference of the biocyclic-vegan approach becomes clearly apparent even optically, when entering a greenhouse which is managed according to the biocyclic-vegan principles. Also with respect to taste vegetables produced according to the biocyclic-vegan principles considerably contrasts with other organically grown vegetables. Protected vegetable production was the main sphere of activity of Adolf Hoops.

3.2.1 Mixed culture

In a biocyclic-vegan green house, the diversity of nature can and must be reflected in order to allow self-healing and compensation mechanisms observed in nature to become effective for a healthy development of the plants cultivated in the green house.

It is prohibited to grow only one single crop (monoculture) in the green houses. On the total of the protected area not less than 4 different crop plants have to be cultivated simultaneously. The different crops should have a mutual beneficial effect on each other, or at least they should not impede each other's growth. The specific needs in temperature, ambient humidity and technical equipment of the various crops have to be similar. When an economic efficiency calculation is undertaken, the total annual contribution margin per square meter has to be taken as a basis and not the yield of the individual crop per unit of area. All crops may but do not necessarily have to be intended for sale.

3.2.2 Use of Biocyclic Humus Soil

Biocyclic humus soil combines all functions of a substrate, fertilizer and soil conditioner with enormous benefits for both plant health and growth. In biocyclic-vegan horticulture biocyclic humus soil replaces all substrates and soil improvers known so far (e. g. peat, propagation substrate, perlite etc.). Owing to its function as a long-lasting source of nutrients that is not water-soluble, the use of biocyclic humus soil influences the entire fertilisation planning of the crops.

The operator has to use a sufficient quantity of humus soil for his cultivations, in order to maximize the benefits of using a stabilized humus product. It is important that the fine root system of the cultivated plants have access to the pure material which in case of humus soil is not necessary to be mixed with soil. Both, quantity and application method are determined by the specific needs of the cultivated crops. Thus, humus soil may be used

superficially, in ditches, raised beds or windrows. The quantity used should cover the needs in macro-nutritional elements of the various crops to be planted into humus soil for at least three up to ten years, given that due to the characteristics of humus soil there is no danger of leaching by irrigation. Supplemental application of humus soil should start at the half of the estimated duration of usage. If applicable, drip irrigation should be installed on top or inside the humus soil ditch. The humus soil layer may be covered either by soil or mulching material of plant origin or by plastic. If available and economically feasible the whole root system of the cultivated crops should develop in pure humus soil. Especially in potentially contaminated soils of formerly conventional greenhouses, humus soil may completely substitute the upper soil layer. Possible alternatives to humus soil ditches are windrows with inclined surfaces that might be planted like a raised bed thus increasing the surface that can be planted and using more efficiently the angle of the sunlight during winter. If put into windrows turning of the material might be done once in two years by a small compost turner.

If the operator does not have access to sufficient quantities of humus soil, a fully ripe compost or compost substrate of plant origin might be used instead of humus soil which in any case has to be mixed with soil. In this case, an additional fertilization programme has to be installed. The application of water soluble nutrients except potassium should be reduced to a minimum. All preparations used have to be mentioned in the Green List.

3.2.3 Soil cultivation practices and solarisation

A healthy soil is characterized by high microbial activity which is of vital importance for achieving a resilient stage of balance between pathogenic and physiological bacteria and other organisms living in the soil, which has to be regarded as an extremely complex ecosystem. Any interruption of this microbial activity as it is caused by tillage and solarisation practices in greenhouses, results in a loss of biodiversity in the soil and has to be avoided.

The biocyclic-vegan operator has to ensure permanent plant growth (e.g. by mixed culture and crop rotation) and soil coverage (e.g. by mulching techniques) on the entire surface of the greenhouse throughout the year. By this, a resilient equilibrium of antagonistic soil microorganisms is achieved which results in manifold benefits for both, plant health and yields. Any soil interventions that may cause an interruption of this microbiologically valuable stage of the soil either by the use of cultivators, ploughs or sterilisation practices like solarisation are not allowed.

In case that soil borne diseases or other deficiencies occur on a considerable part of the cultivated greenhouse area that affects to a large extend the economic viability of the operation, the following practices may be applied in relation to their average frequency: tillage once within 2 year, windrow

turning once within 3 years, solarisation once within 4 years, deep ploughing once within 6 years. As a maximum, a combination of two of the aforementioned practices may be applied within a period of 3 years.

3.2.4 Use of insects

Following the principle of using animals in the operation is possible only if they occur in the cultivated area spontaneously and with full freedom of movement, using so called beneficial insects in greenhouses is allowed only under restrictions.

3.2.4.1 Pollination

Pollination by insects has to be natural, i.e. done spontaneously by wild species without restraint by humans at any time. Keeping insects, including but not limited to bumblebees and honeybees in artificial hives, whether for pollination or for commercial exploitation, or using the pollination services of others who do is forbidden. Wild pollinators should be attracted and supported with suitable flowering plants and sufficient availability of nesting materials. Possible nesting aids shall be designed and constructed for the effective benefit of the respective pollinators and placed accordingly. They must not facilitate the restraint of pollinators or the extraction of insect products, e.g. honey or wax, for commercial use or personal gain. Natural access of insects into the cultivated area of any greenhouse has to be granted (e.g. no closing of windows by nets if natural pollination by insects is necessary). If due to climate or weather conditions insects do not exist in the surrounding of the greenhouse, other practices like shaking, pollination by hand etc. have to be applied.

3.2.4.2 Beneficial insects

The biocyclic-vegan operator has to support the activity of beneficial insects as part of a natural balance between species the presence of which may have useful or harmful effects on the cultivated plants. Mixed culture, microclimate and refuge plantings as well as an open access to the natural surroundings of the greenhouse should help to sustainably establish by natural means active populations of beneficial insects.

If a crop is in danger by increased activity of a species without sufficient presence of its natural antagonist, liberation of beneficial insect population is allowed at an initial stage. If the above mentioned measures do not result in an efficient establishment of beneficial insects, liberation of insects foreign to the plot may be repeated up to twice within the same cultivation period, if the total number of liberations does not exceed 3 within two years.

3.3 Production of open air vegetables and permanent crops

Open air vegetable production according to the Biocyclic-Vegan Standards combines elements of arable land cultivation practices with those of greenhouse production.

3.3.1 Supply of nutrients

Growing vegetables with a high demand of nutritional elements according to the Biocyclic-Vegan Standards may lead to an intensification of the production process if the losses of nutrients caused by the development and the subsequent removal of plants (harvesting whole plants or big parts of them) is compensated by a steady inflow of nutrients enhanced by measures that aim to a permanent decomposition of organic matter.

The operator has to accomplish losses of nutrients caused by growing and the subsequent removal of vegetables by adopting measures of green manure or using leguminous seed meals as well as applying plant extracts and compost tea. All substances applied have to be able to become part of the humus production process taking place permanently on the surface of the topsoil. Adding natural mineral meals or other minerals mentioned in the Green List have to correspond with the needs of the cultivation in relation to the ability of nutrient release of the soil or substrate on which the plants are growing. Water-soluble growing agents may be supplied if the ingredients become an integrated part of soil life before being absorbed by the roots.

3.3.2 Biocyclic Humus Soil as a raised bed substrate

The use of biocyclic humus soil in large quantities is important as humus soil is a permanent source of nutritional elements as well as a substrate that improves the physical characteristics of the soil.

The cultivation of open air vegetables in windrows (like raised beds "Hügelbeet") has multiple benefits and should be the preferred production scheme.

(a) By planting onto biocyclic humus soil windrows the operator can use the same mechanical equipment as for the production of compost. Windrow of humus soil should not be turned more often than once in two years. If there is a material of a lower stage of ripeness than humus soil in use (ripe compost of stage IV and V), the windrows might be turned more often.

(b) Due to the inclination of surfaces the efficiency of sunlight energy is automatically increased. The windrows therefore have to be put in a north-south direction.

(c) Due to the fact that the material itself has a temperature which remains because of its microbial activity above 10°C for a long period, and that cold air in nights without wind is collected on the lowest parts of a field,

i.e. in between the windrows whereas the cultivations on top of the windrows remain in layers with warmer air, frost damages can be prevented to a large extend.

If the operation does not produce by itself or does not have access to sufficient quantities of biocyclic humus soil, compost should be applied as described in the exceptions of point 3.2.2.

3.3.3 Mixed culture

In vegetable cultivation the adoption of mixed culture systems is of particular significance and has to be developed with respect to the mutual influence of species and their effects on plant health.

Mixed culture in vegetable production besides enhancing biodiversity and minimizing the danger of an epidemic spread of diseases and pests, plays a major role for increasing yields by:

(a) stimulating an exchange of nutrients between different species (e.g. through mycorrhiza);
(b) offering protection against wind, sun and rain;
(c) creating habitats for beneficial insects;
(d) emitting scents which act as a repellent against potentially harmful to the cultivated plants insects or by
(e) creating larger genetic diversity within a crop (either by poly cropping or by mixing different crop varieties), pathogenic organisms are less likely to successfully find a host on which they may be able to thrive.

The right composition of various species cultivated together on the same field or in direct contact to each other (e.g. in strips or blocks) has to be developed on an on-farm level.

3.3.4 Weed control

Wild herbs, commonly referred to as weeds, have to be considered as part of a mixed culture with all its benefits on the cultivated crop. Their existence may function as an indicator of the nutritional and physical stage of the soil or of the ecological effects of certain tilling practices.

Weeds have not to be removed automatically from the plot unless they compete directly the cultivated crops in terms of nutrients, space, light and water. Means compatible with the Biocyclic-Vegan Standards to avoid excessive growing of wild herbs ("weeds") are:

(a) coverage of the surface by mulching materials or biodegradable plastics;
(b) mechanical intervention like hoeing, earthing up, tilling, turning (compost windrows) or cutting;
(c) thermic intervention like burning by gas, drying out (irrigation system design).

3.4 Fruit production

3.4.1 New plantation

3.4.1.1 Varieties and origin of young trees

The shift from intensive conventional to organic and especially to biocyclic-vegan farming forces a fruit tree to re-orientate itself and to adopt to a different environment as is was used to before the beginning of the organic farming regime. The transition period therefore may cause losses and difficulties. To avoid these, the operator should consider whether to make a completely new plantation of fruit trees choosing locally well adopted varieties with good marketing perspectives.

The operator has to choose varieties that are both, well adapted to the microclimate and soil conditions of the plot and with good sales perspectives in the market. The young plants have to be bought from organic certified nurseries.

3.4.1.2 Initial nutrient supply

Growth and health status of a young tree is mainly determined by its nutritional status of the first three years after being planted.

The operator has to use in every plant hole a quantity of biocyclic humus soil that enables the root system to develop initially exclusively in humus soil which enhances a vivid and healthy growth of the roots and the stem, before the roots come into contact with the surrounding undersoil. For a fruit tree of two years this quantity should be not less than 40 liters.

3.4.1.3 Soil coverage and "green manure"

Parallel to the initial nutrient supply by humus soil the humus content of the upper soil layer is increased by mulching and legumes.

The operator has to ensure a permanent coverage of the surface of the soil by mulching with plant materials. During the first 4 years of the plantation sawing and incorporating legumes (green manure) has to take place at least twice.

3.4.1.4 Plantation design

Designing a new fruit tree plantation the operator takes into consideration aspects of agroforestry and mixed culture.

In order to avoid monoculture, the fruit trees plantation has to be interrupted by broader rows that allow the cultivation of other crops like vegetables, legumes or herbs in between at least every 4 rows of trees. The dimension of this alternative row depends on the mechanical equipment used for the cultivation of the accompanying crop. Preferably every third cultivation cycle on these rows should be used as plant material for mulching the surface of the soil under the trees. In order to help establishing diverse bird populations at least three trees of a different kind and height have to be planted per hectare. If irrigation is necessary, water should never drip directly on the stem.

3.4.2 Selective insect management

Insect population control is achieved by preventive measures like mixed culture and planting solitaire trees or by using traps or protective nets. To avoid systematic mass insect poisonings without caring about their physiological functions within the ecosystem, any kind of sprayings against insects (e.g. Mediterranean fly) are forbidden in a biocyclic-vegan fruit plantation, even if the active substance of a certain preparate is allowed in organic agriculture. Monitoring of the development of insect populations with adequate traps at representative sites of the permanent crop area is obligatory.

If preventive measures for the population control of insects like e.g. mixed culture and planting solitaire trees of different shape and size are not sufficient, the operator has to use insect traps that act specifically and do not attract or harm beneficial insects. For population management only glue traps without pheromones shall be used. The colour of the trap's surfaces shall be green-olive, in order not to attract colour sensitive insects like bees etc.

In the case of massive insect infestation in a way that endangers the yearly income of the operation in a critical manner, treatment with allowed insecticides, like natural pyrethrum, may be admitted after consultation of the adviser and written permission by the certifying body. The maximum number of applications shall not exceed three times in a four years period on the same plot or twice in four years if the whole cultivated area has been treated.

3.4.3 Protection from birds

Birds, when appearing in flocks, may cause severe damages on the ripe fruit and have to be prevented from invading into the plot.

If there is a danger of bird attacks in the biocyclic-vegan orchard, the operator has to prevent birds from causing large scale damages by putting nets about the trees. Shooting machines are allowed. The use of glue traps for birds is forbidden.

3.4.4 Water management

Biocyclic-vegan orchards are planned and managed with respect to the lowest possible water consumption.

If irrigation is needed, the operator shall investigate the locally available irrigation method with the highest efficiency and the lowest consumption of water. Besides that, due to it its water capacity the intensive use of humus soil as well as of soil conditioners contributes to the reduction of water needed. Another essential point for the reduction of water demand is a permanent coverage of the surface by mulching or biodegradable plastics.

3.5 Viticulture

3.5.1 New plantation

3.5.1.1 Location, varieties and origin of vines

Local, well adapted varieties and the right choice of the location are the key parameters of successfully producing biocyclic-vegan grapes for fresh produce, wine and raisins.

The biocyclic-vegan vine grower has to choose varieties that are both, well adapted to the microclimate and soil conditions of the plot and with good sales perspectives in the market. The young vines have to be bought from organic certified nurseries. The location has to be chosen according to the microclimate of the plot, in order to avoid climate caused diseases.

3.5.1.2 Initial nutrient supply

Growth and health status of a young vine is mainly determined by its nutritional status of the first two years after being planted.

The operator has to use in every plant hole a quantity of biocyclic humus soil that enables the root system to develop initially exclusively in humus soil which enhances a vivid and healthy growth of the roots and the stem, before the roots come into contact with the surrounding undersoil. For a vine of one year this quantity should be not less than 8 litres.

3.5.1.3 Soil coverage and "green manure"

Parallel to the initial nutrient supply by humus soil the humus content of the upper soil layer is increased by mulching and legumes.

The operator has to ensure a permanent coverage of the surface of the soil by mulching with plant materials. During the first 3 years of the plantation sawing and incorporating legumes (green manure) has to take place at least once.

3.5.2 Vineyard design, irrigation and education system

Designing a new vineyard, aspects of increasing biodiversity, economic feasibility and ergonomics have been considered.

In order to increase biodiversity, at least one tree has to be planted on a surface of 0.4 hectares. At the end of each row, a flowering plant of less or similar height of the vine (bushes, roses etc.) has to be planted. The education system has to be chosen in accordance with the type of grapes and their demand in light and water. The system has to ensure easy access to leaves and bunches for necessary applications during the vegetation period like spraying, pruning etc.. If irrigation is necessary, water should never drip directly on the stem. Preferentially drip irrigation is installed underfloor, in order to easy superficial tillage or losses of humidity during a period of high temperatures.

3.5.3 Nutritional elements and growth stimulants through foliar application

Vine leaves interact intensively with the atmosphere and easily absorb both humidity and nutrients through the stomata of the leaves. Therefore deficiencies of nutrients from the soil can be compensated by foliar applications.

The operator has to offer regularly nutrients and other natural plant based growth stimulants produced e.g. from algae according to the stage of development of the flowering and the fruits with the method of foliar application. Technology producing micro drips is to be preferred.

3.5.4 Soil coverage and tilling methods

Soil surface management has to comply with criteria of biodiversity, protection from erosion, temperature, water supply.

The surface under the vines within the row must be permanently covered either by growing vegetation or mulching material. As a principle soil surface between the rows has to be covered permanently by vegetation (see exception).

There are several reasons, why the above mentioned requirement cannot be fulfilled:

(a) In arid or semiarid regions it might be necessary to carefully till the upper soil layer in order to interrupt capillarity through which soil humidity is exhausted. Tillage should not happen more often than twice

in one cultivation period. During winter natural growing of grass and herbs must not be suppressed by cutting, mulching and tillage.

(b) In regions with low temperatures close to harvesting period, especially if the surface has an inclination towards the equator of the earth, coverage with flat stones might be of a positive effect aiming at an increase of temperature in the vineyard. In these areas, during spring natural growing of herbs should be encouraged.

(c) In areas with a high risk of erosion the direction of rows should allow the smallest possible inclination and the surface in between the rows should be covered by permanent vegetation, which should not be in competition of nutrients with the vine.

3.6 Management of pastures, meadows and grassland

An operation in which due to climatic or other reasons animal husbandry was the dominant form of agricultural production, can be converted into a biomass production unit which supplies other biocyclic-vegan operations that might have limited access to sufficient quantities of organic matter in order to cover their needs in compost or humus soil, with raw material or ready to use soil conditioners, compost and humus soil produced on former grassland, pastures and meadows.

Pastures, meadows and fields which have been used for the production of animal feed and due to climatic or other reasons (landscape conservation etc.) cannot be used for the production of crops, vegetables and orchards, have to be cultivated according to the Biocyclic-Vegan Standards in a way that they can be used for the production of biomass (grass, short rotation forestry etc.) as a raw material for the production of compost, humus soil or energy (biogas). Here it is important to ensure the preservation of humus and the management of the natural environment (e.g. mowing in relation to nature conservation and biodiversity parameters, protecting ground breeding species and fawn protection). Preferably, processing of the biomass should take place within the operation or a group of operations on a local base. The end product (energy, compost substrate, compost, humus soil) can be used by other biocyclic-vegan operations with a high demand of organic matter in the form of compost or humus soil which cannot be covered by the operations itself.

3.7 Olive Production

With olive production being one of the major cultivations in Mediterranean agriculture and bearing in mind the considerable differences of some of the required cultivation techniques in comparison with both conventional and traditional olive production, it is necessary to summarize in the following chapter the requirements of olive production under the scope of the Biocyclic-Vegan Standards.

3.7.1 Enhancement of biodiversity

All cultivation techniques adapted by the operator tend to maintain and to enhance biodiversity within the cultivated olive grove as well as in the area around.

In order to obtain and maintain a rich flora in the olive groves, it is necessary to give the opportunity of self-reproduction of wild herbs etc. despite unavoidable measures of soil treatment Thus, at least twice within a decade, once after three and once after five years, all kinds of soil and surface cultivation measures (cutting, mulching, incorporation) shall be postponed until all wild herbs, flowers and grasses which grow under the olive trees or in the spaces in between have completely dried and spread their seeds.

3.7.2 Selective insect management

In order to avoid systematic mass insect poisonings without caring about their physiological functions within the ecosystem, any kind of sprayings against insects (e.g. olive fruit fly [bactrocera oleae]) are forbidden in a biocyclic olive grove, even if the active substance of a certain preparation is allowed in organic agriculture. Monitoring of the development of insect populations - especially of bactrocera oleae - with adequate traps at representative sites of the olive grove is obligatory.

For population management only glue traps without pheromones shall be used. The colour of the trap's surfaces shall be green-olive, in order not to attract colour sensitive insects like bees etc.

In the case of massive insect infestation in a way that endangers the yearly income of the operation in a critical manner, treatment with allowed insecticides, like natural pyrethrum, may be admitted after consultation of the adviser and written permission by the certifying body. The maximum number of applications shall not exceed three times in a four years period on the same plot or twice in four year if the whole cultivated area has been treated.

3.7.3 Use of olive mill by-products

The total of organic matter except olive oil (end product) produced in a biocyclic-vegan olive grove and carried to the olive mill (olives and leaves) is returned to the grove and after being composted used for fertilization of the olive trees and soil improvement.

The operator shall produce compost out of the by-products which are produced at the olive mill from his olives. These by-products are olive cake and accordingly to the pressing technology olive waste water as well as the leaves collected at the olive mill together with the olives. The quantity of compost to be applied each year on a certain area depends on the volume of organic matter which is produced on this area (on average 20 litres compost per tree). The compost (preferably stage of ripeness V) has to be put without tillage on the surface in a circle around the stem and should be kept moist so that the microbiological processes are not interrupted early by drought. Therefore, the surface under the trees should be covered permanently with a thick layer of grass and herbs.

If due to economic or organizational reasons the production of compost by the operator himself is not possible or recommended, the operator shall have access to ready-to-use-compost out of the same materials produced by a central compost plant of the region. In this case it is allowed to use compost which is not exclusively produced from organically grown raw materials. If the compost contains plant material from non-organic components, the compost has to be fully ripe (category RAL V). Any additives originating from animals are not allowed. The compost may be supplied every two years instead of every single year. The quantity to be used should then be double.

3.7.4 Use of parts of the tree that remain in the grove and of grass and herbs that grow between the rows

The total of organic matter that has been removed from the tree due to harvesting and pruning techniques and remains in the grove as well as wild vegetation (grass and herbs) is recycled and used as part of the fertilization of the olive trees.

The area from which the grass and herbs are cut should be as broad as possible in order to form a thick layer under the tree to keep the shadow line moist during summer.

3.7.4.1 Use of branches

The branches that have been removed from the tree either by pruning or cutting during harvest shall be destroyed by mechanical means (e.g. shredding) as long as they are fresh. Due to their high content of cellulose and the subsequently high demand of proteins by the soil microbes which decompose wood, the spreading of the material on the surface of the soil shall be followed by sawing leguminous that shall be incorporated immediately after flowering during spring. This procedure shall be followed not more often than three times in a five-years-period. In the other years, the operator shall burn the branches one month after cutting and spread the

ash around the same trees from which the branches originated.

If due to geographic or economic conditions the destruction of the branches by mechanical means is not possible, the operator may burn the branches every year and spread the ash around the trees as described above. In this case sawing of leguminous shall take place twice within five years.

3.7.4.2 Use of wild grass and herbs

Wild grass and herbs which grow between the trees shall be cut on at least 75% of the cultivated olive tree area when still green and gathered into the shadow line around the tree. The rest of the surface shall be treated until end of May thus incorporating the rest of the plants into the soil and preventing the deeper layer of the soil from drying out during summer.

Grass cutting and incorporation techniques have to be periodically interrupted for the reason of preserving a high percentage of wild herbs in the olive grove by natural germination.

3.7.5 Harvesting and post-harvest management

3.7.5.1 Harvesting of olives

3.7.5.1.1 Harvesting method

Olives produced according the Biocyclic-Vegan Standards are harvested in a manner that ensures the highest possible quality of the fruits and full traceability.

Olives shall be harvested by collecting from cut branches or using shakers when the branch which carries olives remains on the tree. The olives shall be collected on a towel without stepping on it. The olives shall be carried to the olive oil mill in net bags or crates clearly marked with the name of the producer at the same day of harvesting.

If plastic crates are not available, linen bags may be used as well. Plastic bags are forbidden.

3.7.5.1.2 Use of chainsaws

Olives do never come into contact with other oil containing substances that might negatively influence quality aspects of the olive oil.

If the fruit bearing branches are cut during harvest, the chainsaw lubricant used shall be of non-mineral origin but from plant oil. Pruning activities others than for harvesting purposes that need motor chain saws shall not be executed during harvest.

3.7.5.2 Olive Pressing

3.7.5.2.1 Extraction technology

Olive oil from biocyclic olives is gained only by mechanical means that serve the environment and guarantee the maintenance of the original quality of the raw material.

For the processing of the olives only 2-phase centrifugal pressing technology shall be used without the olive pulp being exposed to temperatures exceeding 28°C at any stage of the process.

3.7.5.2.2 Storage of the olive oil

Olive oil from biocyclic-vegan olives is gained only by mechanical means that serve the environment and guarantee the maintenance of the original quality of the raw material.

Biocyclic-vegan olive oil shall be stored in stainless steel containers suitable for food. All containers shall be clearly marked with reference to the name of the producer, extraction date and the certification status ("biocyclic-vegan").

For the purpose of transportation, biocyclic-vegan olive oil may be filled into plastic cubitainers or other containers suitable for edible liquids. The containers shall be clearly marked with the name of the producer, extraction date, date of filling and the certification status ("biocyclic-vegan").

3.7.5.2.3 Signing of the end product

Olive oil produced according the Biocyclic-Vegan Standards is marketed in a way that ensures the identity of the product in terms of quality and origin until the consumer.

Biocyclic olive oil shall be filled only into glass bottles or tinplate containers. The label shall state the following:

(a) legal characterization of the product;
(b) year of harvesting;
(c) code of Certification body;
(d) name and address of the producer;
(e) the indication "Single Farm Product - Produced, pressed and filled according to the Biocyclic-Vegan Standards";
(f) the indication "Controlled and certified according to the Biocyclic-Vegan Standards by [control body] (Certification number: .....)";
(g) Best before date.

3.8. Permanent tropical crops

3.8.1 Agroforestry

The natural vegetation form in the tropics is rain forest. The specific climate conditions of the tropics make it necessary that – with respect to an optimization of the production process by imitating the natural conditions of growth as closely as possible, and also with respect to the particular role tropical forests play for the global climate – wherever it is possible, parts of the existing tree population are integrated into the production process or that new trees are planted among the crops. Agroforestry is a special form of mixed culture and thereby combines all of its advantages for the plant community to be created.

3.8.1.1 Inventory of the existing natural vegetation

In tropical biocyclic-vegan farming systems the composition of the original plant and tree population of a plot that is prepared to be cultivated Is particularly taken into account.

When reclaiming an area of primary tropical rain forest that has never been cultivated before and is not part of a wider area which can be characterised as a High Conservation Value Area, or of secondary vegetation that has developed from it, the operation has to make an inventory of the natural vegetation and record it. The digital record has to be made by means of photographs with an integrated localization feature and drawings or by means of electronically attached comments. The digital record has to be made by means of photographs with an integrated localization feature and drawings or by means of electronically attached comments. After the inventory those trees and plant species that are to be excluded from clearing have to be identified by the advisor of the Biocyclic-Vegan Farming Association. The collected data and information have to be filed.

3.8.1.2 Use of plant material

The clearing (deforestation) of land with natural vegetation is done selectively and with a reduced use of machinery. All plant material from the area to be cultivated that comes from vegetation not suitable for agriculture will be composted and returned to the soil at a later stage. Fire clearance is prohibited. The cleared area has to be recovered with vegetation as quickly as possible.

When the clearance is undertaken, a distinction has to be made between the original vegetation that can be used for agriculture such as shade trees, nesting places, hedgerows etc. and biodiversity habitats as well as all vegetation that cannot be directly used. The latter will be carefully removed from the area to be cultivated, and it will be processed at a nearby location

in such a way that the material can be easily composted. Trees and shrubs that can be used commercially may be removed. All other wood has to be shredded or chopped. Small branches, shrubbery as well as grasses and herbs can be added to the shredded material for composting without being chopped. When removing the material from the cleared area, soil compaction should be avoided. In order to prevent any damage to the topsoil due to the use of heavy machinery and also to avoid the danger of washing out and erosion, no clearing shall be undertaken during the rainy season. When the composting process is completed the compost has to be returned to the same area.

3.8.1.3 Landscaping of agricultural land

The crops are planted in strips alternating with rows of trees and hedges. Solitary plants remaining from the original vegetation will form an integrated component of the tree rows. The strips are adapted to the topography of the site. It has to be taken into consideration that machinery will be used during the sowing, treatment and harvest of the culture crops (width and course of the strips).

The plot has to be partitioned into strips of culture crops and trees or bushes. The width of the strips for the culture crops depends on the light requirements of the culture crops as well as on the use of machinery when needed. The strips in between consist of solitary plants or tree rows. The layout of the rows has to be adapted to the existing topography in a way that no erosion can occur. The operation has to ensure that the design of the rows is as close to nature as possible, but at the same time that they are arranged in an order and intervals among each other which are operationally practical. On hillside locations it has to be ensured that the strips will follow the elevation contour lines, which will eventually lead to terrace cultivation. The crop strips do not necessarily have to be straight, but for operational reasons they should to be of equal width.

If a reasonable arrangement in strips is not possible, a field configuration can also be chosen. In this case, trees of different heights, which have either been newly planted or which are the remains of the original forest vegetation, should be evenly distributed on the field. The tree density must not be less than 5 trees per hectare.

3.8.1.4 Humus supply

While in a tree strip the organic binding of nutrients mainly happens in the growing plant tissue rather than in the soil, in the strip of culture crops active humus development is induced through the supply of biocyclic humus soil. The primary source of the organic substance needed for this are tree and shrub cuttings from the tree strips , that are processed into compost and humus soil at an appropriate place not far from the plot.

The trees on the strips in between are to be pruned in function of the growth habit and the requirements of the culture crops. The green cuttings have to be composted. In this way, the trees will constitute a continuously regenerating source of humus. A possible nutrient competition in the soil can be encountered with an increased administration of humus soil on the culture crop strips. The quantities of the humus soil added have to be so abundant, that there will be a steady development of organic substance in the soil. Only in this manner a permanently positive nutritional status of the culture crop can be guaranteed. There cannot be any over-fertilization with humus soil, as all nutrients are available in a non-water-soluble form. It has to be made sure that the soil is permanently covered, as an additional form of composting (surface composting) in order to protect the crop plant strips from drying out of from heavy rain.

3.8.2 Wild vegetation reserves

There are residual or artificially created wild life habitats on the biocyclic-vegan operation as a measure not to reduce substantially biodiversity which is in danger due to human interventions into the ecosystem like clearing forests or cultivating areas which are already forest-free.

The operation has to declare 7% of its land as a wild vegetation reserve by not clearing the original vegetation or, in case the operation is located in an area which is already forest-free, by artificially creating a wild vegetation reserve that has to be as compact as possible giving space to a semi-natural plant community.

A wild vegetation reservation will not be necessary if the operation is situated in a closed forest area and if at the same time at least 50% of the land used for farming is cultivated by agroforestry so that an adequate interconnectedness with the natural ecosystem is guaranteed.

3.9 Wild Harvested Products and Common/Public Land Management

Organic management sustains and prevents degradation of common biotic and abiotic resources, including areas used for rangeland, fisheries, forests, and forage for bees, as well as neighbouring land, air and water.

3.9.1 Sustainability of wild harvest

Wild harvested products shall only be derived from a sustainable growing environment. Products shall not be harvested at a rate that exceeds the sustainable yield of the ecosystem, or threatens the existence of plant, fungal or animal species, including those not directly exploited.

3.9.2 Definition of harvested area

Wild harvested products shall only be derived from a sustainable growing environment. Products shall not be harvested at a rate that exceeds the sustainable yield of the ecosystem, or threatens the existence of plant, fungal or animal species, including those not directly exploited.

3.9.3 Permission to wild harvest

Wild harvested products shall only be harvested with the documented permission of the owner or the caretaker of the common/ wild land. Indigenous or traditional rights must be respected.

3.9.4 Avoidance of contamination

The collection or harvest area shall be at an appropriate distance from conventional farming or other pollution sources in order to avoid contamination.

3.9.5 Operators skills

The operator who manages the harvesting or gathering of common resource products shall be familiar with the defined collecting or harvesting area, including the impacts of collectors not involved in the organic scheme.

3.9.6 Sedentary aquatic species

Operators shall take measures to ensure that wild, sedentary aquatic species are collected only from areas where the water is not contaminated by substances prohibited in these standards.

4 Processing, Handling and Labelling

4.1 Processing and Handling

4.1.1 General

4.1.1.1 Prohibition of co-mingle with non-organic products

Handlers and processors shall not co-mingle biocyclic-vegan products with non-organic products.

When non-organic products are prepared or stored in the preparation unit, the operator shall inform the control body beforehand about this.

4.1.1.2 Traceability of processing and handling chain

Handlers and processers shall ensure traceability in the biocyclic-vegan processing and handling chain.

4.1.1.3 Identification of biocyclic-vegan products

All biocyclic-vegan products shall be clearly identified as such and processed, stored and transported in a way that prevents substitution by or contact with conventional or other organic products through the entire process.

4.1.1.4 Avoiding of product contaminations

The handler or processor shall take all necessary measures to prevent biocyclic-vegan products from being contaminated by pollutants and contaminants, including the cleaning, decontamination, or if necessary disinfection of facilities and equipment.

4.1.1.5 Environmental risks

The trader or processor shall identify and minimize risks of environmental pollution resulting from their activity.

4.1.1.6 Good manufacturing practices

Processors shall respect the principles of good manufacturing practices. This shall include maintaining appropriate procedures based on identification of critical processing steps.

4.1.2 Ingredients

Biocyclic-vegan processed products are made from biocyclic-vegan ingredients.

4.1.2.1 The biocyclic-vegan origin of ingredients

All ingredients used in a biocyclic-vegan processed product shall be produced according the Biocyclic-Vegan Standards except for those additives and processing aids that appear in Annex 1.

In cases where an ingredient of biocyclic-vegan or organic origin is commercially unavailable in sufficient quality or quantity, operators may use non-organic raw materials, provided that:

(a) they are not genetically engineered or contain nanomaterials,

(b) the current lack of availability in that region is officially recognized (This may be by inclusion on a government or certification body list of permitted non-organic agricultural ingredients) or prior permission from the control body is obtained.

(c) the requirements in subject 4.2.3 shall be met.

4.1.2.2 Same forms of the ingredient in a single product

Using biocyclic-vegan or organic and non-organic forms of the same ingredient in a single product is prohibited. It is allowed to use a biocyclic-vegan and an organic form of the same ingredient in a single product since the labelling is in accordance with subject 4.2.3

4.1.2.3 Water and salt

Water and salt may be used as ingredients in the production of biocyclic-vegan products and are not included in the percentage calculations of biocyclic-vegan or organic ingredients.

4.1.2.4 Additives

Minerals (including trace elements), vitamins and similar isolated ingredients shall not be used unless their use is legally required or where severe dietary or nutritional deficiency can be demonstrated in the market to which the particular batch of product is destined.

4.1.2.5 Micro-organisms and enzymes

Preparations of micro-organisms and enzymes commonly used in food processing may be used, with the exception of genetically engineered micro-organisms and their products. Cultures that are prepared or multiplied in-house shall comply with the requirements for the organic production of microorganisms since they harmonize with the principles of the biocyclic-vegan production.

4.1.2.6 Production of micro-organisms

For the production of biocyclic-vegan micro-organisms for processed food, only biocyclic-vegan produced substrate shall be used.

4.1.3 Processing Methods

4.1.3.1 Techniques and materials used during processing

Techniques used to process biocyclic-vegan products shall be biological, physical, and mechanical in nature. Any additives, processing aids, or other material that reacts chemically with biocyclic-vegan products or modifies it must be biocyclic-vegan produced or appear in ANNEX A and shall be used in accordance with noted restrictions.

4.1.3.2 Prohibited substances and techniques

Substances and techniques shall not be used that:

(a) reconstitute properties lost by the processing and storage of biocyclic-vegan products,
(b) conceal negligent processing or
(c) may otherwise be misleading as to the true nature of these products.

Water may be used for re-hydration or reconstitution.

4.1.3.3 Origin of solvents

Solvents used to extract biocyclic-vegan products shall be either biocyclic-vegan produced or food grade substances that appear on ANNEX A Table III ff. consistent with the annotation.

4.1.3.4 Irradiation of ingredients

Irradiation is not permitted for any ingredient or the final product.

4.1.3.5 Filtration equipment

Filtration equipment shall not contain asbestos, or utilize techniques or substances that may contaminate the product. Filtration agents and adjuvants are considered processing aids and therefore must appear in ANNEX A Table IV ff..

4.1.3.6 Storage conditions

The following conditions of storage are permitted (for allowed substances in these conditions, see ANNEX A:

(a) controlled atmosphere;
(b) temperature control;
(c) drying;
(d) humidity regulation.

4.1.3.7 Prohibition of nanomaterials

Intentional manufacture or use of nanomaterials in biocyclic-vegan products is prohibited. Equipment surfaces and utensils that might come into contact with biocyclic-vegan products shall be free of nanomaterials, unless there is verified absence of contamination risk.

4.1.4 Pest and Disease Control

4.1.4.1 Pest manage

Handlers and processors shall manage pests and shall use the following methods according to these priorities:

(a) preventative methods such as deterring, disruption, elimination of habitat and access to facilities;
(b) mechanical, physical and biological methods, including visual detection, sound, ultra-sound, light and UV-light, temperature control, controlled atmosphere and diatomaceous earth;
(c) substances according to the Annexes of this standard;
(d) substances (other than pesticides) used in traps.

4.1.4.2 Prohibited pest control practices

Prohibited pest control practices include, but are not limited to, the following substances and methods:

(a) pesticides not contained in ANNEX B;
(b) fumigation with ethylene oxide, methyl bromide, aluminium phosphide or other substance not contained in ANNEX A;
(c) ionizing radiation.

4.1.4.3 Application of prohibited methods and substances

The direct use or application of a prohibited method or material renders that product no longer biocyclic-vegan. The operator shall take necessary precautions to prevent contamination, including the removal of biocyclic-vegan products and related packaging materials from the storage or processing facility, and measures to decontaminate the equipment or facilities. Application of prohibited substances to equipment or facilities shall not contaminate biocyclic-vegan product handled or processed therein. Application of prohibited substances to equipment or facilities shall not compromise the biocyclic-vegan integrity of product handled or processed therein and shall be documented to attest this.

4.1.5 Packaging

4.1.5.1 Packaging materials

Operators shall not use packaging material that may contaminate biocyclic-vegan products. This includes reused bags or containers that have been in contact with any substance likely to compromise the biocyclic-vegan integrity. Packaging materials, and storage containers, or bins that contain a synthetic fungicide, preservative, fumigant, or nanomaterials are prohibited. Polyvinyl chloride (PVC) and aluminium should be avoided.

4.1.5.2 Environmental impact of packaging materials

Operators shall demonstrate efforts to minimize packaging and/or choose packaging materials with minimum environmental impact. The total environmental impact of production, use and disposal of packaging must be considered.

4.1.6 Cleaning, Disinfecting, and Sanitizing of Processing Facilities

4.1.6.1 Avoidance of contamination with prohibited substances

Operators shall take all necessary precautions to protect biocyclic-vegan products against contamination by substances prohibited in biocyclic-vegan farming and handling, pests, disease-causing organisms, and foreign substances.

4.1.6.2 Equipment cleansers and equipment disinfectants

Water and substances that appear in ANNEX A, Table II, may be used as equipment cleansers and equipment disinfectants that may come into direct contact with the product.

4.1.6.3 Application of cleaning products

Operations that use other cleaners, sanitizers, and disinfectants on product contact surfaces shall use them in a way that does not contaminate the product. The operator shall perform an intervening event between the use of any cleaner, sanitizer, or disinfectant and the contact of biocyclic-vegan product with that surface sufficient to prevent residual contamination of that biocyclic-vegan product.

4.2 Labelling

Biocyclic-vegan products are clearly and accurately labeled as biocyclic-vegan.

4.2.1 Biocyclic-vegan labelling

Products produced in accordance with this standard may be labelled as biocyclic-vegan.

4.2.2 Biocyclic-vegan labelling only for vegan products

Products or ingredients produced in accordance with this standard may only be labelled as biocyclic-vegan, if the final product is in correspondence with the food regulatory labelling proposal for Regulation (EU) No 1169/2011 regarding vegan food produce, as it is referenced in ANNEX C.

4.2.3 Necessary data on labels

Labels must identify the following:

(a) the name or at least code of the producer if it is a single ingredient plant product or single farm product (e.g. fresh produce, olive oil etc.);
(b) the person or company legally responsible for the product;
(c) the body that assures conformity to the applicable biocyclic-vegan standard.

4.2.4 Labelling of biocyclic-vegan products

Processed products shall be labelled according to the following minimum requirements:

(a) Where 95 to 100% of the ingredients (by weight) are biocyclic-vegan, the product may be labelled as “biocyclic-vegan”.
(b) Where less than 95% but not less than 70% of the ingredients (by weight) are biocyclic-vegan, these product cannot be labelled as “biocyclic-vegan”, but phrases such as “made with biocyclic-vegan ingredients” (if the rest of the product is organic in the sense of other standards) or, if other organic ingredients in the sense of other standards are used and both, biocyclic-vegan and organic products total up to not less than 70% of the ingredients, "made with biocyclic-vegan and organic ingredients" or "made with organic or biocyclic-vegan ingredients" (depending on the proportion of the ingredients by weight) can be used, provided the proportion of biocyclic-vegan, organic or conventional ingredients is clearly stated.
(c) Where less than 70% of the ingredients (by weight) are biocyclic-vegan or organic in the sense of other standards, the product cannot be labelled as “biocyclic-vegan” or "organic", nor bear phrases such as “made with biocyclic-vegan ingredients” or "made with biocyclic-vegan and organic ingredients" on the package front, nor bear any certification body seal, or the biocyclic-vegan logo, but individual ingredients may be called “biocyclic-vegan” or "organic" in the ingredients list. Notes on calculating percentages: Water and salt are not included in the percentage calculations of organic or biocyclic-vegan ingredients.

4.2.5 Multi-ingredient products

All ingredients of a multi-ingredient product shall be listed on the product label in order of their weight percentage. It shall be apparent which ingredients are of biocyclic-vegan certified origin and which are organic in the sense of other standards or conventional not. All additives shall be listed with their full name. If herbs and/or spices constitute less than 2% of the total weight of the product, they may be listed as “spices” or “herbs” without stating the percentage.

4.2.6 Multi-component products

Multi-component products, live or unprocessed (such as vegetable boxes) may be sold or marketed as biocyclic-vegan only if all the components are biocyclic-vegan.

4.2.7 In-conversion products

The label for in-conversion products shall be clearly distinguishable from the label for biocyclic-vegan products. Only single ingredient plant products may be labelled as “in-conversion”.

BNS Biocyclic Network Services Ltd
Raphael Santi 58 (Nefeli 11, App. 202)
CY-6052 Larnaca / Cyprus
T 00357-24-661614
F 00357-24-661614
M 00357-99-661436 or 0030-6932-669921
E administration@biocyclic-network.net