



NATURLAND STANDARDS ON PRODUCTION

Version 05/2022

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Preface

Introduction

Certified organic agriculture, as practised in accordance with the written standards of Naturland - Registered Association for Organic Agriculture, has become an established concept. A comparison of the first draft of the "Standards for Organic Agriculture" passed in 1982 after the association was founded with the currently valid version will reveal two aspects of this modern form of land cultivation: on the one hand its dynamism and potential for development and on the other its stability and consistency. The development of standards and their implementation are the core mission of any certified association for organic agriculture. Standards have to be proven to be workable. They have to be adapted to changing conditions and be extended to cover new areas. The growth of Naturland and its organisations since the association's establishment is a reflection of the success of its work and confirms that this form of cultivation has gained wide acceptance and appreciation among farmers, food producers and consumers.

Standards for specific areas

The Naturland standards existed long before the EU passed its first legal regulations on organic agriculture. Even today the consistent development of our standards provides major impetus; they incorporate ideas that are taken seriously by the legislators.

As they stand today, Naturland's standards are not limited solely to the specific method of cultivation described in detail in its standards on plant production and animal husbandry. For some years now, standards have been developed to cover many specific areas which require special guidelines, such as horticulture and viticulture, bee-keeping, harvesting of wild grown products, and aquaculture. In the same measure that the standards have evolved to cover various forms of cultivation, they also incorporate the next stage - the processing of this produce. The production and processing of food produce, such as bread and bakery products, milk and dairy products, beer and sausages, etc. are described in specific standards for different categories of food produces. Whilst foodstuffs are the original sphere of interest, standards have also been drawn up to cover other areas of cultivation, such as organic forestry and timber processing.

Adherence to the elementary principles

To ensure that Naturland's standards develop consistently, it is essential that the fundamental principles of organic agriculture are adhered to. It is also crucial to withstand short-lived trends and any temptation to sacrifice elementary principles for the sake of immediate success. Standards can only provide a framework, since organic agriculture cannot function on the basis of mere regulations. It is realised by consensus on a common aim. Nevertheless, exact and binding rules are necessary in practice, whilst leaving enough flexibility for adaptation to the particular requirements of each agricultural operation.

The experts - farmers, consumers, processors and scientists - who contribute to the development of Naturland's standards have always offered new solutions to the problems posed. The framework of Naturland's standards is dictated by the core fundamental principles of certified organic agriculture: the obligation to treat the elementary basics of our lives with prudence and responsibility. A common starting-point, sustained management, the active protection of nature and the climate, safekeeping and preservation of the soil, air and water and the protection of the consumers are at the heart of all Naturland's standards. This also includes mutual tolerance and respectful terms of co-existence.

Naturland's standards - the basis for certification

Standards will only endure and make a lasting impact if they can be clearly monitored and be put into consistent practice. Any decisions involved have to be seen to be made impartially and on neutral, unbiased terms. This is guaranteed by calling on the services of independent and autonomous committees - standards committee, inspection body and certification committee - as well as by the composition of the committees - consisting of diverse interest groups such as scientists, agriculturists and consumers. Independent inspection procedures and the consistent application of Naturland's standards form the basis of the production of high quality products cultivated in a balance with nature and the environment. This quality is visibly documented by the Naturland logo.

Naturland's quality management - national and international

For producers, processors and consumers, certification by Naturland stands for a reliable quality management system, for the dependability of the organically grown produce, from its cultivation to the finished product.

Naturland has been accredited to the international norm ISO/IEC 17065 since 1998. This accreditation confirms that certification is performed to defined norms.

Part A. General Regulations for production

I. Contracts and certification procedures

1. Conditions to be fulfilled prior to the conclusion of a producer contract

Prior to the conclusion of a producer contract, the association must be given the opportunity to acquire comprehensive information on the external and internal conditions of the farm.

The producer is obliged to provide any information necessary to assess the conversion conditions. This includes particularly the method of management that has been practised to date (use of mineral fertilizers, synthetic chemical pesticides etc.), the economic situation and the environmental conditions (sources of potential contamination, e.g. sewage sludge, traffic and other causes must be reported before conversion can begin). If possible causes of contamination with dubious or harmful substances are detected, analyses have to be produced or tests carried out prior to the conclusion of a producer contract. These analyses may show that a producer contract is only possible under specific conditions or not at all. A comprehensive description of the areas of land cultivated and of the production and storage sites has to be made.

2. Producer contract

On signing the producer contract, the producer commits himself to adhering to Naturland standards and to extending the conversion to all areas of the farming unit that are managed or farmed under his responsibility (whole farm conversion).

The principle of the manager's unit is to be applied, i.e. one and the same farm manager must not manage a conventional and an organically operated farm at the same time¹.

The conclusion of a producer contract is possible at any time of the year.

The conclusion of a producer contract does not entitle the producer to the use of the Naturland logo. A separate licence agreement has to be concluded for this.

3. Standards

These standards are obligatory for all producers that have concluded a producer contract with Naturland e.V. (registered association). They have been tested and put into practice in this form. If single regulations or parts of these standards should not be applicable under different climatic conditions, the Naturland standards committee has to draft an amendment/addition to the standards which has to be passed by the assembly of delegates. Every member is entitled to submit amendment proposals to the standards committee, provided that further Naturland members (minimum of 10) support this proposal. Amendment proposals will be legally evaluated by the standards committee and submitted to a competent group of professionals for comment.

Naturland's certification committee is entitled to allow a contractual producer to diverge from Naturland standards in one or two respects, where the exception is justified, and for a limited period of time, provided that the general management of the agricultural operation according to Naturland's standards is not adversely affected.

Only the latest version of the standards as passed by the assembly of delegates is in force. The Naturland association will inform the contractual producers of any changes.

If the standards are changed, transition deadlines can be set for the implementation of these changes by the producers.

Violations of the standards will be prosecuted according to the sanction catalogue (appendix to producer contract).

The validity of higher state laws and regulations remains unaffected by these standards. The requirements of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended have to be observed.

4. Conversion

During conversion to organic agriculture, the manager introduces management practises in accordance with the principles of organic agriculture throughout the entire operation.

The conversion of the entire farm must occur under economically acceptable basic conditions. It can therefore take place gradually to cover ever greater areas of the farmland and the operation cultivated in accordance

¹ Manager's unit: composed of manager and farming unit. The manager is the natural person running a farm independently and responsibly (farm manager). The farming unit is a clearly marked managing sphere on which distinctly separate records are kept for inspection and documentation.

with the standards. However, the time span for conversion set down in section A. I.8 of these standards has to be complied with. Gradual conversion may take five years at the most. The conversion period for the operation as a whole has to be concluded at the latest by the sixth harvest after commencement of the conversion period. Where conversion is carried out gradually, it is imperative for the areas under various stages of conversion to be clearly and explicitly distinguishable and separated. The same applies to animal produce; organic and conventional feeding and husbandry at the same time within one animal species are not allowed.

Converted areas and stalls resp. animals may not alternate between organic and conventional farming.

The process of conversion will be attended by an adviser authorised by Naturland. In co-operation with the adviser, a conversion plan has to be devised. This will contain a plan for cultivation or crop rotation which includes the areas of land and the crop to be converted annually, and a humus analysis and a fertilisation programme scheme as well as a plan for animal husbandry (stocking rate, feeding plan, assessment of the animals' needs) if required. Naturland has the right to request current soil analyses.

It is possible to commence conversion at any time of the year.

5. Changes in the farming system

If new fields (e.g. purchase or lease of land) are taken under organic cultivation on a farm that is in conversion or already certified, also these areas have to comply with the usual conversion period (see A. I.8 of these standards). These new areas have to be clearly distinguishable and separated according to their stage of conversion.

The farm is obliged to report any factors that may have a negative influence on the quality of the produce, in particular any possible sources of contamination. This applies particularly to areas newly included in the area farmed (e. g. sewage sludge, road traffic etc.).

The marketing deadlines according to section A. I.8 and the regulations under B. II.3 of these standards apply to brought-in animals and to the respective conversion periods.

6. Documentation and inspection

Naturland e.V. must be provided with the latest data (e.g. livestock, cultivation). The product flow (e. g. brought-in feed, seeds and plant material and fertilizers as well as the sale of produce) has to be recorded according to Naturland's specifications. In addition, the farm must maintain livestock records (e. g. on the input and output of livestock, use of medication) and the use of inputs (especially fertilisers and pesticides as well as cleaning agents and disinfectants) must be documented in a suitable manner. Previously announced and/or unannounced visits on site and inspections by Naturland's representatives will be made at least once per year to check on compliance with the standards. These representatives must be given full access to and insight into all relevant information concerning the agricultural operation. Any documents requested concerning the management of the farm have to be shown, and all relevant questions have to be answered. If third parties act on behalf of the farmer (e. g. in the preparation, storage, processing and transport of the produce), the farmer has to take measures (such as the conclusion of a sub-contracting agreement) to ensure that the standards are implemented and that they can be monitored by Naturland.

In order to ensure the livestock's health and welfare, Naturland appoints agents to perform regular inspections with their focus on animal welfare.

7. Certification

The Naturland certification committee confirms that the producer is adhering to the standards with the annual certification letter. If the producer violates current standards, the penalties listed in the catalogue of sanctions, which is part of the producer contract, can be imposed.

It is standard practice for complaints in connection with matters within Naturland's sphere of responsibility to be addressed to Naturland's head offices in Gräfelfing, Germany.

8. Labelling and marketing

The labelling of products enables the trader legally responsible for the product to be identified.

The provisions of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended, as far as they apply to the EU Community logo and the declaration of origin (place where the agricultural raw materials were produced) are to be observed.

The application of the Naturland logo is regulated in a particular licence agreement with the Naturland Trademark Company.

For products which have been produced in compliance with the Naturland standards and which are to be marketed with reference to the organic production, to Naturland or with the Naturland logo, the following deadlines and conversion periods for management in compliance with the standards must be adhered to:

Plant products

24 months prior to their having been sown or 24 months prior to the use of pasture as a feed crop.

36 months prior to the harvest in the case of permanent crops (except feed crops).

The starting point considered as management in compliance with the standards is that following the demonstrable conclusion of management measures not complying with the standards, at the earliest, however, from the date of the farm being subject to the inspection procedure.

Only plant produce may be labelled as a **conversion product**. In such cases the requirement is that the product consists of one sole ingredient of agricultural origin (sometimes referred to as a “mono-product”) and comes from an area of land that has been cultivated in compliance with the standards for at least 12 months before the harvest of the respective ingredient. In addition to the use of the Naturland logo the product must be identified as a “product of conversion to organic agriculture”.

Animal products

eggs:		6 weeks*
milk:		6 months
meat:		
	poultry:	10 weeks; small poultry 6 weeks
	pigs:	6 months
	small ruminants:	6 months
	cattle:	12 months, at least three quarters of their lifetime
	rabbits:	3 months
	game in reserves:	12 months
honey:		see chapter B. XI. Beekeeping (separate standards)
insects:		see chapter B. XIV. Insect Breeding (separate standards)

With conversion of the entire farm at the same time the conversion period will be reduced to 24 months altogether.

* It is only possible to sell eggs under the Naturland logo or with reference to Naturland or to Naturland’s standards if the hens were kept and fed according to Naturland’s standards from the first week of their lives onwards. Besides this, a male chick must also be organically reared for every hen². Prior to the introduction of the pullets to the poultry house, proof that the male chicks are being reared organically must be supplied².

If Naturland eggs are to be taken to a packing station which also packs conventional eggs, then the Naturland eggs have to be printed beforehand, on the farm.

In addition, the conditions listed under part B. II.3 have to be observed for brought-in animals, and for beekeeping the conditions of the separate standards for beekeeping have to be observed (see chapter B. XI.).

² This applies at the latest as of 01.10.21 for every bird hatched.

II. General (management) regulations resp. other predominant provisions

1. Sustainable management

Organic agriculture is particularly committed to sustainable management. This includes the respectful treatment of nature and the environment, the sustainable use of natural resources, the acceptance of social responsibility and the maintenance of economic performance.

The benefits derived from natural ecosystems and their economic performance must be maintained. Damage to ecosystems should be kept to a minimum.

Biological diversity or biodiversity is to be maintained and fostered on farms to the best of the farmer's ability; this includes diversity of ecosystems, diversity of species and genetic diversity.

Water and soil are valuable natural commodities whose protection is of crucial importance and which must therefore be used carefully and sustainably.

Energy should be used as efficiently as possible and renewable energy resources should be used for preference. Wherever waste is unavoidable, it should be disposed of in an eco-friendly manner or recycled. Organic residues should be re-used and preferably composted.

Preference is to be given to procuring raw materials and goods from suppliers in close proximity.

2. Quality assurance

Production in terms of these standards should allow for organic produce of high sensory quality and safety in regard to health. To avoid contamination (e. g. through driftage or irrigation) with prohibited substances or means which might impair the organic quality, appropriate measures shall be taken. Records must be kept identifying possible risks of contamination with prohibited substances which may impair the quality of the organic produce and which come within the sphere of influence and responsibility of the operation as well as details of appropriate preventive measures. Where reasonable suspicion exists that the product quality is substantially impaired through contamination, Naturland should be informed. Naturland may require an analysis to be undertaken to detect the level of contamination and contamination sources and follow up on the case. Appropriate action has to be taken on complaints related to the compliance with Naturland certification requirements that are directed to the operation by third parties. Records shall be kept of the complaint and the corrective action taken.

3. Non-employment of GMO and GMO derivatives

Genetically modified organisms (GMOs) and their derivatives are incompatible with organic production. Products produced according to the Naturland standards must therefore be manufactured throughout the whole of their production and value chain without the use of genetically modified organisms (GMOs) and GMO derivatives³.

The definitions given under sec. 2 of Directive 2001/18/EC of the European Parliament and of the Council, and the exclusion criteria for genetic engineering of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended apply.

Even the unintentional contamination of products certified by Naturland with genetically modified organisms may also lead to certification being denied.

4. Non-use of nanomaterials

By "nanomaterials", Naturland means: substances which have been consciously and deliberately designed, technically manufactured or produced by human inducement (anthropogenic) with the intention of obtaining very specific characteristics (e. g. shape, surface properties or chemical properties) at the nanoscale (approx. 1 – 300 nm in at least one dimension) such as only possible at the nanoscale. Particles with larger diameters may come under this definition in cases where there is evidence of effects specific to the nanoscale at this size. Particles accidentally generated at the nanoscale, which can occur in the course of traditional processing methods (such as, for example, homogenisation, grinding, foaming, freezing) or as natural environmental elements

³ A "GMO derivative" is any substance produced from or by means of GMOs but not containing any GMOs itself. "The use of GMOs and GMO derivatives" means their use as a foodstuff, an ingredient of foodstuffs (including additives and flavouring), processing additives (including extraction solvents), animal feed, compound feed, the raw materials of animal feed, fodder additives, processing additives for animal feed, certain products for animal feed, pesticides, fertilisers, soil ameliorators, seed, vegetative propagation material and animals. For the purposes of these standards, the following definitions apply: 1. organism: any biological unit capable of reproduction or passing on genetic material. 2. genetically modified organism (GMO): an organism, the genetic material of which has been modified in such a way as is not possible in a natural manner by cross-breeding and/or natural recombination.

(e. g. volcanic or airborne particles) or in foodstuffs (e. g. monosaccharides, amino acids or fatty acids) at the nanoscale are excluded from this definition.

The environmental effects on nanomaterials and their impact on human beings are so far not sufficiently known. For this reason, products grown and processed and certified by Naturland must be manufactured without the application of anthropogenic nanomaterials. Nanomaterials should also be avoided in packaging. They are only permissible if the nanomaterials are firmly integrated in the packaging material. Nanomaterials in layers or coatings which are in direct contact with products certified to the Naturland standards must not be used.

5. Storage

Storage under special conditions (controlled atmosphere, temperature control, humidity regulation and drying of the stored goods) is permitted. The application of chemical storage-protection agents is prohibited. Only storage measures that exclude the contamination of the harvest with harmful substances are permitted. This also applies to the materials and detergents used (ref. the regulations of Part C. General Processing Standards VI.11., where they apply to pest control). After-ripening by means of chemical substances⁴ and the application of sprout inhibitors and radioactive irradiation are prohibited.

If there are products of different certification statuses on the farm, they have to be stored clearly separated. Substances which are prohibited by these standards and contravene the conversion status in question may no longer be stored on the farm (ref. also Part C. General Processing Standards VI.9. Storage, Bottling, Bagging and Transport).

6. The sale of purchased merchandise

The sale of purchased products for direct marketing, i.e. in farmhouse shops, on market stalls and the like, is possible. Regional products should be preferred wherever possible. Separate bookkeeping for all the purchased merchandise has to be done. The labelling of the products must be unequivocal with respect to their origin and method of production. Farm products and bought products have to be declared separately.

Conventional merchandise may only be sold if there is proof that equivalent organic products are not available. These products have to be clearly labelled as "conventionally produced".

It is not permissible to offer one and the same product from organic and conventional cultivation at the same time.

7. Purchase of means of production and equipment

If means of production or animals are purchased, they must be certified by Naturland or meet Naturland's respective quality assurance requirements. If these are not available (obligation of producers to notify and provide evidence), the means of production can be obtained – **in exceptional cases and for a limited period of time** - from other farms according to the following priorities⁵:

- inspected according to EU Organic Regulation,
- extensively farmed within an accordingly inspected programme,
- conventionally farmed.

Special attention has to be paid to the ecological impact of production means and equipment. Preference is to be given to substances on a natural basis (e.g. oils, fats). Auxiliary materials of rainforest timber are prohibited. Care should be taken to save energy.

8. Exchange of farming equipment between different agricultural operating systems (certified organic/conventional)

The exchange of farming equipment (e. g. in machinery co-operations) between certified organic farms and conventional farms is possible. Farming equipment that is also utilised by conventional farms must be cleaned thoroughly in the case of contamination with substances that do not comply with Naturland's standards before being used on a Naturland farm.

9. Use of foil and fleeces, nets and technical mulching materials

⁴ Ethylene gas may be used for ripening.

⁵ The stipulations of the EU Organic Regulation on the purchase of conventional products have to be observed.

Decomposable matters are to be striven for, e.g. cotton, flax mats, mulching paper or organic foil, as far as these allow a reasonable organic cultivation.

For protected structure coverings like plastic mulches, fleeces, insect netting and silage wrapping, only products based on polyethylene (PE) and polypropylene (PP) or polycarbonates are allowed. These shall be removed after use and shall not be burned on the farmland. The use of polyvinyl chloride (PVC) based products is prohibited. Recycling is recommended.

Materials that are on the farm already and do not comply with these conditions may be used up during the conversion period.

10. Biogas plants

Generating energy by fermenting biomass can be an important component of future energy supply within the context of renewable energy as a whole, besides wind, water, solar and geothermal energy and combustion of organic materials like wood.

Biogas plants in the organic farm combine the production of regenerative energy in a sustainable manner with the production of high-quality and healthy food, because they mainly use waste materials, allow varied crop rotations and are very energy-efficient. Plant capacity and use should be in reasonable relation to the area of operation, so that the principle aim, food production, is guaranteed.

Sensible waste heat utilisation and very high overall efficiency are to be aimed at, to achieve greatest energy efficiency.

10.1 Biogas plants on Naturland farms

Biogas plants on Naturland farms⁶ are run basically with ecologically generated fermentation materials. Vegetable material from conventional production⁷, which serves as fermentation material to operate the power plant, is limited to max. 30%. Fermentation materials of conventional origin must comply with appendix 1 (permissible purchased fertilisers and soil improvement agents). If certain conventionally produced substrate components are to be found on the farm at the same time as animal feed in organic quality, then the components from conventional sources must either be denatured (e. g. by adding slurry or manure, covering them with such materials, or similar measures) or be unmistakably identifiable (e. g. dyeing with food colouring, or similar measures). Naturland must be informed of the method chosen beforehand.

Where fermentation materials of more than 0.5 DU/ha/year are used for the operation of the biogas plant, then the delivery of any amount of fermentation substrate supplied which exceeds this value must be documented.

If it is necessary to co-operate with other agricultural operations to operate a biogas plant in order to acquire the necessary amounts of fermentation materials, preference should be given to organic farms.

10.2 Co-operation of Naturland farms with other biogas plants

If it is possible to co-operate with a biogas plant on a local organic farm, this shall take precedence over co-operation with a conventionally run plant.

Where a Naturland farm co-operates with a conventional biogas plant, it is only possible to take back digestate if the original matter came from the Naturland farm (e.g. clover grass). In addition, the conditions stipulated in appendix 1 (permissible fertilisers and soil improvement agents) or B. I.3 (humus management and fertilisation), in particular the maximum amounts allowed, are to be observed⁸.

⁶ This also applies to plants which are operated by the manager of a Naturland farm as autonomous legal entities or to collectively owned plants in which he or she holds a share and are not covered by item 10.2.

⁷ Clover grass resp. grass free of mineral fertilizers and synthetic chemical pesticides is a permissible exception.

⁸ Naturland must be notified of the intention to take back digestate and this may only be done in compliance with Naturland's regulations. Digestate from biogas plants which are run solely on conventional fermented matter or on genetically modified organisms from aggregates or on liquid manure and poultry dung from conventional animal husbandry, is prohibited. No more than 15% more of the nutrient equivalent than the amount of fermentation materials originally supplied may be taken back.

III. Social responsibility

The holistic claim of Naturland standards also includes the social treatment of the people who work and live on the operations.

1. Human rights

The basic rights of the people living and working on Naturland operations are respected. They must comply at the minimum with the local legal requirements, respectively the human rights listed in the UN Conventions, the International Labour Organisation Conventions and Recommendations (ILO)⁹, the UN conventions on children's rights¹⁰ and the United Nations Declaration on the Rights of Indigenous Peoples¹¹, should these be more comprehensive.

A product created under conditions violating basic human rights, under gross violation of social justice or infringing indigenous land and water rights can not be traded as a product certified by Naturland.

2. Freedom to accept or reject employment

The operations commit themselves to rejecting forced labour and any type of involuntary work. The operation shall not retain any part of the workers' salaries, benefits, property, or documents in order to force workers to remain on the operation.

3. Freedom of association, access to trade unions

All workers have a right to freedom of association and collective bargaining.

No one shall be discriminated against because of his or her membership in a trade union.

4. Equal treatment and opportunities

No discrimination on the basis of race, creed, sex, or political opinion or membership shall be tolerated. All workers, irrespective of their sex, skin colour or religion receive the same pay and have the same opportunities for work of the same nature and same degree of responsibility.

5. Child's rights

No children shall be employed on operations. Children may work on the farms of their own families or a neighbouring farm provided that:

- the work is not hazardous and endangers neither the health nor the safety of the children
- the work jeopardises neither the educational nor the moral, social or physical development of the children
- the children are supervised by adults while working or have been given permission by a parent or legal guardian

6. Health and safety

All workers, employees and their families shall have access to drinking water, food, accommodation and basic medical care.

The employer is responsible for safety, health and hygiene at the workplace. If necessary, this implies holding training courses for employees to raise their awareness of any dangers at their workplace and of the contents of hygiene standards. Operations with more than 10 workers have to draw up a policy on safety at work and make these available to all employees.

7. Employment conditions

Workers for the purpose of these standards are, besides the permanent workers, also seasonal workers and sub-contracted workers.

All operations commit themselves to meeting the following requirements¹².

⁹ <http://www.ilo.org/declaration/lang--en/index.htm>

¹⁰ <http://www.ohchr.org/en/professionalinterest/pages/crc.aspx>

¹¹ http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

¹² Naturland may determine that in any one country the legal control of employment conditions and the opportunities for further education offered publicly suffice to ensure compliance with these standards.

7.1 Contracts

All workers receive a written contract of employment describing the basic conditions of employment.¹³ Working conditions and contracts have to be documented by the employer to be verified at any time. The employment contract shall at least define the following: job description, scope and limits of the job, and type as well as amount of remuneration. The employment conditions of all workers have at least to comply with the respective higher of the requirements of national regulations and ILO standards.

7.2 Equal treatment

The different kinds of employment shall in no case result in the unequal treatment of any workers: all workers are considered to enjoy the same rights and working conditions including social benefits and other privileges for work of the same nature and same degree of responsibility (see III.4).

7.3 Wages

Workers shall be paid at least the official national minimum wage currently applicable or the relevant industry standard in processing operations or the wages approved on the basis of collective bargaining, whichever is the higher. Workers shall be paid in cash, or in any other manner of their choice.

7.4 Payment in kind

If they so choose, workers may receive part of their wage in kind for services such as housing, food or others offered by the operation. The value attributed to such deductions shall be fair and reasonable. Compulsive deductions from the minimum wage for such services are not permitted.

7.5 Working hours

To permit flexibility and overtime in the peak season (e. g. harvest), an annual limit of working hours or a mutual agreement on overtime requirements in the peak period is necessary. Such an agreement has to be in line with current national labour legislation and negotiated agreements.

7.6 Social benefits

The employer ensures basic coverage for maternity, sickness and retirement. Operations with more than 10 workers need to make a policy on wages and social security available to all workers.

7.7 Further education

The unit offers its employees the possibility of further education and professional training.

¹³ Legally binding contracts (in this particular case not necessarily in writing) are required even for workers not registered. Furthermore, they have to be informed of their rights.

Part B. Regulations for individual branches of production

I. Plant production

For all management practices of plant production, the following **general principles and regulations for plant cultivation (B. I. 1-9)** are obligatory:

1. Soil-based cultivation

Plants and crops are grown using soil-based cultivation methods. No forms of synthetic or surrogate substrates such as Styromull, rock wool, water (hydroponics, nutrient film technique, aquaponics) and so on are permissible, nor is cultivation in sacks and containers. The cultivation of potted herbs and ornamental plants as well as of seedlings and similar products, where the pot is sold along with the plant, is permissible, as well as water-forcing chicory roots started in soil. Separate regulations apply to shoots and germ buds and to mushrooms.

2. Crop rotation

Crop rotation is the basis of the cultivation of annual and perennial crops on which the operating cycle is founded in organic agriculture. It serves the purpose of creating sustainable soil fertility and controlling the weeds, diseases and pests at the same time. It guarantees the long-term yield stability and economic viability. The crop rotation cycle must include an appropriate amount of legumes either in pure stands or in association with other varieties. In the case of arable farming, a minimum of one fifth of the arable land is to be devoted to main crop legumes. This proportion may be reduced with the approval of Naturland, if either the conditions are very good (to at least one sixth), or if the location is particularly susceptible to the loss of nutrients.

With respect to crop rotation, winter and summer crops should complement each other in their effects to prevent the negative developments of any imbalances. Variety is an essential characteristic of organically cultivated fields. It should also be practised in the choice of seed mixtures for fodder as well as for cash crops and undersown crops.

Special attention has to be paid to ensuring sufficiently long periods between the cultivation of the same kind of crops. The washing out of nutrients must be prevented by implementing suitable cultivation measures (e. g. undersown crops, ploughing rotas commensurate with local conditions).

3. Humus management and fertilization

The transformation processes of biologically active soil are the prerequisite for the balanced nutrition of crops. In order to ensure long lasting soil activity and thus crop yields, special attention has to be paid to the basis of soil fertility; this also serves the purpose of improving its water absorption and retention and increasing the storage of CO₂ (in the soil) as a contribution to the protection of the climate:

- The humus balance has to be at least at an equilibrium within the margin of varied crop rotation. For permanent crops, this has to be guaranteed by adequate measures such as undersown crops, catch crops, or permanent ground coverage.
- Biodegradable matter of microbe, vegetable or animal origin forms the basis of fertilization.
- Given the importance of a balanced lime level for topsoil stability, for the structure and thus the fertility of the soil, and because of acid absorption through precipitation, special attention has to be paid to an adequate lime supply with respect to the area.

Synthetic chemical nitrogen fertilizers, Chile saltpetre and urea must not be used. Mineral and trace element fertilizers that are not easily soluble (see appendix 1. 1.5) can be used. Their application is based on the corresponding soil analyses, observation of plant growth, and the difference between the nitrogen input and output of the whole farm.

The amount of farm manure depends on the forage production of the farm and the resulting animal husbandry. The manure has to be processed to make it tolerable for soil and plants. In the case of semi-liquid manure, this is achieved by the use of stone or straw meal, dilution, ventilation or comparable measures. In the case of dung, a controlled process of decomposition is recommended.

Nutrient losses during storage and the application of liquid fertilizers and dung as well as in irrigation have to be reduced to a minimum. The quality of the ground water and surface water may not be negatively affected. Environmental pollution (this includes odours and pathogenic agents) has to be avoided. Sufficient storage capacity must therefore be available so that manure is only applied as and when required by the crop and during the vegetation period.

Besides its use in fertilisation, the purchase of organic manure serves the primary purpose of increasing the humus supply, encouraging soil organisms and compensating for the loss of nutrients in the course of production. Intensification beyond a tolerable extent (over-fertilization) has to be avoided. If the farm has its own livestock, the amount of manure bought in must not exceed a total of 1.4 DU/ha (dung units per hectare), whereby the manure has to be distributed evenly according to the crop rotation over the areas cultivated. The external nutrient input of organic manure must not exceed 0.5 DU/ha in any one year¹⁴. For horticulture (B. III), cultivation of ornamental plants, herbaceous perennials, shrubs, Christmas trees (B. VI), fruit cultivation and viticulture (B. VII and B. VIII) and permanent tropical plantations (B. IX), separate provisions apply; by delivery of fermentation materials to biogas plants the nutrient export linked to this is taken into account¹⁵.

Furthermore, care should be taken that the animal runs are not over-fertilized. The number of animals kept and the quantity of feed produced must correspond in such a way as to avoid over-use of the land e.g. over-grazing, with the consequence of damage to the soil (e.g. by erosion).

Ploughing nutrients back in the soil using compost is recommended on the principle of the recycling of nutrients if it is certain they do not transport harmful residue (Appendix 1, 1.2). Waste and/or urban compost, faecal and sewage sludge are prohibited. The use of liquid manure and poultry dung from conventional animal husbandry, and of fermented residue from biogas plants which are run solely on conventional fermented matter or on genetically modified organisms from aggregates or on liquid manure and poultry dung from conventional animal husbandry, is prohibited.

Permitted manure and soil improvement agents are listed in appendix 1.

Naturland must be notified whenever compost and fermentation residues are applied.

4. Pest, disease and weed control

To encourage healthy plants, prophylactic measures such as crop rotation appropriate to the site in question, tillage, humus management and fertilization, the choice of appropriate stand densities as well as the selection of healthy and resistant plants and seeds are the most important considerations. In greenhouses the optimum climatic regulation as well as the application of beneficial insects are to be accorded particular importance. The self-regulating potential of an ecological system should be backed up by landscape management and other methods appropriate to the protection of species, for example planting hedges and installing nesting sites and humid zones.

The use of synthetic chemical substances and growth regulators is prohibited. A list of active substances of plant protection and treatment products and the biological and biotechnological pest control methods permitted is given in appendix 2. Besides these measures, permissible mechanical and physical processes and methods suitable for maintaining plant health also exist.

Weeds are, as accompanying plants of crops and as the habitat of fauna, a prerequisite for a varied community of species. The aim of regulation is therefore the containment of weed infestation to an extent tolerated by the crops being cultivated, and not the complete elimination of the weeds. Apart from prophylactic crop management measures, direct intervention in the form of mechanical (e.g. currying, hoeing) and thermal (e.g. flaming) processes is permitted. Besides this, further measures like mulching and grazing (especially in Christmas tree cultivation) can be resorted to.

Straw used for mulching must be certified at least to the standards of the EU Organic Regulation.

5. Seed and plant materials (incl. vegetative propagation material)

The seed and plant material applied must be certified by Naturland or meet Naturland's quality assurance requirements. If this is not available, the farm manager has to give notice and proof of its non-availability.

The use or dressing of seeds or of plant material with synthetic chemical pesticides is not permitted.

The seed and plant materials used may only be treated with the substances listed in annexes 2. 2.2, 2.3 and 2.4. When using dressed seeds (pilled or in sheet form), care should be taken that the materials used in this process are considered harmless under these standards.

The strains cultivated (their combination with undergrowth, growing methods) should be suitable to local conditions. Criteria are primarily low susceptibility or greatest possible tolerance of and resistance to diseases. In

¹⁴ Calculation base is the effective annual nitrogen load.

¹⁵ Naturland must be notified of the intention to take back digestate and this may only be done in compliance with Naturland's regulations. Digestate from biogas plants which are run solely on conventional fermented matter or on genetically modified organisms from aggregates or on liquid manure and poultry dung from conventional animal husbandry, is prohibited. No more than 15% more of the nutrient equivalent than the amount of fermentation materials originally supplied may be taken back.

the selection of strains and varieties, care must be taken that genetic variety can be guaranteed. Strains which result from protoplast fusion or cytoplasm fusion or comparable methods (at the level of the cell nucleus) are not permitted.

6. Cleaning and disinfection agents for plant production

The cleaning and disinfection agents listed in annex 8.2 of these standards are permissible for cleaning machines, equipment and plant used in plant production.

7. Tillage

The tillage process shall be such as to conserve the natural layers of the soil structure. This is done by employing the appropriate machinery. Special attention must be paid to the adequate humidity of the soil during the tilling process.

8. Landscape management

An ecologically managed farm - as a component of the natural environment - is especially dependent on an intact ecological system. The farmer is therefore obliged to conserve and, if required, to recreate structural elements of the landscape, such as hedges, borders, humid areas, oligotrophic grassland and other elements. This applies especially to large field units and serves the promotion of beneficial organisms and the self-regulation of the eco-system.

Because cultivation and animal husbandry are appropriate to local conditions, organic farming methods are especially suitable for use in sensitive areas (e.g. protected water conservation areas). By creating extensive bands of grassland as buffer zones alongside unstable ecological systems (e.g. rivers and lakes), precautions are taken against potential soil loss and nutrient input.

9. Soil and water conservation

9.1 General

The maintenance and fortification of the soil's fertility are crucial features of organic agriculture. Active protection of the soil is the basis of water conservation, climate protection and food security. Particular attention must therefore be paid to nurturing the living soil and the maintenance and continued development of the soil's fertility by adopting suitable methods of crop cultivation, especially the application of organic substances in appropriate quantities and qualities. The burning of organic matter (e.g. crop residues) is only permitted in exceptional cases. The clearing of primary forest and the cultivation of primary ecosystems (e.g. tundra) is prohibited. Measures suitable to avoid the erosion of soil and surface runoff must be taken.

Farm management (including irrigation) may not produce a negative effect on the soil's fertility long term, e.g. due to salinisation and erosion. If there is evidence of increased risk, measures must be taken to reduce it. Farms situated in regions with a climate typical of deserts or steppes or with hot summers comparable to those common to the Mediterranean climate (classes BW, BS and Csa according to the Köppen-Geiger climate classification¹⁶) must perform an annual water analysis according to FAO¹⁷ standards or by employing equivalent methods.

Excessive exploitation and exhaustion of water resources is not allowed. Wherever possible, rain water is collected and used and the effects of the amount of water removed from water sources monitored. The way water is used and the other farming methods employed make only a negligible impact on the water quality. The farm management must avoid the salinisation of soil and water.

Irrigation must be in accordance with good farming practice.

9.2 The use of water in areas with scarce water resources

Farms in areas with scarce water resources¹⁸ must comply with additional requirements.

¹⁶ The areas affected can be identified by means of the Köppen Geiger Climate Classification available on the website of the Oak Ridge National Laboratory (ref. <http://webmap.ornl.gov/ogcdown/> World map of the Köppen-Geiger climate classification).

¹⁷ Water analysis according to recommendations made by the FAO for the evaluation of water quality during irrigation (see <http://www.fao.org/docrep/003/T0234E/T0234E00.htm> and <http://www.fao.org/docrep/003/T0234E/T0234E01.htm#ch1.4>).

¹⁸ Areas with scarce water resources and with high levels of water consumption in relationship to the availability of water. The basis for this is the Aqueduct Water Risk Atlas under the indicator Water Depletion (see <https://wri.org/applications/aqueduct/water-risk-atlas>).

This only applies to farms equipped with irrigation systems and not to farms which practise rainfed agriculture.

9.2.1 General

Water abstraction must comply with national and regional laws and regulations.

Every opportunity to collect, store and use (rain-)water (water harvesting) must be exploited, depending on local conditions and the farm's situation.

Mechanical irrigation systems (e. g. drip, centre pivot or mini sprinkler irrigation systems) must operate effectively and be water-efficient¹⁹. Water losses must be avoided by means of regular maintenance.

Water consumption (m³/ha/a) is to be recorded. Relevant categories of users are to be identified at the regional level; co-operation should be sought with them in order to make progress in the sustainable use of water resources at both farm and regional levels (e. g. in water catchment areas).

9.2.2 Water management plan

Farms draw up a water management plan²⁰, which comprises records and analysis of consumption, analysis of possible risks in conjunction with water use and a plan of action for the reduction or prevention of these risks.

The water management plan is to be kept continually up to date and analysed by the farm and by Naturland. The categories of water users must be identified in the water management plan, with details of their willingness to co-operate as well as optimisation measures planned or implemented.

9.2.3 Specific management conditions

Naturland may impose specific management conditions for certain regions, especially as to the respective concentration of farms or as to farms of a respective size, upon consultation with regional experts. These are to be included in the water management plan and are relevant for certification. When consulting experts, the specific problems and challenges of a catchment area, including any beyond the borders of an individual farm, are to be taken into account, especially

- the water balance of the catchment area,
- assessment of the water risks of the catchment area (physical, regulatory and reputational risks),
- sustainability of water abstraction (reasonable quantities, critical level; short, medium and long term),
- measures designed to reduce water risks, to establish sustainable water management and to protect ecosystems.

Whenever necessary, the experts will be consulted again before specific management conditions are updated.

9.2.4 Use of non-renewable and fossil water resources

The use of non-renewable and fossil water resources for agricultural production is only possible if consultation with experts has furnished credible proof that this use does not conceal any significant ecological or social risks. In this case, the analysis must cover the whole catchment area as well as any possible social and ecological consequences for other parts of the country or in other countries. Both short and long-term risks are to be assessed. The results are to be presented to Naturland prior to (possible) certification.

Naturland classifies level 4 areas (high) and level 5 areas (extremely high) as well as those graded under "arid and low water use" as areas with scarce water resources.

¹⁹ Conversion to efficient irrigation systems may also be gradual. Traditional flood irrigation is only permissible if it is sufficient within a comprehensive evaluation framework and in this context also meets the above-mentioned standards.

²⁰ Naturland provides a guideline for a water management plan.

II. Livestock production

As far as the present Naturland standards do not lay down any further requirements the guidelines of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended are valid as a minimum standard.

1. Animal husbandry

1.1 General requirements

The husbandry conditions must enable the animal to behave in a way natural to the species. This applies to movement, resting, feeding, social and reproduction habits as well as all other behavioural needs of each particular species. Freestalls and pens meet these requirements to a greater extent than other systems.

There has to be sufficient bedding for all the animals, where straw or comparable materials (e. g. litter meadow cutting, hay, spelt glumes) have to be used. As far as it is available, loose litter materials from organic farming or from areas of a low cultivation intensity must be used; the farm's own organically produced bedding material must be used, where available, before bedding material from other sources can be permitted.

Stables with a fully perforated floor, fully slatted floors, cage rearing and flat decks are not permitted since they do not correspond to the animals' needs; at least 50% of the stable area²¹ as defined under appendix 5 has to consist of solid material (i. e. no gaps or the like). Sheds must provide sufficient lighting and a good climate, e. g. temperature, humidity, fresh air, the avoidance of harmful concentrations of dust and gasses. Regular cleaning and mucking out in the manner best appropriate to the housing system also need to meet requirements for a healthy housing climate. Where artificial lighting is also used, a continuous nocturnal rest period corresponding to the animals' needs must be possible. There must be appropriate drinking water systems to ensure the animals have access to an adequate water supply. The proportion of the resting area to total area must be sufficient to allow all the animals to rest at the same time.

It must be ensured that the housing conditions do not lead to abnormal behaviour, injuries or diseases occur, the housing system can be excluded as a cause in each case.

Restructuring and the erection of new buildings have to be done in the light of the latest knowledge on animals' needs and must be executed in agreement with Naturland. New buildings must take the form of freestall barns. Harmful substances are to be avoided when choosing the construction materials and their treatment.

The animals must have outdoor access and/or access to grazing land. The animals must always be allowed outdoor access and access to grazing land whenever the physiological condition of the animals, the climatic conditions and the condition of the ground permit. When animals are put out to pasture, suitable shelter from extreme weather conditions must be provided, depending on their particular needs. Farm animals have to be protected from their natural enemies living in the wild.

For all animal species the minimum sizes for sheds and outdoor access areas as per appendix 5 have to be observed. Where the shed and outdoor access areas are not clearly distinguishable, the requirements for total access areas must be met. The permissible stocking density as per appendix 4 must be observed.

1.2 Cattle

The husbandry system for cattle should aim to meet the animals' need to move about freely and be stimulated by the light and climatic conditions in the cow-shed. Loose housing stables with a year-round outdoor access, possibly with a grazing area, therefore take preference.

Tethering is not permissible. The only exception is in cases where it complies with organic standards governing combined grazing periods, whereby livestock have free access to pasture during the growing season and are allowed regular exercise²² the rest of the time and then only when the cattle are kept in small groups of livestock, in which case they may be tethered temporarily. The tethering method must allow for the livestock's natural behaviour with respect to how they stand up and lie down. Electric cow trainers are prohibited. A maximum of 35 livestock units per year on average may be kept according to the organic principles of combined grazing and temporary tethering²³.

²¹ In the case of pigs, this also applies to the outdoor area (transitional arrangement until 31.12.28, see B.II.1.4).

²² During the pasture-free period, the livestock have access to open-air areas at least twice a week, should the state of the ground and the weather conditions (e. g. sheet ice) permit.

²³ the possibly narrower interpretations of the countries are to be observed

Dairy cattle and mother cows must be allowed access to grazing during the growing season whenever the weather conditions and the state of the ground permit²⁴.

1.2.1 Dairy farming

In freestall barns, each cow must be allocated its own place to feed and lie down. Only where feed is continually accessible in uniform quality is possible to provide fewer feeding places than the number of livestock kept.²⁵In new or restructured sheds, slatted floors in the walking area must consist of broad slats. Special attention has to be paid to careful construction. In the free-range area, any defective slat elements are to be replaced immediately.

1.2.2 Cattle fattening and rearing

Young stock and fattening animals must have an opportunity to graze (throughout the grazing period) or to run free all year round. For the latter, green feed should be offered throughout the local growing season. The specifications for solid floors indoors for resting and moving as well as the nature of the partially slatted floors also apply to fattening animals (see 1.2.1). To guarantee that the animals' need to move freely can be fulfilled, the calculation of stocking density in loose housing sheds must be calculated according to the animals' weight.

1.2.3 Calves

The box system must correspond to the growing animal's special need to move freely and must create an appropriate climate in the shed. It is recommended to allow the calve to suckle from the mother cow in the first days after its birth (calving pen). Keeping the calves tethered as well as keeping them in isolated box, one per box, is prohibited. Social contact to the animals of the same species has to be possible in the form of sight or touch; the necessary sizes of the cubicles can be found in appendix 5. If after the eighth week of their life there are at least four calves of approximately the same age, they have to be kept in groups. Dehorning is not recommended. It may however be justifiable on certain farms to prevent accidents and/or for the livestock's own protection. In such cases it must be performed using anaesthetics and painkillers. Preference should be given to breeding genetically polled cattle, depending on there being sufficient numbers of suitable breeding animals available.

1.3 Sheep and goats

Where small ruminants are kept, their particular needs with respect to exercise, light and climatic stimulation are to be met in the structure of their pens; for this reason, freestall pens are obligatory. Sheep and goats must be allowed access to grazing during the growing season if the farm and its location provide suitable conditions for this according to the specifications of Naturland²⁶ and whenever the weather conditions and the state of the ground permit.²⁷

1.4 Pigs

At least 50% of the outdoor area as defined under Appendix 5 must consist of solid material (i. e. not slatted or

²⁴ Where organic dairy and mother cow farms have concluded a valid inspection contract by 31.12.2017 and have invested in paved free-range areas or can provide evidence by this date of an approved barn plan with paved free-range area, then a transitional arrangement applies up to 31.12.2029 corresponding to the requirements valid up to the end of 2017 (grazing or year-round access to free-range areas as equivalent alternatives). Farms which concluded a Naturland producer contract between 01.01.2018 and 31.07.2021 and which are not able to practise grazing for important reasons on which they have no influence (e. g. herding the cattle along busy roads/over train lines, a lack of areas available for pasturage near the barn etc.) and which have been excused from their obligation to graze their animals by Naturland until such time as the grazing situation at the farm alters (lease of additional land, relocation), it is obligatory to provide year-round access to open air areas with sufficient green fodder.

²⁵ according to the Naturland specifications

²⁶ Where organic sheep and goat farms have concluded a valid inspection contract by 31.12.2017 and have invested in paved free-range areas or can provide evidence by this date of an approved barn plan with a free-range area, then a transitional arrangement applies up to 31.12.2029 corresponding to the requirements valid up to the end of 2017 (grazing or year-round access to free-range areas as equivalent alternatives).

²⁷ Above and beyond the general grazing criteria, the obligation to allow access to grazing may be limited to individual groups in the case of dairy sheep and dairy goats or even be rescinded completely if the grazing areas are too small to allow suitable parasite management. If there are important reasons beyond the farm's influence which make it impossible to offer the livestock access to grazing (e. g. if they would need to be herded over busy roads or train lines or if pasturage is too far away from the barn), year-round access to open-air areas and sufficient green fodder for adult animals is obligatory.

of similar construction)²⁸.

Breeding sows must have an opportunity to move about freely (and possibly to graze and wallow). It is forbidden to keep them tethered. Empty sows and sows during early pregnancy must be kept in groups relative to the number of livestock. If there are any problems with sows which are farrowing, it is permissible to restrict their freedom of movement²⁹ only for a few days.

Sows should be placed in groups as early as possible. In the case of larger stocks with a boar, these must have contact to the brood sows.

Weaned piglets must not be kept on flat decks or in piglet cages.

Pigs must have access to areas which allow them to root.

1.5 Poultry

Rearing in cages and killing male chicks sourced from production lines of laying hens is prohibited³⁰. It is not permitted to purchase chicks from sources that cannot guarantee these requirements. For every hen, a male chick must be reared organically³¹.

The runs must provide sufficient natural lighting³². Artificial lighting has to be switched off for at least eight consecutive hours a night.

Litter has to be strewn over at least 33% of the base of the run so the poultry can scratch. Appropriate litter material is of organic substances such as straw, spelt glumes and additives such as stone meal and sand. Poultry farming always allows outdoor access. The grassland area can be used by the birds when the weather permits, and provides sufficient shelter in the form of indigenous trees, bushes and other suitable outdoor areas; these should be evenly spread all over the area so that they can be used to best effect.

Measures must be taken to prevent the nutrient discharge from exceeding 170 kg N per ha free-range area and year. The area round the shed which is most heavily used is to be strewn with bark mulch and designed in such a way that nutrient-enriched litter or the top layer of the soil can be replaced periodically and at the latest before poultry stocks are replenished. Mobile poultry houses must be relocated regularly throughout the production cycle in order to protect vegetation and limit nutrient input; a change must be effected at the latest prior to replenishing poultry stocks. A roofed open-air run must be provided adjacent to the heated area of the shed (like a "conservatory"); it may be designed either as an additional roofed outdoor area or as a "veranda". Such an additional roofed outdoor area is insulated from climate extremes but has a different climate to the heated area and is accessible at all times of the day and night; this type of outdoor area may be included in calculations of the stocking density determined. This does not apply to a veranda, which is also an outdoor area but not insulated and not always accessible.

A conservatory also allows the birds to go out in bad weather. It is mandatory for all farms with over 200 laying hens or feeder poultry/pullets (with the exception of cold stalls and mobile runs as well as ducks and geese). The conservatory is accessible all year round (i. e. even when the weather is bad) and provide places for sand- and dust-baths. It is strewn with dry straw or wood shavings, offers protection from wind and rain, rodents and predators, and has excellent daylight. In free range hen houses the size of conservatory has to be at least one third³³, in aviaries at least half of the indoor area of the hen house. Separate regulations apply to small poultry and pullets in this context. The separation of flocks found in the heated area of a run must also be guaranteed by corresponding partitions in the covered and grassland area.

Multi-tier systems may be used for parent birds of the species *Gallus gallus*, for laying hens, pullets and brother roosters. In this case the raised levels must be constructed in such a way that no excrement may fall onto the birds below; the houses must be equipped with an efficient manure removal system³⁴. Multi-tier systems shall have no more than 3 levels of usable area, including the ground area³⁵.

²⁸ There is a transitional arrangement for outdoor areas installed before 31.12.21 and it is valid until 31.12.28.

²⁹ to protect the piglets

³⁰ Except in the case of animal health regulations or of chickens which are not able to hatch.

³¹ This applies at the latest to every bird which hatches from 01.10.21 onwards.

³² Where new sheds are built, or sheds converted, the translucent area must be at least 5% of the floor area of the shed.

³³ In sheds for feeder poultry which existed before 2014 and rearing sheds for brother roosters which existed before 31.12.21, the covered outdoor area must be at least one quarter of the size of the floor area of the shed (warm area).

³⁴ For sheds which existed before 31.12.21 a transitional arrangement for the construction of the raised levels and the manure removal system apply until 31.12.29.

³⁵ In the case of pullet sheds which were built before 31.12.21, a transitional arrangement applies until 31.12.29, in which case no more than 3 tiers in addition to the ground level are permissible.

Whenever new runs are built, or current ones converted, and if they are intended to house 200 birds or more, they must be inspected by Naturland to ensure they comply with the corresponding regulations before they are actually put into use.

The requirements as per appendix 6 have to be observed.

1.5.1 Laying hens

Grassland outdoor access is mandatory. In the grassland area there are at least 4 square metres per hen.

When calculating outdoors areas, only those areas within 150 metres of the hen house are taken into account.³⁶ No more than 3,000 laying hens may be kept in any one shed and these sheds must have an opaque party wall separating them from neighbouring sheds. In any one building complex, no more than 12,000 laying hens may be kept.

The stocking density in barns is max. 6 hens per square metre³⁷.

Where the sheds are composed of several levels, it is not permitted to consider the integrated conservatory when calculating the stocking density; in such cases, the stocking density is limited to 4.8 hens maximum per square metre in the heated and outdoor area.³⁸

Rounded perching rods as per the stipulations made in Appendix 5 has to be provided. These rods have to be at different levels. Nests are obligatory. They can be designed as individual nests (one nest for every seven birds) or as common nests (at least 120 square centimetres per bird).

If the animals are kept in multi-tier systems, 12 animals per square metre of the shed area must not be exceeded in any system.

Moulting that takes the animals basic needs into account is permitted in agreement with Naturland. Forced moulting is prohibited.

1.5.2 Feeder poultry

Extensive feeder races are to be preferred when establishing new stock. Otherwise the minimum ages for slaughtering as per appendix 7 have to be observed.

Access to the outdoor area has to be possible whenever weather conditions and seasonal conditions and the condition of the soil as well as the physiological condition of the birds allows, but at least for one third of their lifetime.

Broilers and turkeys:

Where chicken and turkeys are being fattened, the maximum stocking density in permanent sheds is stipulated in Annex 5, it may not exceed 21 kg live weight per square metre of floor space for broilers and turkeys.

The compartments in the sheds which house poultry for fattening species other than *Gallus gallus* must be separated by solid partition walls which create complete spatial separation from ground to ceiling³⁹.

The fowl have to be offered elevated perches or other elevated features as per the specifications contained in Appendix 5.

The hours of artificial lighting may exceed the normal standard during the first three days of life.

Ducks and geese:

Where ducks and geese are being fattened, the maximum stocking rate in permanent sheds must not exceed 21 kg live weight per square metre shed area.

Streams, ponds, lakes or pools have to be provided as part of the waterfowl's natural habitat. Smaller areas of water have to be reinforced and must be cleaned regularly for reasons of hygiene.

Small poultry (quails and pigeons):

The regulations for keeping laying hens and feeder poultry apply accordingly to small birds, except where otherwise stipulated below.

The maximum stocking density in the bird house is 15 birds per square metre free-range area or 3.0 kg live weight. The accessible area can be extended by max. one level in addition to the useable bird house area.

The bird houses must have a scratching area strewn with litter over at least 50% of the floor space.

³⁶ Areas which are further than 150m away from the shed may be included in the calculation of the requisite open-air runs only for a limited period at such times when areas near the shed are undergoing regeneration and cannot therefore be included in the calculation.

³⁷ Areas designated as exercise areas must be at least 30 cm wide, at an inclination of max. 14% and with headroom of at least 45 cm.

³⁸ The outdoor area may only be included in the free-range area of the shed if it is permanently accessible and useable and the shed existed before 01.07.2014. This area may also be considered when sheds can show a maximum stocking density of 4.8 hens per square metre by including an outdoor area which is at least as large as the area of the shed (warm area).

³⁹ For sheds built prior to 31.12.21, a transitional arrangement applies.

A covered outdoor area must be accessible all year round. It must be at least equal to 50% of the accessible area in the heated area and the whole area must be strewn with loose litter appropriate to the species. The outdoor area in the form of an integrated run counts towards the total area of the bird house if it is permanently accessible and useable. If this is not the case, it can only be attributed to max. 50% of the indoor bird house area. The birds must have the possibility to take dust baths. Access to grass areas is recommended. All the areas of the compound are to be equipped with as natural elements as possible to allow the birds to follow their normal behavioural patterns.

Quails

The headroom of the accessible area of each area depends on the requirements and the management method but must be at least 50 cm. Nests must be provided, either as single nests or group nests. At least 1 square metre nesting area per 175 hens is the rule.

Pigeons

The headroom of the accessible area must be at least 200 cm. In the nesting area, the pigeons must be offered building materials such as straw, twigs and leaves.

1.5.3 Pullets

The following additional regulations apply to pullet breeding:

In the first weeks of life, chicken rings are allowed.

The maximum stocking density permissible is stipulated in Annex 5. From the eleventh week onwards, max. 13 birds may be kept for each square metre of accessible space in the warm area. In runs on several levels, the number of birds is limited to 24 per square metre ground space inside the henhouse as of the eleventh week of life.

The chickens must have loose litter for scratching once they are transferred to the hen house. At least half the movement area in the run must be scratching area strewn with litter. The litter has to be kept loose, dry and clean.

In the first three days of life, the illuminated period can be prolonged. Special equipment may be used to achieve a lighting sequence of varying incidence and duration.

Raised perches as per the stipulations made in Appendix 5 must be available from the first week of life onwards.

As of the first week of life, the birds must have the possibility to take dust baths.

At the latest as of the tenth week of life, the birds must have access to a conservatory during their active periods. Only if there is simultaneous access to a grassland outdoor area with at least 1m² per hen⁴⁰ may the covered outdoor area with a solid floor be smaller; in this case consultation with Naturland is necessary.

Where the free-range area does not have a solid floor, then there should be several areas available to be used in rotation or, if the areas are small, then measures must be taken (e. g. soil renewal) to keep contamination with parasites and nutrients to a minimum.

1.5.4 Brother roosters

The male chick sourced from production lines of laying hens which is intended as poultry for meat may be raised in a system consisting of several tiers. The permissible stocking density is max. 21 kg live weight/m² barn area. A conservatory must be available. The birds must be provided with perches resp. raised sitting levels as per the stipulations made in Appendix 5.

1.6 Horses

Horses have to be kept in groups. They must be given the opportunity to run or graze daily (stallions as far as it is possible without taking risks). The husbandry system should interfere as little as possible with the contact between the horses. Where the horses are kept in individual boxes, care should be taken that the animals at least have visual contact with each other. Foals and young horses have to grow up in groups. Shelter from bad weather must be available on the grazing land.

1.7 Game reserves

Game kept in reserves covers all types suitable for rearing under agricultural conditions (e.g. fallow deer, red deer). The game should be kept in herds of at least ten adults, the ideal ratio being ten to fifteen adult females to one stag. The regulations in Annex 5 which govern the maximum stocking density and the minimum size of the reserves must be observed.

⁴⁰ A transitional arrangement applies to sheds built prior to 31.12.21, valid until 31.12.29, in which case there must be at least 0.5 m² available to each bird.

Game in reserves should be kept at pasture all the year round (and in the case of red deer wallows for mud baths must be available). It must be possible to partition a reserve, if required; where different species are kept, it may be necessary to keep them separate. In order to satisfy their need for natural resting areas and for protection, shelter should be provided. If natural shelters (solitary trees, copses, hedges) are only sparsely available, then additional means of protection from wind and opportunities for concealment and shelter – scattered about the reserve – should be provided. Suitable ground conditions, such as rough concrete, gravel and grid stones should be placed at heavily frequented points (e.g. watering and feeding spots) to enable the animals to follow their instincts by scraping their hoofs. The feeding spots must be protected, with compacted ground and roofed over. Those used by female animals must offer sufficient plant cover for them to be able to conceal their calves.

Typical means of fraying their antlers must be made available to the male game in the reserve.

The stags' antlers may only be removed on the recommendation of a veterinary surgeon and then only in individual cases.

Where a mixture of game is kept, or in the case of separate reserves for wild boars, mouflons or other species, special agreements based on the above criteria have to be concluded with Naturland.

As a basic principle, reserve game has to be killed by means of a shot gun, as required by animal protection law.

1.8 Rabbits

Rabbits have to be kept in groups, the limit being max. 5 for breeding animals and max. 60 for fatteners. It must be possible to keep the male and female breeding animals separate, whilst allowing visual contact with other rabbits.

The size of the run must be appropriate to satisfy the animals' natural need for movement. The space must be divided and structured with separate compartments for feeding, nesting and natural congregation. Roofed shelters (including dark hiding places) and raised platforms should always be provided for the rabbits to gnaw on.

Wherever mobile runs are used, these must be relocated regularly.

Dams must be provided with sufficient space and nesting material to make their nests (at least one nest per lactating dam). The nests must be permanently accessible during the suckling period.

All the animals must have access to outdoors, where they should also be provided with sheltered areas to protect them from inclement weather and which are cleaned out regularly. The fencing must be high enough and firmly anchored to stop the animals escaping.

2. Feeding

2.1 General requirements

Landless livestock systems are prohibited. The basis of animal nutrition is the feed produced on the farm itself. At least 50%⁴¹ of the feed⁴² must be produced on the farm itself (or come from a co-operation with another organic farm approved by Naturland). Exceptions can only be made for farms with livestock producing up to a maximum of 10 DU (dung units).

Purchased fodder must be certified by Naturland resp. meet Naturland's quality assurance requirements (obligation of producers to notify and provide evidence). Indigenous – and, wherever possible, local – sources are to be preferred to imported feed, if available in sufficient quantities and the desired quality.

In the case of pigs and poultry only, the limited range of feed from conventional production in restricted quantities, as listed in appendix 3, may be used for a transitional period ending 2026 at the latest, the figures to be understood as the annual average and referring to the dry matter given. In such cases the proportion of conventional feed may not exceed 25% of the daily ration, with the exception of itinerant flocks.

In the case of a feed crisis due to drought, fire or similar calamities only these feeds – subject to Naturland approval - may be used as well.

If feed is purchased, a maximum of 25% of the dry matter of feed given may originate from areas which have been farmed in compliance with the standards for at least 12 months prior to their harvest ("conversion feed"). If this feed is produced on the farm itself, a maximum of 100% is allowed.

⁴¹ For cattle, sheep, goats, game reserves and equines, the required ratio is 60%, for rabbits 70%.

⁴² The percentage refers to the organic proportion of the dry matter in relation to the total ration.

Up to 20% of the fodder ration may originate from grazing on or harvesting permanent pastures or perennial fodder crops or protein plants, in the first year of conversion⁴³, provided that these areas are part of the farmer's own lands and did not belong to a unit of the farm where organic production was practised in the last five years. If both conversion feed and also fodder from areas in the first year of conversion are used, this feed may not exceed the maximum percentage for conversion fodder.

The application of mineral mixtures and vitamin preparations without any additives is exempt from these limitations. Synthetic vitamins, minerals, feed materials as well as feed additives and processing aids may be applied as per appendix 3.3.

Urea and other synthetic nitrogen compounds, excrement, offal and other by-products of terrestrial animal origins, fodder produced from cadavers, synthetic amino acids, growth regulators and performance enhancing substances (including copper and zinc), feed from GMOs and their products, appetite stimulants and artificial colouring are prohibited from the animal feed. The same applies to fodder which has been produced by extraction with solvents (e.g. Hexan) or the addition of chemical substances not permitted under appendix 3.

2.2 Cattle

In cattle feeding, the appropriate structural balance in the feed ration must be observed (hay, straw, grain-whole-plant silage) all the year round. During the local growing season, dairy cows and mother cows must be provided green feed whenever weather conditions and the condition of the soil allows. Exclusive year-round silage-feeding is not permitted.

Calves are fed on natural milk – preferably maternal milk – for at least 90 days. Pure milk fattening without feeding roughage is not permitted.

2.3 Sheep and goats

Whatever the season, care has to be taken when feeding sheep and goats to ensure the appropriate structural balance of the daily ration (hay, straw, grain-whole-plant silage).

During the growing season of the farm's location, adult animals must be offered sufficient green fodder whenever the weather and the state of the ground allow. Year-round feeding exclusively with silage is not permitted. Lambs and kids are fed on natural milk – preferably maternal milk – for at least 45 days. Pure milk fattening without feeding roughage is not permitted.

The grazing of areas not belonging to the farm which correspond to the requirements of these standards (e.g. fallow areas) is permissible in migratory herding. The grazing areas and migration routes have to be registered and approved. Whenever animals change their grazing areas during the migration or tending period, it is permissible for vegetation from conventional land management to be consumed, this being unavoidable, as long as this does not exceed 10% of the annual ration (in relation to the dry weight content of fodder from agricultural sources).

2.4 Pigs

Their digestive physiology and ethology means that pigs also have to be fed roughage and succulent feed in a feeding programme that corresponds to the pigs' specific needs.

As long as feed from organic sources for the augmentation of the protein quality of the feed is not available to a sufficient extent or of the right quality, feed may be bought from conventional sources as per appendix 3. 3.2. within the limits stipulated there.

Piglets are fed on natural milk – preferably maternal milk – for at least 40 days.

2.5 Poultry

The birds must be provided with a sufficient number of places to drink and feed. On hot days, water should be offered in the runs as well. In addition, roughage has to be offered to all the birds as well.

As long as feed from organic sources for the increase of the protein content of the feed is not available to a sufficient extent or of the right quality, feed may be bought for poultry feeding from conventional sources as per appendix 3. 3.3. within the limits stipulated there.

For the feeding of laying hens, part of the grain should be offered as whole grains, if possible in the ground bedding. Grit or the like has to be used. A suitable mixture of grains should be made available to pullets in their ground bedding at the latest from the seventh week of life onwards.

⁴³ If the fodder crops are cultivated according to these standards and with a conversion period of the area farmed of even less than 12 months.

2.6 Fodder for reserve game

Chestnuts and acorns must be provided from woods/areas certified by Naturland.

The calves must be fed with natural milk, preferably with their mother's milk, for a period of at least 90 days from the date of birth.

2.7 Rabbit feed

Rabbit feed should be such that it ensures sufficient structural balance in their daily rations (hay, straw, whole crop cereal silage) whatever the season. The kits are fed with natural milk – preferably their mother's milk – during the suckling period for at least 42 days from the date of birth.

3. Purchased animals

Animals may only be purchased from organic farms that are certified by Naturland or meet Naturland's quality assurance requirements (obligation of producers to notify and provide evidence). Animals for breeding⁴⁴ can be purchased from conventional farms up to 10% (cattle) and 20% (pigs, sheep, goats, rabbits and game in reserves) of the existing stock⁴⁵. This proportion can be exceeded in justifiable individual cases (e.g. endangered breeds, enlargement of the farm) and after approval. Where the purchase of poultry is not possible in accordance with the above conditions, chickens may be bought for fattening or pullet breeding if they are no older than two days when introduced to the run (application to be made to the relevant inspection body). The marketing deadlines as per section A. 1.8 have to be observed.

4. Handling

The livestock owner is responsible for his or her animals' state of health. It must be ensured that he or she (and anyone else handling the animals) has been trained to handle and provide for the needs of the animals and also has sufficient experience⁴⁶. The handling and feeding rhythm depends on the type of livestock and the form of housing and must take place on a regular basis; both the livestock and the plant and equipment necessary for their wellbeing must be inspected at suitable intervals. This involves particular awareness of indicators of possible aberrations (e. g. abnormal amount of soiling, injuries and disorders resulting from inappropriate conditions, the results of aggressive behaviour between the animals, signs of plumage damage or even of loss of life) and the immediate adoption of appropriate counter-measures; these indicators are the focus of regular inspections of the animals' welfare instigated by Naturland as a further means of guaranteeing the health and welfare of the livestock. Skin and hair care and claw trimming must be performed regularly, depending on the type of animal. Sick or injured animals must be housed in separate compartments, depending on their condition, where they are cared for and treated. Incompatible animals have to be isolated. Separate quarters are to be provided on each farm.

5. Animal health

The health of the animals has to be ensured primarily by prophylactic measures (e.g. the appropriate housing conditions, treatment such as care of hooves, breeding, feeding). In the case of illness, natural cures are to be preferred if a therapeutic effect may be expected. Treatments using chemical-synthetic preparations as well as hormones as a matter of routine and as a preventative measure are not allowed. Treatment for ecto- and endoparasites in areas where there is proof of frequent occurrence of the parasite are exempt hereof. In areas where diseases are prevalent or present a recognisable danger and cannot be brought under control by any other means, inoculation is permissible. Legal and official conditions are to be observed. It is permissible to supplement the iron supply of piglets with suitable preparations.

When animals are sick or injured, their health has at all events top priority. Treatment must be fast, appropriate and with the necessary care; it may not be withheld for economic reasons (for example, if the treatment jeopardises their classification as being reared as organic).

Allopathic medicine may be used only on prescription by a veterinarian. A double waiting period - a minimum of 48 hours - must then be observed.

⁴⁴ Female breeding animals must not have been littering at the time of purchase ("nulliparous")

⁴⁵ In case of farms with fewer than 10 equines, bovines, cervines or rabbits, resp. fewer than 5 pigs, sheep or goats, purchases are limited to one animal per year.

⁴⁶ The Naturland regulations with regard to specific types of animals and the size of stock apply.

If animals are treated with chemical-synthetic allopathic animal medication or antibiotics more than three times in twelve months, their products may no longer be marketed with reference to Naturland, or the animals have to pass the conversion periods as per A. 1.8 again respectively. (For animals which have a life span of less than one year, only one treatment is therefore permitted; marketing with reference to organic production is not prohibited in this case.) Vaccinations, parasite treatments as well as measures by order of state authorities are exempt.

Operations

Operations on animals may not be performed as a matter of course.

The cutting and preventative abrasion of teeth as well as the docking of piglets' tails and ears, the docking of cows' tails and the clipping or trimming of other body parts (beaks, wings) of poultry and piercing pigs with nose rings or staples to prevent them from rooting are prohibited. Where the conditions in the pen permit, dehorning of ruminants should be avoided. It is forbidden to dehorn the animals with a cautery.

Castration is permissible as a means of ensuring quality and maintaining traditional means of production (e. g. porkers, beef cattle etc.).

If operations are unavoidable for these reasons or for reasons of the safety or health of the animal and humans, or for animal protection or hygienic reasons (e.g. dehorning, the docking of breeding lambs' tails), they may only be performed by qualified staff and at a suitable age and upon approval by the inspection body responsible. In order to keep the animals' suffering to a minimum, appropriate anaesthesia methods and/or pain killers are to be applied⁴⁷.

6. Shed hygiene

For the cleaning of livestock buildings as well as milking machines and other implements used in the sheds and runs cleaning agents and disinfectants according to appendix 8.1 of these standards are permissible.

7. Breeding

Breeding systems have to be based on breeds which are able to mate and give birth in a natural way.

Artificial insemination is permitted.

Hormone oestrus synchronisation⁴⁸, embryo transfer, genetic engineering as well as the use of genetically modified species are not permitted.

8. Transport to the slaughterhouse

Wherever possible, slaughtering pregnant animals must be avoided. Care must be taken that no animal is slaughtered which has reached half its term of pregnancy or beyond. Individual exceptions may only be granted upon application to Naturland and on the advice of a veterinary surgeon.

All appointed agents responsible for the transport⁴⁹ are required to be able to produce a valid certificate of competence⁵⁰.

The customer of the transport is responsible for ensuring

- that the carrier⁵¹ is able to produce a declaration of commitment to compliance with the Naturland standards on the transport of animals destined for slaughter. The declaration can be downloaded from the Naturland website (www.naturland.de).
- that an accompanying document be completed for every journey⁵² which specifies all the relevant times (start of loading, departure from farm/farms, arrival at slaughtering facility, end of unloading) besides the species and number of animals loaded. If any unforeseen problems in relation to the transportation occur,

⁴⁷ Whenever piglets are surgically castrated, anaesthetics and pain killers must always be administered.

⁴⁸ Hormones may only be prescribed by the vet for the purpose of the therapeutic treatment of breeding ailments of individual animals.

⁴⁹ This includes loading and unloading.

⁵⁰ In the case of farmers who transport the livestock themselves over a maximum distance of 65 km, the expertise acquired in professional handling with their animals suffices.

⁵¹ If the farmer him- or herself transports the animals, he or she is obliged to complete the corresponding declaration of commitment and to keep it with the inspection documents/farm documents. If one and the same carrier repeatedly or regularly is appointed, the carrier is only required to complete the declaration of commitment once.

⁵² Excluded are self-transport by the farmer over a maximum distance of 50 km. A sample of an accompanying document for transport can be downloaded from the Naturland website (www.naturland.de). If the relevant information can be found on other paperwork, e. g. on a delivery note, then this latter form of documentation is permissible.

particularly incidents having an influence on the transportation time and/or dead or injured animals, these have to be shown in the accompanying document. This document is to be handed to the slaughtering facility, which then records its receipt.

Every animal and every group of animals must be identifiable at every stage of transport.

Careful handling of the animal must be guaranteed. All pain or suffering must be avoided. The driving of the animals has to be done calmly and without electrical driving aids. Before loading, the animals have to be given sufficient water to drink. Lactating animals must be milked before loading if it is expected that it will not be slaughtered before the normal next milking time. When the animals are being loaded, special attention must be paid to suitable applications such as low ramps and non-slip floors. Existing groups have to be maintained as possible. If this is not possible, corresponding precautions for the protection of the animals during transport are to be taken (partitions, restraining systems etc.).

During transport, sufficient room and fresh air must be guaranteed. If transportation is expected to last longer than 4 hours or outside temperatures to rise above 24 °C, the extended space requirements stipulated in Appendix 1.1 of Naturland Processing Standards for transport and slaughtering are to be observed. The floor of the vehicle must be strewn with bedding material which prevents the animals slipping. In the case of the transport of poultry in poultry crates, the following applies: there is no need for bedding material if the floor of the crate is non-slip and permeable; the extended space requirements need not be complied with at low temperatures⁵³ if there is any risk of the poultry suffering from hypothermia despite the implementation of standard protective methods (e. g. covering the sides of the transport vehicle without interrupting the supply of fresh air).

Transport distances should be kept as short as possible. Transportation time⁵⁴ should not exceed four hours and a maximum transport distance of 200 km. The transportation time must not exceed 8 hours; exceptions to this rule may be granted upon application to Naturland in individual cases (e. g. if no slaughtering facility corresponding to the Naturland standards can be reached within this distance or time period).

Drugs and tranquillisers must not be used. After the transport, the animal must have an opportunity to calm down.

The details regarding transport and slaughtering in the Naturland processing standards have to be observed.

9. Co-operation

Co-operation between organically operated farms is permitted if one or more partners do not have a sufficient basis of feed for their stock or were landless or low on land as an individual farm. The farm co-operation is treated as one farm with regard to all standards regulations. Each co-operation has to be approved by Naturland as an individual case; the corresponding conditions are to be observed. (A Naturland co-operation agreement covers further details.)

⁵³ according to the Naturland specifications

⁵⁴ The transport of mammals commences with the loading of the first animal on the farm and ends with the unloading of the last animal at the slaughterhouse; in the case of poultry, the loading and unloading time are not included in the transportation time.

III. Market gardening

The predominant principles for plant cultivation as per part B. I. are to be observed. In addition, the following regulations apply to market gardening:

1. Application of manure, soil analyses, crop rotation

- 1.1 When growing vegetables in the open, nitrogen fertilization must not exceed 110 kg N/ha per year on average in market gardening areas. For greenhouses, due to the higher degree of nutrient decomposition in the soil on account of a higher degree of cultivation intensity, more concentrated manure application (over 110 kg/ha per year) may be permissible in some cases after consultation with Naturland. In order to prevent over- or undersupply, the soil's or substratum's nutrient and humus content must be analysed at least every third year.
- 1.2 Subject to the proviso of Naturland, a soil analysis for harmful substances (heavy metals, organic compounds) has to be performed and presented at the start of conversion and for any area rented or bought later on.
- 1.3 For greenhouse areas that are being converted and that had been cultivated conventionally for some time, a soil analysis for previous contamination with pesticides (e. g. chlorohydrocarbons) has to be submitted.
- 1.4 The quantity of purchased organic farm manure and organic commercial fertilizers has to be based on the results of the soil analysis and the data on the nutrient requirements of the crop rotation. Records have to be kept on the amount of fertilizers used (purchased and home grown fertilizers). All fertilizer sources have to be accounted for. The safety of purchased fertilizers which are not clearly approved has to be discussed with Naturland or proof of recent analyses given on request.
- 1.5 A balance of the nitrogen level on the farm has to be performed annually. Where nitrogen is used as a fertilizer, the impact of harvest residue, green manuring and humus has to be taken into account. Nitrogen analyses of the produce grown may be imposed in particular cases by Naturland for certain crops.
- 1.6 Fields that are expected to lie fallow for more than 12 weeks during the vegetation period have to be cultivated with green manure. Green manuring in winter and the cultivation of clover grass should be incorporated in the rotation of the vegetable crops where possible and reasonable.

2. Soils and substrata

- 2.1 Soils and substrata may be purchased or produced from the market garden's own mixtures. See appendix 1 for the purchased fertilisers and soil improvement substances and appendix 2 for the pesticides permissible. The amount of peat applied has to be kept to a minimum. In seed and seedling substrata, peat is permitted up to a maximum of 80% of the total amount. The extensive application of peat to improve the quality of the soil is not permitted⁵⁵.
- 2.2 Steaming of soils and substrata is permitted. Flat steaming (approx. 10 cm) for weed control is permitted in greenhouses.

3. Seedlings

All seedlings needed on the farm can be purchased or grown in the farm's own nursery. The seedlings must be bought from farms that are certified by Naturland or meet Naturland's quality assurance requirements (obligation of producers to notify and provide evidence).

4. Plant pots

Decomposable matter is to be preferred, e. g. paper, flax, jute and hemp or even clay, as long as these allow reasonable organic cultivation. Plastic pots and receptacles etc. must be of sturdy materials, making it possible

⁵⁵ Extensive application to meet the requirements of specific plants (e. g. bilberries) only upon approval by Naturland.

to use them several times, and they must be recyclable. PVC is not permitted. Pots that are on the farm already and do not comply with these conditions may be used up during the conversion period.

5. Weed control

The method of flaming has to be energy-saving, using modern equipment (covering, nozzles). Row crop flaming combined with mechanical methods between the rows is to be preferred to flaming the whole area.

6. Heating green- and foil houses

Greenhouses may be heated for an appropriate limited period to lengthen cultivation in the autumn and to begin it earlier in the spring. The nursing of plants is not subject to any limitations in this respect. The aim should be the lowest energy consumption possible for each area cultivated and an eco-friendly method of energy production. Investment in constructional measures (heat insulation with suitable covering materials and energy reflectors, combined heat and power, heat pumps, heating with solar energy, methane gas, wood cuttings, natural gas) should be made to shorten the necessary heating period and reduce external energy requirements.

7. Food quality assurance

The nitrate content of the products has to be kept to the minimum possible by appropriation cultivation (location, variety, fertilizer). The quality achieved by the method of cultivation has to be maintained by the choice of careful harvesting, preparation and storage methods. Besides all the substances which are not listed in the annexes, radioactive irradiation is also prohibited.

IV. Cultivation of shoots and germ buds

The following provisions apply to shoots and germ buds in addition to the principles for plant production laid down in Part B. I.:

1. Primary material

When growing shoots and germ buds, the primary materials used (seed, vegetative propagation material such as roots, rhizomes etc.) must have been certified by Naturland or meet Naturland's quality assurance requirements (obligation of producers to notify and provide evidence). As a general rule shoots and germ buds from conventional sources (even if not dressed) are not permissible.

2. Water

The water used to grow the shoots and germ buds must be of drinking water quality.

3. Substratum and carrier materials

The use of growing mediums is not permitted; inert carrier materials which serve only to keep the seeds and shoots moist may be used, as long as they comply with Annex 1.

V. Mushroom cultivation

The predominant principles of plant cultivation as per part B. I. are to be observed; in addition, the following regulations apply to mushroom cultivation:

1. Fertile mushroom material

The fertile mushroom material applied must – as far as available – be certified by Naturland or meet Naturland's quality assurance requirements. If this is not available the farm manager has to give notice and proof of its non-availability.

2. Substratum

The basic materials and all other substratum components have to be purchased from farms that are certified by Naturland or meet Naturland's quality assurance requirements (obligation of producers to notify and provide evidence). For mushroom cultivation on wood there has to be established proof of its origin and, if necessary, of the analyses that have been carried out. The wood may not be chemically treated. If no substratum certified by Naturland is available (obligation of producers to notify and provide evidence), other organic substrata may be used on a case-by-case basis and only upon Naturland's approval.

3. Cleaning and disinfection

The use of disinfectants and chloride for cultivation, covering soils, substrata, watering and soil receptacles and, during the cultivation period, on tools and in the cultivation rooms, is prohibited. Written proof has to be presented for the covering soil, the substrata and the transport receptacles. During cultivation, lime (not extinguished), thermal decontamination, alcohol, acetic acid and adhesive traps are permitted. In empty cultivation rooms, empty soil receptacles, on empty shelves and tools, cleaning substances and disinfectants as per appendix 8 may be used outside the cultivation period.

VI. Cultivation of ornamental plants, herbaceous perennials, shrubs, Christmas trees ⁵⁶

The predominant principles for plant cultivation as per part B. I. are to be observed; in addition, the following regulations are applied to cultivation of ornamental plants, herbaceous perennials, shrubs and Christmas trees:

1. Manuring, soil analyses, crop rotation

- 1.1 For herbaceous perennials, shrubs and Christmas trees 90 kg N/ha per year, for ornamental plants grown in the open 110 kg N/ha per year must not be exceeded. Due to the higher degree of nutrient decomposition in the soil on account of greater cultivation intensity and because of the limited nutrient availability in cultivation receptacles in greenhouses, more intense manure application (over 110 kg/ha per year) may be permissible in some cases after consultation with Naturland. In order to prevent over- or undersupply, the soil's or substratum's nutrient and humus content must be analysed at least every third year.
- 1.2 The quantity of bought-in farm manure and organic commercial fertilizers has to be based on the results of the soil analysis and the data about the nutrient requirements of the crop rotation. Records have to be kept on the amount of fertilizers used. All fertilizer sources have to be accounted for. The safety of purchased fertilizers which are not clearly approved has to be discussed with Naturland or proof of recent analyses given on request.
- 1.3 A balance sheet of the nitrogen level on the farm has to be presented annually. Where nitrogen is used as a fertilizer, the impact of harvest residues, green manuring and humus have to be taken into account.
- 1.4 Fields that will probably lie fallow for more than 12 weeks during the vegetation period and, where possible, during the winter, have to be cultivated with green manure. Green manuring during the winter and the cultivation of clover grass should be incorporated in the crop rotation wherever possible and reasonable.

2. Soils and substrata

- 2.1 Soils and substrata may be purchased or be produced from the farm's own mixtures. The use of additives has to be discussed with and agreed upon by Naturland. The list of purchased fertilisers and soil enhancing substances as per appendix 1 and permissible pesticides as per appendix 2 have to be observed. The amount of peat has to be reduced as far as possible. Peat is permitted up to a ratio of 50% of the total amount in receptacle substrata and up to 80% in seed and seedling substrata. Exceptions during the conversion period or because of particular cultivation needs (e.g. bog-soil plants) are only possible when discussed and agreed upon with Naturland. The extensive application of peat for soil amelioration purposes is not permitted.
- 2.2 Steaming of soils and substrata is permitted. Flat steaming (approx. 10 cm) for weed control is permitted in greenhouses.

3. Seedlings (including vegetal propagation material)

Seedlings and vegetal propagation material must be purchased from organically managed operations certified to the standards of Naturland or meet Naturland's quality assurance requirements if they are not grown on the farm itself. In such cases the producers are required to give notification and provide proof of this fact.

4. Purchase of raw and finished goods

If conventional raw or finished goods are purchased, these must be distinguishable at any time on the farm (further cultivation, wrapping, sale etc.). This has to be achieved by suitable means (e.g. labelling, separate tables, houses or sheds). For the consumer the different ways of production have to be made obvious by clearly labelling the products as conventional.

5. Plant pots

⁵⁶ Under these standards, Christmas trees are those planted on areas dedicated to this purpose and accorded legal approval. The standards also apply to decorative twigs as a by-product of such Christmas tree plantations.

Decomposable matter is to be preferred, e.g. paper, flax, jute and hemp or even clay, as long as these allow reasonable organic cultivation. Plastic pots and receptacles etc. must be of sturdy materials, making it possible to use them several times, and they must be recyclable. PVC is not permitted. Pots that are on the farm already and do not comply with these conditions may be used up during the conversion period.

6. Sealing of the soil

The standing areas for pots and containers should not be sealed, if possible; the creation of sealed standing areas is permitted only if precipitation and irrigation water are collected and recycled.

7. Greenhouses

7.1 Heating, energy consumption

Greenhouses may be heated for an appropriate limited period to lengthen cultivation in the autumn and to begin it earlier in the spring. The nursing of plants is not subject to any limitations in this respect. The aim should be the lowest energy consumption possible for each area cultivated and an eco-friendly method of energy production. Investment in constructional measures (heat insulation with suitable covering materials and energy reflectors, combined heat and power, heat pumps, heating with solar energy, methane gas, wood cuttings, natural gas) should be made to shorten the necessary heating period and reduce outside energy requirements.

7.2 Assimilation lighting

Assimilation lighting is only permitted in seedling nurseries.

VII. Fruit cultivation

The predominant principles of plant cultivation as per part B. I. are to be observed; in addition, the following regulations are applied to fruit cultivation:

1. Humus management and fertilization

- 1.1 In intensive permanent crops, such as fruit cultivation, a balanced humus supply is of essential relevance.
- 1.2 An important measure for maintaining and increasing soil fertility is permanent plant coverage. It provides various habitats and in particular enables the colonisation of beneficial insects. For a better soil structure and development undergrowth such as legumes, herbs and grass are suitable. For soil maintenance measures, soil loosening, reseeding or because of drought in summer a break in plant coverage is possible. Maintenance measures are to be carried out mechanically or thermally. The coverage plants should be left standing until they come into flower. If needed, the strips of trees or the area underneath the trees may be kept clear by using mechanical and thermal methods. The soil must not be bare or without any plant coverage over the whole area and throughout the whole year.
- 1.3 For further amelioration of the humus supply organic manure may be applied. The total amount of nitrogen fertilizers applied must not exceed 90 kg N/ha per fruit cultivation area and year (ref. appendix 1).

2. Pest, disease and weed control

- 2.1 In organic agriculture, one of the most important goals is the achievement of healthy plants by encouraging an ecological balance between pests and beneficial species.
- 2.2 Essential measures to prevent diseases are suitable stocking densities as well as the selection of healthy and hardy plants, varieties and strains.
- 2.3 The hardiness of shrubs can also be strengthened and the risk of infection can be lowered by using appropriate soil management and cultivation measures (shape pruning, rootstock building, cut part, foliage work, line spacing, maintenance underneath of trees, etc.).
- 2.4 Conditions for a healthy microclimate in the fruit plantations are to be established.
- 2.5 Produce from areas that may have been contaminated general pest control measures has to be commercialised conventionally. The farm has a special obligation regarding notification and documentation of these instances.
- 2.6 The use of synthetic chemical substances and growth regulators is prohibited. A list of the pesticides permitted is given in appendix 2.

3. Supporting material

Wood to be used as supporting material should be acquired from local sources and be of indigenous wood. If it is impregnated, great attention has to be paid to ensuring it is eco-friendly. Tropical and sub-tropical timber is not permitted in temperate climates.⁵⁷

⁵⁷ This does not apply to the tropical grasses bamboo and Tonkin cane.

VIII. Viniculture

The predominant principles of plant cultivation as per part B. I. are to be observed; in addition, the following regulations are applied to viniculture:

1. Treatment of the soil

The most important means of maintaining and increasing the fertility of the soil is to ensure good plant coverage. The plants are the habitat of a wide variety of flora and fauna. Wild plants, supplemented by other suitable plants sown in to complement them, break down and stabilise the soil.

As a matter of principle, vineyards must have good plant coverage. This coverage may only be interrupted for max. 3 months over the whole area when attending to the soil, loosening it, sowing seeds, during dry periods in summer and in new fields. If every second row has plant coverage, the alternative rows may be kept free for max. 6 months (from 1st January to 1st September) upon consultation with Naturland.

It is recommended to leave one area fallow. Fallow areas are to have good plant coverage.

Where plant coverage is sown, this must be of mixed composition, preference being given to local strains and leguminous plants.

For preference, measures applied to this plant coverage should be mowing or rolling, and mulching. Treatment should be on an alternating basis and flowering plants are to be encouraged.

2. Humus management and fertilisation

The decomposition processes of active soil are the prerequisite for the balanced nutrition of crops. In order to ensure long-lasting soil activity and thus crop yields, special attention has to be paid to the basis of soil fertility. The humus balance has to be at least at an equilibrium throughout a varied crop rotation cycle. For permanent crops, this has to be guaranteed by adequate measures such as undergrowth, catch crops or permanent plant coverage.

Biodegradable material from microbial, vegetable or animal sources is the basis of fertilisation.

Given the importance of a balanced lime level for topsoil stability, as well as for the structure and thus the fertility of the soil, and because of acid absorption from precipitation, special attention has to be paid to an adequate lime supply appropriate to local conditions.

The use of supplementary fertilizers (P, K, Mg) as per appendix 1. 1.5 depends on corresponding soil analyses.

The vines' nitrogen requirements are to be supplied by sowing leguminous plants. Where organic fertilizers are added, a maximum of 150 kg N/ha may be used over three years, while a max. of 70 kg may be available to the plants in the year of applying the fertilizer. Synthetic chemical nitrogenous fertilizers and other easily soluble fertilizers, faecal sludge and compost from sewage sludge are forbidden.

For permitted fertilizers, see appendix 1.

3. Treatment of the soil

The soil should be treated with the aim of maintaining its positive structure and encouraging biological activity, in order to offer the plants the best conditions for growth.

When loosening the soil, the natural layers should be preserved as far as possible. This is especially important when preparing the soil for new vines to be planted. When vineyards are cleared, cover crops should be sown to stabilise the structure of the soil.

4. Protection and treatment of the plants

The organic treatment of plants begins with the methods of cultivation designed to strengthen the vines' resistance and lower the risk of infection. These include the treatment of the soil, fertilization and such measures as the choice of variety, spacing, training and shaping of the vines, pruning and trimming.

In order to encourage the vines' self-regulating mechanisms and resistance against pests such as fungi and insects, inhibitors, tonics and treatments as listed under appendix 2 may be applied.

Where pesticides are sprayed from the air on a general scale and are outside the vintner's control (e.g. by helicopter), or in community projects, all other methods of cultivation must be according to these standards. Produce from affected areas (where synthetic chemical means are used) may not be marketed as organic or with reference to Naturland or under the Naturland logo.

When community land has been reallocated, the soil must be covered with a rich variety of fallow-land plants for at least one year.

The containment of undergrowth can be done mechanically or thermally.

Synthetic chemical insecticides, acaricides, nematocides, fungicides, herbicides and growth regulators are prohibited.

For permitted pesticides, see appendix 2.

5. Supporting material

Wood to be used as supporting material should be acquired from local sources and be of indigenous wood. If it is impregnated, great attention has to be paid to ensuring it is eco-friendly. Tropical and sub-tropical timber is not permitted in temperate climates.⁵⁸

⁵⁸ This does not apply to the tropical grasses bamboo and Tonkin cane.

IX. Permanent tropical plantations

The overriding principles governing plant cultivation as under Part B. I. are to be observed. The following supplementary regulations apply to permanent plantations of tropical crops:

1. Humus balance and fertilisation

- 1.1** A balanced humus supply is of fundamental importance when practising intensive crop cultivation. Agrarian forestry systems in particular are endowed with a great capacity to supply their own humus and fertilisers.
- 1.2** A fundamental means of maintaining and increasing soil fertility is permanent plant coverage. They provide diverse habitats and encourage the establishment of beneficial insects. An ideal means of breaking down the soil coverage is to sow such undergrowth as leguminous plants and herbs. No area shall be entirely free of vegetation or other coverage the whole year round.
- 1.3** To further improve the supply of humus, organic fertilisers may be applied. Where permanent crops are intensively cultivated and thus, where necessary, entailing a greater turnover of substances in the soil, a higher fertilisation rate (over 110 kg N/ha per year) is possible, upon consultation with Naturland. To ensure that the soil suffers neither from under- or over-supply, the soil, leaves and substrata should be analysed at least every three years to determine their nutritional and humus content. The application of complementary fertilisers (P, K, Mg) as listed under appendix 1. 1.5. depends on corresponding soil analyses.

2. Pest, disease and weed control

- 2.1** The primary aim of organic agriculture is to achieve healthy vegetation by striving for ecological equilibrium between pests and beneficial insects.
- 2.2** Important means of preventing disease are suitable plant density and the choice of healthy and resistant plants. The farming intensity has to be matched to local ecological conditions. Excessive plant density, which prevents shade trees from growing (especially in the cultivation of coffee) and favours the spread of diseases, is not permitted.
- 2.3** The ability of the shrubs to resist disease is increased and the incidence of infection further reduced by suitable attention to the soil and specific cultivation measures (pruning, planting shade trees to increase the height of the vegetation).
- 2.4** Suitable conditions to achieve a healthy micro-climate for permanent tropical crops are to be established.
- 2.5** The use of synthetic chemical substances is prohibited. For permissible pesticides, see appendix 2.
- 2.6** Products from areas which may have been contaminated by pesticides not conforming to these standards and used in the treatment of other areas must be sold as conventional produce. Such occurrences must be specially recorded and reported.

3. Sustainability of the cultivation system

The sustainability of the cultivation system of permanent tropical plantations is ensured by the following measures:

- 3.1** Measures appropriate to local conditions are to be taken to provide protection from erosion (e.g. by planting vegetation round the borders, constructing protective ramparts and infiltration trenches or encouraging dense undergrowth). Organic substances, especially the leaves which fall from the shade trees, are particularly important. Management of this secondary vegetation must ensure good soil coverage and the preservation of the mulch layer.
- 3.2** Streams, rivers and lakes are to be protected by a buffer zone of trees appropriate to local conditions, and suitable measures are to be determined in the management plan.

3.3 Organic residue (coffee pulp, cocoa-bean husks etc.) must be recycled, preferably by turning it into compost and reintroducing it to the ecosystem or by using it for agricultural purposes (for example, as animal fodder).

3.4 Crops which are traditionally cultivated under shade trees must continue to be so.

3.5 Crop-specific provisions

3.5.1 Coffee and cocoa

The following additional requirements apply to the organic cultivation of coffee and cocoa to Naturland's standards:

The organic coffee and cocoa to Naturland's standards is cultivated in agroforestry systems appropriate to local conditions, under shade trees. The important protective functions of trees in tropical ecosystems in maintaining the fertility of the soil, protecting it from erosion, maintaining the water balance, protecting drainage areas, maintaining biodiversity, binding carbon dioxide as a contribution to the protection of the climate, in moderating extremes of climate and as a provider of nutrition are to be encouraged by integrating shade trees in the cultivation system.

Where there are no shade trees, the conversion plan must determine how and where shade trees are to be planted depending on local conditions.

The diverse products of an agroforestry system employing shade trees must be used in a sustainable manner which must be laid down in a management plan. Their exploitation may not be detrimental to the positive environmental effects of the agroforestry system.

The species of trees used are those which are adapted to local agro-ecological conditions. Indigenous species are to be used to encourage the variety of tree species.

Shade trees and coffee or cocoa grow in tiers and create a wide variety of structures. Depending on local agro-ecological conditions, the following recommendations apply to shade trees:

- at least 70 shade trees per hectare and 40% all year coverage with shade trees,
- at least 12 different varieties of shade trees per hectare, the principal variety of tree not exceeding 60%,
- coffee and shade trees should consist of three tiers, or at least two. Where there are three tiers, the top tier consists of old trees.

Where there are justified exceptions to planting shade trees, for reasons of climate, buffer areas or agroforestry systems are to be installed in order to guarantee equivalent environmental performance.

The planting density must not exceed 5,000 coffee plants per hectare.

Where wet processing is used in organic coffee cultivation, suitable methods of purifying the waste water are to be adopted. Waste water may not be discharged into surface waters before being purified.

3.5.2 Bananas

Bananas are grown in agro-forestry or in mixed cropping systems. Where crops are already being grown using a different cultivation system and where such crops are being newly planted using such systems, any areas greater than 5 hectares must include a biodiversity area surrounding the cultivated area or integrated within it⁵⁹.

The composition of this required biodiversity area⁶⁰ is as follows:

- up to half of it in the form of borders made up of rows of trees or hedges to prevent drift and to mark the border to neighbouring areas, and
- at least half of it in the form of structural features within the production area, designed to create a biotope network and enhance biodiversity, e. g. along paths, canals and power cable routes.

⁵⁹ A transitional arrangement applies to areas certified by Naturland prior to 01.06.22 with the requirement for implementation by 31.05.2027 at the latest; operations which include areas affected by these requirements and which enter into the Naturland certification procedure as of 01.06.2022 are obliged to provide proof from the start of how they will implement these requirements within 3 years at the most.

⁶⁰ in the case of areas of 5 – 20 ha 6% / > 20 – 50 ha 8% / > 50 ha 10%

X. Wild grown products

1. Definition

"Wild grown products" are defined as products that have grown without or with low influence of the operator gathering the products. The harvest has to be planned and carried out applying a sustainable system that is ecofriendly and socially acceptable.

This means in detail:

- The plants must not be cultivated, i.e. any measures to enhance or protect growth shall not be taken, or kept on a very low level (reproduction, soil management, cutting, extensive fertilising, etc.).
- In their location the plants have to be found naturally.

"Wild grown products" following this definition can be clearly distinguished from:

- products of organic agriculture (active organic cultivation)
- products of traditional agriculture (extensive conventional cultivation)
- products of former farmland which is left fallow (cultivated plants without the conditions of a natural habitat)

The only human interference consists of the harvest (gathering) of these wild grown products or in measures taken to protect their natural growth potential (protection from erosion etc.).

2. Requirements

2.1 The possibility of contamination of the products in the collecting areas by pollution from other areas has to be excluded.

2.2 Clear demarcation of the collecting area of the wild grown products to be certified has to be possible. Therefore, the areas have to be clearly identified by way of land register maps (drawing of plans if necessary).

2.3 The collecting rights have to be identified clearly within the project. One or more persons have to be named as responsible for the following range of duties:

- survey of all project activities (collecting area, collecting period, amount harvested, number of pickers etc.)
- administration
- knowledge of the principles of organic agriculture and basic ecological principles

2.4 The production method (collecting and any treatment measures) must show proof of their ecofriendly nature, whereby damage to the ecological system from long-term exploitation has to be excluded.

2.5 Before the start of each collecting season, the maximum amount to be harvested has to be defined annually to prevent overexploitation.

2.6 Regular inspection is obligatory. At least one inspection per year has to be carried out. This independent inspection comprises particularly the inspection of the conditions listed under items 2.3 and 2.4.

2.7 Regular residue analysis is obligatory. A list of substances to be looked for as well as their relative limits will be given for each product.

3. Labelling

The labelling of a product enables the buyer to identify the person or company legally responsible for the product.

For the consumer, wild grown products have to be clearly and visibly distinguishable from products of organic agriculture.

Part B.; X. Wild grown products

To ensure this, the origin of every "wild grown product" has to be made clear on its label on the list of ingredients or in the information printed on the product wrapping material (not only in an additional booklet). There is no particular mandatory form for this note.

The note is not obligatory if the share of wild grown products in a mixed product is less than 25%.

XI. Beekeeping

The standards for organic beekeeping according to Naturland's standards can be ordered from Naturland e.V., Kleinhaderner Weg 1, 82166 Gräfelfing; Germany, or under www.naturland.de and naturland@naturland.de.

XII. Aquaculture

The standards for organic aquaculture including regulations on:

- Culture of carp (*Cyprinus carpio* among others) in ponds
- Culture of Salmonidae (e.g. trout *Salmo trutta*, *Oncorhynchus* sp., salmon *Salmo salar*, charr *Salvelinus* sp., whitefish *Coregonus* sp.) in ponds, flow-through systems and net cages
- Marine culture of mussels (e.g. *Mytilus edulis*) on ropes and frames
- Pond culture of crustaceans (shrimps *Litopenaeus vannamei*, *Penaeus monodon*, *Macrobrachium rosenbergii* and crayfish *Astacus astacus* among others)
- Culture of tropical freshwater fishes (e.g. milkfish *Chanos chanos*, tilapia *Oreochromis* sp., Siamese catfish *Pangasius* sp.) in ponds and net cages
- Culture of *Perciformes* (perch-like), *Carangiformes* (jack-like) and *Gadiformes* (cod-like) fish species in marine net cages
- Cultivation and collection of marine macroalgae (*Chlorophyceae*, *Phaeophyceae*, *Rhodophyceae*)
- Cultivation of microalgae for human consumption (e.g. *Spirulina*, *Chlorella*)

can be purchased from Naturland e.V., Kleinhaderner Weg 1, 82166 Gräfelfing, Germany, or under www.naturland.de and naturland@naturland.de.

XIII. Organic Forest Management

The standards for organic forest management and the processing standards for timber from organic forest management can be ordered from Naturland e.V., Kleinhaderner Weg 1, 82166 Gräfelfing, Germany, or under www.naturland.de and naturland@naturland.de.

XIV. Insect Breeding

The standards for organic insect breeding including regulations for keeping individual species of the orders *Coleoptera* (beetles), *Diptera* (dipterous insects) and *Orthoptera* (grasshoppers) can be ordered from Naturland e.V., Kleinhaderner Weg 1, 82166 Gräfelfing, Germany, or under www.naturland.de and naturland@naturland.de.

Appendices production

Appendix 1: Permissible fertilizers and soil improvement agents

The input of fertilizers from organic farms as well as food waste from organic production and processing is permitted. Solid manure from conventional farms, organic and mineral fertilizer according to 1.3 and 1.5 must be applied in accordance with current legal provisions. Naturland must be notified whenever compost and fermentation residues are applied.

1.1 Solid manure from conventional farms

- Farmyard manure (except poultry droppings), not from factory farming origin*
- It is recommended that the manure supplier be provided with straw from organic farms.

1.2 Compost

Green waste compost, biowaste compost from separate household waste and other compost comprising material not produced on the farm⁶¹ may only be used if it is proven free from harmful residues. Naturland must be notified whenever it is applied. Detailed regulations imposed by Naturland with respect to quality assurance are given in the corresponding form.

1.3 Other types of purchased manure

- Products and by-products of animal origin (horn-, hair and feather waste and the like; prohibited are conventional liquid manure, conventional poultry dung, bone, blood and animal meal)*
- Products and by-products of herbal origin (e.g. castor cake, colza cake, vinasse)
- Leonardite (only if obtained as a by-product of mining activities)
- Xylite (only if obtained as a by-product of mining activities)
- Humic and fulvic acids*
- Mushroom culture wastes*
- Fermentation residue from biogas plants⁶²
- Peat without any synthetic additives, only for nursery plants
- Sawdust, bark and wood waste (from timber that is not contaminated with fungicides or insecticides)
- Sea algae and their extracts*
- Chitin*
- Organic rich sediment from fresh water bodies*
- Mollusc waste*
- Egg shells*
- Biochar*
- Dejecta of worms (vermicompost) and insect frass-substrate mixture

1.4 Supplementary mineral fertilizers

- Stone meal (composition must be known)
- Clay soils and clay minerals (e.g. bentonite)
- Gypsum of natural origin
- Lime fertilisers with a slow effect (dolomite, carbonic acid lime, shellfish lime, sea algae lime)*
- Raw phosphates (with a low content of heavy metals)*
- Thomas phosphate*

1.5 Only if required according to the results of soil or plant analyses

- Carbonated lime*
- Trace elements*
- Potassium magnesia (patent potassium), potassium sulphate, kainite*
- Calcium sulphate*

⁶¹ on the basis of this appendix

⁶² Naturland must be notified of the intention to take back digestate and this may only be done in compliance with Naturland's regulations. Digestate from biogas plants which are run solely on conventional fermented matter or on genetically modified organisms from aggregates or on liquid manure and poultry dung from conventional animal husbandry, is prohibited. No more than 15% more of the nutrient equivalent than the amount of fermentation materials originally supplied may be taken back.

- Elemental sulphur*
- Magnesium sulphate (MgSO₄)*
- Magnesium carbonate*
- Calcium chloride (CaCl₂) to prevent apples from spotting*

When choosing the fertilisers, their heavy metal content has to be considered and possible emissions have to be reduced to a minimum; a percentage of 90 mg Cd/per kg P₂O₅ must not be exceeded in phosphate fertilizers.

1.6 Miscellaneous

- Extracts and preparations from plants
- Compost activators (microbial or herbal)

* The detailed stipulations of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended are to be observed.

Appendix 2: Permissible active substances of plant protection and treatment products, biological, physical and biotechnological pest control methods

2.1 Biological, physical and biotechnological methods

- The encouragement and application of the natural enemies of pathogenic agents and crop pests (e.g. predatory mites, hatching wasps)
- Insect traps (e. g. glue traps, sexual pheromones and other messenger substances*, coloured attractants)
- Mechanical or physical repellents (e.g. traps, crop protection mesh, thermal and acoustic processes, light, beeswax)
- Repellents (deterrents and expellants) of animal or plant origin; sheep fat*
- Micro-organisms (virus, fungus and bacteria preparations, e.g. *Bacillus thuringiensis*)

2.2 Basic substances

- *Equisetum arvense* L. (horsetail)
- Chitosan hydrochloride*
- Sucrose
- Calcium Hydroxide
- Vinegar
- Lecithins
- *Salix* spp. Cortex (willow bark)
- Fructose
- Sodium hydrogen carbonate
- Whey
- Diammonium phosphate*
- Sunflower oil
- *Urtica* spp. (*Urtica dioica* extract) (*Urtica urens* extract) (nettle)
- Hydrogen peroxide
- Sodium chloride
- Beer
- Mustard seeds powder
- Onion oil
- L-cysteine (E 920)
- Cow milk
- *Allium cepa* L. bulb extract
- Other basic substances from plant or animal origin and based on food

Basic substances shall not be used as herbicides.

2.3 Plant strengthening agents

As included in the list issued by the BVL (German Federal Office of Consumer Protection and Food Safety) (e. g. propolis, sodium silicate)

2.4 Active substances of plant protection products against fungus diseases and animal pests and other active substances

- Sulphur
- Copper compounds⁶³ (max. 3 kg Cu/ha per year, also for potatoes; for hops max. 4 kg Cu/ha per year)*
- Laminarin*
- Sulphuric lime
- Potassium hydrogen carbonate (potassium bicarbonate)
- Calcium hydroxide*
- Cerevisane
- COS-OGA
- Preparation of *azadirachta indica* (neem)

⁶³ in the form of copper hydroxide, copper oxychloride, copper oxide, Bordeaux mixture and tribasic copper sulphate

- Pyrethrum extract from *Chrysanthemum cinerariaefolium* (synthetic pyrethroids are prohibited); when applying substances based on pyrethrum in crop production and to protect stores and warehoused goods, these must not contain the synergist piperonyl butoxide - PBO).
- Quassia from *quassia amara**
- Oil emulsions (without synthetic chemical insecticides) on the basis of certain vegetable oils (citronella, clove, rape seed, spearmint, orange, tea tree oil) and paraffin oils*
- Fatty acids* ("potassium soap")
- Hydrolysed proteins, excluding gelatine
- Maltodextrin
- Aluminium silicate (kaolin)
- Ferric III phosphate
- Quartz sand
- Rodenticides (only inside buildings and in premises where livestock is housed; only in traps/bait boxes)
- Spinosad (only upon application to Naturland and in conformity with the regulations specified in the letter of consent)
- Carbon dioxide
- Garlic extract (*Allium sativum*)
- Kieselgur (diatomaceous earth)
- Ethylene*

* The detailed stipulations of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended are to be observed.

Appendix 3: Permissible feed

If feed has to be bought, it has to be certified by Naturland or meet Naturland's quality assurance requirements (obligation of producers to notify and provide evidence).

The use of feed from the farm's newly converted areas with permanent grassland, perennial fodder crops or protein plants where the new growth is cultivated in compliance with the standards and the conversion period for this area is also less than 12 months, is permitted without the need for further approval. However, the percentage in relationship to the annual ration is to be limited to 20% at the most.

3.1 Cattle, sheep, goats, horses, game kept in reserves, rabbits

For the above-mentioned species, no other conventional fodder except that listed under 3.3 may be used.

3.2 Pigs and poultry

Feed from conventional sources permitted for the improvement of the protein quality for piglets only, up to a weight of 35 kg, and for young poultry, if this is not available in organic quality:

- within a transition period ending 31st December 2026, limited to 5%⁶⁴.
 - potato protein
 - maize and wheat gluten feed and maize and wheat sprouts
 - eggs and egg products
- fishmeal/-oil from trimmings of wild fish processed for human consumption of sustainable fishery

3.3 For all animal species

In each case only if these are not available in organic quality.

- brewer's yeast and brewer's yeast products*
- spices and herbs, limited to max. 1% of the feed ration (dry matter/DM)*
- molasses, limited to max. 1% of the feed ration (dry matter/DM)*

Authorised feed materials as well as feed additives and processing aids:

- water of drinking water quality
- feed materials of mineral origin*
- other feed materials⁶⁵
- feed additives and processing aids:
 - (1) technological additives
 - preservatives*
 - antioxidants*
 - emulsifiers, stabilisers, thickeners and gelling agents*
 - binders and anti-caking agents*
 - silage additives*
 - (2) sensory additives
 - (3) nutritional additives
 - vitamins*, pro-vitamins and chemically well-defined substances having similar effect*
 - compounds of trace elements*
 - amino acids, their salts and analogues*
 - (4) zootechnical additives

* The detailed stipulations of the regulation (EU) 2018/848 and of the subsequent legislative acts as amended are to be observed.

⁶⁴ The percentage relates to the organic proportion of the dry matter in the feed from agricultural sources and is re-calculated annually.

⁶⁵ Only the "Other feed material" listed above, with the limits and conditions cited therein, are permissible.

Appendix 4: Permissible animal stocking density (corresponding to 1.4 dung units)

Animal stocking density is related to dung units. A dung unit (DU) is defined as the animal stocking density with an annual output of faecal matter and urine containing not more than 80 kg nitrogen or more than 70 kg of phosphate (P₂O₅).

Species or strain of animal	maximum number of animals per hectare
equines over 6 months (equidae)	2
calves, veal calves	5
other cattle under one year old	5
male cattle 1 - 2 years old	3.3
female cattle 1 - 2 years old	3.3
male cattle over 2 years old	2
breeding heifers	2.5
fattening heifers	2.5
dairy cattle	2
cows not suitable for breeding	2
other cows (e. g. mothers or foster mothers)	2.5
ewes	13.3
mother goats	13.3
piglets	74
breeding sows (without piglets)	6.5
fattening pigs	10
other pigs	10
fattening hens	280
laying hens	140
pullets and brother roosters	480
fattening ducks	210
fattening turkeys	140
fattening geese	280
quails	800
pigeons	500
fallow deer kept in reserves, including offspring and stags	10
red deer kept in reserves, including offspring and stags	5
breeding rabbits including offspring and bucks	105

Adjustments should be made for animals which produce different amounts of dung depending on their strain.

If the animals are not kept year-round or if they are to be allocated differently because of their age or the purpose to which they are put, then the above figures will be calculated on the average of the animals kept annually.

Appendix 5: Minimum surface areas indoors and outdoors and other characteristics of housing for various species and types of production

1. Cattle, equines, sheep, goats and pigs			
	Indoor area (net area available to each animal)		Outdoor area (exercise area, excluding pasturage)
	Live weight in kg	Minimum size in square metres per animal	Square metres per animal
breeding and fattening cattle and equines	up to 100 up to 200 up to 350 over 350	1.5 2.5 4.0 5.0, minimum of 1 square metre per 100 kg	1.1 1.9 3.0 3.7, minimum of 0.75 square metres per 100 kg
dairy cattle		6	4.5
bulls for breeding		10	30
sheep and goats		1.5 per sheep/goat 0.35 per lamb/kid	2.5 0.5 per lamb/kid
suckling sows with piglets up to 40 days old		7.5 per sow	2.5
fattening pigs	up to 35 up to 50 up to 85 up to 110 over 110	0.6 0.8 1.1 1.3 1.5	0.4 0.6 0.8 1.0 1.2
piglets	over 40 days old and up to 30 kg	0.6	0.4
brood pigs		2.5 per female brood pig 6.0 per male brood pig (or 10, if copulation is performed in a natural manner in the pens)	1.9 8.0

2. Poultry				
	Indoor area (net area available per bird)			Outdoor area
	Number of birds per square metre	Centimetre (cm) of perch per bird or raised sitting levels or both	Nest	Square metres per bird
laying hens or parents	6	18	7 laying hens per nest or, in the case of a common nest, 120 cm ² /bird	4
fattening poultry (in permanent housing)	maximum of 21 kg live weight per square metre	5 or 25 cm ² raised sitting level/animal for broilers and guinea fowl 10 or 100 cm ² raised sitting level/animal for turkeys		4 for broilers and guinea fowl 4.5 for ducks 10 for turkeys 15 for geese
fattening poultry (in mobile housing)*	maximum of 30 kg live weight per square metre	5 or 25 cm ² raised sitting level/animal for broilers and guinea fowl 10 or 100 cm ² raised sitting level/animal for turkeys		2.5 for broilers
pullets/brother roosters	maximum of 21 kg live weight per square metre	10 or 100 cm ² raised sitting level/animal		1 for pullets and brother roosters
small poultry (in permanent houses)	15 in the heated area, max. live weight permissible 3 kg/sq. m		at least 1 sq. m for every 175 hens	(covered outdoor area = at least 50% of the accessible area in the heated area

(*) only in the case of mobile houses not exceeding 150 square metres floor space

3. Game reserves		
	Minimum surface for outdoor area per enclosure	Stocking density (max. number of adult animal* per ha)
Fallow deer (<i>Dama dama</i>), Sika deer (<i>Cervus nippon</i>)	1 ha	15
Red deer (<i>Cervus elaphus</i>), Père David's deer (<i>Elaphurus davidianus</i>)	2 ha	7
More than one cervine species	3 ha	7 in case red deer or Père David's deer are part of the herd; 15 in case neither red deer nor Père David's deer are part of the herd
(*) Two cervine animals up to 18 months count for one cervine animal.		

4. Rabbits		
	Indoor area	Outdoor area
	Net area usable per animal excluding platforms m ²	Net area usable per animal excluding platforms m ²
Nursing does with kits until weaning	0.6 per doe with kits if doe liveweight is below 6 kg 0.72 per doe with kits if doe liveweight is above 6 kg	2.5 per doe with kits
Pregnant does and reproductive female rabbits	0.5 per pregnant doe or reproductive female if liveweight is below 6 kg 0.62 per pregnant doe or reproductive female if liveweight is above 6 kg	2.5
Fattening rabbits (from weaning to slaughter); Replacement rabbits (end of fattening to 6 months)	0.2 in permanent housing 0.15 in mobile housing	0.5 in permanent housing with vegetation 0.4 in mobile housing
Adult bucks	0.6 1 if buck receiving does for mating	2.5

Appendix 6: Required conditions of poultry housing

- They must have entry/exit pop-holes of a size adequate for the birds, and these pop-holes must have a combined length of at least 4 metres per 100 square metres area of the house available to the birds. From the warm area to the outdoor area: 2m/100 m²
- No compartment of the poultry house may contain more than:

poultry for fattening of the species Gallus gallus	4800
pullets	10000
parent birds of the species Gallus gallus	3000
guinea fowl	5200
Muscovy or Peking ducks	female: 4000 male: 3200
capons, geese, turkeys	2500
quails, pigeons	2000
Total usable area of poultry houses per production unit for the fattening of poultry must not exceed	1600 square metres

Appendix 7: Minimum ages for slaughtering of poultry (fast-growing races)

Poultry species	Minimum age in days
chickens	81
capons	150
Peking ducks	49
female Muscovy ducks	70
male Muscovy ducks	84
mallard ducks	92
guinea fowl	94
turkeys and broiling geese	140
turkey hens	100
quails and pigeons	28

Appendix 8: Cleaning and disinfection substances

8.1 For livestock buildings and milking facilities and other livestock equipment	8.2 For machines, equipment and plant used in plant production
<ul style="list-style-type: none"> • alcohol • formic acid • caustic potash • caustic soda • quicklime • acetic acid • potassium and sodium soap • lime • milk of lime • lactic acid • sodium hypochlorite • sodium carbonate • oxalic acid • peracetic acid • natural essences of plants • phosphoric acid (dairy equipment) • nitric acid (dairy equipment) • water and steam • hydrogen peroxide • citric acid • cleaning and disinfection substances for teats and milking facilities 	<ul style="list-style-type: none"> • alcohol • formic acid • caustic potash • caustic soda • benzoic acid • quicklime • acetic acid • potassium and sodium soap • lime • milk of lime • easily and completely degradable tensides (e. g. alkyl polyglycosides, (APGs) or sugar surfactants) • lactic acid • sodium hypochlorite • oxalic acid • ozone • peracetic acid • compounds based on microorganisms • natural essences of plants • water and steam • hydrogen peroxide • citric acid

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