

Standard for Forest Garden Products (FGP)



Logo of  
International Analog Forestry Network



Logo of  
Forest Garden Products

<p><b>Standard for</b></p>
<p><b>Forest Garden Products</b></p>
<p><b>(FGP)</b></p>

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## 1. Introduction to forest garden farming systems and the *Forest Garden Products Certification Standard*

- 1.1 This standard was developed by the International Analog Forestry Network (IAFN) in response to the demand for a certification system that conforms to the philosophy and principles of Analog Forestry.
- 1.2 Analog Forestry is a system of silviculture that establishes a tree-dominated ecosystem, which is analogous in architectural structure and ecological function to the original climax and sub-climax vegetation community. Thus, Analog Forestry draws design input not only from traditional models but also from the natural forest. When an ecosystem is designed to be analogous to the indigenous climax state, the efficiency and dynamics of the natural processes can be replicated. Therefore, an analog forest may be comprised of natural and exotic species that contribute to structure and function, as indicated by its biodiversity, being the overriding factor that determines its use.
- 1.3 Forest Garden farming systems refer to those practicing Analog Forestry or the restoration of native biodiversity through the use of organic agriculture, crop diversification and system maturation. Such farming systems include those referred to as traditional forestry, home gardens, agro-forestry or permaculture. Irrespective of which term is used, the basic principle remains the same: maturing a tree dominated ecosystem that mimics the natural ecosystem, encourages native biodiversity and moves towards maturity facilitating the production of safe, high-quality agricultural or silvicultural products while avoiding toxins and building upon the local biotic capital.
- 1.4 In crop management, Analog Forestry has much in common with organic farming: the same emphasis is placed on the use of renewable resources, and on the need for the conservation of energy, soil and water resources with the concomitant maintenance of environmental quality. The production is integrally linked to the landscape needs, with the utmost restrictions on external inputs such as fertilizers, pesticides, fossil energy, alien invasive species and invasive exotic genes. Analog Forestry is ecosystem restoration system that is environmentally sustainable and socially just. It precludes the use of synthetic chemicals or bio-concentratable substances.
- 1.5 The implementation of analog forestry requires adherence to its 12 principles:
  - 1.5.1. Principle 1 Observe and record
  - 1.5.2. Principle 2 Understand and evaluate
  - 1.5.3. Principle 3 know your land
  - 1.5.4. Principle 4 identify levels of yield
  - 1.5.5. Principle 5. Map out flow and reservoir systems
  - 1.5.6. Principle 6 Reduce ratio of external energy in production
  - 1.5.7. Principle 7 Be guided by landscape needs.
  - 1.5.8. Principle 8 Follow ecological succession
  - 1.5.9. Principle 9 Utilize ecological processes
  - 1.5.10. Principle 10 Value biodiversity
  - 1.5.11. Principle 11 Respect maturity
  - 1.5.12. Principle 12 Respond creatively

The Forest Garden Product (FGP) certification, to which this standard applies, requires compliance with these 12 principles.

- 1.6 Traditional home gardens in many countries have maintained a high degree of biodiversity and have a low reliance on external inputs. They can form the foci of ecosystem restoration in rural areas with system maturity and biomass gain.

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- 1.7** The consequence of the practice of Analog Forestry is the establishment of a Forest Garden. The products derived from this practice are termed Forest Garden Products (FGPs) for the purposes of this Standard.
- 1.8** This Forest Garden Products Standard lays down minimum requirements that must be complied with before any agricultural or silvicultural products can be placed on the market with claims or labelling that implies that they have been produced by the practice of Analog Forestry.
- 1.9** This Standard has been developed and is maintained by the International Analog Forestry Network (IAFN). IAFN is a group of partner organizations that are involved in ecological restoration. These organizations include environmental NGOs as well as producers, traders and vendors of products derived from forest gardens. These Standards were developed by IAFN's Secretariat in collaboration with an array of interested partners.

## 2. Scope and Approach

- 2.1** This standard requires that all workers in the production process are treated fairly and will obtain a benefit by participating in maintaining these standards.
- 2.2** This standard requires that a fair and equitable trading relationship is developed along all links of the supply chain.
- 2.3** This standard covers production and processing and requires traceability at all stages.
- 2.4** This standard requires the identification and nomination of both environmental and species indicators that signify the state of the ecosystems being surveyed.
- 2.5** A transition or conversion period from initiation is necessary in order to meet this standard. The farm must have a minimum of 36 months applying the full scope of practices required in this standard. This period will begin on the date of first inspection by the certifying body. However, this period may begin retroactively provided the certifying body has acceptable proof, in the form of farm records, observations, interviews with the farmer(s) or neighbours, etc., to verify the historical application of production practices in line with this standard on the farm.
- 2.6** This standard applies to the following types of products:
- Unprocessed plants, plant products,
  - Animal Husbandry or animal products,
  - Beekeeping
  - Wild Harvested Products
  - Processed products derived from the four product categories listed above, including cosmetics.
  - Ecosystems or ecosystem products, such as carbon
- 2.7** Products derived from any type of genetic engineering are not compatible with the principles of Analog Forestry and therefore are not permitted under this Standard. FGP production and processing systems do not intentionally manufacture or allow the use of nano-materials.
- 2.8** This Standard is harmonized with the COROS (Common Objectives and Requirements of Organic Standards), the basis for the IFOAM Family of Standards.

### 3. Definitions

All documents, contracts or certificates issued under these standards shall be interpreted using the following definitions:

- 3.1 Agroforestry:** An integrative agricultural practice that combines perennial species such as trees or shrubs with annual crops and/or livestock.
- 3.2 Ayurvedic:** Traditional system of medicine common to India and Sri Lanka.
- 3.3 Analog Forestry (AF):** A silvicultural system that seeks to create a tree dominated ecosystem that is analogous to the original natural ecosystem in architectural design and ecological function while ensuring economically sustainable production for subsistence and market systems.
- 3.4 Anthropogenic Ecosystems:** Ecosystems where humans have impacted the habitats with a frequency or intensity to change established seral patterns.
- 3.5 Biodiversity or Biological diversity:** The variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.
- 3.6 Biodynamic:** Agricultural practices based principally on the work of Rudolf Steiner and subsequent developments derived from practical application, experience and research.
- 3.7 Biotic capital:** The volume and quality of biomass in any given area.
- 3.8 Certifying Body:** An organization that has been evaluated and approved by the IAFN-FGP certification system as having the capacity to perform inspections and maintain audit trails. These can be specifically for FGP, or existing certifiers for organic, Fair Trade, or other standards that can incorporate FGP into their standards process.
- 3.9 Corridors:** Semi-natural or natural habitats that provide connectivity (e.g. facilitate the movement of organisms and gene flow) between patches of habitats.
- 3.10 Crop diversification:** To add diversity to the managed area through the introduction of crops or cropping patterns in a manner that enhances biodiversity.
- 3.11 Ecological Evaluation:** A set of field-based ecological assessments designed to give an overview of ecosystem health by measuring ecological functioning and biodiversity on several variables, including, but not limited to: animal and plant biodiversity, soil structure and compaction, ecological and economic productivity.
- 3.12 Ecosystem products:** Products that are derived from ecosystem functions (combined activities of the biotic and abiotic components of any environment that provide sustainability to that ecosystem).
- 3.13 Exotic species:** Species that have been introduced in more or less recent times, deliberately or by accident, by human or natural causes.
- 3.14 Forest:** A tree-dominated ecosystem.
- 3.15 Forest Garden Farm Plan (FGFP):** A detailed map of the existing physical variables on a farm, with a superimposition of the planned developments as a consequence of using Analog Forestry design.
- 3.16 Forest Garden Product (FGP):** – A product produced in accordance with this Standard.
- 3.17 Genetic engineering:** A set of techniques from molecular biology (such as recombinant DNA) by which the genetic material of plants, animals, microorganisms, cells and other biological units are altered in ways or with results that could not be obtained by methods of natural mating and reproduction or natural recombination. Techniques of genetic engineering include, but are not limited to: recombinant DNA, cell fusion, micro

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and macro injection, encapsulation. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridization.

- 3.18 Genetic material:** Any material of plant, animal, microbial or other origin containing functional units of heredity.
- 3.19 Genetically Modified Organism (GMO):** A plant, animal, or microbe that is transformed by genetic engineering.
- 3.20 Genetic resources:** Genetic material of actual or potential value.
- 3.21 Habitat:** The place or ecosystem where the organism or population lives.
- 3.22 Home garden:** A tree-covered, domestic compound that has at least 40% of the shade levels of the original forest.
- 3.23 Indicator Species:** The term refers to those plants or animals that indicate or identify the ecological and sustainability status of the farm under investigation. Indicator species suggest the state of maturity of the ecosystem, they will respond to the levels of toxins that are present or absent, and can also be co-related with good Analog Forestry management practices.
- 3.24 Indigenous climax state:** The vegetation that would naturally establish in a given site, given climatic conditions and locally present species, in the absence of major disturbance for a long time.
- 3.25 Invasive species:** Exotic or native species that invade ecosystems by a rapid propagation, having a negative impact on native species.
- 3.26 Ingredients:** The substances, including additives, used in the preparation of products.
- 3.27 Inspector:** A person deemed by an accredited certifying organization to have the expertise and authority to inspect producers or operators for certification purposes.
- 3.28 Landscape:** A heterogeneous land area composed of a cluster of interacting ecosystems that is repeated in similar form throughout. It is usually defined by a functional boundary such as watershed, a physical boundary such as soil, or a biological boundary such as vegetation. For the purposes of this standard, *landscape* will be considered synonymous with the farm plan when the farm is smaller than the watershed where it is located. When the farm exceeds the limits of the watershed, the limits of the landscape will be the farm boundaries and determined by the certification body.
- 3.29 Large operators:** Organizations involved in any stage of the production process that have more than fifty (50) employees.
- 3.30 Livestock:** Domesticated animals raised on the farm, whether used for meat, dairy, nutrient cycling, labour, or other products or services. Domesticated or wild bees and other wild animals are not considered to be livestock.
- 3.31 Marketing:** Holding or displaying for sale, offering for sale, selling delivering or placing on the market in any other form.
- 3.32 Native species:** Species that propagate without deliberate human support, that are not introduced in human times, and that if introduced in former times are adapted and co-evolved with the existing conditions and species.
- 3.33 Operator:** Any person or organization who is involved at any stage of the chain of production, including storage, processing, packing, transporting, retailing, displaying, importing or exporting of products as referred to in section 2.7, or who markets such products.
- 3.34 Organic crops:** Crops whose production emphasizes the elimination of harmful synthetic additives, often in line with the standards a formal certification authority. Organic crops are produced in soils of enhanced biological activity determined by the condition of the soil ecosystem, its humus levels, aggregate structure, and feeder root

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development, such that plants are fed through the soil ecosystem and not primarily through soluble salts added to the soil. Plants grown in such systems take up essential soluble salts that are released from soil humus colloids, at a rate governed by warmth.

- 3.35 Organic Farming:** Systems that rely to the maximum extent feasible upon ecosystem management methods such as crop rotations, residue incorporation, animal manures, legumes, green manures, mechanical cultivation, Biodynamic composts and preparations, fermented plant sprays, micro-organism inoculation of approved species, approved mineral bearing rocks and biological control techniques in order to maintain soil productivity and tilt, to supply high quality plant nutrients and to control weeds, insects and other pests or diseases.
- 3.36 Organic product:** A good whose production has been verified compliant to a standard that is included in the IFOAM Family of Standards, or to biodynamic standards as regulated by the appropriate national or international Demeter association.
- 3.37 Silvicultural products:** Products that emanate from trees, orchards and tree plantations.
- 3.38 System maturation:** The uninterrupted movement of any ecosystem in seral succession.
- 3.39 Processing units:** components of a farm or manufacturer in which raw materials are made into finished or intermediate products, or where final or intermediate products are assembled, created, or altered.
- 3.40 Production (Biologic):** The creation of biomass by the production of photosynthetic goods and services for self-maintenance or for the maintenance of the biosphere.
- 3.41 Production (Economic):** The creation of value or wealth by producing goods or services either for self-consumption or for the market.
- 3.42 Permaculture:** A crop management system that was designed as an integrated, evolving system of perennial or self-perpetuating plant and animal species useful to humans. It is in essence a complete agricultural ecosystem, modelled on existing but simpler examples.
- 3.43 Sustainable use:** The use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

## 4. Forest Garden Products Standard Objectives

- 4.1** To protect consumers against deception and fraud in the market place and from unsubstantiated product claims.
- 4.2** To protect producers of Forest Garden Products (FGPs) against misrepresentation, through a clear verifiable audit trail for every certified product.
- 4.3** To address the goals of Organic Production, Sustainable Development, Biodiversity Conservation, Climate Responsibility and Equitable Trading Relationships in the practice, processing and labelling of FGPs.
- 4.4** To ensure that all stages of production, processing and marketing are subject to inspection and meet basic requirements.
- 4.5** To provide a guide to farmers who want a Forest Garden.
- 4.6** To develop sustainable landscapes that retains their environmental functions.
- 4.7** To increase biodiversity.
- 4.8** To ensure ecosystem and environmental sustainability.
- 4.9** Ensure a fair and equitable response to the pattern of trade in FGP certified products.

## 5. General production requirements

**5.1** The principal aims of Analog Forestry include:

- Producing food that is safe and high in nutritional value
- Facilitating the maturation of the production ecosystem
- Maintaining and enhancing the fertility of soils
- Providing habitat for native species
- Restoring degraded ecosystems
- Creating value-addition opportunities for agricultural produce
- Ensuring a fair return for farmers
- Building up sequestered carbon stocks
- Reducing fossil carbon footprint
- Assisting to clean water and enhance the hydrologic cycle

Analog Forestry production systems require:

**5.2** The filing of a Forest Garden Farm Plan (FGFP) as indicated in section 6.

**5.3** Careful management of inputs (e.g. manure, nutrients, minerals, biocides, etc.) and practices (e.g. proper storage and use or application) to prevent the contamination of soil and water.

**5.4** Evidence of erosion control and soil conservation measures.

**5.5** A clear audit trail with records maintained.

**5.6** Evidence of water management to mitigate the input organic and inorganic pollutants (e.g. nutrients, mineral salts, etc.) to the system, as well as their output from the production system into surrounding land and water bodies, to avoid salinization and other pollution.

**5.7** Waste water from wet processing units:

- Must have procedures to minimize waste and discharge.
- Must have procedures for monitoring waste, discharge and correct disposal.
- Must be analyzed periodically at normal operating capacity and the results documented.
- Must have documentation of training in the conservation of water and energy.

**5.8** The use of human manures, if used, must be composted and processed in a manner that does not permit the transmission of any human pathogens; and must not be used in any crops that are meant for human consumption.

**5.9** Production not conducted in accordance with the requirements of this standard must take place in locations clearly separate from locations where products intended to be marketed as FGP as being produced.

**5.10** Parallel production, i.e. production of the same crops and products being produced organically or according to FGP standards utilizing non-organic management practices, is only permissible if the operator has plans for conversion of these lands or crops to organic or FGP production in the near future and these non-organic products are clearly identified and easily distinguishable throughout the process of production, processing, packaging, and marketing. The certifying body must judge if the operators' plans for conversion of parallel production lands are credible and determine a time-limit (of maximum five years) by which conversion must begin.

**5.11** Separation from conventional farming systems, or systems that apply prohibited substances, through the use of hedges or other impermeable barriers or placing the production unit in a geographical area distanced from the source of contamination.

**5.12** Processing and/or packaging premises may handle produce which is not in compliance

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with this standard provided such produce is handled separately, is clearly identified and documented, and all equipment is pre-cleaned to the satisfaction of the accredited certification organization.

### **5.13** The cultivation of terrestrial crops must take place in soil-based systems.

The requirements in this standard must be continuously maintained, such that production does not depend on switching back and forth between these and conventional or other management. Deviations to the standard may be made only under extreme climatic or other extenuating circumstances (such as flood, fire, extreme drought, etc.); exemptions may be made on a case by case basis, on submission of a report to the certifying body, and their subsequent approval.

## 6. Forest Garden Farm Plan (FGFP)

- 6.1** The Forest Garden Farm Plan (FGFP) is a detailed map that records the existing physical and ecological structure of the property. It also serves to provide a clear work plan for the establishment of a Forest Garden. Although a plan could begin as rudimentary, in all cases the FGFP will be developed and ultimately include the following features, at minimum, at the end of a five year period:
- 6.1.1 Existing drainage patterns
  - 6.1.2 Cropping pattern
  - 6.1.3 Existing buildings
  - 6.1.4 Existing roadways
  - 6.1.5 Existing vegetation patterns
  - 6.1.6 Ecological evaluation
  - 6.1.7 Implementation plan by way of derogation to above requirements, only 6.1.1 through 6.1.4 need to be submitted by illiterate farmers or indigenous peoples until their capacity to produce a FGFP has been developed. An accredited certifier should set the time period.
- 6.2** All FGFPs submitted must have an Analog Forest design for the tree-dominated component based on the structure and function of the original vegetation.
- 6.3** All FGFPs must address the potential of using flow systems for the creation of corridors that can connect to other aspects of the landscape.

## 7. Biodiversity and Landscape

- 7.1** Analog Forestry does not undertake or promote actions that negatively impact on ecosystem or environmental sustainability, or high conservation value areas
- 7.2** Analog Forestry establishes and enhances the natural landscape. The FGFP (section 6) should take into account the following criteria:
  - 7.2.1 The landscape should be maintained such that the stability of the physical and biodiversity aspects are not degraded.
  - 7.2.2 The ability of biodiversity elements to move across a landscape should not be reduced in crop and non-crop habitats on the farm holding.
  - 7.2.3 The input of toxins and fertilizer salts from neighbouring landscapes should be controlled by design.
  - 7.2.4 The functionality of flow elements (water, soil and air) across a landscape should be maintained.
  - 7.2.5 Anthropogenic elements such as roadways, drains, irrigation systems, buildings, etc. should not contribute to the erosion action and/or salinization on the landscape.
  - 7.2.6 The total biomass on a landscape should be conserved or increased.

## 8. Indicators

**8.1** In the application of Analog Forestry, the improvement of the production environment and development of biodiversity are two critical goals. In order to better achieve these goals, the operator is encouraged to pay attention to the variables that follow.

### **8.2 Environmental**

Environmental indicators refer to the physical representation or measures of physical or chemical variables on any farm.

#### 8.2.1 Soil

- Compaction/bulk density
- Organic matter
- Rooting density

#### 8.2.2 Water

- Chemistry
- Clarity
- Visible pollutants

#### 8.2.3 Vegetation

- % cover: (a) early seral (b) late seral (c) mature
- Corridors: (a) natural (b) designed

### **8.3 Species**

Species indicators refer to specific organisms that have a known significance in terms of sensitivity to disturbance or chemical inputs.

#### 8.3.1 Soil

- Macro organisms

#### 8.3.2 Vegetation

- Woody
- Non woody

#### 8.3.3 Invertebrates

#### 8.3.4 Vertebrates

## 9. Wild harvested products

- 9.1** Wild harvested products shall only be derived from a stable and sustainable growing environment.
- 9.2** The methods used for harvesting should not negatively impact the sustainability of the targeted product.
- 9.3** Harvest products only from a clearly defined area will be allowed where prohibited substances have not been applied for at least 3 years prior to harvest.
- 9.4** The collection or harvest areas shall be at an appropriate distance from conventional farming areas, and potential sources of pollution so as to avoid contamination of the harvested products.
- 9.5** Harvesting or gathering of products from wild/common resources shall be done in defined collecting or harvesting area.
- 9.6** Access, management and harvesting/gathering activities must comply with any regulations and traditional rules/controls that may apply to these activities.

## 10. Analog Forestry applied at farm level

### Section A: Plants and Plant Products

- 10.1** The requirements of this standard must have been applied on the land for at least three years before the harvesting of products covered under section 2.7. Accredited certification agencies may decide on certain justifiable circumstances, to extend or reduce that period, on the basis of previous use of the land and subject to suitable evidence that non-approved inputs had not been used during the previous three years.
- 10.2** The natural process of seral succession must be facilitated.
- Disturbance of both the above-ground and below-ground components of the ecosystem will be minimized.
  - Nutrient transport webs will be facilitated.
  - There will be an annual increase in soil organic matter until optimum level is reached.
  - Biodiversity reintroduction programs will be used where needed.
- 10.3** The fertility and biological activity of the soil must be maintained or increased by a diverse planting scheme that includes a variety of methods to enrich the soil as permitted by an accredited certification organization, including though not limited to the following:
- Cultivation of legumes, green manures or deep rooting plants in an appropriate rotation program.
  - Incorporation in the soil of composted organic material from sources according to the principles laid out in this standard.
  - For soil fertility and conditioning, substances others than those listed in section 15 (Annex A) are prohibited.
  - Application of biodynamic and microbial preparations.
  - Tillage techniques.
  - Mulching using both live and dead material.
  - Maintenance and management of livestock.
  - Using root exudates of living tree species.
- 10.4** Shade shall be developed to represent 40% shade through the farm using designs such as:
- Patch or clump plantings.
  - Hedgerow or boundary plantings.
  - Stream or gully plantings.
  - Random or patterned individual plantings.
- 10.5** Pests, diseases and weeds may be controlled by any one, or a combination, of the measures permitted by the certification body, such as:
- Choice in appropriate species
  - Biological control
  - Appropriate crop rotation or management
  - Specific biodynamic measures
  - Approved pathogens
  - Mechanical cultivation
  - Mulching and mowing
  - Grazing of livestock
  - Manual control
  - Humane traps
  - Baited traps

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- For pest, disease and growth management, substances other than those listed on Annex B are prohibited
- 10.6** The use of synthetic coverings and mulch is allowed, only if such coverings are not allowed to degrade (whether chemically or physically) into the soil.
- 10.7** Burning vegetation for land preparation and disease control is acceptable if appropriate considerations are made to prevent loss of soil and fertility, including factors such as rotation time, topography, and seasonality.

### **Section B: Management of Inputs**

- 10.8** A Forest Garden emerging from the application of the principles of Analog Forestry will operate as a high-value biomass sink within a production system that is, as close as possible to external inputs, but as open as possible for genetic flow. Inputs from the outside must be kept to an absolute minimum and used on the basis of need only, as shown in annexes A and B. Although the inputs listed below are not meant for continuous use, they may be used in situations where the natural balance of the system needs to be restored or maintained or in situations where the natural productivity needs to be enhanced to achieve a sustainable production unit.
- 10.9** Good design and management are paramount. All inputs must be used, with approval by an accredited certification organization, only on the basis of need. It must not be used to support poorly designed or badly managed systems.
- 10.10** Sufficient organic material should be returned to the soil to increase the levels of soil organic carbon where increment is possible, or to maintain levels of soil organic carbon where maximal levels have been reached.
- 10.11** Conservation and recycling of nutrients is a major feature of any forest system. The use of mineral fertilizers should be always is seen as a supplement to recycling, not as a replacement.
- 10.12** Organic material for composting or other application on the land must originate from FGP or organic product sources, if available. For soil fertility and conditioning, substances other than those listed on Annex A are prohibited. At the discretion of the certifying body, other material may be permitted, with quality and quantity of locally available material being primary concerns in considering the acceptability of the use of non-organic material.
- 10.13** Plant material and seed must originate from FGP or organic product sources, if available. At the discretion of the certifying body, other material may be permitted, with local suitability, viability, and quality of genetics being primary concerns in considering the acceptability of the use of non-organic material. Non-treated plant material is the favored alternative, with material treated with substances not permitted in Annex B only being used as a last resort. Seed treated with substances not permitted in Annex B may never be used.
- 10.14** Feed or composting additives of mineral, plant or biological source may be used as long as their content is not greater than 5% of the total content; they may be in the form of:
- Kelp
  - Molasses
  - Minerals
  - Salt
  - Microbial sprays
  - Botanical teas
  - Permitted additives

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- 10.15** It is necessary to heat compost biological material by natural means and it is essential for any material brought in from non-certified sources. Human excrement may never be used as compost material in crop intended for human consumption.
- 10.16** Materials which may contain excess concentration of potential contaminants such as heavy metals should not be used. Suspected materials used repeatedly or in large volumes, should be analyzed and their acceptability evaluated by the accredited certifier. For soil fertility and conditioning, substances other than those listed on Annex A are prohibited
- 10.17** Sodium (Chilean) nitrate is not allowed under this standard.
- 10.18** Inclusion of a material does not imply that it is safe in all circumstances. Where inputs are required they should be used with care and with the knowledge that even permitted inputs (see Annex A for substances related to soil fertility and conditioning) can be subject to misuse and may alter the ecosystem or farm.
- 10.19** Water is a critical input for any agricultural operation. The quality and quantity have to be managed sustainably, ensuring that a) the quality of the outgoing water should be equal to or better than the quality of the incoming; and b) the quantity of water used should be on a sustainable basis.
- 10.20** Producers must try to reduce reliance on fossil fuels, with a plan documenting their progress and efforts.

### **Section C: Animal Husbandry and Biodiversity**

- 10.21** In all Forest Garden systems it is important to promote a high level of animal biodiversity, including both livestock and wild fauna. This will help to:
- Improve and maintain the fertility of the soil through manure
  - Maintain and enhance natural pest control systems
  - Control weeds through grazing
  - Conserve native biodiversity
  - Maintain and enhance biodiversity in crop and non-crop habitats on the farm holding
  - Maintain landscapes that improve the mobility of biodiversity.
- 10.22** Maintenance of livestock must be guided by an attitude of care, responsibility and respect for living creatures. Mutilations which lead to stress, harm, disease or the suffering of animals should be banned. Pain inflicted by physical alteration to the animal and other practices, such as marking, must be kept to a minimum.
- 10.23** In caring for an animal's health, a hierarchy of practices should be observed, with treatment not advancing to the following steps until the current one has proven insufficient. The systems of treatment, in order of priority, are:
- 10.24** Preventative measures, such as healthy diets and adequate physical activity, as well as prophylactic measures such as vaccinations and anti-parasite treatment when essential;
- 10.25** Natural medicine and treatment when an animal is sick
- 10.26** Allopathic veterinary medicine when an animal is sick, natural cures prove ineffective, and treatment is required for the welfare of the animal
- 10.27** Stress-inducing measures of animals, such as electric prods and stimulants are not allowed, nor are tranquilizers.
- 10.28** Living conditions must consider the natural needs of the animal, such as:
- 10.28.1 Free movement, including access to the outdoors;
- 10.28.2 Food, including feed rations that meet the nutritional and dietary requirements of the species, for example access to roughage for ruminants;
- Young animals must receive maternal milk or organic milk from their own species,

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- and then only weaned after 3 months (calves and foals), 6 weeks (piglets), or 7 weeks (lambs and kids)
- 10.28.3 Sufficiently clean water;
- 10.28.4 Safety and comfort, including shelter and shade
- 10.29** Consideration must be given to their specific behavior patterns.
- 10.30** Stocking density must be based upon sustainable use of land and water resources.
- 10.31** Medical treatment for sick animals will not be withheld from animals in order to maintain the organic status of the animal.
- 10.32** Organic animal management uses breeds that reproduce successfully under natural conditions and without routine human involvement.
- 10.33** Embryo transfer and cloning are disallowed.
- 10.34** The use of hormones to induce ovulation or birth, unless for medical reasons, is not permitted.
- 10.35** Livestock must be fed with animal feed (including pasture) originating from FGP sources, if available, and otherwise from organic product sources. At the discretion of the certifying body, other material may be permitted, with quantity and quality of local available feed being primary concerns in considering the acceptability of the use of non-organic material, in particular in areas where Analog Forestry and organic agriculture are in early stages of development. As well, grazing of non-organic vegetation may be permitted during seasonal migration. In any case, the percentage of non-organic feed may not exceed 10% dry matter per ruminant and 15% dry matter per non-ruminant calculated on an annual basis. IAFN will review and adjust these limits every three years.
- 10.36** The prevailing part (at least 50%) of animal feed shall come from the farm unit itself, surrounding natural grazing areas, or be produced in cooperation with other FGP or organic farms.
- 10.37** For the calculation of feeding allowances only, feed produced on the farm unit during the first year of FGP management may be classed as FGP. This refers only to feed for animals that are being produced within the farm unit. Such feed may not be sold or otherwise marketed as FGP or organic.
- 10.38** No feeding of animal slaughter products of the same species or any type of excrements, and no feeding of slaughter waste to ruminants will be permitted.
- 10.39** Livestock should be bred on the property. Purchases of livestock from outside sources other than from FGP or certified organic properties are restricted to the conversion period of the land in general. Livestock already on the farm, as well as livestock brought in during the land conversion period, must be managed under these standards for at least the following transition period requirements in order to be considered or marketed as FGP at the time at which the land in general completes conversion:
- 10.39.1 Dairy: 90 days
- 10.39.2 Eggs and poultry: 42 days
- 10.39.3 Other meat: 12 months
- 10.39.4 Fish, amphibians, reptiles, and other aquatic organisms: one life cycle of the organism or one year, whichever is shorter
- 10.40** After the conversion period of the land in general is complete, increases of livestock are restricted to breeding stock, with the exception of:
- Ducks, geese and poultry, which may be up to one week old before being brought into the Analog Forest system, and are then subject to a 42 day conversion period.
  - Fish, amphibians or reptiles, which can be brought in as eggs or larvae.
- 10.41** Diseases and parasites in livestock must be controlled by enhancing the natural

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resistance through balanced, healthy nutrition and selective breeding.

- 10.42** Organic animal management does not practice any prophylactic use of synthetic allopathic veterinary drugs.
- 10.43** Producers shall not withhold medication where it will result in unnecessary suffering for livestock, even if the use of such medication will cause the animal to lose its Forest Garden Product status. An operator may use synthetic veterinary drugs or antibiotics only if: a. preventive and alternative practices have proven ineffective in treating sickness or injury; b. the drugs are used under the supervision of a veterinarian or other suitably qualified supervisor; and c. withholding periods are not less than 48 hours or double the nationally legislated withdrawal period indicated on product label, whichever is longer.
- 10.44** All treatments with synthetic veterinary drugs shall be documented.
- 10.45** Animals must not be treated or fed with any non-approved chemicals, vitamins or growth stimulants.
- 10.46** Only products composed of substances listed in Annex C may be used as additives to animal feedstuffs.
- 10.47** Throughout movement, handling and slaughter, measures must be taken to minimize stress and ensure the FGP-integrity of the animal, including:
- 10.47.1 Calm and gentle handling
  - 10.47.2 Access to adequate organic or FGP-produced food and clean water
  - 10.47.3 No use of electric prods or synthetic tranquilizers and treatments
  - 10.47.4 Clear identification of animals
- 10.48** When native fauna are harvested or raised as livestock, a concomitant restocking and habitat-enhancing program must be in place.

## 11. Beekeeping

- 11.1** Hives must have sufficient separation (3 km) from areas with a high risk of contamination (e.g. land where agrochemicals are being applied and industrial zones).
- 11.2** Beekeeping management should ensure that harvesting methods provide sufficient food reserves left behind for the survival of the colony during the dormancy period.
- 11.3** In cases of temporary feed shortages, supplementary feed should be from organic sources.
- 11.4** Bee wing clipping is not allowed.
- 11.5** Deliberately killing bees during honey harvesting is not allowed.
- 11.6** The use of synthetic chemical bee repellents is not allowed.
- 11.7** Use of smoke should be minimized and only natural smoking materials are allowed.  
  
Bees must originate from certified FGP or certified organic sources if available. If bees are introduced from other sources, they are subject to a 12-month conversion period prior to being considered or marketed as FGP certified.
- 11.8** Health of bee colonies, including the management of pests and diseases, will be maintained according to the requirements described in Annex C. If allopathic chemically synthesized medical products are used, the treated hives must be placed in isolation and undergo a 12 month re-conversion period.

## 12. Processing and Packaging of Forest Garden Products

- 12.1** The documentation required for processing and packaging of Forest Garden Products includes:
- 12.1.1A full description of the premises, showing the facilities used for the processing, packaging and storage of agricultural products.
  - 12.1.2All practical measures to be taken to ensure compliance with this Standard.
- 12.2** When an operator runs several production units, any products from agricultural holdings or processing premises that are not subject to inspection may not be processed, packaged or stored in the approved premises in a manner that causes any infringement of this standard.
- 12.3** Written accounts and documents must be kept to enable an accredited certification organization to trace:
- 12.3.1The origin, type and quantities of agricultural products as specified in Section 2.7, that have been delivered to the premises.
  - 12.3.2The type and quantities of products that have left the premises.
  - 12.3.3Any other information, such as the origin, type and quantities of ingredients, additives and manufacturing aids delivered to the premises. The composition of the ingredients of processed products as required by an accredited certification organization for the purposes of proper inspection of the operations.
- 12.4** Operators use minerals (including trace elements), vitamins, essential fatty or amino acids, and other isolated nutrients only when their use is legally required or strongly recommended in the food products in which they are incorporated.
- 12.5** Operators never use the same ingredient in both organic and non-organic form in a single FGP product.
- 12.6** Where products not covered by Section 2.7 are also processed, packaged or stored in the premises concerned:
- 12.6.1The premises must have separate areas for storage of products as referred to in Section 2.7 before and after the operations concerning them.
  - 12.6.2Operations must be carried out continuously until the complete run has been dealt with and separated from similar operations performed on products covered by Section I.
  - 12.6.3All necessary measures must be taken to ensure identification of lots and to avoid mixtures with products not obtained in accordance of this Standard.
- 12.7** FGP products may only be held and transported in packaging or containers that do not contaminate the product they contain or allow contamination from other sources. Containers and packages must be labelled and identified to include:
- 12.7.1The name and address of the person or organization responsible for the production or preparation of the product.
  - 12.7.2The name of the product.
  - 12.7.3An indication specifying that the product is covered by periodic inspections of an accredited certifying organization.
- 12.8** FGP products may only contain ingredients, food additives or processing aids that are organic products. If organic sources are not commercially available, other forms of the substances may be used when permitted by the certifier. The certifier may only permit the use of those substances listed in Annex D for additives and processing aids, and then only according to the limitations specified there.
- 12.9** FGP products are protected from pests and diseases after harvest by the use of good manufacturing practices that include proper cleaning, sanitation and hygiene, without the use of chemical pest control treatments or irradiation.

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12.9.1 Operators shall manage pests using the following methods, listed in hierarchical order of application, starting with most preferred practices:

- Preventative methods such as disruption, elimination of habitat and access to facilities;
- Mechanical, physical and biological methods, including visual detection, sound, ultra-sound, light and UV-light, temperature control, controlled atmosphere and diatomaceous earth;
- Substances listed in Annex B, after whose the operator shall perform an intervening event (e.g. cleaning of the area) to avoid contamination of the products from their application;
- Substances (other than pesticides) used in traps.

**12.10** FGP products must be kept free of substances used to clean, disinfect, and sanitize processing facilities.

12.10.1 Operators shall take all necessary precautions to protect FGP products against contamination by substances prohibited in these standards, as well as pests, disease-causing organisms, and foreign substances.

12.10.2 Operations that use cleaners, sanitizers, and disinfectants not listed in Annex E on product contact surfaces shall use them in a way that does not contaminate the product. The operator shall perform an intervening event (e.g. rinsing) between the uses of any cleaner, sanitizer, or disinfectant and the contact of FGP product with that surface sufficient to prevent residual contamination.

12.10.3 Operators that use substances listed in Annex E as equipment cleaners are not obligated to perform an intervening event between the cleaning of the equipment and the use of that equipment with FGP product.

**12.11** At no point in the processing, packaging, transport or storage of FGP products can the products be irradiated.

## 13. Fair Trade, Social and Economic Criteria

### Section A: General Requirements

- 13.1** Producers and processors of FGP products must comply with national laws governing workers' rights. As well, social policies in the workplace must adhere to the International Labor Organization's Declaration on Fundamental Principles and Rights at Work.
- 13.2** Child, forced or bonded labour is disallowed. Child labour may be acceptable in the case of the producer's family members, only if this work is not to the detriment of the education and healthy development of the child or children.
- 13.3** Physical abuse or discipline, threats of physical or sexual abuse, sexual or other harassment, and verbal abuse, as well as other forms of intimidation, are prohibited.

### Section B: Hired Labour

- 13.4** The requirements listed within this section apply in all instances in which labour is hired by the producer or processor.
- 13.5** Workers shall have access to jobs and training on equal terms, irrespective of gender, age, ethnic origin, marital status, sexual orientation, political opinion or social origin. Additionally, pregnancy, HIV and genetic tests are not allowed for recruitment.
- 13.6** Workers, without distinction, have the right to join or form trade unions of their own choosing and to bargain collectively. The employer adopts an open attitude towards the activities trade unions and their organizational activities.
- 13.7** Workers are not required to provide their employer with any form of deposit, financial or otherwise (e.g. their identity papers).
- 13.8** Workers are free to leave their employer in accordance with the prevailing national employment legislation.
- 13.9** Working hours comply with national laws and benchmark industry standards, whichever affords greater protection.
- 13.10** Workers shall not on a regular basis be required to work in excess of 48 hours per week and shall be provided with at least one day off for every 7-day period on average.
- 13.11** Overtime shall be voluntary, shall not exceed 12 hours per week, shall not be demanded on a regular basis and is compensated at a premium rate.
- 13.12** Agreed and legally stipulated midday and work breaks must be observed.
- 13.13** Full-time workers (40 or more hours per week) must have at least 15 working days of paid leave per year.
- 13.14** Wages and benefits paid for a standard working week meet, at a minimum, national legal standards or industry benchmark standards, whichever is higher. Wages should always be enough to meet provide for the basic health and well-being of the worker and to provide some discretionary income.
- 13.15** All workers shall be provided with written or otherwise understandable information about:
  - 13.15.1 Their employment conditions including wages, provided before they enter employment.
  - 13.15.2 The particulars of their wages for the pay period concerned, each time they are paid.
- 13.16** Deductions from wages as a disciplinary measure shall not be permitted nor shall any deductions from wages not mandated by national law be permitted without the express permission of the worker concerned.

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- 13.17** Accommodation, where provided, shall comply with ILO convention N. 110 art. 85-86, and be clean, safe, and meet the basic needs of the workers to provide healthy and restful living conditions.
- 13.18** Where food is served to workers, the diet should be nutritious and varied.
- 13.19** Workers must be protected from strain due to excessive work stress and physical exertion.
- 13.20** Obligations to employees under labour or social security laws and regulations arising from the regular employment relationship shall not be avoided through the use of labour-only contracting, sub-contracting, or through apprenticeship schemes where there is no real intent to impart skills or provide regular employment, nor shall any such obligations be avoided through the excessive use of fixed-terms contracts of employment.
- 13.21** National regulations regarding legally entitled parental leave must be enforced. Mothers must receive a minimum of four weeks of paid (100% of typical pay) leave prior to the expected date of birth, as well as a minimum of twelve weeks following the actual date of birth. Should national or state government not provide 100% paid maternity leave, it is the employer's responsibility to cover any outstanding costs. The prenatal portion of maternity leave shall be extended by any period elapsing between the presumed date of childbirth and the actual date, without reduction in any compulsory portion of postnatal leave. Fathers or other parents should receive a minimum of two days of fully paid leave.

### **Section C: For Large Operators**

- 13.22** Capacity building and education of employees must be an institutional goal. The operator shall promote the personal development of its employees with educational programs in the productive, social and cultural fields, including nutrition, etc.
- 13.23** The company shall support and encourage financially or with other means social and cultural projects (developing community self-awareness or assisting in developing community health, nutrition and education) in cooperation with the surrounding communities.
- 13.24** Workers, without distinction, have the right to join or form trade unions of their own choosing and to bargain collectively. The employer adopts an open attitude towards the activities trade unions and their organizational activities.
- 13.25** Management with the union committee or the independent workers committee should establish and implement a coherent policy with regard to access to work, training, working conditions, protection and promotion, if not included in the collective bargaining agreement. Such a policy maybe aimed at increasing salary and other social benefits, like seniority, production or qualification bonus, assistance for the school career of the workers' children, canteen service, training courses, etc.
- 13.26** Transport, if required, to and from the farm has to be provided by the company, free of charge. Alternatively, an allowance has to be paid.
- 13.27** Together with the workers and/or union representatives, the management shall establish a coherent policy for Occupational Safety, Health and Working Environment, according to ILO convention No. 155 art. 4 & 11 and to the international accepted health and safety standards. This policy includes also the handling of pesticides and chemicals.
- 13.28** A basic first aid kit must be available on site, free of charge to the workers.
- 13.29** First aid facilities should be available at all operating sites, where at least one person trained in first aid procedures has to be present at the site at all times to offer their services if necessary.
- 13.30** The company has to arrange transport to the nearest hospital when necessary.
- 13.31** The free election of a Health and Safety Committee with management and workers

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representatives to constantly review the respective situation in the farm or processing unit is required unless justification can be provided by the operator as to why this is not necessary and receives approval by the certification body.

**13.32** Responsibility for health and safety shall be assigned to a senior management representative.

**13.33** All work in the farm or processing unit must be organized in such a way as not to endanger the safety and health of employees. High risk jobs and areas (e.g. spraying and handling pesticides, construction and maintenance work) must be specially indicated and supervised. Increased risk and danger areas and operations must be recorded in a Risk Register.

### **13.34**

**13.35** The union/workers committee must have the right to meet regularly during working hours, at least once a month for 2 hours. No other committee or management-worker body can be accepted as a replacement for this basic human right. In other words, no management or workers body or committee in which, employers are involved can be accepted as a replacement. They should be fully independent from the employer.

### **13.36**

**13.37** There should be regular meetings between the union committee and the management.

**13.38** Complaints regarding labour and working conditions should be forwarded, free of charge, to the Workers' Representatives or to an external independent body accepted by all parties involved.

**13.39** The farm or processing unit should draw up an equity plan, in cooperation with the workers and/or women committee, with regard to the women workers and traditionally discriminated groups.

**13.40** The operator must create, in close cooperation with the women, union or independent workers committee, a plan to combat and prevent sexual harassment, which contains elements of consciousness-building, and includes all complaints, procedures, and sanctions. This is required unless justification can be provided by the operator as to why this is not necessary and receives approval by the certification body.

**13.41** Where applicable, an elected women's committee of the workers should be established, to look into all matters of protection, non-discrimination and promotion of women workers.

### **Section E: For processing units**

**13.42** A safe and hygienic working environment shall be provided, bearing in mind the prevailing knowledge of the industry and of any specific hazards.

**13.43** Access to clean toilet facilities and to potable water, and, if appropriate, to rest areas, food consuming areas and sanitary facilities for food storage shall be provided.

**13.44** Workers shall receive regular and recorded health and safety training, and such training shall be repeated for new or reassigned workers.

**13.45** The operator must supply its employees, free of charge, with suitable clean working clothes that, preferably, are to be washed by the company in order to avoid contamination in the workers house.

### **Section F: Economic standards**

**13.46** The exporter has a responsibility in ensuring a fair share of the profitability is received by the producers, and to maintain transparency with the producers regarding the pricing of their products, i.e. providing easy access to this information.

**13.47** The FGP system will seek to ensure that workers and producers receive a fair price for

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the products certified FGP, thus, obtaining benefits and a fair return for the work invested in the production, processing and marketing of such products.

- 13.48** FGP will ensure that a fair and equal price has been established by the producers/workers organizations and its partners, in order to allow the producers/workers organizations to cover the costs of production and logistics; and to pay a remuneration that allows the producers and workers to satisfy their fundamental needs, as well as their family's needs and to improve their quality of life (education, culture, health, lodging, etc.), to generate a margin of return that allows them to realize the investments (production tools, etc.) and to contribute to the satisfaction of collective needs (organizational strength of producers organizations).
- 13.49** Funds for collective projects. - A transparent decision-making process in prioritizing community needs to be addressed when allocating premium payments.
- 13.50** The fair sale price paid by a buyer has to therefore cover the foregoing with a price premium of a minimum 5% payable on the cost of production of the farmers, processing costs, cost of certification etc. for organic and FGP products, based on weekly auction prices or conventional market prices.
- 13.51** The FGP certification system will ensure as much as possible, that there is not interference from the commercial partners and that the producers manage collectively and democratically the decisions regarding the use of these funds for collective projects.

## 14. Labelling

**14.1** The following information must be included on the label of goods, whether intended for wholesale or retail:

14.1.1 The name of the certifying body

14.1.2 An identification of the producer or processor legally responsible for the product.

14.1.3 A complete list of ingredients in the product, where organic and FGP products are clearly distinguished from non-organic ones, and FGP products are distinguished from organic ones. The ingredients shall appear in descending order (mass/total mass) in the list of ingredients, and in the same color, and with identical style and lettering across ingredient types.

14.1.4 Lot number of producer (this number will be supplied by the producer inspected, and will reference basic information from the records from the farmer(s)).

**14.2** Products containing ingredients produced in compliance with this standard, containing 70% (by weight, excluding water and salt) or more organic product (including FGP content) in their ingredients, may use the terms "FGP," "Forest Garden Product(s)", or "made with organic ingredients" on their label.

14.2.1 Claims that the product is "organic" are restricted to products with 95% (by weight, excluding water and salt) or more organic content (including FGP content) in their ingredients.

14.2.2 When the total percentage of organic product ingredients is written on a label, FGP ingredients may be included in the calculation of this percentage. However, in this case, the percentage of FGP ingredients shall not be listed as well. Alternatively, the percentage of organic (non-FGP) product ingredients and FGP ingredients may be written separately.

**14.3** Products containing ingredients produced in compliance with this standard, and containing less than 70% (by weight, excluding water and salt) organic product (including FGP content) in their ingredients, may only use the terms "FGP," "Forest Garden Product(s)", or "organic" on their label in order to characterize ingredients in the list of ingredients on the label.

**14.4** Operators marketing products produced on land in the process of conversion to FGP, or from plants or animals in the process of conversion, must clearly distinguish these products from those that are fully converted, by including the term "in conversion" wherever "Forest Garden Product" or "FGP" is used.

14.4.1

**14.5** |Cosmetic products that contain FGP ingredients may utilize the terms "FGP" and or "Forest Garden Product(s)" as long as the label includes a list of ingredients that distinguishes between FGP and non-FGP ingredients.

## 15. **Annex A: Permitted Materials for use in Soil Fertilizing and Soil Conditioning**

**15.1** For soil management and improving fertility the following materials are permitted:

- Composts from organic farm or kitchen and garbage refuse
- Composts from plant residues
- Peat and/or sphagnum
- Coconut fiber dust
- Wood ash
- Sawdust, wood waste, bark or rice hull from untreated sources
- Organic by-products from food and textile industries
- Straw
- Slurry or animal urine
- Heat composted animal manures
- Blood and bone, fish meal, hoof and horn meal, or other waste products from fish or animal processing
- Seaweed or seaweed meal
- Bio-Dynamic preparations 500-507
- Approved microbial or biological preparations
- Massive Soil Inoculation (MSI) from identified sources
- Naturally occurring biological organisms (i.e. worms) but excluding products from recombinant DNA technology
- Fish products
- Homeopathic preparations
- Ayurvedic and other traditional plant based preparations
- Basic slag
- Dolomite and lime
- Gypsum (Calcium sulphate) from a natural source
- Rock phosphate
- Calcined phosphate, provided that calcination was intended to increase purity, and not solubility, as determined by the certifying body.
- Rock Potash and sulphate potash
- Crushed mineral bearing rock
- Stone meal
- Clay
- Trace minerals (includes materials such as Borax, Epsom salts, but not synthetically chelated elements). Natural chelates such as lingo sulphates are acceptable, as are those using natural chelating agents such as citric, malic, tartaric and other di- and tri-acids.
- Radioactive rock: must be applied as active compost or re-mineralizing rock flour and must not exceed the radiation levels of native basaltic or igneous rock.
- Human manure, but only if composted and processed in a manner that limits the likelihood of transmission of any human pathogens.

**15.2** These products must be free of additives that are prohibited substances such as artificial fertilizers.

**15.3** The repeated use of any product has the potential to introduce unwanted residues and contaminants. Heavy or repeated use of any products should be supervised by an accredited certifying organization and based on an assessment of need and with knowledge of chemical analyses.

## 16. Annex B: Approved Materials for Control of Pests and Diseases in Plants

- 16.1** The reliance on substances rather than management practices for the controlling of pests and diseases is not in accordance with Analog Forestry principles. Caution needs to be exercised even when using products derived from natural sources, as they may be toxic.
- 16.2** Forest Garden production systems control pests according to a hierarchy of practices starting with prevention, and then physical, mechanical, biological methods and only then the application of substances, as referred to in B.5 below.
- 16.3** Where applicable, the effect of bio-concentration should be examined in respect to each ecosystem.
- 16.4** The following substances are permitted for use in the management of a Forest Garden:
- Pyrethrum\* extracted from *Chrysanthemum cinerarifolium*, without piperonylbutoxide
  - Rotenone extracted from *Derris elliptica*
  - Quassia extracted from *Quassia amara*
  - Ryana extracted from *Ryania speciosa*
  - Neem oil and extracts from *Adzirachta indica*
  - Capsaicin extracted from *Capsicum* spp.
  - Grapefruit seed extract
  - Natural plant extracts, excluding tobacco, obtained by infusion and made by the farmer, without additional concentration, such as garlic extract, etc., and used as a repellent or pest/disease control.
  - Essential oils
  - Vinegar
  - Fermented sprays
  - Propolis
  - Homeopathic preparations
  - Seaweed, seaweed meal, seaweed extracts, sea salts and salty water
  - Organisms and their derivatives, such as *Bacillus thuringiensis* and Spinosad
  - Pheromones
  - Granulose virus preparations
  - Light mineral oils
  - Diatomaceous earth in non-heat-treated form
  - Wood ash
  - Stone meal
  - Potassium soap (soft soap)
  - Sodium silicate
  - Sodium bicarbonate
  - Sulphur in a wettable or dry form
  - Copper (hydroxide is the preferred form)
  - Bordeaux mixture, Burgundy mixture and other forms of copper
  - Potassium permanganate
  - Carbon dioxide and nitrogen gas
  - Metaldehyde baits in traps or enclosed from the environment
- 16.5** Caution needs to be exercised with respect to co-formulants (e.g. wetting agents,

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adjuvants, stickers, dispersants, synergists, etc.) that may be contained in some of commercial formulations of the above products. Only products the certifying body is certain, without a doubt, are not carcinogens, mutagens, teratogens or neurotoxins are acceptable. Acceptable wetting agents include seaweed products and vegetable organic soaps.

## 17. Annex C: Approved Materials for Control of Pests and Diseases in Animals

- 17.1** The maintenance of a healthy bees and livestock within an Analog Forest are based on the provision of conditions for healthy life by providing all of the nutritional and health promoting substances from a diverse ecosystem at trophic levels pertaining to that animal. The social needs of the animals must also be addressed.
- 17.2** The following substances are permitted for use in the management of bees and livestock within a Forest Garden:
- Pyrethrum extracted from *Chrysanthemum cinerarifolium*, without piperonyl butoxide
  - Rotenone extracted from *Derris elliptica*
  - Quassia extracted from *Quassia amara*
  - Ryana extracted from *Ryania speciosa*
  - Neem oil and extracts from *Adzirachta indica*
  - Garlic oil, garlic extract or crushed garlic
  - Natural plant extracts obtained by infusion
  - Seaweed, seaweed meal, seaweed extracts
  - Homeopathic preparations
  - Ayurvedic or other traditional preparations as long as they do not violate the aims stated in Sections 10 and 11
  - Essential oils
  - Cider vinegar
  - Tallow
  - Nettle and other herbal powders
  - Diatomaceous earth in non-heat-treated form
  - Sodium bicarbonate
  - Sulphur
  - Copper sulphate
  - Zinc sulphate
  - Selenium and other trace elements, preferably from natural sources
  - Vaccines (may be used only for a specific disease which is known to exist on the organic farm or on neighbouring farms and which threatens livestock health and which cannot be effectively controlled by other management practices.)
  - Preferably natural vitamins or supplements allowed.

18. **Annex D: List of permitted non-organic additives and processing aids for food processing**

INT'L NUMBE RING SYSTEM	PRODUCT	ADDITIVE	PROCESSING, post-harvest, or handling aid	LIMITATION/ NOTE
INS 170	Calcium carbonate	X	X	Not for coloring
INS 184	Tannic acid		X	Filtration aid for wine
INS 220	Sulfur dioxide	X		Only for wine
INS 224	Potassium metabisulphite	X		Only for wine
INS 270	Lactic acid	X	X	
INS 290	Carbon dioxide	X	X	
INS 296	L-malic acid	X	X	
INS 300	Ascorbic acid	X		
INS 306	Tocopherols, mixed natural concentrates	X		
INS 322	Lecithin	X	X	Obtained without bleaches
INS 330	Citric acid	X	X	
INS 331	Sodium citrates	X		
INS 332	Potassium citrates	X		
INS 333	Calcium citrates	X		
INS 334	Tartaric acid	X	X	Only for wine
INS 335	Sodium tartrate	X	X	
INS 336	Potassium tartrate	X	X	
INS 341	Mono calcium phosphate	X		Only for "raising flour"
INS 342	Ammonium phosphate	X		Restricted to 0.3 gm/l in wine
INS 400	Alginic acid	X		
INS 401	Sodium alginate	X		
INS 402	Potassium alginate	X		
INS 406	Agar	X		
INS 407	Carrageenan	X		
INS 410	Locust bean gum	X		
INS 412	Guar gum	X		
INS 413	Tragacanth gum	X		
INS 414	Arabic gum	X		
INS 415	Xanthan gum	X		
INS 428	Gelatin		X	
INS 440	Pectin	X		Unmodified

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INS 500	Sodium carbonates	X	X	
INS 501	Potassium carbonates	X	X	
INS 503	Ammonium carbonates	X		Only for cereal products, confectionery, cakes and biscuits
INS 504	Magnesium carbonates	X		
INS 508	Potassium chloride	X		
INS 509	Calcium chloride	X	X	
INS 511	Magnesium chloride	X	X	Only for soybean products
INS 513	Sulfuric acid	X	X	As processing aid for PH adjustment of water during sugar processing. As additive for wine and apple cider production
INS 516	Calcium sulphate	X		For soybean products, confectionery and in bakers' yeast
INS 517	Ammonium sulphate	X		Only for wine, restricted to 0.3 mg/l
INS 524	Sodium hydroxide	X	X	For sugar processing and for the surface treatment of traditional bakery products
INS 526	Calcium hydroxide	X	X	Food additive for maize tortilla flour Processing aid for sugar
INS 551	Silicon dioxide (amorphous)		X	
INS 553	Talc		X	
INS 558	Bentonite		X	Only for fruit and vegetable products
INS 901	Beeswax		X	
INS 903	Carnauba wax		X	
INS 938	Argon	X		
INS 941	Nitrogen	X	X	
INS 948	Oxygen	X	X	
	Ethylene		X	Degreening of citrus and ripening
	Activated carbon		X	
	Casein		X	Only for wine
	Cellulose		X	
	Diatomaceous earth		X	
	Ethanol		X	
	Isinglass		X	Only for wine
	Kaolin		X	
	Perlite		X	
	Preparations of bark		X	Only for sugar

19. **Annex E: Partial list of permitted equipment and facility cleaners and disinfectants**

<b>PRODUCT</b>	<b>LIMITATION/NOTE</b>
Acetic acid	
Alcohol, ethyl (ethanol)	
Alcohol, isopropyl (isopropanol)	
Calcium hydroxide (slaked lime)	
Calcium hypochlorite	An intervening event or action must occur to eliminate risks of contamination
Calcium oxide (quicklime)	
Chloride of lime (calcium oxychloride, calcium chloride, and calcium hydroxide)	
Chlorine dioxide	An intervening event or action must occur to eliminate risks of contamination
Citric acid	
Formic acid	
Hydrogen peroxide	
Lactic acid	
Natural essences of plants	
Oxalic acid	
Ozone	
Peracetic acid	
Phosphoric acid	Only for dairy equipment
Plant extracts	
Potassium soap	An intervening event or action must occur to eliminate risks of contamination
Sodium carbonate	
Sodium hydroxide (caustic soda)	An intervening event or action must occur to eliminate risks of contamination
Sodium hypochlorite	An intervening event or action must occur to eliminate risks of contamination

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Sodium soap	An intervening event or action must occur to eliminate risks of contamination
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## 20. Annex F: Criteria for the evaluation of inputs and other allowed substances

- 20.1** Each input must be necessary and necessity will be determined in the context of the use of the product, considering yield, product quality, environmental safety, ecological protection, landscape and human/animal welfare. Input use may be limited to crops, regions and seasonal or other conditions.
- 20.2** The material should be of animal, vegetable, microbial or mineral origin. Synthesized materials occurring naturally will be accepted. If access to renewable naturally occurring products is available, then they should be the first choice.
- 20.3** The ingredients of the product may be subjected to the following treatments:
- 20.3.1 Mechanical
  - 20.3.2 Physical
  - 20.3.3 Enzymatic
  - 20.3.4 Other interaction with micro-organisms
  - 20.3.5 Chemical (restricted in many circumstances)
- 20.4** Any collection of raw materials must be non-destructive (the exception being a pest species where destruction may be acceptable) and be in accordance applicable law.
- 20.5** The input may not be harmful and have lasting negative effects on the environment. Nor should the input give rise to unacceptable pollution of surface or ground water, air or soil. All stages during the processing, use and breakdown must be acceptable.
- 20.6** All inputs must be degradable to CO<sub>2</sub>, H<sub>2</sub>O and /or their mineral form. Inputs with a high acute toxicity to non-target organisms should have a maximum half-life of 5 days. Natural substances used as inputs which are not considered toxic do not need to be biodegradable within a limited time.
- 20.7** When inputs have a relatively high acute toxicity for non-target organisms, their use will be restricted or prohibited. Measures have to be taken to guarantee the survival of these non-target organisms. Application rates may be limited.