

National Association for Sustainable Agriculture Australia Limited



NASAA ORGANIC STANDARD

December 2004

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FOREWORD

It is now some 20 years since the founding members of NASAA set out a framework for producers of organic foods. The work done by that small group resulted in organic products becoming more widely known on the domestic and overseas markets. Importantly, that early acceptance of products was only made possible because standards were in place to substantiate the organic claims.

In more recent years a number of governments and economic blocs around the world have introduced rules for products bearing "organic" descriptors. Yet defining organics is an issue that remains contentious both in a legal sense and in potential risks to the long-term credibility of the Australian industry.

Throughout this time, the organic industry has remained steadfast in its aim to provide comprehensive and practical standards for those working within sustainable agroecosystems. This commitment has resulted in world-wide recognition of Australian organic products. It has also resulted in recognition of the wealth of expertise in the design and management of organic systems within organisations such as NASAA.

The organic industry has been a pacesetter in many areas that are at the forefront of food standards and food control. The industry established the first whole-of-production standards for food, fibre and essential oils including harvesting, storage, handling, processing and marketing. All stages were pegged to verification and regular inspection in order to provide consumer protection. Significantly, identification of the certified producer on products provided a reliable trace-back system well before this system was suggested by any other industry. Product traceability is only today being discussed by international fora in response to consumer concerns about the safety and integrity of the food supply.

This revised standard will be welcomed by NASAA certified operators and by newcomers to the organic industry. It builds on the fundamental principles of organic production as set out by the NASAA founders and incorporates the developments and dynamics of organic management systems as they exist today. The standard also reinforces NASAA's long-term allegiance to influencing the impact of agriculture on the environment and on natural biodiversity.

The revised standard is clear and well presented with useful explanatory notes. It should ensure that NASAA remains a significant player in this field at the national and international levels.

Ruth Lovisolo



Chair

Working Group on Organic Foods of the UN FAO/WHO Codex Alimentarius Commission
1992-2003

ACKNOWLEDGMENT

On behalf of NASAA I am pleased to introduce the latest edition of the NASAA Organic Standard. The NASAA Organic Standard is, we believe, a major contribution to the growing organic industry both within Australia, where NASAA started, and overseas, where NASAA certifies operators in a growing number of countries. It is a major tool assisting NASAA's vision to provide world class certification services to further sustainable farming and processing operations throughout Australia and overseas.

This document replaces NASAA's previous Standards, which were published in two separate volumes for producers and processors respectively. The NASAA Organic Standard has been completely re-written and integrated into one volume covering NASAA standards in all areas from production through to on-farm and off-farm processing, transportation, export and import. We are confident that this edition will provide existing and new NASAA operators with clear and informative requirements and advisory guidelines on organic management.

This edition of NASAA's Standard represents the collective work, thought and input of the eight members of NASAA's Standards Committee, led by NASAA's Technical Director Rod May and coordinated by NASAA's Certification Standards Officer Kate Hamer. I warmly thank the Committee and acknowledge the effort they have made to ensure that this edition sets a new standard of excellence in the writing and elaboration of organic principles, recommendations, standards and standards derogation.

This NASAA Organic Standard is not cast in stone but is an organic, living and dynamic document. Our Standards Committee welcomes comment regarding amendments, new additions and clarification, and these should be sent to the Secretary of the Committee for consideration.

A handwritten signature in black ink, appearing to read 'G Devrell', with a horizontal line underneath.

George Devrell
Chairman

INTRODUCTION

The National Association for Sustainable Agriculture, Australia Limited (NASAA) is an international association of organic operators. The operators endeavour to use sustainable organic agricultural practices, which maintain a balance of productivity with low impact on the environment, thus preserving the ecological quality of the land for future use.

This Standard comprises four sections. They outline the:

- **GENERAL PRINCIPLES** behind the architecture of organic agriculture and include a range of
- **RECOMMENDATIONS** which should be put into place where appropriate.

These two sections are clearly identified, but unlike the numbered standards, are not subject to inspection and compliance. The recommendations could, if deemed appropriate, become standards in future revisions.

- **STANDARDS** are the minimum requirements which must be met, and the
- **DEROGATIONS** represent possible exceptions to a standard and the specific conditions under which they may be authorised.

This Standard also outlines the practices and materials that are allowed, restricted or prohibited for use in order to be certified by NASAA. They define the minimum conditions for certification under NASAA's organic certification program, which is accredited jointly by AQIS and IFOAM.

Requirements, recommendations and practices referred to in this Standard do not take precedence over and must not lead to the contravention of state, national or international law. It is the responsibility of the operator to acquaint themselves with relevant laws and regulations.

Amendments to this Standard are effective immediately for new applicants to the NASAA Certification Program. For existing licensees, amendments become effective six (6) months from the date of publication. All licensees will be notified in writing by either an amendment sheet describing the changes to the existing Standard, or by the receipt of a copy of the reprinted Standard in the case of a major revision.

This Standard is subject to continuous upgrading and amendment. Written submissions regarding possible changes are welcomed.

NASAA is also accredited by the Ministry of Agriculture, Forestry and Fisheries (MAFF) to certify under the Japanese Agricultural Standard (JAS) and NASAA's subsidiary company NASAA Certified Organic (NCO) is accredited by the USDA to certify under the National Organic Program (NOP).

NASAA's certification program ORGAA certifies retailers, restaurateurs, markets and home delivery services.

Details of these certification programs including relevant standards are the subject of separate publications.

SECTION ONE – GENERAL

1.1 DEFINITIONS

- **Accreditor:** a body such as AQIS or IFOAM which accredits NASAA to provide certification services under defined conditions.
- **Activator:** additives to the compost pile which contain a nitrogen source or sugars. Their purpose is to increase microbial activity.
- **Agro-ecosystem:** the ecological farming system within which production takes place.
- **Anaerobic Compost:** composting methods without the use of atmospheric oxygen.
- **Appeal:** request by an operator for reconsideration of any decision made by NASAA in relation to their certification. Appeals must be submitted to NASAA in writing within 30 days of a determination being made by NASAA.
- **Aquaculture cohort:** a group of fish generated during the same spawning season and born during the same time period.
- **Biodegradable:** subject to biological decomposition into simpler biochemical or chemical components.
- **Biodiversity:** the variety of life forms and ecosystem types on Earth. Includes genetic diversity (ie. diversity within species), species diversity (ie. the number and variety of species) and ecosystem diversity (total number of ecosystem types).
- **Biodynamic:** (BD) production system based upon principles and preparations established by Rudolf Steiner.
- **Buffer Zone:** a clearly defined and identifiable boundary area bordering an organic production site that is established to limit application of, or contact with, prohibited substances from an adjacent area.
- **Certified:** to have been inspected and licensed by NASAA in accordance with this Standard.
- **Certification:** means the acceptance by NASAA of an operator's conformity to this Standard as verified through inspection and audit by NASAA.
- **Certification Transference:** the acceptance by NASAA of another certification body, to enable the use of products thereby certified in goods to be labelled with reference to NASAA. This process requires review of all accreditation documentation, standards and other procedures involved in the certification process to determine equivalence, and acceptability, by NASAA.
- **Compost:** the product of a managed process through which micro-organisms break down plant and animal materials into a more available form suitable for application to the soil.
- **Conventional:** farming that relies on synthetic inputs and is not operated organically (ie. any system not compliant with the principles outlined in this Standard).
- **Co-processor:** an entity that is subcontracted by a certified operator to undertake a service such as packing, storage, processing etc. The co-processor is not certified in their own right and therefore may not use the NASAA label (except where it is involved on containers or packaging of the licensee's product) or hold itself out as certified.
- **Crop Rotation:** the practice of alternating the species or families of annual and/or biennial crops grown on a specific field. Perennial cropping systems employ means such as alley cropping, intercropping and hedgerows to introduce biological diversity in lieu of crop rotation.
- **Cultural Management:** methods used to enhance crop health and minimise weed, pest or disease problems without the use of substances; examples include the selection of appropriate varieties and planting sites; proper timing and density of planting; cover crops, resistant varieties; crop rotation; integrated pest management.
- **Decertification:** the total withdrawal of certification by NASAA.
- **Deferral:** a period in which operators request postponement of certification as a result of changes in operation. Deferral is not automatically granted. During deferral the operator must continue to demonstrate adherence to this Standard and no sales can be made with reference to NASAA.
- **Detectable Residue:** the amount or presence of chemical residue or sample component that can be reliably observed or found in the sample matrix by current approved analytical methodology.
- **Direct Source Organism:** the specific plant, animal or microbe that produces a given input or ingredient or that gives rise to a secondary or indirect organism that produces an input or ingredient.
- **Eutrophication:** the enrichment of water by nutrients especially compounds of nitrogen and phosphorus, causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms and the quality of the water concerned.

- **Exception:** permission granted to an operator from NASAA to be excluded from the need to comply with normal requirements of this Standard. Exceptions are granted on the basis of clear criteria, with clear justification and for a limited time period only.
- **Export Certificate:** mandatory documents issued by NASAA to confirm that export goods claiming to be organic are certified by an AQIS accredited certification organisation.
- **Fallow:** cultivated land that is not seeded.
- **Farm Unit:** a farm with clear physical and legal boundaries.
- **Feed Ration:** feed allowance for an animal in any given period of a day or longer.
- **Feed Supplement:** component added to correct or overcome a deficiency or to prevent the development of a deficiency.
- **Fertigation:** the application of nutrients through irrigation systems.
- **Food Additive:** an enrichment, supplement or other substance which can be added to a foodstuff to affect its keeping quality, consistency, colour, taste, smell or other technical property.
- **Food Ingredient:** substances, including additives used in the preparation of products for human consumption that are still present, albeit in a modified form, in the final product.
- **Genetic Engineering:** genetic engineering is a set of techniques from molecular biology (such as recombinant DNA) by which the genetic material of plants, animals, micro-organisms, 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 modification include, but are not limited to: recombinant DNA, cell fusion, micro and macro injection, encapsulation, gene deletion and doubling. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridisation.
- **Green Manure:** a crop that is produced for the purpose of soil improvement and may be mulched or incorporated into the soil.
- **HACCP:** stands for Hazard Analysis Critical Control Points and refers to the systematic process of analysis of potential hazards and actions for remedy in the production system.
- **Handling, Processing and Preparation:** includes the operations of manufacturing, preserving, milling, slaughtering, storing, packing and handling of agricultural products of organic origin and also alterations made to the labelling concerning the presentation of the organic production method.
- **Homoeopathic Treatment:** treatment of disease based on administration of remedies prepared through successive dilutions of a substance that in larger amounts produces symptoms in healthy subjects similar to those of the disease itself.
- **Humus:** decomposed tissue of plant and animal materials. The original tissues contain a wide range of organic compounds, which typically decompose at different rates.
- **Inert Ingredient:** any substance (or group of substances with similar chemical structures) other than an active ingredient which is intentionally included in any pesticide product.
- **Ingredient:** any substance used in the preparation of an agricultural product that is still present in the final commercial product as consumed.
- **Input:** any product or material applied or used in the course of production.
- **Inspection:** a process used by NASAA to verify compliance with this Standard.
- **Inspection Review Committee (IRC):** NASAA's committee, which evaluates inspection reports and makes certification determinations and recommendations to NASAA.
- **Ionising Radiation:** high energy emissions from radionucleotides capable of altering a food's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites and pests in food.
- **Inspector:** any person deemed appropriately qualified who is contracted or used by NASAA to conduct inspections for certification purposes.
- **Integrated Pest Management (IPM):** an integration of any or all methods of pest management approved under this Standard which may include chemical, mechanical or biological techniques.
- **In Conversion:** a production system which has adhered to this Standard for a minimum of one year and which has been certified as such but which does not yet fully qualify as organic or biodynamic.
- **Ionising Radiation:** radiation of the type produced by gamma rays from radionuclides such as cobalt-60 or caesium -137, electrons generated from machine sources, or X-rays generated from machine sources, prohibited in organic systems.

- **Labelling:** any words, particulars, trademarks, brand names, names of certifying organisations, pictorial matter or symbols appearing on any packaging, document, notice, label board or collar accompanying or referring to a product specified in this Standard.
- **Licensee:** the person legally responsible for maintaining compliance to this Standard.
- **Maximum Permissible Concentration (MPC):** maximum concentrations of given substances (heavy metals) allowed in foods as defined by Standard 1.4.2 under Food Standards Australia and New Zealand (FSANZ).
- **Maximum Limit (ML):** maximum residues of given substances, such as agrichemicals allowed on foods as set by Food Standards Australia and New Zealand (FSANZ) under Standard 1.4.1. Previously referred to as Maximum Residue Limits (MRL). Where there is no specified limit for a particular chemical substance for a specified product there is zero tolerance for the particular chemical.
- **Mulch:** any substance spread or allowed to remain on the soil surface to conserve soil moisture and shield soil particles from the erosive forces of raindrops and run-off.
- **Non Agricultural Product:** a substance that is not a product of agriculture, such as a mineral or a bacterial culture, salt and water that is used as an ingredient in an agricultural product.
- **On-farm Processing:** where processing occurs on-farm for the sole use of the grower and/or for one other producer, it is referred to as on-farm processing. Examples are dehydrating, cleaning, de-hulling, packing, storing and grading. If processing more than one other producer's product, the on-farm facility shall be certified in its own right for processing.
- **Operator:** the individual responsible for the conduct of the operation who may or may not be the person licensed to use the NASAA Label.
- **Organic:** a labelling term that refers to an agricultural product produced in accordance with the NASAA Standard.
- **Organic Management Plan (OMP):** a written document designed to help certified operators achieve best practice farm management through documenting current and future management practices. The plan is a flexible tool for good farm management and provides NASAA with an important means of assessing compliance with this Standard. An inherent aspect of an OMP is ongoing monitoring of all aspects of the organic farming system.
- **Organic Matter (OM):** that fraction of the soil that includes plant and animal residues at various stages of decomposition, cells and tissues of soil organisms, and substances synthesised by the soil population.
- **Organic Quality Management System:** means the system deployed by an operator that documents and demonstrates that operator's capacity to comply with this Standard.
- **Parallel Production:** producing the same product organically and conventionally by the same operator or producing Organic and In Conversion product on the same property or by the same operator.
- **Principal Display Panel:** means the panel on packaging which identifies the primary or advertised description of the product.
- **Potable Water:** as defined by the National Health and Medical Research Council under the Australian drinking water guidelines (ie suitable for drinking).
- **Precedent:** a certification decision concerning a new situation or set of circumstances that may serve to guide future decision. Precedents are normally developed in consultation with the Standards Committee when the situation is not covered by this Standard.
- **Pre-certification:** the period of time (12 months minimum) that must elapse prior to attaining certification at the Conversion level. The period commences upon receipt of payment, application form and completed "Applicant Organic Management Plan Questionnaire".
- **Processing Aid:** substances intentionally added to food for use in the processing of raw materials, food or food ingredients in order to fulfil an essential technological purpose during treatment or processing. Their use may result in their unavoidable presence in the final product.
- **Product Acceptance:** the acceptance of a product, or ingredient, certified by another certification body to be used in a final product which makes reference to NASAA.
- **Production or Processing Unit:** an enterprise, or portion thereof, that produces a product or food under specific organic management practices as inspected by NASAA.
- **Prohibited:** substances that are not permitted under this Standard. The NASAA Standard is "positive" therefore unless a substance is listed as being permitted, it is not permitted.
- **Residue Testing:** an official or validated analytical procedure that detects, identifies, and measures the presence of chemical substances, their metabolites, or degradation products in or on raw or processed agricultural products.

- **Restricted:** practices and materials that can be implemented subject to stated provisos.
- **Sanctions:** measures taken against certified operators who have failed to comply with this Standard or other requirements of the certification body.
- **Sewage Sludge:** a solid, semisolid, or liquid waste generated from human or industrial activity.
- **Soil and Water Quality:** observable indicators of the physical, chemical, or biological condition of soil and water, including the presence of environmental contaminants.
- **Split Certification:** parts of the farm may be certified at different levels.
- **Suspension:** a defined period, ordinarily no greater than two weeks, during which an operator must provide NASAA with verification of compliance with this Standard following non-compliance with any section of this Standard. During this period an operator must not sell produce with reference to NASAA certification.
- **Synthetic:** produced by artificial processes and not the ordinary processes of nature.
- **Wild Harvest:** the production and harvesting of wild or naturally occurring foods and fibres.
- **Yearly Summary:** documentation to be completed by all certified operators at the end of the financial year to record their activities, including inputs, sales and projected sales.

1.2 ACRONYMS

- **AA:** AQIS Administrative Arrangements
- **APVMA:** (formerly NRA) Australian Pesticide and Veterinary Medicines Authority
- **AQIS:** Australian Quarantine and Inspection Service
- **BAA:** Biodynamic Agriculture Australia
- **CCA:** Copper, Chromium, Arsenate treated timber
- **DAFF:** (formerly AFFA) The Australian Government Department of Agriculture, Fisheries and Forestry
- **EIS:** Environmental Impact Statement
- **EMS:** Environmental Management System
- **FSANZ:** (formerly ANZFA) Food Standards Australia and New Zealand
- **GE:** Genetic Engineering
- **GMO:** Genetically Modified Organism
- **HACCP:** Hazard Analysis Critical Control Points
- **IBS:** IFOAM Basic Standard
- **IFOAM:** International Federation of Organic Agriculture Movements
- **ILO:** International Labour Organisation
- **IPM:** Integrated Pest Management
- **IRC:** NASAA's Inspection Review Committee
- **ML:** Maximum Limit
- **NASAA:** National Association for Sustainable Agriculture Australia
- **NATA:** National Association of Testing Authorities
- **OC:** Organochlorines
- **OIECC:** Organic Industry Export Consultative Committee
- **OMP:** Organic Management Plan
- **OP:** Organophosphates
- **PPM:** Parts Per Million (equivalent to mg/kg)
- **QA:** Quality Assurance
- **RIRDC:** Rural Industries Research and Development Corporation
- **WHO:** World Health Organisation

1.3 PURPOSE

NASAA certification is a total quality management system developed for organic production. NASAA certification allows the operator, who is inspected and approved by NASAA, to advertise and label their produce/products as meeting the NASAA Organic Standard.

1.4 AIMS AND PRINCIPLES

Organic agriculture is a holistic system built upon natural ecological processes. It values the welfare of both the producer and the consumer of organic food and fibre products, and is committed to conserving natural resources for the benefit of all future generations. Healthy soil is the prerequisite for healthy plants, animals and products. The maintenance of soil health by ecologically sound means is at the heart of organic production systems and consequently production systems not based on soil (eg hydroponic systems) are not acceptable under this Standard. The aims of organic agriculture are:

- 1) To produce optimal quantities of food and fibre compatible with human and environmental needs;
- 2) To produce food of high nutritional value;
- 3) To work within natural systems in ways which enhance those systems;
- 4) To maintain and increase long term productivity of soil;
- 5) To promote wise use of land, water and vegetation and minimise off farm effects of agriculture on aquatic and terrestrial systems;
- 6) To foster local and regional production and distribution;
- 7) To use renewable resources as much as possible;
- 8) To maintain and increase long-term fertility and biological activity of soils using locally adapted cultural, biological and mechanical methods as opposed to input reliance;
- 9) To maintain and encourage agricultural and natural biodiversity on the farm and surrounds through sustainable production systems and protection of plant and wildlife habitats;
- 10) To provide balanced nutrients, optimise opportunities to cycle nutrients within the farm, to recycle nutrients and energy that leave the farm or other farms in food and fibre products that are not consumed (ie organic waste containing energy and nutrients), with the aim of feeding the soil ecosystem;
- 11) To provide livestock with conditions which satisfy their behavioural and physiological needs;
- 12) To maintain or increase as appropriate the genetic diversity of domesticated and native plants, animals and other organisms on the farm (this precludes the use of Genetic Engineering);
- 13) To allow everyone involved in organic production a quality of life to cover their basic needs and obtain adequate return and satisfaction from their work, including a safe working environment;
- 14) To progress towards an entire organic production chain, which is both socially just and ecologically responsible; and
- 15) To recognise the importance of and protect and learn from, indigenous knowledge and traditional farming systems.

SECTION TWO – GENERAL CERTIFICATION REQUIREMENTS

2.1 PRE-CERTIFICATION

GENERAL PRINCIPLES

This period, referred to as Pre-certification, commences from NASAA's receipt of the initial Organic Management Plan Questionnaire and statutory declaration (following the formal application made to NASAA). During this *minimum 12-month* period, an initial inspection will take place, at which time residue testing of soil and/or tissue samples will take place.

During the Pre-certification period operators will develop and document management strategies to detail how they will comply with the requirements of this Standard. Such documentation forms the basis of ongoing monitoring and evaluation of the system to ensure ongoing adherence to the Standard and progression over time to organic certification. The same documentation forms the basis of the Organic Management Plan.

STANDARDS

- 2.1.1 Prior to certification at the Conversion to Organic level, a period of at least 12 months under the inspection system to demonstrate compliance shall elapse.
- 2.1.2 No sales making any reference to NASAA or NASAA certification may take place during the Pre-certification period.
- 2.1.3 All new entrants into certification for farm production will be required to go through the Pre-certification period.
- 2.1.4 During the Pre-certification period all operators will be required to develop an Organic Management Plan outlining current and future management strategies in relation to this Standard.

DEROGATION

Operators who are already certified by NASAA may apply to increase their area or make a new application without having to undergo the Pre-certification period provided the following criteria are met:

- *The production system for which a new application is being made is not substantially different to that for which certification is already held; and*
- *Records of farm inputs and management practices for the previous three years are provided with an application to NASAA which demonstrates compliance with this Standard.*

The final determination on the status of all new applications to certification will be based on a review of the inspection documentation.

2.2 CONVERSION TO ORGANIC

GENERAL PRINCIPLES

Making the changes that take a property from conventional production to organic certification usually involves changes to management practices implemented over a period of time to achieve a sustainable agroecosystem. Such changes to management practices focus on the development of preventative management strategies to reduce the reliance on inputs, and the implementation of monitoring systems to evaluate farming activities on an ongoing basis. This process is known as converting to organic, and the first level of certification where a label can be used is called "Conversion to Organic". Part of the farm may be converted to begin with provided there is an outline of how the whole farm will be gradually converted to organic production.

STANDARD

- 2.2.1 The operator will remain at the Conversion level for at least one year before being considered eligible for an upgrade to Organic status.

2.3 ORGANIC CERTIFICATION

GENERAL PRINCIPLES

Organic certification is achieved when an operator can demonstrate that they have achieved a farming system that is compliant with the relevant sections of this Standard. Organic production systems require an ongoing commitment to organic production practices.

STANDARD

- 2.3.1 Certification as Organic may be achieved only after there is demonstrated compliance, through inspection, with all relevant sections of this Standard for a minimum of 3 years, and the Pre-

certification and Conversion to Organic requirements have been fulfilled. (See Sections 2.1 and 2.2 above).

DEROGATION

Exceptions to the requirement for obtaining organic certification as defined in section 2.2 and 2.3 above may only be made by NASAA if the following circumstances apply to the operator or operation:

- *If a farm is previously certified organic by an AQIS accredited certification organisation at the beginning of the applicant's ownership and management at the time of the land acquisition;*
- *If a new entrant to certification has a verifiable recorded history of events which demonstrates that the farm has a total of at least 3 years of organic management. Such indicator events must include at least all of the following:*
 - *Detailed Organic Management Plan of inputs and practices;*
 - *Comprehensive approved soil nutrient and contamination testing with demonstrable amelioration of soil deficiencies;*
 - *A demonstration of functional plant and animal biodiversity development; and*
 - *A demonstrated land steward ship ethic/history of high level of organic management.*

OR

- *If the applicant operates a defined landless system such as honey, mushrooms, greenhouse or other specific systems (refer to Section 3.5 below).*

OR

- *If the applicant practices traditional agriculture and both the common practices and the individual operation can be shown to have complied with the requirements of this Standard for a minimum of three years.*

The above exceptions do not preclude new applicants within Australia from the Pre-certification period as defined in section 2.1 above.

2.4 ORGANIC MANAGEMENT PLAN (OMP)

GENERAL PRINCIPLES

The Organic Management Plan is the first step in the certification process, and outlines current management as well as projected future production activities which pertain to this Standard. New operators entering the certification scheme fill in the Organic Management Plan questionnaire at application. This questionnaire serves as the basis for the operator's Organic Management Plan, which may require elaboration to address significant risks or hazards associated with maintaining certification. The plan outlines procedures for reducing or eliminating such risks, and identifying opportunities to achieve the objectives of organic aims and principles. It describes the method of monitoring these procedures and resultant performances to ensure ongoing compliance to this Standard.

For split operations, the documented plan and map of the property describes how the farm will be converted fully to organic and the time frame for implementation.

STANDARDS

2.4.1 Each operator must provide an OMP which includes a history of each paddock, a description of the operating conditions and an explanation of how each of the following points will be addressed and monitored (where applicable):

- Soil management
- Fertility management
- Soil erosion, with particular attention to active gully erosion and riparian areas
- Crop rotations
- Weed management
- Pest management
- Disease management
- Windbreaks and buffer zones
- Biodiversity
- Animal health
- Water management

- Post harvest management
 - Documentation
- 2.4.2 The application questionnaire will serve as the basis for the OMP and must be completed prior to an initial inspection being conducted.
- 2.4.3 Each year at the time of inspection certified operators shall complete an OMP Update form to identify any changes to the management of their activities.

2.5 FARM MAP

GENERAL PRINCIPLES

The farm map identifies the parts of the property that are to be certified and the products that will be produced in those areas. Each paddock or production area is identified on the map with a name or a numbering system that can be related to information and records that are kept by the operator.

The farm map is suitably scaled and shows all neighbouring activities, all relevant environmental aspects and contamination risks. Boundaries shown on the map are recognisable on the ground (eg. fences, tree lines, dams, gullies etc).

STANDARD

- 2.5.1 The operator shall keep an up to date scaled map of the farm, based on legal title, that clearly shows paddocks, buildings boundaries and neighbouring activities, dams and water courses.

2.6 RECORDS

GENERAL PRINCIPLES

The operator is to maintain records that enable NASAA to scrutinise the products and processes that are used on the property. Records are the most acceptable and consistent way of supporting the operator's organic production and handling claims and provide the basis for ongoing monitoring of management strategies. Suitable records include details regarding the following:

Farm Map (refer to Section 2.5 above)

Input Records: Operators record the source, brand name (if any), amount, location and date of application of all materials applied (eg, fertility and pest/disease inputs), purchased stock, animal treatments, feed-stuffs to all paddocks, animals, production areas, irrigation water, post harvest rinse water, and seed. In addition, all receipts for inputs must be maintained and made available at inspections.

Harvest Records: Harvest records include the crop, paddock identification, date of harvest, and quantity harvested. In some cases, sales records may be the equivalent of harvest records if produce is harvested and sold within a short period of time.

Sales Record: Sales records include the date of sale, the crop, the amount sold and the paddock identification. All sales invoices for organic product contain the operator's name, NASAA registration number and level of certification as well as the consignee and date. Where an invoice lists both certified and non-certified products, each product is clearly identified. Completed consignment notes accompany all product sales. Sales documentation refer to certification of the product and the level of the product whether organic or in conversion.

Audit Trail: Certification requires detailed documentation in order to provide an audit trail, which enables the tracking of produce to the certified farm or paddock and describes the processes and products used in the course of production. A complete audit trail is made up of documents such as input records, harvest records, transport documents, storage invoices and sales records that track the crop from a specific paddock (and its production practices) to sales.

Other Records: Operators keep a farm diary which records farm activities like soil preparation, green manure, rotations, livestock records, equipment clean down records, records of buffer zone harvests, and irrigation records.

STANDARDS

- 2.6.1 Operators must retain suitable records of inputs, harvest, sales, crop rotations and other relevant activities.
- 2.6.2 All records required by NASAA must be maintained and kept for at least five years after the certified product has been sold.
- 2.6.3 Each year certified operators must complete and return to NASAA a Yearly Summary that provides details concerning inputs, sales and estimates of future production.
- 2.6.4 Operators must ensure that records allow traceability and product identification throughout the supply chain.

- 2.6.5 The NASAA Label or indication that the product is certified by NASAA, certification status of product, and producer certification number must be clearly indicated on consignment notes and/or invoices.
- 2.6.6 All records must be made available during inspection.
- 2.6.7 Operators shall maintain a complaints register.
- 2.6.8 Where part certification of a property applies records of conventional harvests and sales must be available for scrutiny during inspections.

2.7 SPLIT CERTIFICATION

GENERAL PRINCIPLES

Operators may progressively convert their farming unit under certification over time. Until such time as the entire farming unit is incorporated under certification the farming unit may operate split certification. Split certification increases the risks of contamination of certified product and operators should upon application detail to NASAA how they intend to eventually convert the entire farming unit to certification.

STANDARDS

- 2.7.1 The same crop type may not be grown as conventional, Conversion to Organic and Organic on the same farm.
- 2.7.2 All portions of the operation, including the non certified section, must be available for inspection by NASAA.
- 2.7.3 Once organic certification is granted for a site or produce, the operator is not permitted to take that site, produce or sections thereof out of certification more than once.

DEROGATION

Where there is a mandated requirement for pest, plant and disease control, operators can apply for an exception to Standard 2.7.3 above. The following will apply:

- *Where sites, commodities or sections thereof, are swapped between levels of certification, the whole property will revert to Conversion status;*
- *The entire property must be converted to organic over a period of no more than 10 years from the date of application for certification.*

2.8 PARALLEL PRODUCTION

GENERAL PRINCIPLES

Producing exactly the same crop on an organic and non organic farm by the same operator is deemed to be parallel production and substantially increases the risk of inadvertent mixing or contamination of certified product. Certified organic farms do not carry out parallel production.

STANDARDS

- 2.8.1 Organic and In Conversion product and conventional product must be distinguishable by species and/or variety, including some verifiable difference such as appearance.
- 2.8.2 Establishment of new perennial crops on certified land must be in accord with this Standard.
- 2.8.3 The only permissible parallel production is where there is perennial or annual produce from quarantine or buffer zones which must be sold as conventional.

DEROGATION

The exceptions to this requirement are:

- *Where a grower has applied to run trials for perennial crops using alternative management practices as part of converting a property. Such cases may qualify for certification for a limited period not beyond 5 years and require a high level of documentation regarding production, storage and marketing of produce which is certified and/or conventional. After this 5-year period from application, all new establishments of crops will need to be carried out in compliance with this Standard, or*
- *Where the operator is subjected to additional inspections at critical times and scrutiny of all records (including conventional produce).*

2.9 TRANSFER OF CERTIFICATION

GENERAL PRINCIPLES

Certification is approved based on a combination of the farm management practices, the land use and the growing conditions of the product and involves a contract between NASAA and the operator for a specified parcel of land and crop(s).

Certification is therefore not automatically transferable either to a new owner upon sale of a property or to a new property upon being taken up by a certified operator. The new owner will need to lodge a new application if certification is desired, and this may require a period of time to demonstrate appropriate organic management skills to NASAA.

STANDARD

- 2.9.1 Certification is not transferable.

2.10 LEASING OF LAND

GENERAL PRINCIPLES

Leasing of land is often the only way an operator can farm. Arrangements for certification of leased land need to ensure that the operator has control over management and decision making on that land.

STANDARD

- 2.10.1 Growers who lease land will be required to produce evidence of lease agreements which specify that all management activities are the sole responsibility of the lessee (licensee) or alternatively, include the lessor as a party in the contract of certification.

2.11 INSPECTION

GENERAL PRINCIPLES

The NASAA Organic Standard complies with The National Standard (AQIS) and the IFOAM Basic Standard (IBS). There are obligations on NASAA to manage an accountable, confidential, fair and transparent certification process, which includes inspections. Inspectors do not provide advice to operators other than to ensure that the operator understands this Standard and that their activities comply with this Standard.

Operators expect inspections as part of their contract with NASAA as the certifying body. These inspections may be routine, additional or unannounced, as defined below:

- Routine: inspections are annual. The operator is advised of a pending inspection, contacted by the inspector and a mutual time arranged.
- Additional: The operator may request additional inspections when there is a change in contract required or NASAA may require an additional inspection to satisfy certification requirements. Additional inspections are paid for by the operator.
- Unannounced: inspections are a requirement of NASAA accreditation and are a tool for ensuring compliance. Unannounced inspections may be selected at random and/or in response to NASAA concerns. The operator is not forewarned of the inspection.

STANDARDS

- 2.11.1 Operators will be subject to annual inspections at a minimum.

DEROGATION:

Input Manufacturers are not necessarily subject to annual inspections. Upon review of their operation the NASAA Inspection Review Committee (IRC) may determine that the inspection frequency for an Input Manufacturer is every second year (biannual) or every third year.

- 2.11.2 The operator, or authorised representative, must accompany the inspector throughout the inspection process.
- 2.11.3 The operator must provide the inspector with all relevant records including those relating to conventional products if requested.
- 2.11.4 The operator must allow the inspector access to all areas of the property including uncertified areas.
- 2.11.5 Operators may be subject to third party inspections from the Australian Quarantine and Inspection Service (AQIS), Governments with equivalence agreements with NASAA (ie. JAS/NOP) and/or the International Federation of Organic Agricultural Movements (IFOAM) to ensure that NASAA's accreditation requirements are being met.
- 2.11.6 Every operator must be inspected before they can be eligible for certification.

2.12 SANCTIONS

GENERAL PRINCIPLES

Sanctions may be imposed by NASAA when there are non-compliances or non conformities to this Standard. An operator unable to demonstrate compliance with this Standard may be subject to the following:

- Suspension: A defined period, ordinarily no greater than two weeks, during which an operator must provide NASAA with verification of compliance with this Standard following non-compliance with any

section of this Standard. During this period an operator must not sell produce with reference to NASAA certification.

- **Decertification:** Termination of certification as a result of ongoing non-compliance with the Standard, following a period of suspension.

STANDARDS

- 2.12.1 Manifest non-compliance with this Standard such as mixing organic and conventional products will result in decertification.
- 2.12.2 Failure to observe contract conditions will result in suspension until compliance is demonstrated.
- 2.12.3 Ongoing failure to observe contract conditions will result in decertification.
- 2.12.4 Additional inspections will be scheduled at the operator's cost where previous serious non-compliance has been observed.
- 2.12.5 Failure to complete the Annual Return, complete a certification contract, pay levies and/or associated costs of certification will result in suspension and possible decertification.

2.13 DEFERRAL

GENERAL PRINCIPLES

Deferral of certification voluntarily suspends certification when there is no production due to factors such as drought, fire or other extenuating circumstances. Operators remain compliant with this Standard during this period.

STANDARDS

- 2.13.1 Deferral of certification will only be granted to operators upon application to NASAA outlining the reason for requested deferral of certification.
- 2.13.2 During deferral the operator shall comply with the requirements of this Standard and complete a Yearly Summary for each year under deferral.
- 2.13.3 During deferral no sales can refer to NASAA certification.
- 2.13.4 Deferral shall be reconsidered annually by NASAA.

2.14 APPEALS

GENERAL PRINCIPLES

Certified operators may have grounds for requesting a review of a decision made by NASAA as a result of an inspection or any other situation that may arise from time to time. Operators have the right of appeal which must be submitted to NASAA outlining the reasons why NASAA should reconsider its decision.

STANDARD

- 2.14.1 Appeals by certified operators must be submitted to NASAA in writing within 30 days of a decision being made and must outline the reason for the appeal.

2.15 EXPORTING ORGANIC PRODUCT

GENERAL PRINCIPLES

Exports comply with the Commonwealth of Australia Export Control Act 1982 and the Organic Produce Certification Orders No 6 of 1997 and are subject to those orders.

STANDARDS

- 2.15.1 Exporters of certified organic products shall be certified and meet importing country requirements.

DEROGATION

Exporters who handle finished packaged goods for which they can verify through documentation the certification status of products for which they trade do not have to be certified. They shall, however, comply with the requirements defined under this section of the Standard.

- 2.15.2 In addition to general requirements for handling and packaging, exporters shall ensure the following:
 - Containers must be inspected/passed by a licensed/accredited container inspector.
 - The container must be free of perforations or other structural damage, which could allow the product to be contaminated from the outside.
 - The interior of the container must be free from visual residue or dirt that could cause contamination from the inside.

- Protective impervious sleeves or steam cleaning must be provided for all interior surfaces of containers used for bulk storage and therefore direct contact with organic products.
- Loading areas must be free from pests and pest habitat.
- Loading devices must be professionally cleaned to inhibit contamination and/or be subjected to a volume (plug) of the product which is to be kept separate from the organic consignment.

2.15.3 Records and documentation must be provided which satisfy the Export Control Orders.

2.16 ORGANIC PRODUCE CERTIFICATES

STANDARD

2.16.1 Organic Produce Certificates will be issued by NASAA upon application.

2.17 REVOCATION OF ORGANIC PRODUCE CERTIFICATES

STANDARD

2.17.1 NASAA may revoke an Organic Produce Certificate if it believes that:

- The information within was incorrect in an important way;
- False or misleading information led to its issuance; or
- The recipient of the certificate has been deemed by NASAA not to have complied with this Standard.

2.18 USE OF NASAA LABEL

GENERAL PRINCIPLES

The NASAA Label accurately indicates throughout the market chain, including the consumer, that the produce so labelled has been produced in accordance with this Standard.

RECOMMENDATIONS

Labels should contain advice on how to obtain all additional product information.

STANDARDS

2.18.1 Labelling of certified products must include the following details:

- The person or company legally responsible for the production or processing of the product
- Level of certification
- NASAA registration number and relevant NASAA Label

2.18.2 Only operators subject to inspection may use the NASAA Label.

2.18.3 The colour of ink used when reproducing the NASAA Label must be the correct pantone colour. Where colour is not used, black ink may be used. Any other variation in colour must be approved by NASAA in writing.

2.18.4 Designs, artwork and advertising incorporating the NASAA Name and Label must be approved by NASAA prior to use.

2.18.5 Operators shall not use the NASAA Label if their certification is under deferral or has been suspended or withdrawn.

2.18.6 Operators at the Pre-certification level shall not make reference to NASAA and/or organic certification on any labelling or advertising.

2.18.7 Livestock labelling must include brands or tags that clearly identify the animal as having come from a certified operator.

DEROGATION

Exceptions to general labelling requirements are when raw product is transported from one certified operator to another or to a certified processor in bulk containers. Under these circumstances an identification mark and accompanying documentation must be provided which clearly identifies the product, the operator's name and address and a declaration that the product was produced in accordance with this Standard.

2.19 CONVERSION LABELLING

GENERAL PRINCIPLES

Conversion labelling makes it clear that the ingredients within the certified product are from a farm in the stage of conversion to organic that may have only been using organic management practices for a short time.

STANDARD

- 2.19.1 Conversion labelling may be applied subject to the criteria in section 2.18 above with the following additions:
- Any reference to Organic on labelling may only appear in the context of Conversion to Organic.
 - The Conversion label must be clearly distinguishable from the Organic label.

2.20 LABELLING

GENERAL PRINCIPLES

Labelling is employed to provide accurate and non-ambiguous information about products. The Name NASAA and the NASAA Label are protected by law. NASAA actively pursues all false claims of certification whether printed or verbal and will take legal action if necessary to protect its label.

STANDARDS

- 2.20.1 Any claims about organic ingredients must be made in a manner which is no different in colour, style and size of lettering to other ingredients.
- 2.20.2 All ingredients must be listed on the label in order of percentage by volume.
- 2.20.3 Non-organic ingredients must be identified as such and show their maximum concentration.
- 2.20.4 Some ingredients not satisfying this Standard may be used. These must be of agricultural origin and unavailable in sufficient quantities as certified organic products. Subject to NASAA approval in writing such ingredients may be added to processed products at levels of no more than 5% of total. Where more than 5% of agricultural ingredients are non organic, no NASAA Label may be used and the product description may only make reference to the organic ingredients certified by NASAA.
- 2.20.5 Any product of non organic agricultural origin shall not include prohibited products or ingredients or be subject to prohibited processing methods.
- 2.20.6 Certified organic products may not include the same ingredient derived from both an organic and a non-organic (including Conversion to Organic and Organic) source.
- 2.20.7 Any one processed product must contain a minimum of 95% of Organic ingredients by raw material weight (excluding salt and added water) to be labelled as a certified Organic product. Where more than 5% of Conversion to Organic ingredients are used in an Organic product, the product must be labelled as In Conversion to Organic.
- 2.20.8 Where the Organic ingredients are between 70% and 95%, labelling must be restricted to reference to organic ingredients only. No use of the certification label is permitted.
- 2.20.9 Where less than 70% of the total agricultural ingredients by raw material weight are organic no reference to certification or certified ingredients may be made.
- 2.20.10 Organic products shall not be labelled as GMO free in the context of this Standard. Any reference to genetic engineering on product labels shall be limited to the production and processing methods themselves having not used GMOs.

SECTION THREE – PRECAUTIONS & GENERAL REQUIREMENTS

3.1 RESIDUES AND POSSIBLE CONTAMINATION

GENERAL PRINCIPLES

All relevant measures are taken to ensure that organic soil and product is protected from contamination.

This Standard cannot guarantee that produce certified as organic will be completely free of residues. Small residues of contaminants are found virtually everywhere on earth, and products may be subject to contamination from air, water and soil. However, this Standard aims to produce the necessary safeguards to ensure the lowest practicable risk of residues.

Old orchard sites, livestock dips, old buildings, tobacco or potato paddocks are examples of potential contamination areas. In some cases, high and unavoidable risks of contamination from human activity or natural sources may preclude an operation or farm, or parts thereof, from certification.

RECOMMENDATIONS

In order to ensure the integrity of the property from external contamination the operator should formally advise neighbours, including federal, state, and local government, or statutory authorities, of the organic status in certification of the operation.

Licensees should take reasonable measures to identify and avoid potential contamination.

Accumulation of heavy metals and other pollutants should be avoided and the appropriate remedial measures should be implemented where possible.

Contamination that results from circumstances beyond the control of the operation does not necessarily alter the organic status of the operation.

Verifiable evidence of previous land use should be provided by the operator where possible.

Risk management planning should be used as a tool to address contamination risks and outline management strategies to minimise the impact of risks on the integrity of certified produce and land. Areas of high risk should be identified in risk management plans and appropriate methods implemented to preclude such areas from certified crop and livestock production.

STANDARDS

- 3.1.1 It is the operator's responsibility to take all measures to prevent contamination, including aerial and roadside spraying of soils, cropping areas and irrigation water. Where there is evidence that prohibited chemical residues are present tests shall be required to ascertain contamination levels.
- 3.1.2 After the farm is certified, prohibited products must be removed from the certified property and disposed of in accordance with legislated requirements.
- 3.1.3 Organic products sampled must not exceed 10% of the maximum limit (ML) for chemicals for that product where historic contamination is present. Chemical residues that are detected at any level for a specified product that cannot be explained by historic practices will automatically disqualify the specified product from certification and may result in suspension and/or decertification of the operator.
- 3.1.4 Hydroponic systems are prohibited for general plant production.
- 3.1.5 Soil levels of 100% or more than the ML for a specified agricultural product may disqualify the land from certification until such time as there is adequate evidence substantiated by further tests that the residue concerned is within the limits set by NASAA. In such cases, permanent physical or biological groundcover will be required to prevent soil splash or dust contamination of produce.
- 3.1.6 Where there is no ML defined for a chemical substance for a specified product there is zero tolerance for the chemical. Soil tests that reveal contamination of the specified chemical must be followed by tissue testing to verify no chemical residue for that chemical.
- 3.1.7 For synthetic structure coverings, mulches, fleeces, insect netting and silage wrapping, only products based on polyethylene and polypropylene or other polycarbonates are permitted. These shall be removed from the soil after use and shall not be burned on the farmland.
- 3.1.8 Unwoven synthetic plastic mulches for weed control are not permitted.

DEROGATION

Where need can be demonstrated, written approval may be sought for the use of unwoven and synthetic plastic mulch products.

- 3.1.9 The new or replacement use of treated timber (ie. CCA, creosote) is prohibited.

DEROGATION

Where it can be demonstrated that alternatives are not available, permission may be granted for the selective use of treated timber.

- 3.1.10 All equipment from conventional farming systems shall be thoroughly cleaned of potentially contaminating materials before being used on organically managed areas.
- 3.1.11 Where contamination has occurred or is suspected, the operator must locate and address the source and advise NASAA within 24 hours of discovery.
- 3.1.12 Where prohibited substances have been applied directly and intentionally to certified products, or there is a demonstrable failure to take reasonable precautions against contamination, decertification will follow.
- 3.1.13 Products will be tissue tested for heavy metals and pesticides if there is indication of risk from contamination.
- 3.1.14 Wool, meat and animal products, including honey and eggs, shall be tissue tested for pesticides and heavy metals prior to sale with reference to organic certification.
- 3.1.15 Random testing will be conducted by NASAA for contaminants.

3.2 GENETICALLY MODIFIED ORGANISMS

GENERAL PRINCIPLES

Organisms, which are derived from recombinant DNA technology, are genetically modified organisms and have no place in organic production and processing systems.

Even where evidence of GMOs is not detected in finished organic product, the deliberate or negligent exposure of organic production systems or finished products to GMOs is outside organic production principles.

RECOMMENDATIONS

Every potential source of GMOs in the supply and input chain, and any sources from historic or adjacent usage, should be identified and operators should familiarise themselves with the vectors and modes of potential transfer of material with modified DNA to avoid contamination.

STANDARDS

- 3.2.1 Genetically Modified Organisms or their derivatives are not permitted under this Standard for use in organically produced and or processed products. This includes, but is not limited to:
 - seed
 - feed
 - propagation material
 - farm inputs such as fertilisers and compost
 - vaccines
 - crop protection materials
- 3.2.2 Operators using input materials at risk of containing GMOs must obtain signed statements from the suppliers of these materials that they do not contain GMOs or their derivatives, backed up by laboratory analysis where NASAA deems it necessary.
- 3.2.3 The certification of organic crops will be withdrawn where genetically engineered crops are grown on the same farm.
- 3.2.4 Processing operations that handle GMOs in conventional products will need to notify NASAA and detail a risk strategy for prevention of contamination of certified product.
- 3.2.5 Operators must not knowingly permit exposure or fail to take action against the application of or exposure to GMOs.
- 3.2.6 Inputs, processing aids and ingredients shall be traced back one step in the biological chain to the direct source organism from which they are produced to verify that they are not derived from GMOs.
- 3.2.7 Operators must conduct an assessment of risks from contamination with GMOs and take action where appropriate. These actions may include, but are not limited to:
 - knowing about contaminant risks
 - implementing distances/buffer zones from potential contaminants
 - implementing special handling, transport and storage arrangements
 - maintaining samples

- testing of crops perceived at risk
- 3.2.8 Planting or sowing for organic production will not take place until 5 years after the harvest (or removal) of any genetically engineered crop that may have been planted on the land.
- 3.2.9 Organic certification shall be withdrawn where NASAA considers there is an unacceptable risk of contamination from GMOs or their derivatives.
- 3.2.10 Any certified production area within ten (10) kilometres of a site used to grow genetically engineered crops is perceived to be at risk of contamination and certified operators must inform NASAA of any such sites known to be within that radius.
- 3.2.11 Contamination of organic product by GMOs that results from circumstances beyond the control of the operator may alter the organic status of the operation.
- 3.2.12 Under the National Standard, NASAA will decertify any products that are tested and reveal the presence of GMOs.

3.3 WINDBREAKS / BUFFER ZONES

GENERAL PRINCIPLES

Windbreaks and shelter-belts act as a form of buffer zone providing multiple functions including some protection from contamination.

Examples of buffer zones include:

- multiple rows of trees and or hedges
- acceptable distances from contamination
- physical barriers to prevent spray drift

RECOMMENDATIONS

Living windbreaks and shelter-belts should be provided to protect crops and livestock from contamination and assist in the reduction of soil erosion.

STANDARDS

- 3.3.1 Buffer zones must be provided to protect certified areas from contamination from adjacent properties where appropriate.
- 3.3.2 Requirements for buffer zones shall be determined by NASAA based on appropriate and practical situations and in each case will be no less than 5 metres.
- 3.3.3 Where outside rows of a crop are used as a buffer zone, produce from these rows shall be quarantined and may not be sold as certified. Records shall be maintained to verify compliance with this requirement.

3.4 SPRAY EQUIPMENT

GENERAL PRINCIPLES

Spraying of allowed products is carried out with clean equipment that does not threaten the crop with contaminants from past use.

RECOMMENDATIONS

Dedicated spray equipment should be used.

In cases of equipment with a previous history of prohibited input usage, effective cleaning should be carried out and analysis for residues may be required.

STANDARDS

- 3.4.1 The operator shall minimise the risk that spray equipment is contaminated by prohibited substances through appropriate and effective cleaning of such equipment.
- 3.4.2 Records shall be kept of the procedures for cleaning out non-dedicated spray equipment including dates clean down took place.

3.5 LANDSCAPE AND ENVIRONMENT

GENERAL PRINCIPLES

A farm is a functional part of the wider landscape in which it is located and actively contributes to the long term ability of the landscape to provide economic, ecological, cultural, aesthetic, amenity and social services.

Organic farmers harness the capacity of the ecosystem to produce economic services, but must do so in ways that enhance the provision of other ecosystem services for others and for future generations to enjoy. Operators respect that the relationships and synergies of ecosystems are complex, with the roles of the various components rarely fully understood.

Management is guided by the precautionary principle where the risk of environmental degradation is more important than engaging in activities that are contrary to recognised ecosystem principles.

Ecosystem principles of relevance to organic production include:

- respect for inter-connectivity meaning that a single desired outcome may need management of multiple factors (as in pest management), and that single changes can have multiple outcomes, some of which are unintended and need to be avoided (as with the use of some pesticides, that kill beneficial insects)
- appreciation of and appropriate response to threats such as pests, diseases and weeds
- understanding habitat needs such as extent and character and protection from exploitation

The role of science in establishing ecosystem principles is accepted and encouraged.

New practices and inputs are usually trialed by organic operators on a small scale before large-scale use.

Organic operators are aware of the cumulative impacts of activities within a landscape.

RECOMMENDATIONS

To appreciate their role in both landscape and environmental management, operators should familiarise themselves with regional natural resource management plans and initiatives.

The organic management plan (OMP) should identify agreed significant landscape objectives such as biodiversity conservation, management of weeds and feral animals, tourism, water harvesting and watertable management in relation to dryland salinity, river water quality targets, revegetation and how the organic operator intends to contribute to meeting these objectives.

Operators should maintain a significant portion of their farms to facilitate biodiversity and nature conservation.

Where there are special opportunities such as remnant vegetation, areas with endemic flora, wetlands, riparian areas, springs, floodplains, swamps, other water rich areas and native grasslands owners should set aside and manage these areas for wildlife habitat.

Where opportunities are less obvious, owners should look to enhance biodiversity and wildlife habitat in:

- all areas which are not cultivated and are not heavily grazed such as extensive orchards, hedges, hedgerows, edges between agriculture and forest land, groups of trees and/or bushes, and forest and woodland
- ecologically diversified (extensive) field margins and fence lines
- dams, water-ways, drainage reserves, easements and roadsides.

Operators should familiarise themselves with the standards for water management in particular the need for non-polluting practices, environmental flows and irrigation scheduling.

To minimise future need for restricted or prohibited inputs and potential damage to the environment, organic operators should:

- observe property hygiene principles by ensuring that weeds, pests and diseases do not enter and establish on their properties by checking cleanliness of inputs, vehicles, farm machinery and livestock.
- be alert for potential animal and plant pests through identification and as appropriate, eradication before pest proportions are reached.
- systematically inspect areas set aside for biodiversity and wildlife habitat for weeds and pests especially following flood or fire.

STANDARDS

- 3.5.1 From 1st June 2005, each farm shall contain an area consisting of no less than 5% of total area that is set aside from intensive production and includes at least perennial grasses and or trees/shrubs.

DEROGATION

Where the farm is less than 4ha, the requirement to set aside an area of no less than 5% from intensive production may be waived upon application to NASAA.

- 3.5.2 The operator must consider landscape and environment issues within the organic management plan. Where possible these should be linked to known regional issues.
- 3.5.3 The organic management plan must identify risks of environmental degradation (such as water, wind erosion, soil acidity, salinity and over grazing of vegetation) and signal remedial actions to be taken.
- 3.5.4 Clearance of any native vegetation for new crop or grazing land is prohibited.

DEROGATION

Where a written application demonstrates that clearing is acceptable, NASAA may grant permission on a case by case basis.

- 3.5.5 Biodiversity, which promotes functional farm ecosystems, must be a component of an organic farm.
- 3.5.6 The operator must not take measures that fail to build biodiversity or that needlessly simplify species diversity on an organic farm.
- 3.5.7 The operator must take measures to limit the incursion of preventable pests, disease and weeds on to the property.
- 3.5.8 Clearance of native vegetation including native grasslands that has taken place during the last 5 years will be subject to consideration by NASAA before certification is determined. Acceptance for certification will be based on the land clearing with relation to the following criteria – biodiversity value, hydrology, erosion, nutrient run off, habitat significance and conformity to state regulation.
- 3.5.9 Ecologically sensitive or representative areas must at least be retained in part in their natural state. Consideration must be given to grazing, weed and pest management of such areas.
- 3.5.10 No natural wetlands may be drained.

3.6 SOIL CONSERVATION, ORGANIC MATTER, HUMUS AND COMPOST

GENERAL PRINCIPLES

Optimum soil fertility, soil structure and biological activity are fundamental aims of organic farming. Organic growing systems are soil based. They care for the soil and surrounding ecosystems and provide support for a diversity of species, while encouraging nutrient cycling and mitigating soil and nutrient losses. Widely varying soil types will require/involve different management approaches aimed at achieving the above through combinations of techniques such as green manuring, composting, legume crops and improved pastures, animal use, appropriate cultivation practices and deep rooting plants.

Problematic soils displaying high levels of salinity, sodicity, acidity, structural decline, waterlogging and erosion susceptibility require specialised techniques to redress these difficulties.

The principal aim of nutrient management on organic farms is to supply nutrients to the plant via the soil rather than directly to the plant. For example, permitted fertilisers are assimilated into the soil by soil organisms and the nutrients slowly released to the plants.

Organic matter is any material in the soil that was originally produced by living organisms. Humus is the decomposed tissue of plant and animal materials. The original tissues contain a wide range of organic compounds, which typically decompose at different rates.

In a soil, which at first had no readily decomposable material, adding fresh tissue under favourable conditions immediately starts rapid multiplication of bacteria, fungi and actinomycetes, which soon begin actively decomposing the fresh tissue. As the most readily available energy sources (carbohydrates, fats and proteins) are used up, those micro-organisms again become relatively inactive, leaving behind a dark mixture, usually referred to as humus. Newly formed humus is a combination of resistant materials from the original plant tissue and compounds synthesised as part of the micro-organisms' tissue, which remains as the micro-organisms die. It is quite resistant to further microbial attack, so its nitrogen and other essential nutrients are protected from ready solubility and dissipation. Humus holds water and minerals extremely well. It sticks together very well, so helping soil establish and maintain a strong crumb structure and it provides some nutrients as it is slowly decayed by microbial activity.

NASAA places great emphasis on the levels of organic matter and humus maintained in soils as an indicator of sustainability and of organic status.

RECOMMENDATIONS

Operators should minimise loss of topsoil through minimal tillage, contour banks and other works where appropriate maintenance of soil plant cover and other management practices conserve the soil.

Operators should take measures to prevent erosion, compaction, salinization and other forms of soil degradation.

Operators must measure soil organic matter when first applying for certification, and should subsequently monitor organic matter levels through appropriate testing. Producers should endeavour to develop a soil profile with good humus levels and by improving organic matter aim to achieve the following:

- 1) Stable soil aggregates, resulting in improved structure and tilth
- 2) Improved aeration, water penetration and moisture-holding capacity
- 3) Improved cation exchange capacity (CEC) to retain nutrients and prevent leaching
- 4) Buffering against high or low pH and against rapid change in soil pH

- 5) Provision of a carbon source for micro-organisms
- 6) Additions of nutrients contained in organic matter

The use of compost in sustainable agriculture should be maximised for its nutrient cycling function.

While not all operations can utilise compost for reasons of scale of enterprise and availability, it has useful functions at varying levels of application:

- 1) At low levels it can add significantly to soil microbial activity
- 2) At moderate levels it can provide important nutrients
- 3) At higher levels it can improve soil structure and cation exchange capacity

Proper composting is important particularly if using diseased plant tissues, materials with a high weed seed burden and materials brought in from off-farm sources (especially from conventional farms). Proper technique involves the right balance of high carbon ingredients (eg. sawdust) to high nitrogen ingredients, aeration, moisture and temperature to achieve heating sufficient to kill pathogens and weed seeds and to break down materials to form humus.

STANDARDS

- 3.6.1 Crop production, processing and handling systems shall return nutrients, organic matter and other resources removed from the soil through harvesting by the recycling, regeneration and addition of organic materials and nutrients.
- 3.6.2 Composts must be effectively manufactured regardless of the technique used.
- 3.6.3 Leachates must be prevented from contaminating ground or surface water systems.
- 3.6.4 All materials brought onto the farm must be below acceptable levels of contamination with pesticides and heavy metals.
- 3.6.5 NASAA may require testing of compost or raw materials to establish acceptability of the final product.
- 3.6.6 The application of compost must not exceed 20 tonnes per hectare per annum averaged out over any three year period.

DEROGATION

Where it can be demonstrated that compost quality, the crop nutrient requirements and soil and climatic conditions warrant greater applications, exceptions may be granted upon request that address these issues.

- 3.6.7 Erosion of land through wind and water must be minimised. Practices, which guard against sheet, rill, gully or other erosion will need to be demonstrated, including protection of riparian areas. Reparations of past erosion events will need to be under way if operators are to achieve and maintain full certification. All active erosion gullies will need to be identified and addressed in the OMP.
- 3.6.8 Operators must aim to improve soil structure and cultivation must be minimised.
- 3.6.9 A measure of OM levels at the time of application shall be provided to NASAA.
- 3.6.10 The use of long fallows as the principal basis for weed control is not permitted.
- 3.6.11 Where successive inspections reveal that excessive tillage or other management factors have contributed to declining soil structure, a producer will be required to develop and implement a plan for soil restoration. Regular monitoring of soil organic matter will be part of any restoration plan. Where this is not implemented, decertification will follow.

3.7 GREEN MANURE

GENERAL PRINCIPLES

Green manures are plants grown to be returned to the soil for organic matter rather than for harvest. They may be mulched or turned into the soil. Green manures will usually include some legumes for nitrogen addition. Most green manures are grown in the non-cropping period and are incorporated into soil at flowering and prior to seed set.

RECOMMENDATIONS

The deliberate sowing of selected species is recommended for a green manure program.

STANDARD

- 3.7.1 The effective use of green manure crops for returning nutrients and organic matter to the soil shall be an integral part of organic management where appropriate.

3.8 DIVERSITY IN CROP PRODUCTION

GENERAL PRINCIPLES

Species diversity is a fundamental principle for resilient and sustainable agroecosystems.

RECOMMENDATIONS

Diversity in crop production is achieved by a combination of:

- A diverse and versatile crop rotation that includes, but is not limited to, green manure, legumes and deep rooting plants
- Appropriate coverage of the soil with diverse plant species for as much of the year as possible
- Tillage equipment and practices that minimise the need for cultivation

STANDARDS

- 3.8.1 Diversity in plant production and activity shall be assured by maintaining crop rotation requirements and/or variety of plantings. Minimum rotation practices for annual crops shall be established unless the operator demonstrates diversity in plant production by other means.
- 3.8.2 Operators shall manage pressure from insects, weeds, diseases and other pests while maintaining or increasing soil organic matter, fertility, microbial activity and general soil health.
- 3.8.3 Floor cover on orchards and plantations must be sod based and only subject to cultivation for purposes of renovation.
- 3.8.4 Operators must establish and maintain diversity in floor cover or other orchard/vineyard vegetation to encourage natural insect predators and parasites.
- 3.8.5 The proper organic management of fertility will require the rotation of crops, the use of animals and other mechanisms such as tillage to incorporate residues.

3.9 WATER MANAGEMENT

GENERAL PRINCIPLES

Organic farming methods aim to maintain water quality on and off the farm and to use water efficiently and responsibly, whether in irrigated or rain fed farming systems.

RECOMMENDATIONS

Operators should use techniques that conserve water, such as increasing organic matter content of soil, timing of planting and the appropriate design, efficiency and scheduling of irrigation practices.

Operators should apply water and inputs in a way that does not pollute water by run-off to surface water or leaching into ground water.

Organic operators should install systems that permit the responsible use and recycling of water without pollution or contamination either by chemicals, or by animal or human pathogens.

Operators should plan and design systems that use water resources responsibly and in a manner appropriate to local climate and geography.

Organic Management Plans should anticipate, address, and mitigate impacts on water resources, including but not limited to the application of manure, stocking densities, application of soluble fertilisers, and effluent from processing and handling facilities.

Water should be recycled as far as possible within the farm by mechanical and/or biological means.

Water from off-farm sources (eg. river, public or shared channels, bores or drainage water) should not carry substances not compatible with this Standard.

Catchment targets and community strategies should form part of the water management strategy on the organic farm.

Water use and quality must be carefully managed. Except where local salinity issues are outside the control of the individual farmer, certified organic operators must demonstrate that water, which exits the farm, is at least as high quality in terms of salts and turbidity as any surface water that enters.

STANDARDS

- 3.9.1 Operators shall not deplete nor excessively exploit water resources, and shall seek to preserve water quality. Where possible they shall recycle rainwater and monitor water extraction.
- 3.9.2 Water shall be harvested, extracted, used and disposed of in such a way as to minimise impact on naturally occurring aquatic, terrestrial or ground water systems.
- 3.9.3 On-site harvest of water for agricultural use (including stock water, aquaculture and processing) must allow for enhancement of on-farm and local ecosystems that are under the immediate influence of the operator. In the harvest of water provision must be made for environmental flows to maintain riverine health, wetlands and biodiversity.

- 3.9.4 Hydrological balances and environmental flows must be maintained with relation to irrigation practices and on-farm measures must be taken to address ground water recharge and discharge when dryland salinity is present.
- 3.9.5 Reclaimed or recycled waters must not introduce pollutants and/or excessive nutrients onto the farm and must not include waters reclaimed directly from conventional fields.
- 3.9.6 Where unacceptable risks of contamination are suspected water must be regularly tested.
- 3.9.7 Water containing treated human and industrial effluent, and/or their treated by-products, intended for use for irrigation on certified crop production can only be used after the water has been subject to effective treatments and has re-entered a natural public waterway system.
- 3.9.8 Farm practices must not permit pollution of ground and surface water.

3.10 IRRIGATION MANAGEMENT

GENERAL PRINCIPLES

Irrigation practices prevent contamination of water and products, whilst protecting the environment through efficient usage.

RECOMMENDATIONS

Monitoring is an important aspect of irrigation management and can involve techniques such as the use of tensiometers, gypsum blocks, neutron moisture meters or gravimetric measurement techniques. Test wells are highly desirable in areas with salinity problems. Weather-based irrigation scheduling methods may also be useful, but should be validated by soil monitoring. Growers should keep records of irrigation timing, volumes and soil moisture status. These records should enable the grower to develop good scheduling and to demonstrate the use of scheduling to NASAA.

STANDARDS

- 3.10.1 Irrigation practices must ensure leaching of nutrients is minimised whilst maintaining an appropriate leaching fraction for salinity management.
- 3.10.2 Irrigation methods must be adequately designed, managed, scheduled and monitored to reduce problems with water table and salt management and to make minimum disturbance to the environment and natural ecosystems.
- 3.10.3 Irrigation management must include considerations for ephemeral wetlands, river flow regimes and wildlife habitats.

SECTION FOUR – GENERAL STANDARDS FOR CROP PRODUCTION

4.1 ANNUAL CROP ROTATION

GENERAL PRINCIPLES

Organic systems are designed and managed to respond to the cycles of nature and to exploit opportunities made available through climatic events and to prepare for poorer seasonal conditions.

A fundamental part of organic farming is the need for a sound rotation. The use of rotations in both broadacre and horticulture is important to enable an opportunity for the field to regain lost fertility through natural means such as a pasture ley, legume crop or green manure, and to manage weeds, pests and diseases. Rotations provide:

- The chance for a given field to restore/regain soil fertility
- The provision of a pest and disease break cycle
- The opportunity to provide hydrological balance
- The greater integration of animal and cropping enterprises
- The availability of a sequence in which pasture improvement may take place
- The opportunity to manage weeds

NASAA recognises the unpredictable nature of climate and will always take this factor into account in interpreting the following crop rotation Standard.

RECOMMENDATIONS

Farmers should maximise the percentage of pasture, the use of deep rooting perennials and legumes in the rotation, minimise tillage and maximise opportunities to retain crop residues

STANDARDS

- 4.1.1 Certified operators shall use untreated organic seed for production of organic crops.

DEROGATION

Where evidence is provided to NASAA that organic seed is not available, approval may be granted to use conventional seed, but this must not be treated with products other than those required by law.

- 4.1.2 No annual crop of the same species, family or similar characteristic shall be planted more than 2 years out of 5 in a given field (eg garlic/onions, hard wheat/soft wheat, carrots/parsnips, white potatoes/red potatoes).

- 4.1.3 Except where fertility and structural characteristics are entirely met by the importation of composted manures or other permitted varieties of Organic Matter (OM), in any three year period, at least one year shall be used to grow one of the following:

- A green manure crop either volunteer or planted which is mulched or incorporated at a time and in a state considered appropriate to render fertility and structural improvement to that portion of land;
- An annual legume which has demonstrably nodulated which may be permitted to mature and seed if required; or
- A pasture ley phase which remains intact for a period of at least 12 months and includes the use of at least one legume.

- 4.1.4 The measurement of levels of fertility and the percentage of OM in a given field shall be measured with sufficient frequency to demonstrate that, even under the above rotational program, there is ongoing maintenance and improvement of OM. In the event of soil testing revealing a negative long-term trend, a modified rotational program shall be developed by the operator for NASAA approval.

- 4.1.5 The use of fallowing as a moisture and weed management tool is restricted. Given the high levels of oxidation of OM under summer conditions, a pasture phase or crop residues must be maintained to compensate any fallow periods which span a period of more than 6 months. Other requirements remain as above.

- 4.1.6 In the event of drought, and the failure to produce yields of product from a given field, that field shall be deemed to have been cropped for these purposes.

- 4.1.7 No stubble burning shall take place.

DEROGATION

The use of cold burning of crop residues on limited basis for control of pest, disease and intractable residues (that make planting impossible) will require an application stating the net benefits of the practice. Exceptions to these requirements may be where opportunity sowing is standard practice and where a prolonged pasture phase can be demonstrated to have preceded a cropping phase.

4.2 PRODUCTION OF SEEDS, SEEDLINGS AND PLANT PROPAGATIVE MATERIAL

GENERAL PRINCIPLES

Processes of production and distribution of inputs such as seeds, seedlings and plant propagative material are subject to the same requirements of scrutiny and assessment as other inputs.

The production of seed, seedling and plant propagative material on defined land parcels will be subject to the conversion requirements outlined in section 2.1 - 2.3 of this Standard.

The production of seed, seedling and plant propagative material for use as an input product onto certified land does not have to go through a Pre-certification period if such product is managed through a landless system.

The production of seedlings designed for direct human consumption, such as potted herbs, will be required to go through a 12-month Pre-certification period prior to being labelled with reference to certification.

Rigorous and accountable cleaning of materials used in conventional containerised production prior to being eligible for organic status equates with the function of the conversion period for land based organic production.

The production of organic seed, seedling and propagative material shall be of equal or higher quality than the equivalent conventional product.

Organic producers of seeds, seedlings and plant propagative material use input material that complies with this Standard.

RECOMMENDATIONS

Open pollinated varieties should be accessed where possible and if they are suitable for use as inputs into organic production systems.

Where seeds, seedling and plant propagative material production takes place in containers, the potting mix should be derived from compost leaf mould, worm casts and clean inert material of natural origin harvested to avoid environmental damage.

Plant propagative material should be grown as much as possible with nutrients contained within the potting medium. Where fertigation is used growers should observe the organic principle of soil fertility management and minimise leaching of nutrients into the environment.

Containers should be recyclable.

Where there is conventional and organic production of plant material then the risk of product confusion and contamination by prohibited substances should be managed through clear identification and visible separation of the areas.

Operators whose product is used by other growers should accept a 'duty of care' that their product is free from weeds, soil and seed borne disease and is true to description. There should be records of rationale used in selection, growing and protection of seed, seedlings and propagative material quality and type.

All waste materials from cleaning programs or renewal of the means of production, such as pots and spent fillings, should be disposed of without detriment to the environment.

STANDARDS

4.2.1 Producers of certified organic seed must comply with the requirements of this Standard for at least one generation of organic propagation.

4.2.2 Producers of organic seedling and plant propagative material shall manage the production organically and use organic parent material.

DEROGATION

Where evidence is provided to NASAA that organic seed is not available, approval may be granted to use conventional seed, but this must not be treated with products other than those required by law.

4.2.3 Appropriate documented evidence is required to verify that seeds, seedlings and propagation materials and methods meet the requirements of this Standard. See Table One "Product for Plant Production" below.

- 4.2.4 Producers must implement a cleaning program of equipment previously used in conventional production.
- 4.2.5 Operators must notify NASAA prior to using prohibited inputs that would render the finished product non organic.
- 4.2.6 Operators of a certified production system that is managed contrary to this Standard must dispose of all products as 'conventional' prior to reinstating and implementing a cleaning program. Repeated violations resulting from failed or insufficient management may lead to decertification.
- 4.2.7 Where containers are used, they must be made of non-porous material.
- 4.2.8 Facilities used for organic seedling production must be separated from conventionally managed facilities by a buffer zone and/or impervious screen as determined by risk.
- 4.2.9 Organic seedling production areas must be clearly labelled. Any outdoor areas used for organic seedlings must be marked off with paint, ribbons, rope or other conspicuous methods.

4.3 PLANT PRODUCTION

STANDARDS

- 4.3.1 Organic fertigation irrigation lines must be dedicated.
- 4.3.2 In the production of seedlings the table below details treatments and media that are permitted and restricted.

PERMITTED	RESTRICTED
Hot water treatment	Foliar feeding (nutrients should be applied or constituted within the growing medium)
Legume inoculants	Trace elements (based on evidence of deficiencies)
Mycorrhizal inoculants	River sand (extraction must not cause damage to riparian zone and subject to permit)
Non chemical scarification	Soil/Loam (subject to extraction)
Untreated bark fines	Peat (Restricted – sustainably harvested and subject to permit)
Solarisation	
Steam sterilisation	
Sawdust from untreated wood	
Vermiculite	
Perlite	

Table 1 Product for Plant Production

4.4 FERTILISERS AND INPUT PRODUCTS

GENERAL PRINCIPLES

Healthy soil is the primary prerequisite for healthy plants, animals and products. With organic farming, the care of living soil and consequently the maintenance or improvement of soil fertility, particularly nutrient cycling, is fundamental to all measures adopted. Organic farming returns plant or animal material to the soil to increase or at least maintain its fertility and biological activity.

Nutrients exported from a farm are balanced by inputs to ensure long-term sustainability. Failure to replace nutrient exports will deplete soil fertility. Conversely, the over-use of fertilisers and input products will lead to a build up of nutrients in the soil which may eventually lead to ecological and environmental harm. Consequently a balance of outputs and inputs is needed. Organic operators need to be aware that nutrients can be moved around farms through rotations, animal management and use of manures and organic effluent, resulting in areas of depletion and areas of accumulation.

To maintain nutrient balance, emphasis is given to crop rotations including legumes and the use of composts and manures to balance nutrient exports, together with judicious and justified use of approved mineral supplements.

Mineral inputs to the farm are intended to maintain a balanced soil chemical fertility and not as fertilisers for crops.

RECOMMENDATIONS

Biodegradable material of microbial, plant or animal origin produced from organic practices should form the basis of the fertility program.

Nutrient resources should be used in a sustainable and responsible manner.

Nutrient losses from the farm to the natural environment should be minimised.

Nutrients should be used in such a way and at appropriate times and places to optimise their effect.

Naturally occurring mineral fertilisers and brought in fertilisers of biological origin permitted under this Standard should be regarded as only one component of the nutrient system, and as a supplement to, and not a replacement for, nutrient recycling.

Mineral inputs are regarded as supplements and not as fertilisers.

Fertility should be maintained through practical methods of approved supplements, cycling and biological activity.

The use of approved inputs should optimise soil biological functions for plant nutrition.

In heavy feeding crops, the use of inputs should be applied with reference to proper understanding of soil nutrient levels and crop requirements.

Cultivation practices are designed to minimise negative impact on soil structure and biological activity.

Physical, chemical and biological factors affecting soil fertility need to be well understood by certified organic farmers and can be complimented by detailed soil testing at intervals to permit a holistic management of soils and fertility.

Accumulation of heavy metals and other pollutants should be prevented.

STANDARDS

- 4.4.1 Material of microbial, plant or animal origin shall form the basis of the fertility program.
- 4.4.2 Nutrients and fertility enhancing products shall be applied in a way that protects soil, water quality and biodiversity.
- 4.4.3 Fertilisers and soil conditioners shall be limited to those described in Annex 1 "Products for Use as Fertilisers and Conditioners".

4.5 HUMAN FAECES

STANDARD

- 4.5.1 Manures containing human faeces and urine shall not be used on land used for the production of food or animal feeds.

4.6 ANIMAL MANURES

RECOMMENDATIONS

Animal manures from another farm should be effectively composted to reduce the introduction of diseases, antibiotics and other pollutants to the soil. All animal manure slurry or shed manures should be composted in preference to direct application.

STANDARDS

- 4.6.1 Raw animal liquid waste must be from certified organic production systems and may only be applied to green manure crops or pastures and never be directly applied to edible crops for human consumption.
- 4.6.2 Dissolving imported raw manure in water and spreading the liquid or using it in fertigation is not permitted unless such material is composted first.
- 4.6.3 Fowl manure must be composted before application regardless of origin.
- 4.6.4 Other animal manures, slurry or shed manures must be composted prior to application except where derived from the operator's own certified property.
- 4.6.5 When animal manures are anaerobically composted they must employ a fully effective process.
- 4.6.6 The importation of manures from off site shall be no greater than 15 tonnes per hectare per annum averaged over 3 years and in no case shall lead to an environmental risk.

DEROGATION

Exceptions to this requirement will be assessed by NASAA based on an appraisal of the soil type, nutrient status and the demands of the cropping system.

4.7 FISH PRODUCTS

Sea fish fertilisers manufactured from waste products for direct use or composting can be valuable sources of nutrients.

STANDARDS

- 4.7.1 Fish fertilisers derived from sea fish caught primarily for the purpose of fertiliser manufacture are prohibited.

- 4.7.2 The use of inland pest fish species for fertiliser is acceptable subject to contamination testing.
- 4.7.3 Sulfuric acid or formaldehyde shall not be used as a stabiliser in fish products.

4.8 SEAWEED

STANDARDS

- 4.8.1 The use of seaweed, ground seaweed and pure liquid seaweed is permissible under the following circumstances:
- the collected material is free of contamination
 - collection is carried out under permit from state or regional authorities
- 4.8.2 The final product shall not contain artificial preservatives or products which are not listed in Annex 1 "Products for Use as Fertilisers and Conditioners" or Annex 2 "Products for Control of Plant Pest and Disease" of this Standard.

4.9 SPENT MUSHROOM COMPOST

Spent mushroom products that have been composted may be used subject to verification that no prohibited products are present.

STANDARD

- 4.9.1 Spent mushroom compost containing prohibited products is not permitted.

4.10 MULCHING

GENERAL PRINCIPLES

Mulch can protect soil and plants from desiccation, suppress weeds and assist in adding organic matter. It can also moderate soil temperature.

RECOMMENDATIONS

Mulch material should be provided from certified organic sources. However, if unable to source certified mulch material, the producer should ensure and verify through documentation or testing that mulch materials from non-certified sources are free of contaminants and not treated with ammonium, straw shorteners or other chemical substances.

Growers should be aware of the potential negative impacts of mulch including reduced soil temperature and restriction of aerobic soil processes.

STANDARDS

- 4.10.1 Mulch materials from uncertified agricultural sources shall not be placed in contact with the edible portion of the crop.
- 4.10.2 Glossy paper or coloured paper containing lead is not acceptable for use as a mulch material.
- 4.10.3 Any treated timber products are not permitted for use as mulch material.

4.11 FERTILISERS OF MINERAL ORIGIN

GENERAL PRINCIPLES

Mineral bearing rocks are important for addressing mineral imbalances in organic farming and are capable of supplying most mineral needs if supplied in correct combinations. It is intended that natural processes help utilise the mineral content, and rocks are not chemically treated in order to increase solubility.

STANDARDS

- 4.11.1 Operators must ensure that rock-based materials are sourced from supplies that are low in potential contaminants such as cadmium. See Annex 6 "Maximum Levels of Pesticide and Heavy Metals".
- 4.11.2 The use of gypsum produced as a manufacturing by-product is prohibited.
- 4.11.3 Reactive rock phosphates must have cadmium levels below 20 parts per million (ppm).
- 4.11.4 Wood ash from treated timbers is prohibited.
- 4.11.5 Mineral fertilisers shall only be used in a program addressing long-term fertility needs together with other techniques such as organic matter additions, green manures, rotations and nitrogen fixation by plants.
- 4.11.6 Mineral fertilisers shall be applied in the form in which they are naturally composed and extracted and shall not be rendered more soluble by chemical treatment, other than addition of water and mixing with other naturally occurring permitted inputs.
- 4.11.7 Mineral (elemental) sources for supplying trace elements are permitted where the producer can demonstrate the necessity, provided the material does not contain synthetic nitrogen

compounds or products not listed in Annex 1 “Products for Use as Fertilisers and Conditioners”.

DEROGATION

Potassium sulphate is permitted where there is evidence of a deficiency in the soil.

4.12 THE USE OF ACTIVATORS

GENERAL PRINCIPLES

Activators can play a role in catalysing enhanced biological activity.

STANDARDS

- 4.12.1 Activators free from prohibited substances or genetic modification are permitted.
- 4.12.2 Activators must be listed in Annex 1 “Products for Use as Fertilisers and Conditioners” or be suitable according to Annex 8 “Input Manufacturing Assessment”.
- 4.12.3 Biodynamic preparations are permitted.

4.13 THE USE OF SLUDGES

GENERAL PRINCIPLES

Organic agriculture is not a dumping ground for modern wastes, even where recycling of nutrient may be a positive factor. The quality of waste, and the process which drives its production, can both preclude it from use in organic farming.

STANDARDS

- 4.13.1 The use of sewage sludge is prohibited on food and feed crops.
- 4.13.2 The use of sludges on perennial fibre crops and agro forestry is permissible provided that there is no evidence of excessive accumulation of heavy metals (eg tree plantations) nor any risk of pollution of surface or ground water.

4.14 PEST, DISEASE AND WEED MANAGEMENT

GENERAL PRINCIPLES

Organic pest, disease and weed management is founded on an understanding of the ecology of crops, pests, diseases and weeds and their interactions with the environment.

Preventative rather than curative measures are the first line of defence for organic systems. In this context, the design and functional diversity of organic systems makes them robust and resilient, thereby minimising the need for pest, disease and weed control interventions.

Where intervention is required, crop losses are minimised through an integrated approach to pest, disease and weed management based upon biological and cultural control techniques. The reliance on substances rather than practices for the management of pests, diseases and weeds is not in accordance with the principal aims of organic agriculture.

RECOMMENDATIONS

Integrated pest, disease and weed management strategies should be developed proactively and documented. Cultural techniques, including resistant plant varieties, crop management, quarantine and hygiene measures, should be used to minimise pest and disease risk.

Natural enemies of pest species should be protected and encouraged through appropriate habitat management. Livestock should play an integral role in pest and weed management wherever practical.

Monitoring of pest and beneficial species should be used to determine the need for, and timing of, pest, disease and weed management activities.

Operators should understand the ecology of weed populations. Attention to long term control of seed banks should be part of any weed management strategy. Such strategies should provide effective weed management whilst permitting soil development.

Feral animals and pest plants which are serious threats to natural and agricultural ecosystems should be managed. Prevention of invasion needs to be demonstrated as a first step. Operators should understand the ecology of the pest species and the changed conditions which make the natural ecosystem and farm more prone to invasion. The presence of pest plants and animals does not constitute a breach of this Standard, but their impact on land, water and biological systems should not be detrimental.

The use of substances for pest, disease and weed control should be minimised.

STANDARDS

- 4.14.1 All organic production systems shall display a set of positive processes/mechanisms capable of accounting for management of significant pests, weeds and diseases under normal circumstances.

- 4.14.2 The Operator's Organic Management Plan shall include management strategies for endemic pest, disease and weed problems of relevance to the organic enterprise.
- 4.14.3 Approved pest, disease and weed management methods include:
- quarantine and hygiene
 - use of appropriate crop varieties
 - biological control
 - crop rotations
 - mulching
 - mowing and grazing
 - companion planting
 - competitive or allopathic crops
 - heat, including steam, flame and hot water
 - soil solarisation (restricted)
 - mechanical means including cultivation
 - the use of substances listed as 'Approved' in Annex 2 "Products for Control of Plant Pest and Disease")
- 4.14.4 Thermal sterilisation of soils to combat pests, diseases and weeds is restricted to greenhouses and growing media used in landless production.
- 4.14.5 Cultivation shall be minimised. The need for cultivation must be demonstrated through a monitoring program.
- 4.14.6 Treatment with permitted substances shall only be used as a last resort after all other appropriate techniques under 4.14.3 have proven ineffective. The need for such treatment must be demonstrated through a monitoring program.
- 4.14.7 Treatment with permitted substances shall be well planned and safely implemented to protect beneficial species, the environment and workers applying the materials.
- 4.14.8 Permitted substances for pest, disease and weed management are listed in Annex 2 "Products for Control of Plant Pest and Disease") and shall be subject to the conditions of use outlined in that Annex.
- 4.14.9 Only those substances listed in Annex 2 "Products for Control of Plant Pest and Disease" can be used as active ingredients of formulated products. All other components of formulated products should meet the criteria of Annex 8 "Input Manufacturing Assessment". From 2005, all such components of formulated products must meet the criteria of Annex 2 "Products for Control of Plant Pest and Disease".
- 4.14.10 Synthetic pesticides, including insecticides, fungicides, miticides and herbicides, are prohibited from use.
- 4.14.11 Metaldehyde in traps for slugs and snails is prohibited.
- 4.14.12 Where the use of prohibited substances is required for pest, disease or weed control on existing certified areas, such as for mandatory control of declared weeds, the areas treated with prohibited substances shall be withdrawn from certification. The operator must notify NASAA prior to the use of any prohibited substances, and shall supply NASAA with the following information before the treated area can be considered for re-certification:
- an updated farm map detailing the area(s) intended for treatment
 - the operator's reasons for withdrawing the area(s)
 - a copy of official notification of any mandatory control requirements
 - details of the treatment program including substances and application equipment to be used
 - details regarding storage of the prohibited substances during the treatment program
 - management strategies to avoid contamination of certified areas adjacent to the area(s) to be treated
 - a long term management strategy aimed at replacing the proposed emergency control measures with organic alternatives

4.15 ON-FARM PROCESSING

GENERAL PRINCIPLES

Processing includes, but is not limited to, the packing or bottling, storing, dehydrating, cleaning and handling of organic food and fibre. Certified operators may carry out on-farm processing as a mechanism of value adding.

On-farm processing may involve the handling of other certified operators' products.

The processing facility may be inspected in conjunction with other areas of the farm at regular inspection time.

STANDARD

- 4.15.1 Certified operators who handle more than one other certified operators' product are required to be certified as Processors.

4.16 OFF FARM PROCESSING

GENERAL PRINCIPLES

Processing facilities can be certified in their own right, ie, be able to process organic product for many producers, or can be certified as a Co-processor where the processing facility itself does not become certified. In such instances, responsibility for maintaining compliance with this Standard is a contractual obligation of the certified operator applying for Co-processing Certification. Co-processor Certification is limited to the processing of one other certified operators' product.

STANDARD

- 4.16.1 Any handling, storing, packing and processing of organic products off farm must be covered by organic certification and inspection to maintain the certified organic integrity of the product.

4.17 TRANSPORT & HANDLING

GENERAL PRINCIPLES

Any transport and handling of organic products is done in ways that maintain integrity and quality, and minimise risk of contamination and development of pests and disease. Unpackaged organic products are transported in ways which separate them in time or space from conventional products.

RECOMMENDATIONS

It is preferable that transport vehicles and shipping containers are dedicated to organic usage.

The choice of transport should be based on accessibility for cleaning prior to handling organic products. Stainless steel and other metal tray/tipper trucks and tankers normally used in food transportation are recommended as they are easily cleaned between shipments of certified and non-certified material.

Cartage record templates should be obtained from NASAA.

Wooden containers, if used, should be dedicated to certified products only and clearly labelled as such, or lined as indicated below.

STANDARDS

- 4.17.1 Every precaution must be taken to avoid the possibility of contaminating organic produce with conventional goods, non-agricultural materials or pollution, including cleaning or disinfestation products.
- 4.17.2 Mixing or switching of organic with non-organic products is prohibited.
- 4.17.3 Transportation systems must be able to be cleaned with ease to ensure product integrity during transit.
- 4.17.4 Vehicles which carry toxic and poisonous materials are prohibited for transporting unpackaged and bulk certified food transports.
- 4.17.5 Responsibility for cleaning of transport lies with the certified operator.
- 4.17.6 Organic and non-organic products may not be transported together unless they are packaged and sealed.
- 4.17.7 Non-dedicated containers must be cleaned or lined and covered with an approved protective material (eg polyethylene sheeting).
- 4.17.8 All vehicles carrying bulk goods must be suitably covered with sheeting or tarpaulins to prevent any external contamination.
- 4.17.9 Vehicles and containers used must be excluded from non-permissible pest control activities (ie, fumigation and preventative spraying), both before shipment and during transit.

- 4.17.10 Operators shall develop a protocol for the transportation of organic bulk goods and that transport shall be carried out according to the requirements of this Standard.
- 4.17.11 Documentation associated with the picking up, transport and delivery of organic produce shall be completed at each point in the chain of custody and kept by the transport company or operator responsible.
- 4.17.12 Labelling of packages or containers in transit must include the name and address of the certified operator, the certification number and the name of the product with reference to the organic production method.
- 4.17.13 If there is doubt that the products received by an operator are organic they may not be passed on or processed until there is clear evidence of the organic status of the product.

4.18 STORAGE & WAREHOUSING

GENERAL PRINCIPLES

Maintenance of the integrity of organic product is vital, through clear identification and protection from contamination, including storage and warehousing facilities.

RECOMMENDATIONS

Handlers and processors should handle and process organic products separately in both time and place from non-organic products.

Handlers and processors should identify and avoid pollution and potential contamination sources.

Stock record systems should be coded so that it can clearly be determined what quantity of organic material is in storage at any one time.

Old timber structures are not recommended and may require sealing or coverage.

Co-storage of organic products with different basic storage needs is not recommended.

STANDARDS

- 4.18.1 Conventionally produced and certified produce must be separated in time and space.
- 4.18.2 Where organic products are in bulk form, storage area surfaces must be physically sound and capable of being easily cleaned (ie. free of major cracks and crevices, which harbour pests and food residues). Well prepared concrete, steel and food grade surfaces are acceptable.
- 4.18.3 Rusted or contaminated surfaces must be re-sealed or covered with a non-contaminating liner.
- 4.18.4 Besides storage at ambient temperature, the following storage conditions are approved:
- Modified atmosphere (ie. nitrogen, oxygen, ozone, carbon dioxide)
 - Cooling
 - Freezing
 - Drying
 - Humidity manipulation
- 4.18.5 Co-storage of conventional produce and organic produce under controlled atmosphere is prohibited.
- 4.18.6 Sacks or bulk bags must be dedicated for organic use only and clearly marked as such.
- 4.18.7 Labelling must clearly identify the organic nature of products in storage.

SECTION FIVE – INDIVIDUAL CROP CATEGORIES

5.1 COTTON PRODUCTION

GENERAL PRINCIPLES

Cotton production under this Standard is aimed at providing a contaminant free growing environment and product, in addition to satisfying minimum criteria for the conservation of soil, water and biodiversity in the production phase. The segregation and preservation of the identity of organic cotton from field to factory and beyond is maintained through organic certification.

RECOMMENDATIONS

Production should take place in areas where some plant diversity exists in surrounding areas, whether or not the area has been used for conventional cotton in the past.

Selection of the farm area should favour those where natural growing advantages are present such as higher fertility, reduced weed burden and low contamination history.

Soil structure and fertility should be improved with crop rotation, cover cropping, pasture, green manures and composting.

An organic IPM program should be designed which incorporates cultural practices such as timing, variety, rotation, proximity of other insect pest host plants, trap cropping (provision for habitat for beneficial insects be it perennial or annual) and intercropping. The grower should make provision for the release of beneficial insects such as trichogramma or other parasites or predators and should demonstrate an understanding and recognition of invertebrates within the cropping ecology. Pheromone traps, food attractants, and mating disruption devices should be used, along with the use of permitted bacterial and viral inputs. Management should lead to the building and maintenance of a suitable, stable plant/insect ecology capable of providing buffering against incoming pest insects.

Mechanical weed control such as cultivation, chipping and scuffling should be considered along with grazing, mowing and steam or flame weeding.

Timing of cultivation, layout and levelling, mulches and crop residue management as well as design and maintenance of water application and drainage systems should be undertaken.

Crop residues should be retained on the surface to reduce soil erosion.

Land levelling should have taken place to ensure efficient application of water and, where irrigation occurs, a recirculation system should be in place to re-use water from organic fields.

Design of irrigation drains and furrows should permit the conveyance of water at non-erosion velocities around and from the farm. Tail drains should be designed to eliminate erosion especially where water drops from field to tail drain. A water scheduling system should be in place.

Tail water should be analysed to determine phosphorous, nitrogen, turbidity and pH.

STANDARDS

- 5.1.1 Water must only be used from existing entitlements or from waters harvested from flood situations.
- 5.1.2 Only re-used water from organic production areas may be re-applied to organic production areas.
- 5.1.3 Minimum vegetative cover on all channel/drainage systems is required to prevent soil erosion and to minimise the occurrence of unwanted pest plants.
- 5.1.4 Harvest equipment must be cleaned out prior to use to prevent the remnants of conventional cotton from contaminating the organic product.

5.2 GINNING

STANDARDS

- 5.2.1 Only certified gins may be used to process organic cotton.
- 5.2.2 Storage facilities must demonstrate separation of organic bales and a durable and clear system of marking and recording of stocks.

5.3 WILD HARVESTED PRODUCTS

GENERAL PRINCIPLES

Wild harvested products lead to the encouragement and fostering of a wide range of flora and fauna, which would naturally occur within such ecosystems.

The production and harvesting of certain wild or naturally occurring foods and fibres is included under this Standard.

Fishing and hunting of migratory or wild animals is not included in this Standard.

Whilst Wild Harvest will not include the same proactive management measures seen in organic farming, the following standards will apply.

STANDARDS

- 5.3.1 Harvest and production shall occur within a system which is not subject to degeneration of the natural ecosystem within which the products are grown, but is naturally regenerating under the harvest processes.
- 5.3.2 Where an area designated for wild harvest is subject to harvest by other operators, those operators practices must not fail to satisfy the same requirements for sustainability and regeneration of the resources base.
- 5.3.3 Harvesting of produce shall not involve the clear felling of flora or stripping of fruits of an area which may compromise the ability of the area to function naturally as a complete ecosystem.
- 5.3.4 The harvest process shall not discriminate against native species and shall protect as much as is feasibly possible the natural ecosystems within which these species have evolved.
- 5.3.5 Areas to be certified under the Wild Harvest label shall be clearly defined and identifiable on a regional map. Such areas shall be open and accessible for inspection by NASAA.
- 5.3.6 Wild Harvest areas shall be a satisfactory distance from conventional farming which may otherwise pose potential contamination hazards for the operation.
- 5.3.7 The Wild Harvest area must not be grazed by conventional stock unless they conform to the requirements of quarantine, and are managed in accordance with this Standard.
- 5.3.8 Wild Harvest operations must not violate indigenous land holder rights and interests, nor pose problems to their way of life. There must be payment of royalty rights and other remunerations where these are applicable.
- 5.3.9 The operator must exhibit a proven working knowledge and management ability for the region and ecosystems in question.

5.4 LABELLING

STANDARD

- 5.4.1 Products certified under Wild Harvest can only be labelled as “Organic”.

5.5 LANDLESS SYSTEMS

GENERAL PRINCIPLES

Landless production systems refer to plant products where production is not linked to soil.

STANDARDS

- 5.5.1 Under landless systems, parallel production is not permitted.

5.6 SPROUTS

GENERAL PRINCIPLES

Sprouts are grown without land in clean water.

RECOMMENDATIONS

The use of naturally sourced spring or rainwater is preferable to mains water.

STANDARDS

- 5.6.1 Organically certified sprouts must be produced only from organically certified seeds.
- 5.6.2 The production process must give due consideration to the potential effects of by-product effluent and other waste products to the manufacturing surrounds.
- 5.6.3 Water used in production must be at least of World Health Organisation (WHO) standards for (potable) drinking water.
- 5.6.4 No growth promoting, fungicide or other prohibited additives may be mixed with sprout water.
- 5.6.5 The growing medium must be hygienic, non-permeable and able to be cleaned effectively using organically approved methods. Cleaning methods must in no way pose a contamination risk to sprout production. Packaging of sprouts must comply with the NASAA Standard.

5.7 MUSHROOMS

GENERAL PRINCIPLES

Mushroom production is considered to be an agricultural practice but may also be the subject of a landless production system that meets all appropriate requirements of this Standard.

RECOMMENDATIONS

Management practices aimed at preventing pest/disease should be implemented. Such practices include:

- sanitation
- proper airflow
- removal of affected blocks
- controlled atmosphere (air tight vessel containing carbon dioxide or nitrogen)
- forced air circulation

STANDARDS

- 5.7.1 Mushrooms shall be grown on or in a medium which satisfies the requirements of this Standard.
- 5.7.2 Steam sterilisation, heating, ethanol and hydrogen peroxide treatments of buildings and equipment are allowed.
- 5.7.3 Chemical substances either in the compost or sprayed on the crop as a fog are not permitted unless listed in Annex 2 “Products for Control of Plant Pest and Disease”. The following substances are prohibited:
- Chlorinated water for disease control
 - Formaldehyde for sterilisation
 - Fumigation by methyl bromide
 - Bleaching mushrooms
 - Post harvest treatment of compost with fungicides
- 5.7.4 Operators must ensure there are adequate physical and barrier methods for fly and pest control (refer to Annex 2 “Products for Control of Plant Pest and Disease”).
- 5.7.5 Only organically sourced spawn may be used.

DEROGATION

Where evidence is provided to NASAA to demonstrate that organic spawn is not available in sufficient quality and quantity, approval may be granted to use spawn not produced in accordance with this Standard.

5.8 DRIED FRUIT

GENERAL PRINCIPLES

Under this Standard dried fruit is dried naturally and not subjected to mixing or contamination.

RECOMMENDATIONS

Fruit should be dried with no additives.

The type of drying method used should be itemised on all packaging.

STANDARDS

- 5.8.1 The use of vegetable oils and potash for grape drying is permitted. Where available, organic vegetable oils must be used.
- 5.8.2 The use of sulphur dioxide is prohibited for dried fruit.
- 5.8.3 Fruit drying racks must be on a dedicated portion of certified land and subject to inspection. Racks used for certified produce may not also be used for conventional product.
- 5.8.4 Wooden racks must not be treated with any materials which could contaminate produce.
- 5.8.5 Dust must be minimised in the vicinity of racks.
- 5.8.6 Rack areas may only be used for the purpose of drying fruit.

5.9 COFFEE, COCOA AND TEA PRODUCTION

GENERAL PRINCIPLES

These crops are cultivated in ways that protect the environment, ensure product integrity and maintain optimal social and economic independence of those involved in production.

Production may come from plantations or shade tree environments.

This section should be read in conjunction with Section 8 Social Justice.

RECOMMENDATIONS

Clones and seedlings should be adapted to the local environment and be resistant to local pests and diseases.

Continuity of production should be maintained by replanting programs.

Soil pH should be corrected if necessary using lime or dolomite.

Firewood used in processing or production systems should not lead to deforestation.

As much as possible, processing and packaging should be carried out in the country of origin.

Suitable areas for organic home gardens and/or animal husbandry should be available to workers.

STANDARDS

- 5.9.1 Erosion must be prevented using effective soil conservation methods such as:
- Covering soil when not in use
 - Terracing and contouring
 - Using silt traps and arresting gully erosion with structures if necessary
- 5.9.2 Soil OM must be improved by available methods such as compost, legumes and mulch.
- 5.9.3 Fertility must be maintained in the long term by replenishment through minerals, composts and other available techniques approved under this Standard.
- 5.9.4 Except in plantations, shade trees and shrubs must be maintained in the production area to provide nitrogen and shade and help with pest control.
- 5.9.5 Waste recycling must be carried out.
- 5.9.6 Burning must not lead to soil loss.

SECTION SIX – GENERAL STANDARDS FOR ANIMAL HUSBANDRY

6.1 ANIMAL HUSBANDRY

GENERAL PRINCIPLES

Organic livestock husbandry is based on the harmonious relationship between land, water, plants and livestock, respect for the physiological and behavioural needs of livestock and the feeding of good quality, organically grown feedstuffs.

Pastures are managed for biodiversity and soil conservation as well as animal production.

Organic animal management is based on the principles of balanced nutrition and feeding for prevention of disease and resistance to infection, parasitic attack and metabolic disorders.

RECOMMENDATIONS

Producers should maintain conditions that enhance, as much as possible, the animals' lives, physiological needs and behavioural needs.

Animal breeding and selection should consider breeds and genetic characteristics, which are naturally suited to the individual farm.

Maintenance of ground cover is important for soil conservation which may require farmers to adjust stocking rates when required.

Grazing practices should lead to the fostering of biodiversity. Grazing and pasture management should be based on minimisation of nutrient application and subdivision of areas to land class and should incorporate responsive grazing in contrast to set stocking.

Artificial insemination is not recommended.

STANDARDS

- 6.1.1 Animals shall be allowed to practise their normal behaviours without interference to normal growth patterns. In particular animals must be capable of natural copulation and birth.
- 6.1.2 Embryo transfer is prohibited.
- 6.1.3 The use of genetically engineered species or breeds is not allowed.
- 6.1.4 Hormonal heat treatment and induced birth are not allowed.

DEROGATION

Unless applied to individual animals for medical reasons and under veterinary supervision.

- 6.1.5 Synthetic growth promotants are prohibited in all livestock production systems.
- 6.1.6 The operator must make provision for both animal welfare and soil protection through adequate ground cover that considers all extremities in climatic conditions.
- 6.1.7 Stocking rates for livestock must be appropriate for the region, taking into consideration feed production capacity, health, nutrient balance, and environmental impact.
- 6.1.8 Grazing animals shall be subject to control which includes the capacity to remove animals from a given area as part of a rotation.
- 6.1.9 Animals shall be provided with adequate diet, nutrition and water supply so as to maintain them in fat score 2 or better (sheep and cattle).
- 6.1.10 Meat, wool, eggs, milk and honey will be subject to a NATA approved laboratory testing of tissue for residues by NASAA prior to application of the label.
- 6.1.11 Land and animals may move from precertification to organic simultaneously subject to the requirements for all other land and animal conversion periods.
- 6.1.12 Livestock products require a minimum management period according to this Standard before being marketed as certified. Refer to Table 2 "Conversion Periods For Livestock Products" over.

ANIMALS	MINIMUM ORGANIC MANAGEMENT PERIOD
Cows for milk production	Dairy calves up to 4 weeks old that have received colostrum and are fed a diet consisting mainly of full milk
Fowl for egg production	From 2 day old chicks
Fowl for meat production	From 2 day old chicks
Ruminants and Monogastrics	From last trimester of pregnancy
Aquaculture species	In a fingerling form

Table 2 - Conversion Periods For Livestock Products

6.2 ANIMAL SOURCES

GENERAL PRINCIPLES

Organic animals are born and raised on organic holdings.

RECOMMENDATIONS

Wherever possible, sources of livestock should be from certified organic farms.

Animals should not be sourced from properties suspected to be carrying infectious diseases.

STANDARDS

- 6.2.1 Only animals born, raised and gestated on an organic farm from the last trimester are eligible for full organic certification. Exceptions are listed in Table 2 "Conversion Periods for Livestock Products" above.
- 6.2.2 Regardless of the certification status of animals on the organic farm, no more than 10% of a herd may be replaced annually from conventional sources.

DEROGATION

Exceptions to this may be sought based on the following

- Drought or other natural disaster
 - Herd/flock replacement incorporating upgrade of genetic material incorporated into a complete organic livestock management program
- 6.2.3 Brought in animals from non organic sources and their products may be converted to organic with the minimum time frames as set out in Table 2 "Conversion Periods for Livestock Products" above.
- 6.2.4 Certification of animals as organic will require that the relevant pasture and feed is also certified organic.

6.3 ANIMAL WELFARE AND INFRASTRUCTURE

GENERAL PRINCIPLES

Animals should be allowed to satisfy their basic behavioural needs. In particular, organic livestock are able to forage on certified land, move untethered and uncaged and take wing in the case of flight birds.

Fences, yards and housing are constructed in ways which do not lead to injury or bruising as a consequence of poor design.

RECOMMENDATIONS

Operators should maintain conditions that promote, as much as possible, the animals' physiological and behavioural needs.

Shelter in paddocks should include windbreaks and shade throughout the day.

Animal breed selection should encompass consideration of breeds and genetic material, which is naturally suited to the farm and district environment.

Yards next to animal housing should be managed to provide comfortable and secure conditions without excessive mud, dust, hazardous material, points of potential contamination or land degradation.

STANDARDS

- 6.3.1 Shelter and shade shall be provided to give all animals protection against the sun, extreme wind and rain.
- 6.3.2 Measures must be taken to provide animals with adequate alternatives to waterlogged pasture, holding pens and accommodation.
- 6.3.3 Animals must be allowed free movement and access to pasture at least on a daily basis.
- 6.3.4 When confined for nights, inclement weather or for other reasons on a temporary basis, animals must have access to:

- A sleeping area with adequate natural bedding material
- An adequate supply of fresh water and feed
- Adequate space to stand, lie down, turn around, groom, and carry out natural behaviour such as stretching and wing flapping
- Adequate fresh air, sunlight, ventilation (to prevent high humidity and build-up of gases), and insulation from heat and cold
- Housing cleaned of manure, urine and uneaten or spilt feed as often as necessary to minimise unpleasant odours and avoid attracting pests

6.3.5 Where livestock are housed, the minimum “on ground” density shall comply with the following, for:

Small to medium ruminant animals	Not less than 1.5 square meters for every animal
Medium to large ruminant animals	Not less than 3 square meters for every animal on ground
Small to medium mono-gastric animals	Not less than 1.5 square meters for every animal
Medium to large mono-gastric animals	Not less than 3 square meters for every animal
Poultry and squab	Not less than 1 square meter for every 5 birds including the roosting area
Ducks, geese and turkeys	Not less than 1 square meter for every 2 birds on ground

Table 3 Housing density for housed animals

- 6.3.6 Housing, pens, equipment and utensils must be cleaned and disinfected to prevent cross-infection and the build-up of disease carrying organisms. Only those products listed in Annex 7 “Products Permitted for Cleaning and Sanitation of Surfaces and Equipment” are permitted for sanitation purposes.
- 6.3.7 Floor litter material must be provided from untreated sources. If this litter material is consumed by the housed species, the material must comply with the feed requirements outlined in this Standard.
- 6.3.8 Chicken tractors shall not be permitted where restrictions to free range and movement result.
- 6.3.9 In the case of laying hens natural light may be supplemented by artificial means to provide a maximum of sixteen 16 hours light per day with a continuous nocturnal rest period without artificial light of at least eight (8) hours.
- 6.3.10 Fowl, rabbits, and pigs must not be kept in cages that preclude natural foraging and flight in the case of winged birds.
- 6.3.11 Animals must be protected from predation.
- 6.3.12 Herd animals must not be kept in isolation.

DEROGATION

Male animals and animals about to give birth may be exempted, as well as animals in smallholdings with individual animals only.

- 6.3.13 The use of restraining tethers, cages or pens are not permitted except for short periods for holding purposes only.

6.4 CONTAMINATION RISKS IN PADDOCKS, YARDS AND SHEDS

GENERAL PRINCIPLES

Organic livestock production avoids contamination resulting from past and adjacent practices through identification of risks and the implementation of appropriate action to minimise or eliminate such risk.

RECOMMENDATIONS

Each operator should develop a risk management plan that identifies all physical, biological and chemical hazards that may pose risks to animal health, welfare and integrity.

STANDARDS

- 6.4.1 Dip sites shall be tested for chemical and heavy metal contamination and require renovation or quarantine if contamination levels are above MLs.
- 6.4.2 Shearing sheds shall be free of contamination from past use and free of all prohibited veterinary input products. The operator shall ensure boards are adequately cleaned by heavy scouring to remove animal and dung residues prior to use.

- 6.4.3 Restricted substances must be stored in lockable storage facilities and adequately identified as such.
- 6.4.4 Yards shall be tested to ensure that contamination levels are below the ML's for organophosphates, organochlorines and arsenic in relevant animal products.
- 6.4.5 Where contamination is greater than the allowable levels, the yards shall be relocated or top-dressed with a minimum of 10cm of acceptable uncontaminated material.
- 6.4.6 Portable dips must be thoroughly cleaned and shall require a written specification for cleaning methods submitted to, and approved by, NASAA. Cleaning of portable dips shall not be conducted on a certified organic farm.
- 6.4.7 The use of creosote posts in certified production areas is not permitted.
- 6.4.8 Existing chromium arsenate posts may only be used for end assemblies and not in areas of animal confinement eg yards.
- 6.4.9 Public or private utilities within or adjacent to the farm suspected of posing contamination risks must be identified.

6.5 DIET AND NUTRITION

GENERAL PRINCIPLES

Organic animals are fed on certified organic feeds and/or pasture sourced primarily from the farming unit.

Animal health results from a combination of good management practice and sound nutrition.

RECOMMENDATIONS

Energy, protein and roughage supplies should be adequate to maintain good animal health and condition (eg. young and reproducing cattle and sheep fat score 3 or above; dry animals fat score of 2 or above).

Minerals and trace elements should be provided to stock where it is known that specific deficiencies occur. Where possible, such deficiencies should be corrected by soil amendments so that the animals' intake is in a natural (plant) form. Where appropriate, natural mineral fertilisers, rock dusts, or sea products (fish and/or seaweed applications) should be applied to pastures, and multiple pasture species, especially those known to accumulate deficient elements, should be planted.

Based on human and animal health consideration meat meal should not be fed to certified livestock including pigs and poultry.

STANDARDS

- 6.5.1 The diet must comprise 100% organic feed, be balanced according to the needs of the animal, be sufficient and of good quality and include daily access to roughage in the case of ruminants.
- 6.5.2 For livestock products to be labelled as organic or biodynamic, the livestock diet must be sourced from organic or biodynamic feed.
- 6.5.3 Feeding any portion of in conversion feed will result in the labelling of animal products as in conversion.

DEROGATION

Feed produced and stored from the same production unit (ie not brought in) during the in conversion period may be fed to organic and biodynamic livestock without them losing their organic or biodynamic status.

- 6.5.4 Grazing must be on herbage grown according to this Standard.
- 6.5.5 All animals must have access to organic forage.
- 6.5.6 Feed supplements of non agricultural origin can include minerals, trace elements and vitamins only if from natural sources.
- 6.5.7 Feed supplements of agricultural origin must be of certified organic or biodynamic origin.

DEROGATION

If organic agricultural feed or feed supplements are unavailable, application may be made to NASAA for provision to feed up to 5% of the animal diet (calculated on a weekly basis) with non organic agricultural supplements provided it does not contain prohibited substances.

- 6.5.8 Suckling animals must be reared by their mother for at least two days in order to assist in their development of a natural immunity to infection.

DEROGATION

Stock may qualify for an exemption based upon disease risk management upon application to NASAA. Where multiple suckling or bucket rearing is used, organic whole milk must be

provided for at least 6 weeks after birth. Feed supplements used during and after this period must be in accordance with this Standard.

- 6.5.9 Feeds containing offal, faeces, urine, urea, slaughter products, food industry by-products treated with solvents, same species materials or other prohibited substances are not permitted. Meat meal, which is not sourced from certified organic animals, is permitted to be fed to fowl and pigs at rates of no more than 2% of total diet.
- 6.5.10 The use of certified organic meat meal which is sourced from certified, organic animals, is permitted for use for non ruminants without restriction as long as there is no feeding of the same species. The ongoing acceptance of this Standard will be reviewed by NASAA in June 2005.
- 6.5.11 Ruminants may not be fed with animal products except milk products.
- 6.5.12 Vitamins, trace elements and supplements shall be from natural origin.

DEROGATION

Exceptions shall be made if there is satisfactory documented evidence that there is a demonstrated deficiency in feedstuffs and there is documented evidence that dietary requirements cannot be sourced in sufficient quantity and quality from natural sources.

- 6.5.13 Over 50% of the feed shall come from the farm unit itself, or be produced in cooperation with other certified farms in the region.
- 6.5.14 Rumen activators are restricted to rejuvenation of the animals' metabolic processes and must be derived from natural and non-genetically engineered ingredients.

DEROGATION

In the event that 95% or more of organic feed sources are not available as a result of drought or other natural disaster, and after notification to NASAA, up to 40% of feeds may be of non organic origin, provided that they do not contain substances listed in this Standard as prohibited. In such an event, full organic livestock status may be regained in 6 months from the cessation of such practice. Tissue tests may be required. This derogation should be read in relation to importing country requirements.

PERMITTED	RESTRICTED	PROHIBITED
Certified organic feeds Pasture from a certified organic farm Organic food industry by products Natural vitamins	Seaweed Molasses Minerals Lime Rumen activators including probiotics Minerals and trace elements Bentonite Fish by products Meat meal (non ruminants only) Vitamins - sourced from non-natural sources Yeast Apple cider vinegar	Urea and other synthetic nitrogen compounds Artificial Colorants Hormones Manures Slaughter by products to ruminants Solvent treated feeds Synthetic feed additives, appetisers and preservatives Amino acid isolates Synthetic anti-oxidants Emulsifiers and antibiotics

Table 4 - Livestock Diet and Nutrition

6.6 HEALTH

GENERAL PRINCIPLES

Organic management practices promote and maintain the health and well being of animals through balanced organic nutrition, stress-free living conditions, breed and breeding selection for resistance to diseases, parasites and infection.

Organic animal management is based on the prevention of disease and raising healthy animals that are able to resist infection, parasitic attack and metabolic disorders.

RECOMMENDATIONS

Health promotion and disease prevention should include the following techniques:

- Breeding and selection
- Exercise and access to the open
- Access to organic feed
- Appropriate stocking densities and rotational grazing

Approved veterinary treatment should be considered as an adjunct to, and not a substitute for, good management practices.

The aim should be to develop resistance in animals through breeding and selection and to correct the cause of the disorder, rather than treating the symptoms.

Internal and external parasites should be managed, as much as possible, through farm management practices such as rotation through paddocks, stock and feed diversity, double fencing and grazing management.

Management of different species in pasture rotations should be practiced for parasite control.

STANDARDS

- 6.6.1 Animal health must be maintained primarily through pro-active management, breeding and selection to address the cause of disorders, rather than treating the symptoms.
- 6.6.2 The operator shall provide records of veterinary treatment to animals.
- 6.6.3 If animals suffer disease or injury despite preventative measures the operator must not withhold appropriate veterinary treatment, even if it results in the loss of certification to the treated animals.
- 6.6.4 The following conditions will apply to the use of prohibited inputs:
- That there is a health care emergency
 - That a future organic option for the treatment is developed to prevent re-occurrence
 - That a program of parasite management including grazing, counting and culling is in place
- 6.6.5 The use of any veterinary drugs, including antibiotics, is not permitted (eg. dry cow treatment for mastitis). This Standard prohibits the addition of any antibiotics to feedstuff.
- 6.6.6 In the event that prohibited parasiticides and/or antibiotics are administered, the following conditions of certification shall apply:

▪ Meat loses certification on a permanent basis.
▪ Sheep will require a period of at least 18 months before wool products regain organic certification.
▪ Milk products must be withheld for a period of at least 6 months before being acceptable as organic.
▪ Eggs lose certification on a permanent basis.
▪ Poultry meat loses certification on a permanent basis.
▪ Aquaculture loses certification for that cohort.

Table 5 Withholding Periods for Livestock

- 6.6.7 Vaccines, may be used if the farm or district can be demonstrated to harbour diseases or pathogens against which the vaccine is deployed. The use of vaccines under these circumstances will not prejudice certification and does not require quarantine procedures. Approval shall be granted in writing from NASAA prior to using any vaccine.

DEROGATION

Where vaccination for export is required application may be made for their use.

PERMITTED	RESTRICTED	PROHIBITED
Copper sulphate	Rotenone	Synthetic parasiticides on a routine basis
Magnesium salts	Monosodium fluorosilicate (Animal products must be quarantined for 3 weeks after treatment)	Antibiotics on a routine basis
Homoeopathic remedies	Pyrethrum	Medication in the absence of illness
Herbal remedies	Neem	Sub-therapeutic doses of antibiotics
Limestone and dolomite	Hydrogen peroxide	Hormones
Natural vitamins	Vaccinations	Proprietary anthelmintic agents

Vegetable/Herbal oil extracts Clays	Tallow	Chemically synthesised tranquillisers
Sulphur Garlic, garlic oil and extracts Seaweeds Seaweed meal or extracts Sea salt and salty water Methylated spirits Cider vinegar Zinc sulphate Diatomaceous earth	Vitamins from non-natural sources	Modified organisms or products thereof Prophylactic use of allopathic medicine Synthetic growth promoters

Table 6 - Livestock Health

6.7 WEANING

GENERAL PRINCIPLES

Weaning of animals shall enable the natural process of animal rearing to occur, including progeny having access to colostrums or first milk where relevant.

STANDARD

6.7.1 Weaning times shall conform to the following minimum time frames:

Calves	3 months
Lambs	9 weeks
Piglets	6 weeks

Table 7 - Minimum weaning times

6.8 ANIMAL SURGICAL TREATMENTS

GENERAL PRINCIPLES

Animal surgical treatments are only carried out if the operator can demonstrate that the benefits of the action outweigh the consequences of non-treatment and there are no other acceptable management options.

RECOMMENDATIONS

The operator should choose breeds and practices which do not rely on surgical treatments.

STANDARDS

6.8.1 Animal mutilations are not permitted.

6.8.2 Where the following surgical treatment is shown to be necessary, it shall be performed in such a way that minimises the stress and injury to the animal:

- Earmarking
- Castration
- Tail docking of lambs
- Mulesing (only for Merino)
- Dehorning
- Ringing

6.8.3 Dehorning shall be undertaken shortly after birth if necessary and within the first four months of life. Dehorning of animals over 6 months shall be done under anaesthetic.

6.8.4 Castration of lambs and calves must be carried out as soon as possible after birth and no later than 10 weeks after birth for lambs and 6 months for calves. Animals over 6 months of age must be castrated under the scrutiny of a licensed veterinarian and with anaesthetic.

DEROGATION

That when up to 5% of stock are missed as a result of incomplete muster or timing of birth, they may be castrated as per the other 95%.

6.8.5 Pigs may only be castrated before 2 weeks of age.

6.8.6 Tail removal and mulesing of at least 95% of lambs shall be carried out within 10 weeks of birth and under optimal circumstances to minimise fly and bacterial infection. The operator

must provide a management plan demonstrating the need for mulesing. The management plan shall include references to the sheep breed, bloodline and any genetic improvements under way. In addition, the plan must demonstrate that available, permitted fly treatments are ineffective and that fly control measures and strategic crutching have failed to replace mulesing.

6.8.7 Tail cutting in cattle is not permitted except for the removal of non-flesh portions of tails.

6.8.8 Teeth cutting, de-beaking and wing cutting are prohibited.

6.9 ANIMAL RECORDS AND IDENTIFICATION

GENERAL PRINCIPLES

Identification of organic animals is the basis for ensuring traceability, final product identity and permitting accurate and informed management.

RECOMMENDATIONS

Branding using commercial inks should be practiced with caution as contamination may result.

Sheep, cattle, pigs and goats should have individual identification.

STANDARDS

6.9.1 Tags or markers shall be affixed to any animals requiring individual identification.

6.9.2 Approved identification includes the following:

- Hot and Freeze branding
- Electronic collars
- Earmarking
- Tattooing
- National Livestock Identification Scheme
- Electronic and rumen bolus
- Ear tags

6.9.3 The operator shall maintain adequate records and identification practices to ensure that each animal mob; flock, herd or school can be identified and traced back to the farm.

6.9.4 Records must identify each individual that has received prohibited treatment(s) and has been quarantined.

6.9.5 Records shall include details that identify the organic status and/or quarantine periods of all stock that have been brought in.

6.9.6 Records shall include details of feedstock brought in and identification of the animals that had access to that feedstock.

6.9.7 Records of all livestock sales and purchases must be maintained up to date and kept for a period of five years after the disposal of the animal.

6.10 QUARANTINE

GENERAL PRINCIPLES

The quarantine period and location helps to restrict the entry of chemical and biological agents onto the organic production area.

RECOMMENDATIONS

A quarantine paddock should be one that is dedicated to use and sized and managed to permit an effective barrier against pests, contamination and disease of any new stock brought onto the certified property.

STANDARDS

6.10.1 Where prohibited treatments are used or non-certified stock are brought on-farm, the producer shall provide a certified paddock dedicated for quarantine purposes that ensures treated or purchased stock are quarantined from other stock and from organic cropping areas. This paddock shall have stock proof fences on all sides.

6.10.2 Non certified stock can be agisted on certified land provided the quarantine requirements are adhered to and the animals are clearly identified as non certified and are managed in accordance with this Standard during the agistment period.

6.10.3 The period of quarantine shall be for at least three weeks or three times the withholding period specified for the relevant treatment in existing legislation, whichever is greater.

6.10.4 The quarantine area of the farm shall not be used for organic crop production other than pasture for a period of at least 12 months after the quarantine period has finished.

- 6.10.5 Documented records describing the use of a paddock shall be maintained for a period of five years after the paddock was first used for quarantine purposes.

6.11 TRANSPORT

GENERAL PRINCIPLES

Transport of organic stock is carried out to ensure the best animal welfare and sanitation, the preservation of identity and to permit traceability of the animals. An organic management plan is used to ensure that the holding, loading, watering, transport and delivery of livestock is conducted with hygiene and oversight.

RECOMMENDATIONS

Animals should be transported to the nearest available certified facilities for slaughter and should not be unnecessarily transported between properties or owners unless required by feed shortages and drought.

Transport of animals between properties or to abattoirs shall take into consideration welfare requirements and shall ensure the minimisation of stress to the animal at all times.

STANDARDS

- 6.11.1 An Organic Management Plan for transport of organic livestock shall be in place. This plan shall address the following:
- Mustering
 - Holding
 - Feeding
 - Watering
 - Identification
 - Vehicle cleardown
 - Loading
 - Travel
 - Oversight
 - Delivery
 - Documentation
- 6.11.2 Loading and unloading facilities must not have parts protruding or sharp edges that can cause injury or damage.
- 6.11.3 Transport vehicles shall be of suitable size to prevent damage and or bruising.
- 6.11.4 Floors and ramps must be corrugated or suitably designed so the animal does not slip unduly.
- 6.11.5 Gates must be used in transport vehicles to segregate animals into compatible groups and restrict movement of animals that could cause injury or damage.
- 6.11.6 No chemically synthesised tranquillisers or stimulants shall be given prior to or during transport. (Electrolytes are permitted provided they do not contain synthetic amino acids)
- 6.11.7 Certified organic feed and clean water must be available before and after transport.
- 6.11.8 No transport leg shall exceed 8 hours. Exceptions to this requirement include those cases where:
- There is no certified organic abattoir within 8 hours drive.
 - There is no abattoir capable of satisfying national or importing country requirements within an 8 hours drive.
- 6.11.9 A responsible agent must accompany the livestock on the journey and be present for loading and unloading.
- 6.11.10 Unfit animals may not be transported unless under the care of a licensed veterinarian.

6.12 STOCK ROUTES

GENERAL PRINCIPLES

The transit of organic livestock or of non organic livestock on organic land is conducted in ways that avoid transmission of parasites, disease, chemical or other biological agents and that physical and biological features of the property/route are not damaged.

RECOMMENDATIONS

A report from a licensed veterinarian should be obtained to testify to the disease and parasite free status of the stock.

The organic operator should identify and require the protection of any sites of significance such as habitat, animal or plant communities or riparian zones and develop a code of conduct for peripheral activities that might pose risks for contamination, pollution or other environmental impacts.

STANDARDS

- 6.12.1 The movement of certified stock through non certified land shall be restricted. Public stock routes may be used for the movement of certified stock, but only where that movement is carried out without delay and only on routes that have not been treated with prohibited inputs in the past 3 weeks.
- 6.12.2 The use of stock routes for movement of certified livestock shall be separated in time and space to that of conventional livestock.
- 6.12.3 Where public stock routes occur on certified land there shall be a dedicated passage for the regular transit of non organic stock through organic lands. This passage must be permanently fenced or excluded from access by organic stock for at least 6 months.

DEROGATION

Where episodic events (less than annual) occur, the routes may be excluded from organic livestock for a reduced period and their overnight sights treated or quarantined.

- 6.12.4 Stock routes shall be identified on a map.
- 6.12.5 Conventional livestock shall be fed organic feed and not be treated with prohibited substances during movement through certified land.
- 6.12.6 Conventional livestock shall be individually identified and records maintained to indicate the duration of transit, and number of non organic stock.

6.13 CONTAMINATION DURING TRANSPORT

STANDARDS

- 6.13.1 Residues from previous use must be cleaned with a pressurised water flow, and brooms if necessary, before transporting certified product.
- 6.13.2 When used, disinfectants must be rinsed from the transport vehicle before organic stock are loaded.
- 6.13.3 The clean down procedure must be specified by the organic operator in a written form and be evidenced as carried out by a log provided by the transport company/authority. This log shall also specify the date, operator's name, departure and destination points, conformance with clean down, previous use and the time of departure and arrival of livestock consignment.

6.14 IDENTITY DURING TRANSPORT

STANDARD

- 6.14.1 Cattle must be identified and accompanied by documentation listing the description of the livestock along with their organic status.

6.15 SLAUGHTER

STANDARDS

- 6.15.1 Slaughter may only be carried out in a certified abattoir, which has undergone complete clean down and rinse after any processing of conventional livestock.
- 6.15.2 Slaughter will be carried out quickly and without undue stress.
- 6.15.3 For waiting periods in excess of 6 hours, provision of clean and dry areas must be made for animals to lie down and any feeds provided must be certified organic.
- 6.15.4 Animals may not be held or herded in an area where the killing of other livestock is visible.
- 6.15.5 A stun action device must be backed up by emergency measures in the case of failure.
- 6.15.6 Death by bleeding, without stunning, is not permissible unless cultural or religious requirements are being met under an approved scheme and the practice is carried out in an appropriate calm environment.
- 6.15.7 Bleaches, sanitisers, detergents, antibacterial or other cleaning agents must be rinsed from all facility surfaces before use.
- 6.15.8 Water must be free from unacceptable microbiological contamination and if chlorination is used to achieve this, chlorine levels must be less than 4 parts per million (ppm).
- 6.15.9 Carcasses or quarters must be stored in a separate and clearly identified chiller or in a clearly defined area within the same chiller.
- 6.15.10 Offal will only be retrievable for organic purposes if the time of its collection and separate processing and storage can be controlled and documented.

- 6.15.11 Boning rooms must be limited to the processing of organic lines only for the entire duration of the boning event. Boning must not be carried out concurrently with non-organic runs. Complete clean down of boning rooms must precede organic runs.
- 6.15.12 Clearly identifiable labelling such as branding of all carcasses must take place which differentiates them by colour from conventional carcasses and identifies them as organic.
- 6.15.13 Stamping of carcasses, sides or quarters will be carried out by approved personnel.
- 6.15.14 Product which is dropped or spilled must be identified and not labelled or sold as organic.
- 6.15.15 Frozen processed product must be stored in separate freezers except where clearly identifiable proprietary labelling makes mistaken identity impossible.
- 6.15.16 The audit trail from receipt to dispatch must be documented in full.
- 6.15.17 Where stock is slaughtered for organic sale the processing facility must be inspected as a certified component of the operator's operation or certified in its own right before the NASAA Label may be applied.
- 6.15.18 Only abattoirs with a Quality Assurance System recognised by NASAA shall be considered for certification and should formally incorporate organic procedures into their internal organic management plan.

SECTION SEVEN – SPECIFIC LIVESTOCK STANDARDS

7.1 RANGELAND MANAGEMENT

GENERAL PRINCIPLES

Pastoralism carried out under organic management enhances biodiversity, minimises soil and nutrient loss and ensures animal welfare. This section should be read in conjunction with the General Standards for Livestock Husbandry (Section 6).

RECOMMENDATIONS

Cell, rotational or holistic grazing techniques are recommended.

Grazing management should be carried out with reference to total grazing pressure.

Carrying capacity should be calculated with reference to prescribed district rates and ecological indicators.

Stocking and de-stocking strategies should be carried out with reference to carrying capacity as the primary consideration.

Stations should be fenced in such a way that Land Managements Units are segregated for optimum management.

STANDARD

7.1.1 Monitoring of environmental indicators is required. This shall include:

- Photopoints
- Transect studies
- Exclusion zones
- Species counts
- Pasture cover
- Water/riparian zones
- Reference to catchment management targets

7.2 FEEDS

STANDARDS

7.2.1 Only feeds from organic certified sources (pasture and concentrates) are permitted with the exception of up to 5% of the total feed intake permitted to include supplementary feed of non-agricultural source. Such feed must not include prohibited substances.

7.2.2 Prohibited feeds include urea, blood and bone and concentrates from non-organic sources other than those listed in this Standard.

7.3 HEALTH & WELFARE

GENERAL PRINCIPLES

Good management and feed quality should form the basis for animal health.

STANDARDS

7.3.1 Flies, ticks and buffalo fly may not be treated with synthetic chemicals.

7.3.2 Poisonous plants must be withheld from stock access at critical times.

7.3.3 Mustering must not include the use of lead shot.

7.3.4 Vaccines may be used if the farm or district can be demonstrated to harbour diseases or pathogens against which the vaccine is deployed. The use of vaccines under these circumstances will not prejudice certification and does not require quarantine procedures. Approval shall be sought in writing from NASAA prior to using any vaccine.

7.3.5 Feral animals may be managed using the following:

- Physical exclusion, chasing and guard dogs
- Trapping of individuals and herds using live traps with humane destruction
- Shooting of feral animals or wildlife under licence is a restricted activity and assessed by NASAA on a case by case basis. Criteria for assessment will include effect on non-target species and consideration of environmental impact
- Poisons for control of rodents or feral animals in the field are prohibited, unless required by a statutory authority and the statutory authority confirms use in writing.

7.4 LAND TENURE

STANDARDS

- 7.4.1 Lands may be freehold or pastoral lease. Conformity to lease conditions is required.
- 7.4.2 The rights of traditional owners must be respected.

7.5 WATER

GENERAL PRINCIPLES

Tanks and watering points should be located to enhance rangeland management.

STANDARDS

- 7.5.1 Water must not be impounded unless in a manner approved by a catchment management authority.
- 7.5.2 Any engineered or non naturally occurring artesian well must be tapped and be subject to controlled flow. Water tanks must be capable of being managed to permit rotation and movement of stock.

7.6 WOOL

STANDARDS

- 7.6.1 Wool may only be certified organic if sheep have been managed according to this Standard for at least 18 months.
- 7.6.2 Testing of wool for chemical residues and heavy metal contamination must take place before sales. ML's for mammalian tissue will form the benchmark for chemical residues with NASAA's acceptable level being 10% of these figures for historic contamination.
- 7.6.3 Any detection of prohibited chemicals at any level, which may have resulted from recent use, will prevent certification. Arsenic levels must fall below 0.2mg/kg. Operators will be expected to reduce any sources of this historic contaminant through active management and monitoring.

7.7 SHEARING

STANDARDS

- 7.7.1 Shearing may only be carried out at a certified shearing shed that has been subject to inspection.
- 7.7.2 Sheds must be free of prohibited inputs and have holding yards, pens and boards, tables and storage bins subjected to residue tests.
- 7.7.3 Wool from non-organic sources must not be present in wool sheds at the time of organic shearing.
- 7.7.4 Adequate shelter from climatic conditions must be provided for sheep immediately off shears.

7.8 SCOURING

STANDARD

- 7.8.1 Wool scouring tensides must be readily biodegradable and there shall be an appropriate waste water treatment.

7.9 HONEY

GENERAL PRINCIPLES

The following standards for the harvesting and packaging of bee (*Apis mellifera*) products (honey, wax, pollen, royal jelly and propolis) complement the generic standards for organic production and processing.

Bees are feral creatures with 'castes' (queen, workers and drones) forming an insect social community, the colony, housed within a structure called a hive. As available, harvested nectar, honeydew, pollen (and water) is used and converted by bee activity into honey, wax, propolis and royal jelly to sustain and perpetuate the colony. The apiarist uses and manipulates the colony's natural (instinctive) behaviour to optimise access to these products. The beekeeper places hives to form apiaries on identified leased, owned or used sites.

Aspects of bee behaviour and performance are improved through selection of breeding material (drone and queen) and achieved through queen replacement. The organic beekeeper uses races of *Apis mellifera* that are suited to the climatic and foraging conditions likely to be encountered and the type of bee product being optimised (propolis / royal jelly / honey / wax).

As the apiarist cannot control where bees fly or what they gather, product integrity is attained through risk management strategies to limit contamination particularly in regard to site selection.

The organic apiarist uses benign treatments, hive materials, apiary equipment and packaging materials to ensure bee health and product integrity.

Apiarists demonstrate a 'duty of care' towards the colonies in their apiary by disease management practices, strategic (conservative) product removal, site selection and provision of water.

Apiarists demonstrate a 'duty of care' to the environment by observance of legal requirements, destruction of feral colonies and site care.

RECOMMENDATIONS

The organic apiarist should practice a system of disease management that limits the exchange of bee material among hives, ensures systematic replacement and cleaning of hive material, records colony performance and hive movements.

Apiarists should be familiar with the nutritional characteristics of plant sources that the bees are working to avoid inappropriate product removal and the need to feed hives.

Hives should be constructed of natural materials, smoker fuel should be non-sparking natural material producing a 'cool smoke' eg hay, pine needles, clean wood chips/shavings. Wax used to make foundation should be sourced preferably from the operator's own certified organic hives.

Honey extraction and packaging temperatures should not affect the quality and beneficial properties of honey. If recycled containers are used they should be clean and free from foreign odours.

Apiarists should understand bee behaviour and manipulate the colony accordingly with bee removal/hive inspection aided by clearing boards, brushing, shaking, blowers, or minimal smoking using natural fuels.

Apiarists should understand the factors affecting storage of empty combs such as influence of temperature and the need for exclusion of moths and mice.

STANDARDS

- 7.9.1 A risk assessment of all proposed hive sites must be undertaken. This written assessment must document the requirements below, and will be required prior to NASAA inspecting a new applicant for certification. Existing operators who have not supplied this risk assessment will be required to do so prior to reinspection.
- 7.9.2 On an aerial photo or topographical map of a minimum size of 1:25,000 (LandSat images may also be used) the apiarist shall:
- Demonstrate that within a radius of 5 kilometres from the apiary site, nectar, honeydew and pollen sources consist essentially of organically produced crops and/or spontaneous vegetation that meet organic crop production requirements sufficiently to supply all nutritional needs of the bees
 - Identify any non-agricultural production sources possibly leading to contamination eg. urban centres, motorways, industrial areas, waste dumps, waste incinerators
 - Identify the areas where land uses may include agricultural production systems possibly leading to contamination eg. conventional and GMO crops, grazing land and orchards
- 7.9.3 If NASAA considers that site characteristics pose a serious risk of contamination the site will not be accepted for organic honey production.
- 7.9.4 A list and maps of bee keeping locations must be kept updated.
- 7.9.5 Apiary sites must be clearly identified, with NASAA certification status and certification number.
- 7.9.6 Where an enterprise has conventional and organic colonies then organic hives must be clearly coded with a permanent marking system and kept separate from non-organic hives.
- 7.9.7 Where enterprises are converting to organic production, the wax shall be replaced by organically produced wax, unless no prohibited products have previously been used in the hive and there is no risk of contamination of wax.
- 7.9.8 Hives must be constructed from natural materials.
- 7.9.9 Frames shall be from untreated timbers and foundation formed from wax from certified organic colonies. Cappings can be used from conventional foundations managed under organic regimes.
- 7.9.10 Hives may be painted with vegetable oil and paraffin or beeswax mixture, or naturally compounded paints subject to NASAA approval. Acrylic paint may only be applied to the exterior of the hive.
- 7.9.11 The health and welfare of the hive shall be primarily achieved by hygiene and hive management.
- 7.9.12 Antibiotics must not be used. Veterinary medicine must not be used in bee keeping. Colonies with notifiable diseases must be destroyed and all hive material heat-treated in an approved manner that destroys infectious material. Flywire and herbal repellents subject to approval may be used for protection of combs. The use of paradichlorobenzene or phostoxin for protection of combs is not permitted.

- 7.9.13 A disease management system must be practiced with records that indicate movement of hive materials, hives, queen replacements, uniting of hives and colony performance eg honey supers harvested.
- 7.9.14 All hives must be clearly identified as organic and by number.
- 7.9.15 Flame and steam sterilisation; caustic soda; lactic acid; acetic acid; oxalic acid; formic acid; sulphur; etheric oils and bacillus thuringiensis are permitted for hive disinfection and pest/disease control.
- 7.9.16 The feeding of a colony is only permitted under exceptional circumstances to overcome temporary food shortages due to climatic conditions. Only certified organic honey or organic sugar syrup may be used in this instance. The feeding of organic honey is currently under review.
- 7.9.17 Smoking of bees must be kept to a minimum. Smoker fuel shall only consist of natural materials, eg. Hay, clean wood chips/shavings, pine needles.
- 7.9.18 The apiarist must not use a repellent consisting of prohibited substances as protection when working colonies or inspecting hives (eg. at harvest).
- 7.9.19 The destruction of bees in the combs as a method of harvesting of bee products is prohibited.
- 7.9.20 In choice of race, account must be taken of their suitability for local conditions, their vitality and resistance to disease.
- 7.9.21 Apiarists must observe National or State laws, which may include prohibitions on hive sites in National Parks and other proclaimed parks, reserves and forests.
- 7.9.22 Extraction and packaging of honey must be managed at temperatures that do not exceed 45 degrees Celsius. The use of steam heated capping removal equipment is permitted.
- 7.9.23 Clipping of wings (queens) is not permitted.

7.10 MILK PRODUCTION

All relevant Sections of the Animal Husbandry requirements must also be complied with. (Refer to Section 6).

GENERAL PRINCIPLES

Milk production under this Standard is aimed at satisfying criteria that ensure the sustainable management of land, the welfare of animals, the quality of the milk product and the protection of that product from contamination.

RECOMMENDATIONS

It is recommended that the whole herd be managed according to this Standard from birth. Organic milk production should be based on correct soil and animal nutrition achieved by balanced mineral and dietary input to maintain health.

STANDARDS

- 7.10.1 A management plan for the appropriate treatments of specific animal health issues such as mastitis, grass tetany, milk fever, scours, bloat, or pink eye must be in place.
- 7.10.2 Strategies to deal with adverse seasonal conditions such as drought and extreme wet must be developed.
- 7.10.3 Routine use of veterinary drugs is not permitted (eg. dry cow treatment for mastitis).
- 7.10.4 In the event of use of veterinary drugs, quarantine of animals and milk is necessary and provision of a test bucket must be made to maintain separation of any conventional milk for 6 months before being acceptable again as organic.
- 7.10.5 Quarantine procedures must be observed in the case of use of veterinary drugs.
- 7.10.6 An identification system must be in place to record the identity and performance of milking animals and to document any individual veterinary treatments.
- 7.10.7 Replacement dairy stock obtained from non-organic sources must be under organic management from 4 weeks old before milk is sold as certified. Carcasses of these animals may not be sold as organic. Refer to Table 2 "Conversion Periods for Livestock Products".
- 7.10.8 Offspring must receive colostrum from the mother within six hours of birth and be reared by their mother for at least the first 12 hours after birth. Multiple suckling or bucket rearing on organic milk for at least 12 weeks is required after birth.
- 7.10.9 Replacement offspring obtained from non-organic sources must be at least one week old and may not be purchased from a market.

7.11 DAIRY MANAGEMENT

STANDARDS

- 7.11.1 Acid and alkaline line clean down products shall be rinsed of any trace before use for organic milk.
- 7.11.2 Dairy plant must undergo an annual maintenance check to determine that working condition, seals and rubbers are satisfactory.
- 7.11.3 Dairy waste water must be retained on site and must not pollute natural waterways on or off the farm.

RECOMMENDED	RESTRICTED	PROHIBITED
Self replacing herds All feeds grown on own certified farm All manures/slurry spread on-farm Regular herd testing Shelter and shade in all paddocks Surfaced and maintained laneways, tracks and yards free from deep mud Water sprinklers and shade in milking yards Homoeopathic treatments Fly traps, screens, zappers and water misting for fly control Boiling water or steam sterilisation of plant	Iodine based teat wash Zinc and sulphur based foot baths Brought-in replacements not to exceed 10% Natural oils and salves for teat care Non organic milk without antibiotics for emergency calf feeding only	Routine use of antibiotics or other veterinary drugs Disbudding over 3 months of age Castration by rings over 4 weeks of age Embryo transplants Weaning under 9 weeks of age Hormones, (fertility and production) Castration without veterinary assistance over 6 months of age Cloning Tail Cutting

Table 8 – Organic Dairy / Herd Management Practices

7.12 POULTRY/FOWL

GENERAL PRINCIPLES

The principles of animal welfare, freedom from contamination and sustainable land management underlie fowl production in this Standard.

RECOMMENDATIONS

Operators should seek to source bird varieties appropriate and adapted to the region in which the farm is situated.

The farm should produce its own certified organic feeds.

Bird varieties should be chosen for their disease resistance and longevity.

Access to dust baths for the control of external parasites should be provided.

The use of homoeopathic treatments, the balancing of nutrients and general diet, high quality feeds, stock management and minimum stocking density practices should be practised so as to minimise disease problems.

In circumstances where disease outbreaks occur or are suspected, affected stock should firstly be isolated from the main flock and treated separately.

Cleaning of facilities should be by use of non-toxic and biodegradable soaps, burning, tea tree oil, eucalyptus oil and steam.

Alternatives to chlorine based cleaners should be used for egg cleaning.

Eggs should be stored in cool storage prior to sale.

7.13 FEED AND FEEDSTUFF

STANDARDS

- 7.13.1 Poultry shall be fed on certified organic feedstuffs.

DEROGATION

When required feeds are not available an exemption may be sought to use up to 5% of non organic feeds calculated on a weekly basis. These feeds must not contain prohibited substances and must not be derived from prohibited processing practices.

- 7.13.2 For poultry products to be labelled as certified organic poultry must be fed on feed which is certified Organic. Feeding any portion of feed which is certified "Conversion to Organic" will result in the labelling of poultry products as "Conversion to Organic".
- 7.13.3 Free-range areas must have a majority of vegetative cover, rather than bare soil. Rotations of free-range areas are required to maintain cover, to protect soil from degradation, minimise nitrification and parasitic infestation and to ensure a constant availability of live foods.
- 7.13.4 Meat meal that is certified organic (derived from animals of organic origin) is permitted to be fed to fowl without restriction until June 2005 when this policy will be reviewed. Meat meal that is not from animals of organic origin shall not be fed at rates higher than 2% of total daily diet.

DEROGATION

NASAA may grant an exception to increase the use of non certified meat meal to a maximum of 5%, providing that the total non-organic component still remains at a maximum of 5% of total diet.

- 7.13.5 The feeding of same species is prohibited.
- 7.13.6 Birds must have continual access to clean water and feed.
- 7.13.7 Growth promotants and antibiotics in feed or otherwise are prohibited in organic production.
- 7.13.8 Vitamins, trace elements and supplements shall be used from natural origin when available in appropriate quantity and quality.

DEROGATION

Vitamins from non-natural sources may only be used if (1) there is a demonstrated deficiency in feedstuffs and (2) there is satisfactory documented evidence that the vitamin cannot be sourced sufficiently from natural sources.

- 7.13.9 All feed must be derived at least from the region.

7.14 SURGICAL AND OTHER TREATMENTS

STANDARDS

- 7.14.1 De-beaking, wing burning and other practices deemed inhumane by NASAA are prohibited from practice under this Standard.
- 7.14.2 In all instances measures must be taken to ensure the health and vitality of the flocks so as to minimise chances of disease and pest outbreak.
- 7.14.3 Where pharmaceutical or veterinary treatments are applied, operators must clearly identify which birds or batches of birds have been treated.
- 7.14.4 In the event that prohibited parasiticides and/or routine antibiotics are administered, eggs and carcasses lose their certification permanently.
- 7.14.5 Provided that there is evidence that the pathogen is on the property or potentially within the livestock, the use of vaccinations is permitted.

7.15 REPLACEMENT STOCK

STANDARD

- 7.15.1 Replacement stock shall be introduced no older than two days old for meat or for egg production unless being sourced from poultry systems in full compliance with this Standard.

7.16 QUARANTINE

STANDARDS

- 7.16.1 Following application of prohibited inputs for the control of disease and pests, a quarantine period of at least three (3) times the normal withholding period or three (3) weeks, whichever is longer, must be adhered to before treated birds can be allowed back with the main flock. Treated poultry shall remain clearly distinguished from certified stock and can not be sold with reference to NASAA certification. (Refer Table 5 "Withholding Periods for Livestock" above)
- 7.16.2 A quarantine area must be set aside for such purposes and not be brought into organic production for a period of at least 3 weeks for animal grazing following last exposure to birds subjected to veterinary treatments. The quarantine area shall not be used for cropping purposes for a minimum of twelve (12) months.

7.17 HOUSING AND STOCKING

STANDARDS

- 7.17.1 No intensive cage rearing of birds is allowed under this Standard.
- 7.17.2 Poultry must be permitted at least 8 hours continuous darkness per 24-hour period and must have access to natural light and forage areas for at least 6 hours per day.
- 7.17.3 Poultry may not be certified for organic production if animals are contained within permanent or mobile enclosures that do not permit free ranging.
- 7.17.4 Mobile houses must be continuously open during daylight hours to allow unrestricted egress and ingress of birds and stocking rates inside these houses must not exceed five birds per square metre. (Refer Table 3 "Housing Density for Housed Animals")
- 7.17.5 At least one third of the flooring of housing areas must be covered by litter material such as straw, wood shavings, sand, turf, etc. An area for collection of bird droppings must also be provided.

7.18 TRANSPORT

STANDARDS

- 7.18.1 Transport by axle vehicles must be minimised and not exceed eight (8) hours in duration.
- 7.18.2 The transport medium must be cleaned prior to loading and records maintained to verify such clean down.
- 7.18.3 Transport shall be carried out in a humane manner, which ensures a safe and comfortable journey.
- 7.18.4 All effort must be made to minimise animal suffering and stress.

7.19 RECORDS

STANDARDS

- 7.19.1 All producers are required to keep an inventory of the following:
- Stock
 - Feed sources
 - Sales
 - Deaths and causes thereof
 - Any medications administered, and
 - Quarantine procedures

7.20 SLAUGHTER AND SALES

STANDARDS

- 7.20.1 Facilities for slaughter of poultry must be inspected and certified by NASAA.
- 7.20.2 Eye and ear contact of live birds with dead carcasses must be avoided.
- 7.20.3 Eggs must be thoroughly cleaned of material which may harbour microbiological contaminants.
- 7.20.4 Tissue tests must be carried out on eggs or meat prior to certification and sale as organic.

7.21 PIG PRODUCTION

GENERAL PRINCIPLES

Organic pig production is based on sustainable management techniques that provide good health and welfare conditions to enable pigs to satisfy their basic behavioural needs. Grazing is provided to pigs to enable access to feed and roughage and the opportunity for activity. Breeds should be chosen with regard to their management and local conditions to enhance the natural well being of the pig and resistance to disease and infections.

7.22 FEEDS AND FEEDSTUFF

STANDARDS

- 7.22.1 Pigs should be fed a diet totally comprising feeds of organic origin. Up to 5% of all feed (averaged on a weekly basis) may be brought in as feed supplements and may include the following:
- Minerals of natural origin
 - Sea weed and fish products

- 2% meat meal from conventional origin (ie. not manufactured from certified organic animals)
- Molasses

7.22.2 Meat meal may only be used in excess of 2% if the meat meal is certified organic. The feeding of the same species is prohibited. The inclusion of meat meal under this Standard will be reviewed in June 2005.

7.22.3 At least 50% of certified feed must be sourced from the farm and all feed shall be sourced from within the region.

DEROGATION

In the event that 95% or more of organic feed sources are not available, as a result of drought or other natural disaster, and after notification to NASAA, up to 40% of feeds may be of non organic origin, provided that they do not contain substances listed in this Standard as prohibited. In such an event, full organic livestock status may be regained in 6 months from the cessation of such practice. Tissue tests may be required. This derogation is currently under review and is currently only effective until June 2005.

7.22.4 The following products shall not be included in, nor added to the feed or in any other way be given to farm animals:

- Synthetic growth promotants
- Synthetic appetisers
- Preservatives
- Artificial colouring agents
- Urea
- Manure products
- Feed subject to solvents during extraction or the addition of other chemical agents
- Pure amino acids
- Genetically Engineered organisms or products thereof
- Any meat meal containing porcine waste

7.22.5 Vitamins, trace elements and supplements shall be used from natural origin when available in appropriate quantity and quality.

DEROGATION

Vitamins from non-natural sources may only be used if (1) there is a demonstrated deficiency in feedstuffs and (2) there is satisfactory documented evidence that the vitamin cannot be sourced sufficiently from natural sources.

7.23 SURGICAL AND OTHER VETERINARY TREATMENTS

STANDARDS

7.23.1 Routine tooth cutting or grinding is not permitted.

7.23.2 Permanent ringing may not be carried out. Rings should only be attached for periods where land management issues may be compromised. In such cases NASAA requires prior submission detailing how the management of land will be altered to ensure non-dependency on ringing.

7.23.3 Castration is not permitted within Australia.

7.23.4 Sick and injured animals shall be given prompt and adequate treatment. In the event that an illness requires treatment using a veterinary medicine, and no other alternative is available, then the treatment shall be administered without delay. That individual pig must be identified and segregated in a quarantine area for 3 weeks or 3 times the withholding period, whichever is greater, and shall not be sold with reference to certification.

7.23.5 The use of anaesthetics will not result in loss of organic status but the animals must be withheld from sale for at least 3 weeks.

7.23.6 Natural medicines and methods including homoeopathy, herbs, and acupuncture are permitted. Minerals and trace elements shall be provided where there is a demonstrated deficiency.

7.23.7 The use of vaccines is restricted to those known to be required in a district or region where the disease cannot be controlled using other management techniques. Vaccines must not be genetically engineered.

7.24 REPLACEMENT STOCK AND BREEDS

STANDARDS

- 7.24.1 Animals from organic farms should be sourced, but for purposes of establishing breeding stock or supplementing bloodlines, conventional pigs may be introduced to the organic farm, subject to a quarantine period in a designated area. Such animals may never be sold as certified and must be identified by records.
- 7.24.2 The use of transgenic pigs or genetic material is not permitted to be introduced into the herd or bloodline and verification must be provided to NASAA.
- 7.24.3 Hormonal heat treatment and induced birth is not permitted unless for emergency purposes and under the supervision of a veterinarian.
- 7.24.4 Artificial insemination is not recommended but is permitted, provided that genetic material is free of genetically engineered sources.
- 7.24.5 Embryo transfer is not allowed.
- 7.24.6 Use of genetically modified animals is not permitted.

7.25 HOUSING AND STOCKING

STANDARDS

- 7.25.1 Pigs must be provided with free-range access to pastured areas.
- 7.25.2 Stocking rates must meet animal welfare standards of half a square metre per 100kg of animal.
- 7.25.3 Adequate shade and shelter must be provided with clean bedding comprising edible organic material.
- 7.25.4 Locations for wallowing must be provided.
- 7.25.5 Sufficiently well drained sites for lying shall be provided.
- 7.25.6 Fresh water and adequate feed must be available at all times.
- 7.25.7 Housing must allow sows to express their full range of natural behaviours and must not involve permanent confinement or any housing system which prevents the sows from lying down, standing up or turning around with ease.

7.26 TRANSPORT

STANDARDS

- 7.26.1 Stress on the pig during transport and slaughter shall be minimised at all times. Pigs of significantly different weights are to be separated during transport.
- 7.26.2 Certified pigs must be physically separated from conventional pigs if on the same truck.
- 7.26.3 Transport to the abattoir must not exceed 8 hours and should be by the most appropriate route, which is both direct and not excessively rough. Exceptions include:
- There is no certified organic abattoir within an 8 hour drive
 - There is no abattoir capable of satisfying national or importing country requirements within an 8 hour drive
 - An OMP is developed to adequately address stress minimisation of livestock and submitted to NASAA for approval.
- 7.26.4 Holding, loading and transport should avoid sunburn, temperature stress and exposure. Exposure to direct sunlight shall be limited to 2 hours.
- 7.26.5 Electric prodders, unmuzzled dogs, sticks, metal or polyethylene pipes or heavy belts are not permitted.

7.27 RECORDS

STANDARDS

- 7.27.1 Each pig must bear an identification mark before leaving the certified farm.
- 7.27.2 Pigs treated with non-permitted substances or purchased from a non certified premise must be clearly identified at all times and records maintained to verify quarantine, treatments, and slaughter of such animals as conventional.
- 7.27.3 Records shall be kept for all feed and feed supplements purchased from off farm.
- 7.27.4 Records of gene stock and bloodlines shall be kept.

7.28 FISH AND CRUSTACEA

GENERAL PRINCIPLES

Aquatic production takes place in ponds or estuarine systems or locations where permanent fish farming takes place. Aquaculture includes the farming of many different species using diverse forms of production in fresh, brackish and salt water. This Standard covers carnivorous, omnivorous and herbivorous organisms of all types and at all stages of growth, grown in any form of enclosure such as earthen ponds, tanks and cages (open and closed systems).

Wild sessile organisms in open collecting areas may be certified as organic.

Organisms that are moving freely in open waters, and/or that are not capable of inspection according to general procedures for organic production, are not covered by this Standard.

7.29 CONVERSION TO ORGANIC AQUACULTURE

GENERAL PRINCIPLES

Conversion to organic aquaculture is a process of developing farming practices that encourage and maintain a viable and sustainable aquatic ecosystem.

RECOMMENDATIONS

The total production in each farming unit or under each operator's control should be converted to organic aquaculture over a specified period of time. If a production unit is not converted all at once, the operator should ensure that organic and non-organic production and product can be clearly separated in production and documentation, to prevent unintentional mixing of materials and products.

Independent sections of the production unit should be converted in such a way that this Standard is completely met on each section before it is certified as organic.

There should be a clear plan of how to proceed with the conversion. This plan should be updated as necessary and cover all aspects relevant to this Standard.

The length of the conversion period should be at least one life cycle of the organism in question.

STANDARDS

7.29.1 The operation shall comply with this Standard throughout the conversion period. Calculation of the conversion period may not start before the date of the last non-complying input or practice.

7.29.2 Where the entire production is not converted the following is required:

- Physical separation between conventional and organic production units. For sedentary or sessile organisms not living in enclosures, the area shall be at an appropriate distance from pollution or harmful influence from conventional aquaculture/agriculture or industry.
- Converted units shall not be switched between organic and conventional management.
- The length of the conversion period shall be no less than 12 months or one life cycle of the organism.
- Brought-in organisms of conventional origin shall not be converted to organic unless they are spat or fingerlings or are immature organisms which are at least 12 months from maturity and harvest.
- No conversion period is required in the case of open collecting areas for sedentary organisms where the water is free-flowing and not directly or indirectly contaminated by substances prohibited in this Standard and where the collecting area can be inspected with respect to water quality, feed, medication, input factors or any other relevant sections of this Standard and all requirements are met.

7.30 BASIC CONDITIONS

GENERAL PRINCIPLES

Management techniques are governed by the physiological and behavioural needs of the organisms in question. Management techniques, especially when applied to influence production levels and speed of growth, maintain and protect the good health and welfare of the organisms.

When introducing non-native species, special care is taken to avoid permanent disruption to natural ecosystems.

RECOMMENDATIONS

Production should maintain the aquatic environment and surrounding aquatic and terrestrial ecosystem, by using a combination of production practices that:

- encourage and enhance biological cycles
- use a wide range of methods for disease control

- prohibit synthetic fertilisers and avoid chemotherapeutic agents
- provide for polyculture where possible
- minimise the impact of surplus nutrients and avoid eutrophication

Converting material of plant and animal origin into animal production results in nutrient and energy losses. For this reason feed sources based on by-products and waste materials of biological origin not suitable for human consumption should be encouraged.

STANDARDS

- 7.30.1 All non-indigenous fish must be thoroughly contained so as to ensure that they are not released into the wild.
- 7.30.2 Stocking densities shall permit fish to form shoals and must not negatively impact on fish welfare.
- 7.30.3 One hundred square metres is the minimum cage area with a minimum of 9 metres depth in estuarine systems. The density of fish must not exceed 10 kilograms per cubic metre in any system.
- 7.30.4 Construction materials and production equipment shall not contain paints or impregnating materials with synthetic chemical agents that detrimentally affect the environment or the health of the organisms in question.
- 7.30.5 Adequate measures shall be taken to prevent escapes of cultivated species from enclosures.
- 7.30.6 Adequate measures shall be taken to prevent predation on species living in enclosures.
- 7.30.7 Water use must be monitored and controlled to permit minimum use and discharge of water into the environment.

7.31 LOCATION OF PRODUCTION UNITS

GENERAL PRINCIPLES

Location of organic production units maintains the health of the aquatic environment and surrounding aquatic and terrestrial ecosystem.

RECOMMENDATIONS

Production units should be at appropriate distances from contamination sources and conventional aquaculture.

Aquaculture production should minimise negative environmental impact.

STANDARDS

- 7.31.1 Distances between organic and conventional production systems shall be a minimum of 5 metres between ponds and 100 metres in open waters where feeding is carried out.
- 7.31.2 The generation of nutrient ponds must not result in unnecessary discharges into riverine systems.
- 7.31.3 Intake of waters for pond systems must be upstream or below discharge points and discharge waters must be filtered through mechanical or biological systems to minimise nutrient discharges.
- 7.31.4 Ponds must be cleaned regularly and any nutrient sludges must be disposed of in ways which prevent access of nutrients to riverine systems.
- 7.31.5 For estuarine systems, nutrification through waste or feed spillage must be arrested through good management.
- 7.31.6 Generation of nutrients in estuarine systems must be managed to permit maximum dispersal through regular movement of cages and location with relation to appropriate current/tidal movements.
- 7.31.7 Nutrient inputs must not include any products not permitted in the annexes of this Standard.

7.32 POND SYSTEMS

STANDARD

- 7.32.1 Ponds must not be located so as to negatively affect riverine environments or floodplains in the vicinity. Shores and adjacent lands to pond systems must be managed in accordance with this Standard.

7.33 LOCATION OF COLLECTING AREAS

GENERAL PRINCIPLES

Wild sedentary or sessile organisms in open collecting areas may be certified as organic if they are derived from an unpolluted, stable and sustainable environment.

RECOMMENDATIONS

Collecting areas should be at appropriate distances from contamination and conventional aquaculture.

Negative environmental impact from aquaculture production or harvesting shall be minimised.

STANDARDS

- 7.33.1 The harvesting/production area shall be clearly defined and shall be capable of inspection with respect to water quality, feed, medication, input factors and other relevant sections of this Standard.
- 7.33.2 Collecting areas shall be at appropriate distances from pollution and possible harmful influences from conventional aquaculture. A minimum of 100 metres must separate conventional and organic operations where feeding is carried out.
- 7.33.3 Any identified sources of pollution must be at least 5km from organic sites unless it can be clearly demonstrated through objective testing that the pollution sources pose no significant risk of contamination to the operation.

7.34 HEALTH AND WELFARE

GENERAL PRINCIPLES

Management practices achieve a high level of disease resistance and prevention from infection.

All management techniques, especially when influencing production levels and speed of growth, maintain the good health and welfare of the organisms. Living aquatic organisms are handled as little as possible.

The well being of the organism is paramount in the choice of treatment for disease or injury.

RECOMMENDATIONS

The cause of outbreaks of disease or infection should be identified, and management practices implemented to prevent the causative events and future out-breaks. When treatment is necessary the use of natural methods and medicines should be the first choice.

Disease treatment should be carried out in a way that minimises harmful effects on the environment.

STANDARDS

- 7.34.1 Conventional, veterinary chemicals shall only be used if no other justifiable alternative is available, and/or if the use of such chemicals is required according to national law.
- 7.34.2 In the event of the use of non permitted veterinary chemicals, the generation of organisms in question will lose certification and conversion of the operation or specific enclosure will be required to begin once again.
- 7.34.3 The prophylactic use of veterinary drugs, except vaccinations in certain cases, is prohibited.
- 7.34.4 Vaccinations are permitted if diseases that cannot be controlled by other management techniques are known to exist in the region. Vaccinations are also permitted if they are mandatory under applicable legislation. Genetically engineered vaccines are prohibited.
- 7.34.5 Synthetic hormones and growth promoters are prohibited.
- 7.34.6 Current accurate disease management records must be kept where applicable. The records shall include:
- identification of the infected and infecting organisms concerned
 - details of treatment and duration, including application rate, method of application, frequency of repetition and concentration of organisms
 - brand names of drugs used and active ingredients
- 7.34.7 In case of irregular behaviour by the organisms, the water quality shall be analysed and adjusted as necessary according to the needs of the organisms.
- 7.34.8 Aquatic animals shall not be subject to any kind of mutilation.

7.35 BREEDS AND BREEDING

GENERAL PRINCIPLES

Breeding strategies and practices in organic aquaculture interfere as little as possible with natural behaviour of the animals. Natural breeding methods are used.

RECOMMENDATIONS

Breeds should be chosen that are adapted to local conditions.

Breeding goals should aim at obtaining good food quality and efficient conversion of inputs to animal growth.

Brought-in conventional aquatic organisms should spend at least two thirds of their life in the organic system before being acceptable for certification.

STANDARDS

- 7.35.1 Where available, brought-in aquatic organisms shall come from organic sources.
- 7.35.2 Where not available from organic sources, fish from a conventional hatchery may be used.
- 7.35.3 Artificially polyploid organisms and genetically engineered species or breeds, are prohibited.

7.36 NUTRITION

GENERAL PRINCIPLES

Organic aquaculture production provides a good quality diet balanced according to the nutritional needs of the organism. Feed is only offered to the organisms in a way that allows natural feeding behaviour, with minimum loss of feed to the environment.

Feed is comprised of organically produced products, in situ nutrient sources, by-products from organic food processing and waste products from the fish industry.

RECOMMENDATIONS

Feeding and feeding regimes should be organised to give best possible growth from least possible input.

Nutrient management should maintain the biological diversity of the area.

STANDARDS

- 7.36.1 Aquaculture feeds shall contain 100% certified organic components, or waste products only of aquatic origin.
- 7.36.2 When certified organic components or waste products are not available feed of conventional origin up to a maximum 5% (by dry weight) including commercial fishmeal may be used.
- 7.36.3 Mineral supplements are permitted if they are supplied in their natural form.
- 7.36.4 Feed comprised of by-catch shall not be used.
- 7.36.5 The following products shall not be included in or added to the feed or in any other way be given to the organisms:
 - Synthetic growth promoters and stimulants
 - Synthetic appetisers
 - Synthetic antioxidants and preservatives, urea, feedstuffs subjected to solvent (eg. hexane) extraction, amino acid isolates
 - Material from the same species/genus/family as the one being fed
 - Synthetic colouring agents
 - Genetically engineered organisms or products thereof
- 7.36.6 Vitamins, trace elements and supplements used shall be of natural origin when available.
- 7.36.7 The use of substances from synthesised or unnatural sources shall only occur where no other sources are available
- 7.36.8 The following feed preservatives may be used:
 - bacteria, fungi and enzymes
 - by-products from the food industry (eg. molasses)
 - plant based products.
- 7.36.9 Synthetic chemical feed preservatives are permitted in response to severe weather conditions.

7.37 TRANSPORTATION AND HANDLING OF LIVING MARINE ANIMALS

GENERAL PRINCIPLES

The transportation medium is appropriate for the species with regards to water quality including salinity, temperature, oxygen etc. Transportation distance, duration and frequency are minimised.

RECOMMENDATIONS

Transport of living aquatic animals should be minimised and be done in the most considerate manner. Living animals should be monitored regularly and maintained in a healthy state during transportation.

STANDARDS

- 7.37.1 Transportation shall not cause avoidable stress or injury to the animals.
- 7.37.2 Transportation equipment and/or construction materials shall not have toxic effects.

- 7.37.3 Water quality, including salinity, temperature, oxygen content, pH shall be monitored to ensure appropriateness for the species in transit.
- 7.37.4 Chemically synthesised tranquillisers or stimulants shall not be given to the animals prior to or during transport or at any time.
- 7.37.5 There shall be a minimum of one person specifically responsible for the well being of the animals during transport.
- 7.37.6 Fish shall not be out of water for more than 30 seconds during any handling.

7.38 SLAUGHTER

GENERAL PRINCIPLES

Stress and suffering of the organism is minimised during the slaughter process.

Slaughter management and techniques are governed by careful consideration of the physiology and ethology of the organisms in question and accepted ethical standards.

RECOMMENDATIONS

To avoid unnecessary suffering, the organisms should be in a state of unconsciousness before bleeding out.

STANDARDS

- 7.38.1 Slaughtering of fishes shall be carried out by means of incision of gills or immediate evisceration. Prior to this, fishes shall be anaesthetised by means of concussion, electrocution, carbon dioxide and, if need be, by natural plant anaesthetics.
- 7.38.2 Oil of cloves, ice slurry or carbon dioxide are permitted for the sedation of fish, for pre-slaughter or transportation purposes.
- 7.38.3 Where applicable, aquatic organisms shall be in a state of unconsciousness before bleeding to death.
- 7.38.4 Equipment shall be regularly inspected and monitored for proper functioning. Equipment relying on gas or electricity shall be constantly monitored.

SECTION EIGHT – SOCIAL JUSTICE

8.1 SOCIAL JUSTICE

GENERAL PRINCIPLES

Social justice and social rights are an integral part of organic agriculture and processing.

RECOMMENDATIONS

Operators should comply with all International Labor Organisation (ILO) conventions relating to labour welfare and the UN Charter of Rights for Children.

All employees and their families should have access to potable water, food, housing, education, transportation and health services.

Operators should provide for the basic social security needs of the employees, including benefits such as maternity, sickness and retirement benefit.

All employees should have equal opportunity and adequate wages when performing the same level of work regardless of colour, creed or gender.

Workers should have adequate protection from noise, dust, light and exposure to chemicals that should be within acceptable limits in all production and processing operations.

Operators should respect the rights of indigenous peoples, and should not use or exploit land whose inhabitants or farmers have been or are being impoverished, dispossessed, colonised, expelled, exiled or killed, or which is currently in dispute regarding legal or customary local rights to its use or ownership.

Contracts should be fair, open to negotiation, and honoured in good faith.

STANDARDS

- 8.1.1 Where national laws fail to address social justice then operators shall have a verbal or written policy on social justice. Operators who hire fewer than ten (10) persons for labour and those who operate under a state system that enforces social laws may not be required to have such a policy. At a minimum, and where relevant, such a policy should include:
- 8.1.2 In cases where production is based on violation of basic human rights and clear cases of social injustice, that product cannot be declared as organic. The certification applicant shall not engage in or support the use of corporal punishment, mental or physical coercion or verbal abuse.
- 8.1.3 Operators may not use forced or involuntary labour.
- 8.1.4 Employees and contractors of organic operations have the freedom to associate, the right to organise and the right to bargain collectively.
- 8.1.5 Operators shall provide their employees and contractors equal opportunity and treatment, and shall not act in a discriminatory way.
- 8.1.6 Children employed by organic operators shall not be exposed to hazardous or dangerous work, shall be provided with educational opportunities and shall be supervised by adults or have authorisation from a legal guardian.
- 8.1.7 Employers shall provide all employees with potable drinking water, latrines or toilets, a clean place to eat, adequate protective equipment and access to adequate medical care.
- 8.1.8 All employers shall ensure that workers have received safety training.

SECTION NINE - POST PRODUCTION

9.1 PROCESSING

GENERAL PRINCIPLES

Processing and preparation of organic foods or foods containing organic ingredients is carried out to optimise and maintain quality and integrity. This is achieved through minimising processes, limiting refinement of foods and restricting or avoiding additives and aids whilst maintaining sanitation, hygiene and food safety.

Throughout the chain of custody, ie the harvest, transport, receipt, storage, processing, preparation, packaging, warehousing, labelling and dispatch of organic produce, effective precautions are taken to ensure that the organic integrity of the material is retained. This involves compliance with this Standard by all the producers, operators and handlers in the supply chain, starting with certified organic producers.

Certification of a facility, operator, or processed, manufactured and/or packaged product from such a facility or operator is offered and maintained by NASAA only after the minimum requirements of this Standard, and all those standards to which this certification scheme is subject, have been met.

STANDARDS

- 9.1.1 Before inspection arrangements are implemented, the operator must draw up a full description of the processing/preparation facility which includes the following:
- Completion of the Organic Handling Plan Questionnaire
 - A process flow chart/Product Flow Chart
 - Site Plan
- 9.1.2 Processing/preparation and sale of NASAA certified food and beverages using reference to NASAA certification as organic or conversion to organic may only occur following inspection and certification of the processing and preparation establishment by NASAA.
- 9.1.3 Protection of organic products from substitution, contamination and mixing with conventional product must be ensured through practices and documentation throughout all stages of production, handling, transportation, storage and processing.
- 9.1.4 Food safety and hygiene systems are required to be in place.
- 9.1.5 Any change to management or production systems that may result in changes to compliance with the Organic Quality Management System must be notified to NASAA.

9.2 TRANSPORT

GENERAL PRINCIPLES

Transport and loading facilities are important in ensuring the integrity of the organic product and are subject to inspection.

RECOMMENDATIONS

Transport vehicles and shipping containers should be dedicated to organic usage. Where this is not appropriate clean down requirements will be required.

The choice of transport should be based on accessibility for cleaning prior to handling organic products. Stainless steel and other metal tray/tipper trucks and tankers normally used in food transportation are recommended as they are easily cleaned between shipments of certified and non-certified material.

STANDARDS

- 9.2.1 Provision must be made to avoid mixing or contamination of organic products in the transport phase.
- 9.2.2 Transportation systems must be able to be cleaned with ease to ensure product integrity during transit.
- 9.2.3 Vehicles which carry toxic and poisonous materials are not acceptable as occasional transportation for unpackaged and bulk organic product.
- 9.2.4 Responsibility for cleaning bulk transport systems lies with the consigner of the organic product unless otherwise agreed.
- 9.2.5 Prior to loading, trucks or vessels must be inspected by responsible personnel. Bulk Organic and non-organic products may not be transported together.

DEROGATION

If organic and non organic food materials are segregated in clearly labelled and differentiated retail packs and further isolated by separate wrapping on pallets, it is acceptable to have combined shipments of these goods in the same vehicle or shipping container.

- 9.2.6 Wooden containers, if used, must be dedicated to organic certified products only and clearly labelled as such, or lined. Non-dedicated containers can be used only if cleaned, lined and covered with an approved protective material (eg polyethylene sheeting).
- 9.2.7 All vehicles (and containers in general) must be suitably covered with sheeting or tarpaulins to prevent any external contamination to the organic foods.
- 9.2.8 Vehicles and containers used must be excluded from non-permissible pest control activities (ie fumigation and preventative spraying), during both pre-shipping and transit.
- 9.2.9 Documentation associated with the picking up, transport and delivery of organic produce shall be completed at each point in the chain of custody and kept by the transport company or operator responsible.
- 9.2.10 Labelling of packages or containers in transit must include the name and address of the operator or the person/company responsible for production, the certification number and the name of the product with reference to the organic producer and their number.

9.3 STORAGE AND WAREHOUSING

GENERAL PRINCIPLES

Storage and warehousing of organic raw materials and finished food and fibre products protects their integrity from mixing or contamination.

RECOMMENDATIONS

Old timber structures are not recommended and may require sealing or coverage. Co-storage of organic products with different basic storage needs is not recommended.

STANDARDS

- 9.3.1 All organic food storage and holding areas must be designated and must be clearly marked or labelled as such unless the whole operation is to be certified.
- 9.3.2 Conventionally produced and certified produce must be separated spatially in designated areas and, if different levels (Organic/Conversion) of NASAA certified produce are being stored, these must also be clearly segregated in designated and labelled areas.
- 9.3.3 Stock record systems must be coded so that it can clearly be determined what quantity of organic material is in storage at any one time.
- 9.3.4 Storage area surfaces must be physically sound and capable of being easily cleaned (ie free of major cracks and crevices which harbour pests and food residues). Well prepared concrete, steel and food grade surfaces are acceptable. Rusted or contaminated surfaces must be re-sealed or covered with a non contaminating liner.
- 9.3.5 Besides storage at ambient temperature, the following storage conditions are approved:
- Modified atmosphere (ie, nitrogen, oxygen, carbon dioxide)
 - Cooling
 - Freezing
 - Drying
 - Humidity manipulation
- 9.3.6 Co-storage of conventional produce and organic produce under controlled atmosphere is not permitted. Other storage plans which do not threaten the integrity of organic product shall be assessed by NASAA on a case by case basis.
- 9.3.7 Sacks or bulk bags must be dedicated for organic use and clearly identified.
- 9.3.8 NASAA reserves the right to determine whether analytical examination of surfaces for contaminating residues is necessary and NASAA shall take swab/residue samples to check product integrity if the store area presents risks to product integrity.
- 9.3.9 Labelling which clearly designates the organic status of products in storage must be in place at all times.

9.4 PROCESSING OF ORGANIC FOOD AND FIBRE

GENERAL PRINCIPLES

Organic food is processed by biological, mechanical and physical methods in a way that maintains the vital quality of each ingredient and the finished product.

Organic products should be processed in a minimal way that maintains the nutritional value of the food.

Processors should choose methods that limit the number and quantity of additives and processing aids.

STANDARDS

- 9.4.1 The following are approved for processing and preparation methods:
- Mechanical and physical
 - Biological processes such as fermentation
 - Extraction
 - Precipitation
 - Filtration
- 9.4.2 Any additives, processing aids, or other substances that chemically react with or modify organic foods shall comply with the requirements of Annex 3 “Substances and Methods Permitted for Pest Control in Storage and Transportation Units”.
- 9.4.3 Non mechanical extraction shall only take place with water, ethanol, oil, carbon dioxide and nitrogen of food grade quality and appropriate as to purpose.
- 9.4.4 Irradiation is not permitted.
- 9.4.5 Filtration techniques that chemically react with or modify organic food on a molecular basis are restricted to mechanical filtration. Filtration equipment shall not contain asbestos, or utilise techniques or substances that may negatively affect the product.

9.5 PACKAGING

GENERAL PRINCIPLES

Organic product packaging has minimal adverse impacts on the product and the environment.

RECOMMENDATIONS

Processors of organic food should avoid unnecessary packaging materials.

Organic food should be packaged in reusable, recycled, recyclable, and biodegradable packaging whenever possible.

STANDARDS

- 9.5.1 Packaging materials must not be capable of transmitting contaminants to the food, nor must the adhesives or inks used on them.
- 9.5.2 Organic produce shall not be packaged in reused bags or containers that have been in contact with any substance likely to compromise the organic integrity of product or ingredient placed in those containers.
- 9.5.3 All final packaging materials used must be of food grade, clean, new or as new, and of suitable design to protect the organic integrity of the product during transport and display.

RECOMMENDED	A full environmental audit for packaging Returnable outers and bulk containers A deposit scheme for cans and bottles Recycled outer packaging indicated as such Single layer, single substance recyclable packaging Bulk packaging at retail outlets for self selection Unbleached paper and cardboard
PERMITTED	Glass Paper and cardboard Polyethylene and polypropylene films Plastic containers Modified atmosphere packaging films Plastic & hessian nets and sacks
RESTRICTED	Wax coatings Wood
PROHIBITED	Expanded polystyrene using Chloro Fluoro Carbons (CFCs) PVC (PolyVinyl Chloride) Lead Packaging materials, and storage containers, or bins that contain a synthetic fungicide, preservative, or fumigant.

Table 9 - Packaging

- 9.5.4 Any reuse of outer containers or external packaging must follow a cleaning and quality assurance program which renders such packaging as new.
- 9.5.5 Vacuum packing of product and the use of food grade nitrogen and ozone are permissible.
- 9.5.6 Product conforming to this Standard and packaged for purposes other than sale to the final consumer must be transported in packaging that is closed in a manner that prevents contamination or substitution. The name and address of the operator, a description of the product and indication that the product is certified (including certification level) must accompany packaging.
- 9.5.7 On receipt of a product referred to as organic by this Standard, the operator shall check the closing of the packaging or container, where it is required. Where the check leaves any doubt as to the integrity of the product, it may only be used in organic preparation or packaging after it is confirmed to be organic. This event must be recorded.

9.6 HANDLING AND PACKING

GENERAL PRINCIPLES

Organic products are handled in a manner that prevents contamination or substitution with substances or products not compatible with this Standard.

RECOMMENDATIONS

Integrity of organic foods and beverages should be achieved through the handling and processing of organic foods separately from non organic foods in dedicated facilities.

STANDARDS

- 9.6.1 Handlers and processors shall not mix organic products with non-organic products.
- 9.6.2 Handlers and processors must handle and process organic foods either separately in time or space from non organic products.
- 9.6.3 All organic products shall be clearly identified as such, and stored and transported in a way that prevents contact with conventional product through the entire process.
- 9.6.4 The handler and processor shall take all necessary measures to prevent organic products from being contaminated by pollutants and contaminants, including the cleaning, decontamination, and if necessary disinfection of facilities and equipment.
- 9.6.5 Handling and packing must be carried out in ways that avoid contamination of organic food with:
- Cleansers and sanitisers
 - Residues from previous products
 - Facility pesticide applications
 - Prohibited processing aids or additives
 - Packaging products or products used to modify the packaging environment

9.7 PEST CONTROL

GENERAL PRINCIPLES

Organic food is protected from pests and diseases by the use of good manufacturing practices that include proper cleaning, sanitation and hygiene and without the use of chemical treatment or irradiation.

RECOMMENDATIONS

Recommended treatments are physical barriers, sound, ultra-sound, light and ultraviolet-light, traps (including pheromone traps and static bait traps), temperature control, controlled atmosphere and diatomaceous earth.

Pest control systems (self or contractor managed) should use Integrated Pest Management (IPM) techniques and structural pest control and reliance on chemical treatments should be used as a last resort.

Ongoing monitoring should form the basis of pest control programs.

STANDARDS

- 9.7.1 The operator must manage pests and, in so doing practice the following methods:
- Premises must be well sealed to prevent insect, bird and rodent pests from accessing the storage and processing/preparation areas (eg. fly screens and air curtains).
 - Insect control protection and treatment through monitoring, trapping, electrical zapping, sealing of harbourages and ultraviolet light attraction.

- Rodent control through exclusion, then trapping if needed and baiting only as a last resort. Baiting may only be carried out on the exterior of a facility and all bait stations must be dated, numbered and constructed as semi- enclosed boxes.
- 9.7.2 Bait selection must be such that the base material is clearly differentiated from any food materials on site. Baits must be positioned so that there is no potential for contamination of organic ingredients, organic food or of food contact surfaces. Sticky boards may be used in the interior of facilities.
- 9.7.3 Warehouse storage must allow for a gap of 0.5 metres between walls and product to enable sticky board inspection and changing to occur.
- 9.7.4 Physical control of insect pests in grain stores or flour handling facilities using diatomaceous earth products approved for grain handling is acceptable.
- 9.7.5 Where porous surfaces are contacted by organic materials, impervious materials must be placed over those surfaces that have been exposed to past use of prohibited chemicals.
- 9.7.6 All pest control activities shall be clearly documented.
- 9.7.7 Prohibited pest control practices include, but are not limited to, the following substances and methods:
- pesticides not contained in Annex 2 “Products for Control of Plant Pest and Disease”.
 - fumigation with ethylene oxide, methyl bromide, aluminium phosphide or other substance not contained in Annex 4 “Acceptable Additives of Non Agricultural Origin and Processing Aids”.
 - ionising radiation

DEROGATION

Treatment of active insect populations with insecticides shall only be done as a last resort after all means listed in Annex 3 “Substances and Methods Permitted for Pest Control in Storage and Transport Units” have been exhausted. Chemicals selected shall be approved by governmental authorities for that purpose and must not be used in any way which would subject organic products to exposure.

If facilities are not in current use for organic preparation and packaging, and all methods of insect prevention and disinfestation have proved ineffective, alternative products may be used. These shall have an LD₅₀ rating of 500 or more - classifying them as 'Slightly Toxic'. In these instances it must be demonstrated that physical control is not possible, and if it can be proven that contact with and contamination of organic produce will not result, written permission may be sought from NASAA to use these materials. Residual life of these non-volatile chemicals shall be short, and applications shall be made by state licensed pest managers using low hazard 'crack and crevice' techniques which deliver pesticides to the harbourages only and minimise contamination risk. At the resumption of organic preparation or packaging, at no less than 2 days after deployment of treatment, NASAA reserves the right to require surface and tissue testing for any of those products demonstrated to have been used.

9.8 DOCUMENTATION

GENERAL PRINCIPLES

The maintenance of a comprehensive system of records that clearly demonstrate compliance with organic quality management is a necessary prerequisite of organic certification. The manual or electronic system of record keeping should be one that permits internal reporting and NASAA scrutiny in a clear and straightforward manner. Bar coding, batch numbering and dating systems are essential aspects of an audit trail.

STANDARDS

- 9.8.1 Records must be made available for inspection and assessment at the premises of the applicant/certified operator. The description of activities/processes, detailed maps/floor plans/process (product flow charts) diagrams and itemised inputs used should be in the form of the Organic Management Plan (OMP). Materials Safety Data Sheets (MSDS) must be made available for all products utilised at the premises.
- 9.8.2 Records must be maintained for a minimum of five years.
- 9.8.3 Records must show a clear audit trail for organic product from its entry into the preparation and processing system as raw material to the next stage in the supply chain or its ultimate release to the consumer as packaged, processed products.
- 9.8.4 The following records (as applicable) are required:
- NASAA Organic Standard

- A copy of certification contract
- A copy of current NASAA certificate of registration
- Records of purchases and receivals
- Internal transfer and receipt records
- Sales records indicating nature, quantity and consignees of organic products sold
- Storage records
- List of suppliers
- Current organic certificate
- Organic operating manual and updates
- Cleaning and pest control protocols and records
- Product recall records
- Waste management records
- Production records
- Records of non-compliance and corrective actions
- Records concerning the health and hygiene of food handlers
- Pest and sanitation treatments
- Complaints register

9.9 BEST ENVIRONMENTAL PRACTICE

GENERAL PRINCIPLES

Organic handling, processing and preparation has minimal impact on the environment in respect of the source, use and fate of materials and ingredients.

RECOMMENDATIONS

Key aspects of a Best Environmental Practice program should include the management of chemical substances and waste products (collection, storage and disposal) and water and energy usage.

General aspects should include, but are not limited to, the following: boiler water disposal, cleaning materials, waste water, dust, waste, fumes, noise and products and packaging materials.

STANDARDS

- 9.9.1 Processors shall develop and implement Best Environmental Practice in order to reduce and eliminate the burden on the environment.
- 9.9.2 Operators must recycle waste products.

9.10 PRODUCT RECALL

GENERAL PRINCIPLES

The capacity to retrieve goods from the supply chain in the event of mis-labelling, contamination or mixing is part of the Organic Management Plan.

STANDARD

- 9.10.1 The processor or handler must have a system of product recall with clearly designated procedures and protocols to ensure that recall of a NASAA Labelled product can be quickly and effectively carried out.

9.11 PRODUCT ACCEPTANCE

GENERAL PRINCIPLES

The use of ingredients certified by another certifying organisation in finished products bearing the NASAA name and/or label is subject to NASAA approval. Approval may follow case by case assessment of a specified ingredient or finished product, or general certification transference with another certifying organisation. In both cases, NASAA implements processes to ensure that those products are equivalent to its own.

STANDARD

- 9.11.1 Affixing the NASAA name and/or label to non NASAA certified products shall be subject to prior approval by NASAA.

DEROGATION

The exception to this is when minor ingredients that constitute less than 10% of the total weight of the product may be accepted on the basis of being certified by a certification body

that has been approved by its government or have been accredited by a national accreditation body for the scope of organic certification. The total of all ingredients accepted on this basis shall not exceed 20% of the total weight of the product. Current certificates and verification of organic status shall need to be maintained by the operator.

9.12 IMPORTED PRODUCTS

GENERAL PRINCIPLES

Imported organic and biodynamic products are produced, prepared and labelled in ways that are equivalent to this Standard.

STANDARDS

- 9.12.1 Organic or biodynamic produce which is imported into Australia can be labelled as meeting this Standard provided it satisfies the conditions of 9.11 (Product Acceptance) above.
- 9.12.2 Imported organic or biodynamic produce may only be labelled as meeting this Standard if the operator (importer or trader) is certified and the imported products have not been subjected to exposure by materials not listed in this Standard.
- 9.12.3 An original export certificate issued by a competent authority or government approved certification body is required for each consignment.
- 9.12.4 The export certificate must accompany the organic or biodynamic consignment into Australia.
- 9.12.5 Imported organic or biodynamic produce not recognised as being equivalent to this Standard shall not be labelled, or exported, or combined with any produce, which suggests that it is NASAA certified.
- 9.12.6 Following any pre or post entry quarantine chemical or ionising radiation treatments an operator must not label imported organic or biodynamic produce as meeting this Standard. In these situations all organic or biodynamic trade descriptions must be either de-faced or stencilled-over or destroyed.

9.13 SAMPLING

GENERAL PRINCIPLES

Samples of products are retained to permit analysis in cases where contamination is discovered or alleged in the marketplace.

STANDARD

- 9.13.1 Operators must maintain samples of batches of manufactured products for a period of 12 months or the shelf life of the product, whichever is greater.

SECTION TEN – ADDITIONAL REQUIREMENTS FOR INDIVIDUAL CATEGORIES

This section lists practices and additives covering specific industries.

It is additional to all other relevant requirements of this Standard outlined in the above sections, and must be interpreted in conjunction with these requirements.

The listing is not exhaustive and does not include all acceptable or all prohibited practices. Other practices should be checked for approval by NASAA prior to use.

10.1 GRAIN, OILSEED AND PULSE PRODUCTS

STANDARDS

- 10.1.1 The following post production practices are approved for grain, oilseed and pulse products:
- Transport in metal tipper trucks fitted with heavy duty tarpaulins to protect grain in transit
 - Designated or non-designated bins/silos made of steel and other non-contaminating metals that are easy cleaning and residue free
 - Aeration of grain held in sheds and silos for extended periods to reduce moisture and pest problems or stored in high CO₂ atmospheres. Initial concentrations of 70-80% decreasing to 35% for 15 days may be necessary to achieve this
 - All standard physical grain handling, cleaning, rolling and milling operations provided that the equipment is clean and free of residues or is dedicated to organic runs only. Where the equipment cannot be guaranteed to be residue free due to inaccessibility, the running of an organic 'plug' must take place. Stone rollers are very difficult to clean of residues and the 'plug' run must be standard
 - Refrigerated or ambient air cooling of stored grain
 - Diatomaceous earth used on storage or production structures or direct onto grain itself in accordance with application directions
- 10.1.2 The following practices are prohibited from use in grain, oilseed and pulse products:
- Aluminium salts (eg E541 sodium aluminium phosphate) as raising agents in flour
 - Addition of vitamins other than those specified by the Australian Food Standards Code for flour. Food grade additions may be made to achieve these minimum levels in organic flour (eg. thiamine)
 - Treatment of grain with any grain protectant chemicals or fumigation with any registered fumigant (phosphine, methyl bromide etc.)
 - Addition of more than 5% of any non organic fillers such as other flours or starches to meet importing country requirements
 - Rodent baits adjacent to 'high risk' locations such as grain storage bins or other open areas
 - The use of pyrethrum as a grain contact treatment

10.2 FRESH FRUIT, VEGETABLES AND HERBS

STANDARDS

- 10.2.1 The following post production practices are approved for all fresh fruit, vegetable and herb products:
- Short term storage in clean wooden bins, wicker/cane baskets or jute sacks that are new and dedicated or cleaned in accordance with this Standard
 - Segregated long term cool storage in areas designated for organic produce only
 - Washing in potable water
 - Dry brushing
 - Ozone treatment for approved anti-microbial wash solutions
 - Freezing, vacuum packing, dehydrating, pickling and canning
 - Artificial ethylene gas ripening
- 10.2.2 The following practices are prohibited in post production practices for fresh fruit, vegetable and herb production:
- Co-storage with conventional pomefruit especially apples

- Synthetically formulated fungicidal dips
- Fruit waxing, except for NASAA approved waxes where necessary for export. Produce must be labelled as wax treated. Approved waxes may not be acceptable to importing countries and exporters should ensure that they are compliant with the requirements of importing countries.

10.3 DRIED FRUIT, VEGETABLES AND HERBS

STANDARDS

- 10.3.1 The following post production practices are approved for all dried fruit, vegetable and herb products:
- Sun drying on dedicated racks not treated with termiticides or other insecticides
 - Tunnel drying using mechanically produced heat which presents no contamination risk to the product (eg. residues from burning fuel)
 - Calcium carbonate/vegetable and olive oil drying techniques
 - Certified or other acceptable oil additions to prevent fruit compaction and solidification during packing (total oil to be less than 1% of final weight)
- 10.3.2 The following post production practices are prohibited for dried fruit, vegetables and herb products:
- Calcium stearate, anti-caking agents and colourings
 - Sulphur dioxide preservative treatments

10.4 JUICES

STANDARDS

- 10.4.1 The following post production practices are approved for juice production:
- Water and steam-cleaned plant and equipment
 - Food grade anti-microbial rinses are acceptable but must be thoroughly rinsed with boiled or pasteurised water prior to contact with organic foods
 - Pasteurisation of juices prior to bottling
 - Citric acid, ascorbic acid E 300 or its calcium (E 301) or sodium (E 302) salts used as preservatives
 - Centrifugation, muslin, diatomaceous earth or polysheet straining to remove unwanted residues
 - Certified organic sugar
 - Tetra paks
- 10.4.2 The following post production practices are prohibited for juice production:
- Conventional sugar additions
 - Colouring agents and antioxidants other than those in Annex 4 "Acceptable Additives of Non Agricultural Origin and Processing Aids".

10.5 CANNING

STANDARDS

- 10.5.1 The following post production practices are approved for juice production:
- Lined metal cans are acceptable
 - Lead content in solder provided that the food pH is between 6.7 and 7.3
 - 95% tin solder and cadmium free food grade solder
- 10.5.2 The following post production practices are prohibited for juice production:
- Aluminium lead bearing solder where lead content is over 5%

10.6 JAMS, CHUTNEYS, SAUCES & PICKLES

STANDARDS

- 10.6.1 The following post production practices are approved for the production of jams, chutneys, sauces and pickles:
- Physical preparations (boiling, straining, evaporation to thicken etc)

- Natural pectins, gelatine, corn flour and approved vegetable gums for thickening provided they do not contain or are derived from GMOs
- The addition of sugar or vinegar provided that it is no more than 5% total volume (unless of certified organic origin)

10.6.2 The following post production practices are prohibited for the production of jams, chutneys, sauces and pickles:

- Sulphur based preservatives
- Copper, Teflon-coated and aluminium cooking utensils

10.7 VEGETABLE OIL

STANDARDS

10.7.1 The following post production practices are approved for palm oil:

- Cold press techniques
- Application of heat
- Physical centrifugation and filtering clarification
- Natural bleaching earths which do not impart metals into the oil
- Cleaning of oil through filtration or precipitation with non asbestos products

10.7.2 The following post production practices are prohibited for the production of vegetable oil:

- Chemical extraction methods and use of chemical solvents
- Use of product in refining other than those appearing in Annex 4 Acceptable Additives of Non Agricultural Origin and Processing Aids

10.8 DAIRY PRODUCTS

STANDARDS

10.8.1 The following post production practices are approved for dairy products:

- Use of anti-bacterial rinses providing that all traces are flushed from contact surfaces with pasteurised or sterilised water
- Hydrogen peroxide or biodegradable compounds
- Transport of certified milk in stainless steel containers after collection
- Use of bacterial and enzyme preparations excluding genetically engineered strains
- Pasteurisation (heat treatment, high speed and vat)
- Separation and physical filtration methods
- Preparation of milk products (cooling, churning, culturing, ripening and cooking)
- Vacuum packing with or without nitrogen or CO₂ flushing
- Bottling of milk in glass, recyclable non-polymerising plastics and food grade waxed cardboard
- Packaging of cheeses in wax or cloth after brine washing
- Ultra Heat Treated (UHT)

10.8.2 The following post production practices are prohibited for dairy products:

- Preservatives, thickeners and emulsifiers (eg. potassium sorbate) that are not listed in Annex 4 "Acceptable Additives of Non Agricultural Origin and Processing Aids"
- Genetically manipulated enzyme and bacterial cultures

10.9 MUSHROOMS

STANDARDS

10.9.1 The following practices are approved for mushroom production:

- Compost of certified origin
- Steam sterilisation of equipment
- Paper, recyclable plastic or cardboard packaging

10.9.2 The following practices are prohibited for mushroom production:

- Fogging of premises using prohibited insecticides for insect control
- Treatment of medium with prohibited fungicides or chlorinated compounds

10.10 COFFEE

STANDARDS

- 10.10.1 The following practices are required for coffee production and manufacture:
- Sun or artificial drying of beans preferably using waste husks to fire the furnaces. No contamination from fuel burning of beans shall occur
 - Coffee purchase records sufficiently detailed to allow trace back to certified production areas
 - Cleaning with water and physical brushing/vacuuming methods
 - Clean, dedicated jute or poly sacks labelled with certification status for coffee shipping and storage
 - Segregated storage areas clearly marked and separated physically from the other store areas
 - Fumigation of shipping containers where required by law for export before loading coffee after fumes have dissipated (minimum 24hrs)
- 10.10.2 The following practices are prohibited for coffee production and manufacture:
- Fumigation of coffee with methyl bromide prior to export
 - Mixing or blending of organic and conventional coffees
 - Use of any synthetic fungicides or pesticides in organic coffee storage

10.11 TEA

Standard 10.10.1 and 10.10.2 above are applicable to tea as well as the following:

STANDARDS

- 10.11.1 The following practices are approved for tea production and manufacture:
- Packing in poly bags or tea chests internally lined with plywood
 - Use of recycled paper material for tea bag manufacture
 - The provision of dust masks to factory workers to prevent tea dust inhalation

SECTION ELEVEN - NASAA STANDARDS FOR BIODYNAMIC AGRICULTURE

11.1 BIODYNAMIC PRINCIPLES

These Biodynamic Standards are based on the fundamental knowledge of Biodynamic Agriculture, as derived from Dr. Rudolf Steiner in the early twentieth century. Farm and garden management should reflect an understanding of the principles presented in the "Agriculture Course" given by Steiner in Poland in 1924. They enhance the continued development of the total farm and ecological system.

The principal aims of Biodynamic Agriculture include:

- Production of food of the highest nutritional value containing vital life force and the higher ordering principles of the cosmos
- The enhancement of biological cycles in farming systems
- Maintaining and increasing depth and fertility of soils
- Working as far as practicable within a closed system
- Co-existence with and the protection of the environment
- Development of a healthy and balanced cultural, social and economic environment
- Development of associative business forms, whereby a fair and equitable relationship is fostered between the producer, distributor and the consumer
- A deepening understanding of the relationship between humanity and nature

These Biodynamic Standards are in addition to all relevant sections of the NASAA Organic Standard which must also be complied with.

STANDARDS

- 11.1.1 Compliance with the relevant Sections of the NASAA Organic Standard shall be maintained.
- 11.1.2 Preparation 500 (horn manure) shall be applied to the total production at least once and preferably twice a year. An exemption shall be requested from NASAA if this is not able to be carried out.
- 11.1.3 Preparation 501 (horn silica) shall be applied at least once to each crop, and at least once per year to permanent and semi permanent plants such as pasture grasses. An exemption shall be requested from NASAA if this is not able to be carried out.
- 11.1.4 Compost preparations 502-507 shall be used to direct all fermentation processes in liquid manures and solid composts. Such fermented materials shall be regularly applied to all land. Where the fermentation takes place on the land itself – such as on pastoral holdings – compost preparations shall be brought to bear on plant and animal wastes, by addition of cow pat pit or biodynamically prepared fish emulsion or liquid plant teas or similar material.
- 11.1.5 Fertility programs shall aim for a build up of natural soil fertility in accordance with the underlying principles of the "Agriculture Course". Manure liquid manures and slurry of farm animals – in particular, cattle – plus composts of crop wastes and green manuring shall form the basis of fertilising, together with the Biodynamic compost preparations.
- 11.1.6 Any inputs to the farm including manures must go through a biodynamic composting process.

DEROGATION

Exceptions are: lime rock dusts and rock phosphates for spreading over areas and approved mulching materials for pasture and cropland.

- 11.1.7 Preparations 500 and 501 shall be stirred for one hour. Stirring shall be by hand, stirring machine or flow forms (see Resource Manual for instructions).
- 11.1.8 Preparations shall be applied using clean and dedicated equipment. NASAA may request testing to verify that equipment is not contaminated with prohibited substances.
- 11.1.9 Preparations shall be stored in a suitable container away from fumes, electricity, contamination, heat and sunlight (except 501 which is stored in glass in sunlight).
- 11.1.10 Detailed record keeping of biodynamic practices shall be kept and made available to NASAA for inspection.

11.2 SOIL AND MANAGEMENT

GENERAL PRINCIPLES

In market gardening and horticulture the use of compost made using biodynamic compost preparations is essential for soil and plant health. It is anticipated that use of brought-in already manufactured compost would cease by the time full certification is achieved.

For broadacre farming, the use of compost preparations on waste stubble and green manures help to increase soil fertility and structure within the grazing and cropping rotations. (Suggested amounts for fertility are given in the BAA Resource Manual)

11.3 PLANTS AND PLANT PRODUCTS

STANDARD

- 11.3.1 Wild harvest cannot be certified biodynamic unless the application of biodynamic preparations has been applied to the areas used for harvest.

11.4 ANIMAL CARE

RECOMMENDATIONS

The retention of horns on cattle are encouraged. This may require different strategies in animal handling, such as not containing cattle in small areas, which may stress animals.

11.5 BROUGHT-IN STOCK

STANDARDS

- 11.1.1 The bringing in of breeding stock from conventional sources is allowed up to a maximum of 10% per year.
- 11.1.2 All animals must be tagged and records shall be kept with regard to stock and produce. Refer to Section 6 General Standards for Animal Husbandry.

11.6 ANIMAL RECORDS

STANDARD

- 11.6.1 Animals must be born and raised on a certified biodynamic farm as part of an indigenous herd.

DEROGATION

Animals from certified organic farms may be sold as certified biodynamic after a minimum period of 2 years under certified biodynamic management.

11.7 BROUGHT-IN FEEDSTUFFS

STANDARD

- 11.7.1 Certified organic feed, which is brought-in, may not exceed 20% of daily intake calculated on a dry matter basis in order that stocking rates and farm capacity are managed sustainably. This applies to all animal types. Refer to Section 6.5 Livestock Diet and Nutrition.

11.8 PROCESSING AND/OR PACKAGING OF BIODYNAMIC PRODUCT

STANDARDS

- 11.8.1 Where less than 95% of product is biodynamic and organic certified product is added, then the product shall be marked "Organic", not "Biodynamic".
- 11.8.2 Where more than 5% of product is certified "In Conversion" the product shall be labelled "In Conversion" not "Biodynamic".
- 11.8.3 Where an operator is implementing biodynamic practices during the conversion period product shall be labelled "In Conversion to Biodynamic".

11.9 BIODYNAMIC PRODUCTION METHODS

RECOMMENDED

The application of biodynamic principles over the last three quarters of a century, involving both practical experience and scientific research is reflected in an increasing range of methods used in applying the biodynamic preparations. Record keeping is important so that methods are noted and results recorded.

An existing body of experience and research confirms the use of the methods outlined on the following pages.

Reference: "Biodynamic Resource Manual – working with biodynamics" (2004) *Biodynamic Agriculture Australia*.

Activity	Method	Detail
STIRRING	Hand stirring	Materials: Copper Wood Food grade stainless steel Food grade plastic Concrete Ceramic
	Mechanical stirring	Electric
		Hydraulic
		Impeller
	Flow forms	Jarna 7 forms per 200 litre @ 50 litres/minute 15 passes = 200 litre capacity
		Vortex 3 forms @ 250litres/minute 15 passes = 1000 litre
	Pumps	Archimedes screw (preferred) 50 – 400 litres/minute roller pump
		Diaphragm (preferred) 100 – 500 litres/minute
		Centrifugal 130 - 250 litres/minute Submersible
SPRAYING	500 spray pressure	10 – 40 pounds per square inch (psi)
	501 spray pressure	80 –120 psi
WATER TEMPERATURE	500	Should be above ambient and soil temperature at time of spraying Max 37° C
	501	Should be above ambient and soil temperature at time of spraying Max 37°C
COMPOST PREPARATIONS 502 – 507	Compost heap liquid composts for manuring	1 set of preparations per 15 tonnes (2 grams 502 – 506, 5 ml 507) 1 set of preparations per 20 acres also in 500 (add in the last 20 minutes of stirring)
	Cow pat pit	3 sets of preparations per 0.1 cubic metre For use to bring the influence of compost preparations on to crop residues, pasture, orchards, where nutrient factor is very small
	Fish, Seaweed Emulsions	1 set of preparations per 200 litres For use to bring compost preparations' influence on to crop residues, pasture, orchards, where nutrient factor is micro

Activity	Method	Detail
	Prepared 500	7 sets of preparations to half a cubic metre of 500
500	Applied to total production area	Ideally twice a year and at least once (less than once a year only by approval from NASAA)
		Once a year accepted for pastoral conditions (less than once a year only by approval from NASAA)
501	Applied	To each crop (less than once a year only by approval from NASAA)
501	Applied	Annually to permanent pastures (less than once a year only by approval from NASAA)
PREPARATION STORAGE METHODS	500, 502 – 507	Cool dark position away from heat, electricity, toxic fumes
		Within wood, ceramic, or glass containers for each individual preparation
		Preparation storage containers held in lidded wooden box or ceramic crock surrounded by at least 8 cm of peat moss
	501	In glass container with some exposure to sunlight

Table 10 - Recommended Methods for Biodynamic Preparations

DEROGATION

The applicant shall demonstrate the link between situational practices and biodynamic objectives by providing a description of the particular methods employed in the prevailing circumstances to achieve these objectives.

Where the objectives are not supportive of biodynamic principles or where the practices do not achieve the stated objective NASAA may reject the application for exemption.

Reasons for granting exemptions will be based on factors such as:

- *Types of terrain on the farm*
- *Climate type of farm and specific seasonal conditions*
- *Scale and intensity of operations on the farm*
- *Mix of enterprises on the farm*

SECTION TWELVE - ANNEXES

Annex 1 – Products for Use as Fertilisers and Conditioners

Inputs should be used in accordance with legislated requirements and their inclusion within this Standard does not preclude limitations defined by appropriate authorities. Operators are reminded that it is their responsibility to ensure that the use of permitted products does not contravene legislated requirements.

PERMITTED PRACTICES AND INPUTS:

- Compost
- Manures from organic sources
- Straw from organic sources
- Lime, dolomite and crushed rock
- Sulphur, homoeopathic or biodynamic preparations
- Rhizobia or mycorrhiza inoculations

RESTRICTED PRACTICES AND INPUTS:

The definition of “Restricted” includes factors relating to

- The need and purpose of use, the pollution potential on and off the site of use, and the rate of application of the material
- The origin, extraction, contamination level and ecological or social consequences of the supply of the material

Unlike prohibited materials, which do not satisfy fundamental criteria with regard to composition, manufacture, environmental impact and consumer expectation, restricted materials are in accordance with this Standard subject to the stated provisos. Contamination levels are measured with reference to Maximum Levels as defined by NASAA in this Standard.

Input materials listed below as restricted are determined using the following criteria:

1. Rate of Application and Purpose of use:

The rates of application of certain materials are noted in the body of this Standard with manures for example being restricted to 15 tonne/ha. Other materials may only be used on the basis of demonstrated deficiency such as potassium sulphate and on the basis that nutritional correction, or pest or disease control is not available using a more favourable product or method.

Through examination of records and annual inspections NASAA will determine if rates of application are appropriate, but will expect operators to audit their own application rates and adjust them to suit these criteria.

Whilst certain products are allowed for certain uses, they must not be used for other purposes. For example, conventional straw may be used as mulch, but not for animal feed. Sewage sludge may be used on trees but not for food production. Operators should monitor their use of products with this criterion in mind and remember that NASAA will examine their product use on an annual basis.

Restricted products may not be used unless a clearly demonstrated need exists and all cultural methods of achieving desired results have been exhausted.

2. Product Specifications:

Product specifications relate to the purity of the product with regard to contamination from any pesticide, heavy metal or other product.

Operators should be aware of the specifications of products employed on their farms and, if in doubt, see that testing is carried out.

NASAA will carry out routine and random tests of materials which fall into this category.

INPUT PRODUCT OR SOURCE MATERIAL	APPLICATION RATES AND PURPOSE OF USE	SOURCE AND SPECIFICATIONS
Animal Manures	Brought in manures must not exceed 15 tonnes per hectare averaged over a three (3) year rotation.	All off farm sources of manure must be composted prior to application. All chicken manure must be composted prior to application onto the productive field. The use of animal manures must not result in contamination to the certified production unit.
Algae		Natural form Not genetically modified
Animal by-products and materials - includes meat meal, bone meal, hoof and horn meal, urine and other waste products from livestock processing		Their use must not result in uptake by certified ruminant or herbivore livestock
Basic slag and coal dust	Demonstrated need only	No heavy metal contamination
Bentonite - refer to clay		
Bone meal - refer to animal by-products	Not animal feed	Must be from a waste source and carry no contamination
Boron products (including borates, boric acid)	Demonstrated need only (ie soil analysis)	From natural sources only.
Calcium Carbonate - refer to limestone		
Calcium Sulphate - refer to gypsum		
Chelates (natural) including lignosulphates	Demonstrated need only	Non EDTA, non GMO derived
Clay / bentonite	Demonstrated need only	
Compost - includes compost from animals, food and textile industry waste, household vegetative waste	Must not exceed 20 tonnes per hectare averaged over a three (3) year rotation.	Compost must be produced under aerobic or anaerobic conditions in accordance with Australian Standard AS 4454 – 1999. Compost must not introduce contamination onto the certified area.
Compost Tea		As per comments above
Compost from sewage or sludge (non-edible product only)	Only on non-edible crops	As per comments above
Dolomite	Demonstrated need only (ie soil analysis)	From natural sources only
Earthworm castings or by products (specification of original substrate required and verified to be free of Heavy Metals and Pesticides)		Subject to satisfactory testing for contamination
Fish and fish by products (must not be harvested for the specific purpose of fertiliser)		Waste product or pest species
Guano (must be under 20 ppm cadmium and used on the basis of demonstrated deficiency)	Demonstrated need only	Testing for cadmium
Gypsum (must be of natural origin)	Demonstrated need only (ie soil analysis)	From natural sources only. Must be sustainably mined

INPUT PRODUCT OR SOURCE MATERIAL	APPLICATION RATES AND PURPOSE OF USE	SOURCE AND SPECIFICATIONS
Limestone	Demonstrated need only (ie soil analysis)	From natural sources only.
Magnesium carbonate - refer to dolomite		
Manure - pelletised or granulated composted chicken manure	Part of overall fertility program	No contamination
Meat/ blood meal - refer to animal by products above		
Mushroom waste (must be composted)	Not for animal feed or for use as growing medium unless organic	No industrial waste No contamination
Naturally occurring organisms if they are not new releases into the environment		Not new releases for environment
Peat (only for potting)	Potting mix only – not for broadacre use	Sustainably mined
Reactive rock phosphate (must be under 20ppm cadmium)	Demonstrated need only	Testing for cadmium Not fertiliser by product
Seaweed and seaweed products (must not contain preservatives and must be free from contamination)	As part of overall fertility program	Licensed harvest sites, low salts and heavy metals, unfortified
Straw from conventional sources	Not bedding or feed, no contact with edible crops	Composted if animal bedding, no residues
Sulphate of potash	In solid form only Demonstrated need only	Natural source, unfortified
Sulphur	Demonstrated need only	
Trace elements	Demonstrated need only	Unfortified, unadulterated source
Wood ash		Not from treated wood

Annex 1- Products for use as Fertilisers and Conditioners

PROHIBITED

All synthetic and non listed products including Chilean nitrate

Annex 2 – Products for Control of Plant Pest & Disease

The table below lists products permitted for the control of plant and pest disease, and any restrictions on rates of application and sources where relevant. Operators are reminded that it is their responsibility to ensure that the use of permitted products does not contravene legislated requirements.

INPUT PRODUCT OR SOURCE MATERIAL	APPLICATION RATES AND PURPOSE OF USE	SOURCE AND SPECIFICATIONS
Bacillus Thuringiensis		Non GMO or GMO derived
Biodynamic Preparations		
Biological Control	Must have a history of release for 3 years, be indigenous, or be subject to NASAA approval based on EIS or equivalent	Non GMO or GMO derived, free of all unspecified organisms
Boric Acid		
Bordeaux and Burgundy mixes. Hydroxide, oxide, sulphate forms	Monitor bio accumulation, strategy for reduction in soil, not in aquatic systems	No more than 8kg/ha
Copper, as above or ionised forms		Not oxychloride form
Clay (including Bentonite and Kaolin)		
Derris elliptica, Derris Dust, Rotenone CAUTION – MAY BE HEALTH RISK	Not near aquatic systems or on edible plant portions	Unfortified, natural extraction
Diatomaceous Earth		
Foliar Sprays		Must not contain any prohibited materials and must not substitute for soil building programs
Fungal Preparations		Non GMO or GMO derived
Homoeopathic preparations		
Iron Phosphate	Molluscicide	
Lime Sulphur (calcium polysulphide)		
Mechanical traps		
Milk		Must not lead to soil contamination Non GMO or GMO derived
Mineral Oils (summer/winter/paraffin)	Light petroleum derivatives allowed as suffocating oils on foliage, dormant summer oils. Direct application to harvested crop prohibited	
Mineral Powders		
Natural Acids (including vinegar)		
Neem Oil and Extracts	As part of integrated, ecological pest management	Natural extraction, no prohibited inputs
Paraffin Oil, Wax	Refer to mineral oils	
Pheromones, in traps or twists	Not used directly on crops	Non GMO or GMO derived
Plant Extracts and Products	Includes animal fats, alcohols, marigolds, sesame, garlic, chilli	Provided no potential contamination of end product

Plant and Animal Oils (inc. pine oil)	Not to be used in volumes permitting herbicide action	Specified source, free of prohibited inputs Natural extracts only
Plant Based Repellents		
Plastic Mulch	Removed after use and must not contain PVC	Need must be recognised by NASAA following assessment of written submission
Potassium Bicarbonate		
Potassium Permanganate	Seed dressing only	
Potassium Soap		
Propolis		
Pyrethrum	As part of integrated pest management, not storage	Not synthetic origin. With piperonyl butoxide (PbO) until 2005
Quassia		Extracted from <i>Quassia armara</i>
Releases of Predators	As for biological releases	As biological releases
Rotenone	See Derris	See Derris
Ryania	Ryania speciosa	
Salt (Sodium Chloride)	Not more than rainfall deposition and not if soil EC levels exceed 500ms	Unadulterated Not to be used as a herbicide
Seaweed, seaweed meal and extracts	Non synthetic non fortified sources only	Extraction with sulphuric acid prohibited. Addition of formaldehyde prohibited Must fall within heavy metal limits
Shooting of pests, ferals, domestic animals	No protected species Only under registered permit	No suffering of targets
Silicates		
Sodium Bicarbonate		
Sodium Silicate	As part of ecological, pest management program	
Sterilised Insect Males	Within integrated program	Non GMO or GMO derived
Sticky Baits	Must not contain prohibited substances	
Sulphur		Unadulterated nature identical source
Vaccines – disease specific	If disease identified on site	Non GMO or GMO derived
Viral, Fungal and Bacterial Preparations	As biological releases	As biological releases Non GMO or GMO derived
Wax - carnauba	Not for domestic use	Only permitted for use on citrus when required for export
Wetting Agents	Minor ingredient only – not as a singular input	Natural origin, no synthetic additives

Annex 2 – Products for Control of Plant Pest & Disease

Prohibited

All synthetic pesticides and weedicides and any product derived from genetically modified organisms

Annex 3 - Substances & Methods Permitted for Pest Control in Storage and Transport Units

Treatments	Substances/Conditions
Controlled Atmosphere	Carbon dioxide Oxygen Nitrogen Argon Ozone
Ethylene Gas	Ripening of bananas
Pest Control	Physical barriers Temperature control (hot or cold) Diatomaceous earth Rodenticides (only approved containers) Sticky boards Biological controls Electric barriers or grids Sound Light Air curtains
Waxing of citrus fruit	Restricted for export produce to countries of mandatory requirement (need must be verified)

Pyrethrum with or without piperonyl butoxide may not be used as a contact treatment but may be used as a preparatory treatment for insect control. The withholding period prior to use is 72 hours.

Annex 4 - Acceptable Additives of Non-Agricultural Origin and Processing Aids

Product	Additive	Proc. Aid	Limitations on Use
E170 Calcium carbonate	X	X	For milk products only Not as a colouring agent
E184 Tannic acid		X	Filtration aid for wine
E220 Sulphur dioxide	X		Allowed in wine only, below 20 ppm free and stated in full on bottles
E224 Potassium metabisulphite	X		Wine only
E270 Lactic acid	X	X	For fruit and vegetable juice/products Restricted in livestock products to milk products - coagulation agent, pH regulation of salt bath for cheese
E290 Carbon dioxide	X	X	Must be food grade only
E296 Malic acid	X	X	Di malic acid only
E300 Ascorbic acid	X		For fruit and vegetables where not available from natural sources
E306 Tocopherols	X		
E322 Lecithin	X	X	Obtained without bleaches or solvents
E330 Citric acid	X	X	For use in fruit and vegetable concentrate
E331 Sodium citrate	X		For use in meat products only
E334 Tartaric acid	X	X	Wine only
E335 Sodium tartrate	X	X	For use in cakes or confectionery
E336 Potassium tartrate	X	X	Restricted for use in cereals/cakes/confectionery
E341 Mono calcium phosphate	X		Only as a raising agent in flour
E400 Alginic acid	X		
E401 Sodium alginate	X		
E402 Potassium alginate	X		
E406 Agar	X		
E407 Carrageenan	X		Milk products only
E410 Locust bean gum	X		
E412 Guar gum	X		
E413 Traganth gum	X		
E414 Arabic gum	X		Allowed in milk, fat and confectionery products
E415 Xanthan gum	X		Fruit and vegetable products
E440 Pectins	X		Unmodified
E500 Sodium carbonates (including bicarbonate)	X	X	

E501 Potassium carbonates	X	X	Cakes, biscuits and confectionery, rising agent
E503 Ammonium carbonate	X		Cereal products, confectionery, cakes and biscuits
E504 Magnesium carbonates	X		
E508 Potassium chloride	X		Frozen fruit, vegetables/canned fruit and vegetables, vegetable sauces/ketchup and mustard
E509 Calcium chloride	X	X	Milk, fat, soybean, fruit and vegetable products
E511 Magnesium chloride	X	X	Soybean products
E513 Sulphuric acid		X	pH adjustment of water during sugar processing
E516 Calcium sulphate	X		Cakes, biscuits, bakers yeast carrier and soybean products
E524 Sodium hydroxide	X	X	As an acidity regulator
E526 Calcium hydroxide	X	X	Restricted to plant products
E551 Silicon dioxide (amorphous)		X	Coagulation agent
E553 talc		X	Currently under review
E901 Beeswax		X	
E903 Carnauba wax		X	Releasing agent
E938 Argon	X		
E941 Nitrogen	X	X	
E948 Oxygen	X	X	
Activated carbon		X	
Bentonite		X	Fruit and vegetable products
Casein		X	Wine only
Diatmoaceous earth		X	Sweetners and wine
Egg white albumen		X	Wine only
Ethanol		X	Solvent
Gelatin		X	Wine, fruit and vegetables
Isinglass		X	Wine only
Kaolin		X	Unrestricted for plant products but limited to extraction of propolis in livestock products
Perlite		X	
Vitamins	X		Only permitted when use is legally required (verificaton required)
Enzymes and micro-organisms			Must not be genetically modified. Micro-organisms shall be grown on substrates that consist entirely of organic ingredients and substances listed in this annex

Annex 4 - Acceptable Additives of Non-Agricultural Origin and Processing Aids

Flavouring Agents:

- Organic flavouring extracts
- Volatile (essential) oils produced by means of solvents such as oil, water, ethanol, carbon dioxide and mechanical and physical processes
- Natural smoke flavour

Annex 5 - Unrestricted & Restricted Substances for use with Livestock

Allowed (A): Substances that can be used on animals as per comments below without prejudice to certification. Use of allowed substances must be documented and used in accordance with label requirements and will not require quarantine of animals.

Restricted (R): Substances that are permitted for use after exhaustion of allowed alternatives or when preventative measures have not been effective in controlling a specific problem. Operators should not rely on the use of restricted products and their use may result in permanent or temporary loss of certification. The use of restricted substances must be documented along with quarantine requirements where relevant.

Specific Product	Allowed (A) / Restricted (R)	Comments
Acetic Acid	R	Not as a meat preservative
Alcohol	A	
Anaesthetics	R	To be administered by a vet
Aquatic Plant Products (including seaweed, kelp)	R	Sustainable harvest
Bentonite	A	
Biological Controls	R	Non GM or GMO derived
Brewer's Yeast	R	Non GM or GMO derived
Charcoal	A	
Cobalt	A	
Copper sulphate	A	
Diatomaceous earth	A	
Dolomite	A	
Electrolytes	A	
Epsom salts	A	
Fish liver oil	A	
Fluorosilicate	R	For sheep dipping and subject to withholding period
Herbal preparations	A	
Homoeopathic preparations	A	
Hydrogen peroxide	A	
Iodine	R	For teat wash
Magnesium Fluorosilicate	R	External treatment followed by 24 hour quarantine
Magnesium sulphate	A	
Meat meal	R	Non same species, 2% maximum
Minerals	A	
Molasses	A	
Potassium permanganate	A	
Probiotics	A	

Pyrethrum, natural	A	
Salt licks	R	Can not contain prohibited ingredients
Selenium	A	
Shell grit	A	
Sodium chloride	A	
Sulphur	A	
Tallow	A	
Vitamins	R	Natural only
Vaccines	R	Non GM or GMO derived
Zinc sulphate	A	

Annex 5 - Unrestricted & Restricted Substances for use with Livestock

Annex 6 - Maximum Permissible Levels of Heavy Metal & Pesticide

The table below lists maximum permissible levels of heavy metal and pesticides. Operators are reminded that it is their responsibility to ensure that the use of permitted products does not contravene legislated requirements.

IN SOIL			IN FERTILISERS/ CONDITIONERS	
	mg/kg	kg/ha	Mg/kg	Kg/tonne
Zinc	150	336	1000	1.000
Chromium	150	336	1000	1.000
Copper	50	110	400	0.400
Lead	100	220	250	0.250
Nickel	50	116	100	0.100
Cadmium	2	4.4	10	0.010
Mercury	1	2	2	0.002
Arsenic	10	20	20	0.02

Annex 6 - Maximum Permissible Levels of Pesticide & Heavy Metal

Pesticide Levels

Non permitted pesticides in organic agriculture should not be detected in crops produced under this Standard.

In instances where historic land use or environmental conditions cannot preclude measurable levels of some pesticides, the following guideline is used:

- Maximum permitted pesticides in soil and tissue are 10% of those listed as permissible by FSANZ (Standard 1.4.1 and 1.4.2) except heavy metal in root crops and tubers where the level allowed is 100%. Soil contamination level criteria will be determined by NASAA with reference to the crop grown in that soil. Crop residue levels will determine if those crops can be certified.
- Where pesticide residues falling below these levels are located in certified crops or products which cannot be explained by historic, adjacent or environmental background factors, those products and operators through the production/handling chain will be subject to immediate suspension by NASAA. If NASAA is of the opinion that prohibited substances have been applied directly and intentionally to certified products, or that there is demonstrable failure to take reasonable precautions against contamination, decertification will follow. Any contaminants confirmed to be present in food products may be grounds for immediate decertification.

Annex 7 - Products Permitted for Cleaning & Sanitation of Surfaces and Equipment (Including irrigation lines)

Operators will select cleaners, sanitisers and disinfectants based on the following criteria:

- non residual contamination
- rapid biodegradability into naturally occurring elements
- low toxicity
- worker safety
- life cycle impact of manufacture
- disposal

The use of any of the substances listed below will be followed by a thorough rinse of the area/equipment using potable water unless otherwise indicated.

Cleaning equipment will be clearly labelled as such in storage so as to avoid contamination with certified produce.

Substance	Limitations on Use
Acetic Acid (vinegar)	Allowed as a cleanser or sanitiser for which purpose it is not necessary to be organic
Alcohol, Ethyl	Allowed as a disinfectant
Alkali carbonates	
Ammonium sanitiser products	Quaternary ammonium compound (QAT) not to be used on food contact surfaces except for specific equipment where alternative sanitisers significantly increase equipment corrosion. Must be followed by a detergent rinse. Swab testing required to demonstrate non residual contamination
Bleach	Not to exceed 4ppm when discharged onto production unit (ie for cleaning of irrigation systems)
Bicarbonate Soda (sodium bicarbonate)	
Caustic potash and caustic soda	
Hydrogen Peroxide	
Iodine (non elemental, not to exceed 5% solution eg iodophors)	
Lime	
Natural acids (vinegar, citric, lactic, peracetic)	
Potassium permanganate (not to exceed 1% solution)	
Soaps	
Sodium Hydroxide (Lye)	
Sodium Borate	

Annex 7 - Products Permitted for Cleaning and Sanitation of Surfaces and Equipment

Annex 8 - Input Manufacturing Assessment

MINIMUM CRITERIA FOR INPUT PRODUCTS

Necessity: Each input must be necessary and necessity will be determined in the context of the use of the product. Parameters of yield, product quality, environmental safety, ecological protection, landscape and human/animal welfare may be used. Input use may be limited to crops, regions and seasonal or other conditions.

Nature and Method of Production: The material should be of animal, vegetable, microbial or mineral origin. Synthesised materials occurring naturally will be accepted. If access to renewable naturally occurring products is available, then they should be the first choice.

The ingredients of the product may be subjected to the following treatments:

1. Mechanical
2. Physical
3. Enzymatic
4. Other interaction with micro-organisms
5. Chemical (restricted in many circumstances)

Any collection of raw materials must be a non-destructive one (the exception being a pest species where destruction will be welcomed) and be in accordance with State and Federal Law.

ENVIRONMENT

Environmental safety: 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.

The following characteristics of the input will be taken into account:

Degradability:

- All inputs must be degradable to CO₂, H₂O 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

Acute toxicity to non-target organisms:

- 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.

Long-term chronic toxicity:

- Inputs which demonstrably accumulate in organisms or ecological systems, or inputs, which are considered to be mutagenic or carcinogenic, may not be used. If there are any risks, alternatives to these products will need to be developed or in development.

Chemically synthesised products and heavy metals:

- Inputs may not contain harmful amounts of man made chemicals. Only nature identical synthesised products will be accepted. Input products with heavy metals must not contain levels above those listed in the NASAA Standard. The exception is copper and copper salts, which may be permitted until more advanced IPM programs are in place.

HUMAN HEALTH AND QUALITY

Human Health: Inputs must not be harmful to human health, in the processing, use or the degradation process.

Product Quality: Input products may not be detrimental to the quality of crops upon which it is used.

Ethical aspects: Inputs must not be detrimental to the quality of crops upon which they are used.

SOCIO-ECONOMIC CONSIDERATIONS

Consumers' perception: Inputs must not meet resistance or opposition from consumers of organic products. An input might be considered by consumers to be unsafe to the environment or to human health although this has not been scientifically proven. Inputs should not threaten the perception of natural processes lying at the heart of organic agriculture eg. Genetic Engineering.

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