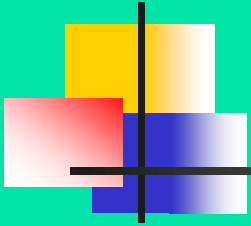


# Organic agriculture: Role of biopesticides

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# OUTLINE

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- Definitions
- Basic characteristics of organic production (FAO, 1999)
- Pests, diseases and weeds management in organic agriculture (FAO, 1999)
- Products for plant pest and disease control
- Criteria for amending the list of permitted chemicals
- References

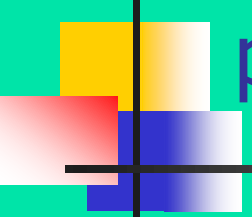


# 1 Definitions

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- Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycle and soil biological activity (FAO,1999)
- Organic agriculture is a system of managing agricultural production that implies major restrictions on fertilizers and pesticides(EU,1998)

# 3 Basic characteristics of organic production (FAO, 1999)



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1. The encouragement of biological cycles, involving micro-organisms, soil fauna, plants and animals
2. Sustainable crop rotations
3. The extensive and rational use of manure and vegetables wastes
4. The use of appropriate cultivation techniques
5. The avoidance of fertilisers in the form of soluble mineral salts
6. Almost all the synthetic pesticides are prohibited
7. The use of animal husbandry techniques which meet the animal's physiological, behavioral and health needs
8. Genetic engineering has no place in organic production and processing. No genetically engineered organisms or products are used.



## 5 Pests, diseases and weeds management in organic agriculture (FAO, 1999)

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Pests, diseases and weeds should be controlled by any one, or a combination, of the following measures:

- Choice of appropriate species and varieties
- Appropriate rotation programs
- Mechanical cultivation
- Protection of natural enemies of pests through provision of favorable habitat, such as hedges and nesting site, ecological buffer zones which maintain the original vegetation to house pest predators
- Diversified ecosystems
- Natural enemies including release of predators and parasites
- Mulching
- Grazing of animals
- Mechanical control such as traps, barriers, light and sound
- Steam sterilization when proper rotation of soil renewal cannot take place



# Biopesticides for Plant and Disease Management in Organic Farming

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- A biopesticide is defined as a pesticide derived from natural materials.
- Biopesticides are in three categories: biochemical pesticides, microbial pesticides, and plants containing added genetic material.
- Biopesticides tend to pose fewer risks than conventional pesticides
- There are some biopesticides that are NOT approved for organic production
- GMO crops are prohibited in organic farming. No genetically engineered organisms or products are used.



## Table 1. Products for plant pest and disease control

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- **Azadirachta indica (NEEM)**
- **Carbon dioxide**
- **Chloride of lime / soda**
- **Clay**
- **Copper oxide**
- **Derris roots (rotenone)**
- **Diatomaceous earth**
- **Gelatine**
- **Light mineral oils**
- **Mechanical traps**
- **Permanganate of potash**
- **Pheromones traps**
- **Animal and plant preparations**
- **Plant based repellants**
- **Propolis**
- ***Pyrethrum cinerrafolium***
- **Quicklime**



## Table 1. Products for plant pest and disease control

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- Release of parasite and predators of insect pests
- Silicates
- Sodium bicarbonate
- Soft soap
- Sulfur
- Sterilized insects
- Viral, fungal and bacterial preparations e.g. *Bacillus thuringienses* (Bt)
- Inorganic compounds (Bordeaux mixture, copper hydroxide, copper oxychloride)
- Parafin oil
- Ethyl alcohol
- Herbal preparations





# Criteria for amending the list of permitted chemicals

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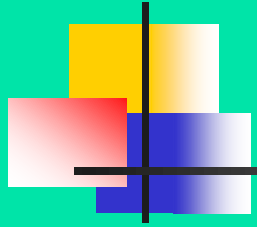
- Consistent to the principles of organic production
- Approved chemicals are not available in sufficient quantity/and quality
- In the evaluation process of substances for inclusion on lists all stakeholders should have an opportunity to be involved
- Any substance must comply with the relevant national regulations
- The list in the CODEX standards is not all inclusive or exclusive



## Reference

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- FAO. 1999. Guidelines for the production, processing, labeling and marketing of organically produced foods. FAO codex committee on Food labeling, Rome, 33pp
- FAO/MAISF. 2016. Support for the development of organic farming and institutional capacity building in Mauritius, TCP/MAR/3502

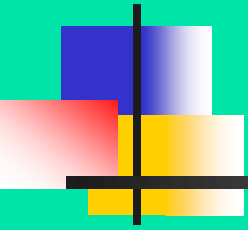


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**BOTTOMLINE!!  
MONEY**

**BOTTOMLINE!!  
MONEY**





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THANK YOU