"From conventional to organic farming: aspects to consider"

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1

Organic agriculture is…

- *Organic agriculture is a holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity. Codex Alimentarius, UN, 1999*

- *Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. IFOAM*, 2008*

Principles…

* International Federation of Organic Movements. The most widely recognised organic standards-setting international organisation. 750 members in 116 countries

Principle of health.

OA is intended to produce high quality, nutritious food that contributes to preventive health care and well-being. In view of this it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects

Principle of ecology.

OA shall be based on ecological processes and recycling. Inputs reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources

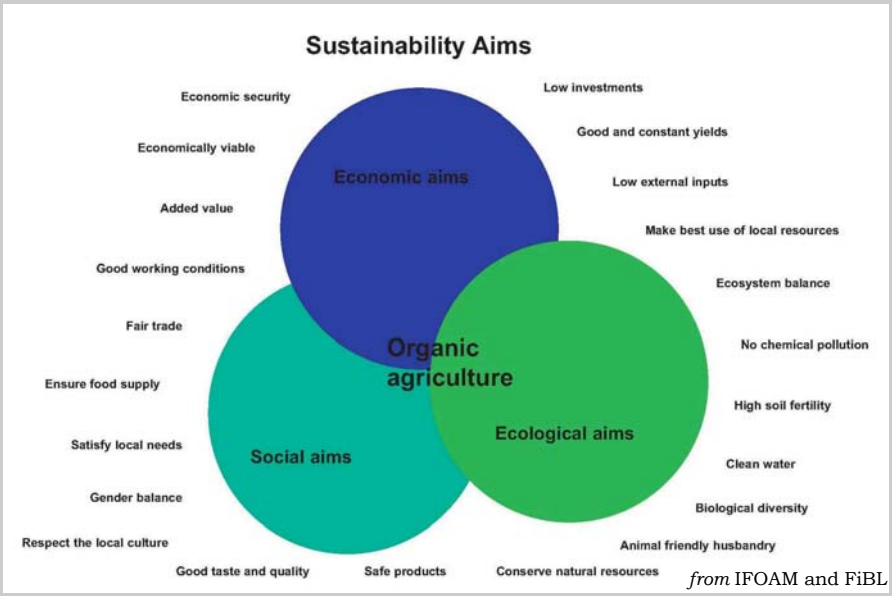
www.ifoam.org

Principle of fairness.

Those involved in OA should conduct human relationships in a manner that ensures fairness among farmers, workers, processors, distributors, traders and consumers. Animals be provided with the conditions in harmony with their physiology and natural behavior

Principle of care.

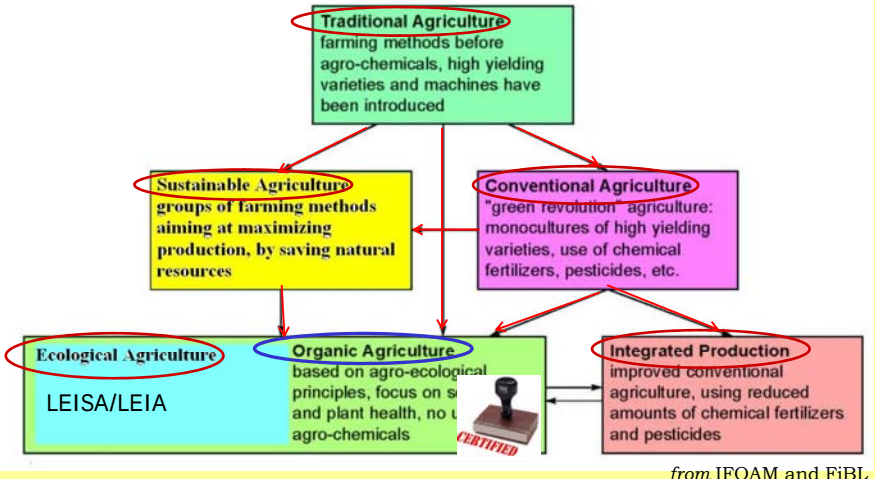
Precaution and responsibility are the key concerns in management, development and technology choices in OA. Science is necessary but practical experience, accumulated wisdom and traditional and indigenous knowledge shall be also taken into account. OA should prevent risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering



from IFOAM and FiBL

The organic principles in practice: how to deliver sustainability?

Switching to OA may occurr through different pathways



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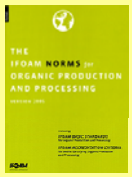
Well-defined production standards

Third-party certified

Organic production and processing standards

- IFOAM Standards: detailed, with clear "do's" and "dont's"



- EU regulatory framework for organic farming
  - Reg. EC 2092/91: first EU Regulation setting norms on organic production and labelling of organic products (inspection and certification system)
  - Reg. EC 834/2007: repealing 2092/91 (EU Action Plan for OA, 2004)
  - Reg. EC 889/2008 (detailed rules for the implementation of 834/2007)

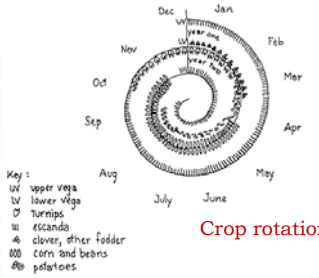
- US National Organic Program (NOP)
- Japanese Agricultural Standards for organic prod. (JAS)
- Codex Alimentarius, Guidelines for Organically Produced Foods (UN)

- The EU standards are the *minimum* requirements to name and market a food product as "organic"
- Private standards may be also applied, on voluntary basis
- They are trademarks corresponding to specific organic production and processing standards, usually more restrictive and detailed
- Sometimes, private standards cover processed food and no-food products that baseline public standards do not cover
- E.g. wine and cotton.

Important Organic Standards Requirements

Nutrient Management

- Shall be based on organic material, with defined maximum amounts
- Mineral fertilizers (e.g. ground rock) only to be used as a supplement
- No synthetic fertilizers allowed (e.g. no urea)



Crop rotation

Plant Protection

- Use preventive methods to maintain plant health
- Botanical pesticides only to be used as a supplement
- No synthetic pesticides allowed

Animal Husbandry

- Animal friendly keeping with sufficient free move
- Organic fodder (with exceptions)
- No use of preventive antibiotics or growth promoters

adapted from IFOAM and FiBL

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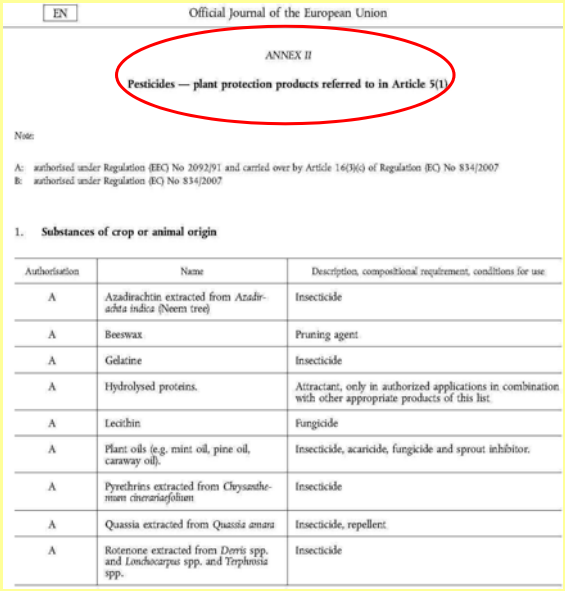
ANNEX I

Fertilisers and soil conditioners referred to in Article 3(1)

Note:

A: authorised under Regulation (EEC) No 2092/91 and carried over by Article 16(3)(c) of Regulation (EC) No 834/2007
B: authorised under Regulation (EC) No 834/2007

Authorisation	Name	Description, compositional requirements, conditions for use
A	Compound products or products containing only materials listed hereunder: Farmyard manure	Product comprising a mixture of animal excrements and vegetable matter (animal bedding). Factory farming origin forbidden
A	Dried farmyard manure and dehydrated poultry manure	Factory farming origin forbidden
A	Composted animal excrements, including poultry manure and composted farmyard manure included	Factory farming origin forbidden
A	Liquid animal excrements	Use after controlled fermentation and/or appropriate dilution Factory farming origin forbidden
A	Composted or fermented household waste	Product obtained from source separated household waste, which has been submitted to composting or to anaerobic fermentation for biogas production Only vegetable and animal household waste Only when produced in a closed and monitored collection system, accepted by the Member State Maximum concentrations in mg/kg of dry matter: cadmium: 0,7; copper: 70; nickel: 25; lead: 45; zinc: 200; mercury: 0,4; chromium (total): 70; chromium (VI): 0



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ANNEX II

Pesticides — plant protection products referred to in Article 5(1)

Note:

A: authorised under Regulation (EEC) No 2092/91 and carried over by Article 16(3)(c) of Regulation (EC) No 834/2007
B: authorised under Regulation (EC) No 834/2007

1. **Substances of crop or animal origin**

Authorisation	Name	Description, compositional requirement, conditions for use
A	Azadirachtin extracted from *Azadirachta indica* (Neem tree)	Insecticide
A	Beeswax	Pruning agent
A	Gelatine	Insecticide
A	Hydrolysed proteins.	Attractant, only in authorized applications in combination with other appropriate products of this list.
A	Lecithin	Fungicide
A	Plant oils (e.g. mint oil, pine oil, caraway oil).	Insecticide, acaricide, fungicide and sprout inhibitor.
A	Pyrethrins extracted from *Chrysanthemum cinerariaefolium*	Insecticide
A	Quassia extracted from *Quassia amara*	Insecticide, repellent
A	Rotenone extracted from *Derris* spp. and *Lonchocarpus* spp. and *Terphrosia* spp.	Insecticide

The conversion phase

- Conversion period refers to the lapse of time between the start of the organic management and the certification of crops and/or animal husbandry as organic
- During conversion the organic method must be fully applied, and the farm subjected to the control of the Certification body (CB)
- Typically, it begins by filling the “Notice of Organic Production” to be formally delivered to the competent authority and official registration to the CB
- After registration, the inspector carries out the first farm inspection and decides the modalities of the conversion period
- During conversion, products can be labelled as “in-conversion to OA”, however usually there is no market

Who are the actors of the conversion?

- The farmer (motivation; technical skills; awareness; etc.)
- The agro-ecosystem (farm): bio-physical constraints and potential
- The inspector (the CB; the regulatory framework)
- The farm advisor (private; public)

Steps prior to start conversion (with expert advice):

- Visit other organic farmers
- Decide on certification body and obtain an application pack
- Make soil analyses in the farm and discuss it with the advisor
- Be acquainted with the chosen organic standards
- Assess financial performance
- Explore possible markets
- Put in place a record-keeping system, as required by the CB
- Draw up a conversion plan, time frame and start date

How far or close is the farm from being organic?

Gather up: 1) Farm maps and
2) Field history information

- Split and organize the cadastral parcels in “fields”.
- Emphasize ecological infrastructure (buffer zones, natural barriers, hedgerows, streams, irrigation and drainage drains, dirt roads, etc.)

The conversion plan

Reg. EC 889/2008, Conversion rules

Article 36

Conversion length *for plant and plant products*

1. *For plants and plant products to be considered organic, the production rules […] must have been applied on the parcels during a conversion period of at least two years before sowing, or, in the case of grassland or perennial forage, at least two years before its use as feed from organic farming, or, in the case of perennial crops other than forage, at least three years before the first harvest of organic products.*
2. *The competent authority may decide, in certain cases, where the land had been contaminated with products not authorised for organic production, to extend the conversion period beyond the period referred to in paragraph 1.*

Article 40

Parallel production

1. *[…] a producer may run organic and non-organic production units in the same area.* But: different varieties/breeds; different farm units; permanent separation of the products obtained…

The conversion plan: strategies for the transition

- There is no a fixed bluprint for conversion
- Characteristics of the conversion plan are very site-specific
- Need of expertise and deep knowledge of the farm environment

Aspects to be considered

- Understand organic principles and standards
- Fundamental goal: Improve soil fertility (the *"living soil"*)
- Multi-functional crop rotation: soil fertility, plant protection, market, etc.
- Adjust management to maintain plant/animal health
- Ensure agro-environment integration (ecological infrastructure)

The conversion plan: strategies for the transition

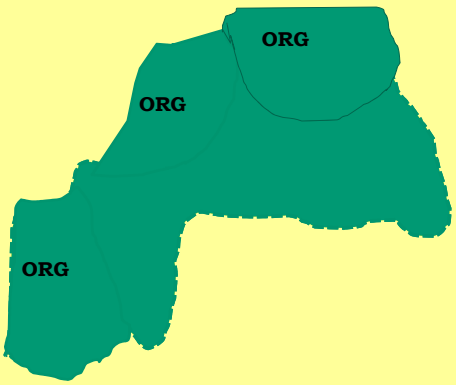
Aspects to be considered/2

- Identify markets and plan future farm economic performance
- Use of contractors
- Capital investment requirements: farm infrastructure & storage
- Historic land use/inputs (e.g previous crops)
- Weeds under organic management
- Introduction of alternative enterprises:
  - Livestock ?
  - Irrigation?
  - Horticultural crops?
  - New machinery?

The conversion plan: strategies for the transition

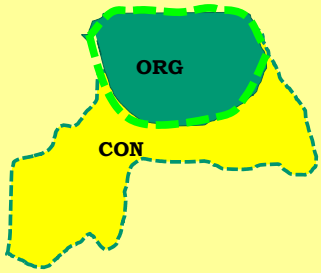
1. Whole farm vs part farm/Fast track, staged, simultaneous

- Whole or part farm ?
- Which enterprises ?
- Staged conversion or 'fast track' (single step conversion)?
- Simultaneous conversion of livestock?
- Conversion of land first, livestock later?



*Some private organic standards do not allow partial conversion of the farm

The conversion plan: strategies for the transition



2. Site Selection

- Historic land use
- Previous crops grown. Set-aside use?
- Soil type
- Drainage characteristics
- Soil pest and disease problems
- Field infrastructure (water, fencing): consider if livestock will be introduced later
- Topography & landscape
- Length of growing season/Spring - Winter crops
- Adjoining land use
- Contamination potential (sprays, ferts, etc.)
- Buffer strip requirements

The conversion plan: strategies for the transition

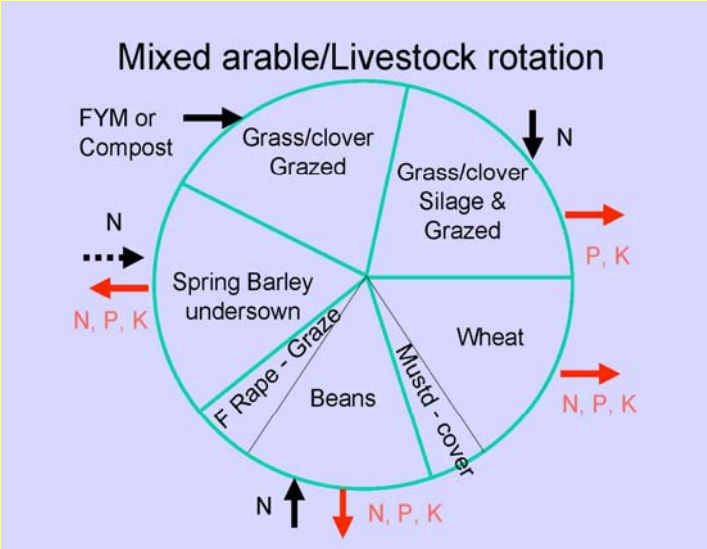
3. Designing crop rotation

Factors influencing rotation design

Resource	Fertility	Enterprise
Soil type and quality Climate Farm geography & biodiversity Farm history / cropping Weed levels from historic use may limit viability Farm management (farm / contract managed) Infrastructure and skills Integration with other farm activities Other crops grown in locality Location to markets	Soil type and quality Fertility management Legumes Green manures Compost / FYM Supplementary inputs	Soil type and quality Livestock requirements Balance of fertility & exploitation Fertility building choices Pest / disease breaks Weed management Autumn vs spring crops Crop choices

Possible diverse crop selection during conversion and after organic certification

Adapted from Stephen Briggs



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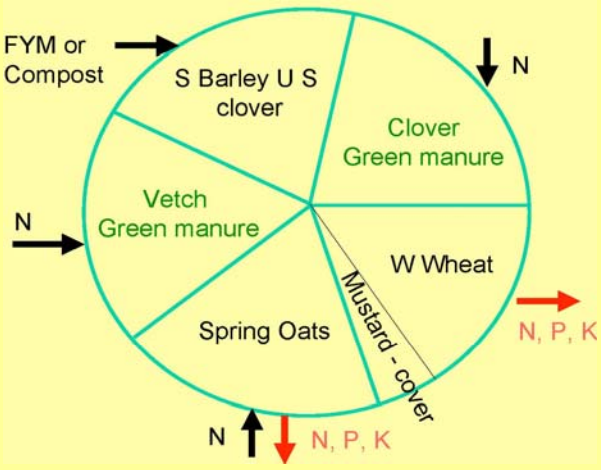

Adapted from Stephen Briggs

A possible scheme for a conversion action plan...

Issues to consider	Necessary adaptations	Phase 1	Phase 2	Phase 3
Soil management	Increase organic matter content Prevent erosion	Stop burning of crop residues Sow on contour lines	Use mulch before the rainy season Sow green manure after harvesting	Sow pastures around the contour lines
Production system				
Plant nutrition				
Plant protection				
Animal husbandry				
Post harvest and processing				
Marketing				

Source: Adapted from Garibay and others (2009).

Project title Conversion to Organic Production Software (OrgPlan) **DEFRA project code** OF **0159**

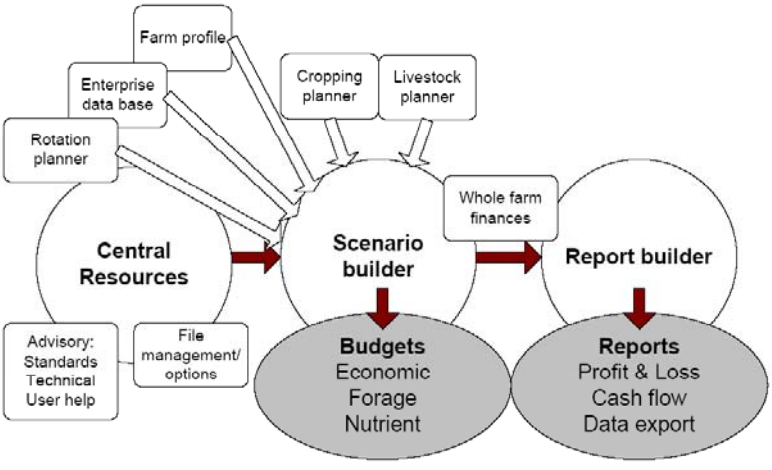

Figure 1: Basic structure of OrgPlan

Padel et al., 2001

Thanks for your kind attention

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