**“From conventional to organic farming: aspects to consider”**

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**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

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* 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.

**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.
The organic principles in practice: how to deliver sustainability?

Switching to OA may occur through different pathways

Well-defined production standards
Third-party certified
Organic production and processing standards

- IFOAM Standards: detailed, with clear “do’s” and “don’ts”

- 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 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)

**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*
### 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.

### ANNEX I

**Pesticides — plant protection products referred to in Article 10**

<table>
<thead>
<tr>
<th>Identification</th>
<th>Name</th>
<th>Description, compositional requirements, conditions for use</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Anilines-extracted from Anilina***</td>
<td>Insecticide</td>
</tr>
<tr>
<td>A</td>
<td>Benzoates</td>
<td>Pesticide</td>
</tr>
<tr>
<td>A</td>
<td>Chitosan</td>
<td>Pesticide</td>
</tr>
<tr>
<td>A</td>
<td>Hydrophobic proteins</td>
<td>Applicator only is authorized against insects in combination with other appropriate products of the kit.</td>
</tr>
<tr>
<td>A</td>
<td>Esters</td>
<td>Fungicide</td>
</tr>
<tr>
<td>A</td>
<td>Fluo-ols (F. alcalai)</td>
<td>Insecticide, scabicide, fungicide and growth stimulant.</td>
</tr>
<tr>
<td>A</td>
<td>Products extracted from Oenothera biennis</td>
<td>Insecticide</td>
</tr>
<tr>
<td>A</td>
<td>Quinone-extracted from Quinoa amaranth</td>
<td>Insecticide, nematicide</td>
</tr>
<tr>
<td>A</td>
<td>Phenols-extracted from (p-nitro) and compounds, spp. and hypochlorite type</td>
<td>Insecticide</td>
</tr>
</tbody>
</table>
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

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.)

How far or close is the farm from being organic?
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 blueprint 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?

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

<table>
<thead>
<tr>
<th>Resource</th>
<th>Fertility</th>
<th>Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil type and quality</td>
<td>Soil type and quality</td>
<td>Soil type and quality</td>
</tr>
<tr>
<td>Climate</td>
<td>Fertility management</td>
<td>Livestock requirements</td>
</tr>
<tr>
<td>Farm geography &amp; biodiversity</td>
<td>Legumes</td>
<td>Balance of fertility &amp; exploration</td>
</tr>
<tr>
<td>Farm history - cropping</td>
<td>Green manures</td>
<td>Fertility building choices</td>
</tr>
<tr>
<td>Weed levels from historic use may limit stability</td>
<td>Compost / FYM</td>
<td>Post / disease breaks</td>
</tr>
<tr>
<td>Farm management (farms / contract managed)</td>
<td>Supplimentary inputs</td>
<td>Weed management</td>
</tr>
<tr>
<td>Infrastructure and Skills</td>
<td></td>
<td>Autumn vs spring crops</td>
</tr>
<tr>
<td>Integration with other farm activities</td>
<td></td>
<td>Crop choice</td>
</tr>
<tr>
<td>Other crops grown in locality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location to markets</td>
<td></td>
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</tbody>
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Possible diverse crop selection during conversion and after organic certification

Adapted from Stephen Briggs
A possible scheme for a conversion action plan...

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil management</td>
<td>Increase organic matter</td>
<td>Prevent erosion</td>
</tr>
<tr>
<td>Production system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant nutrition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal husbandry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post harvest and processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Geelen and others (2009)

Figure 1: Basic structure of OrgPlan

Padel et al., 2001
Thanks for your kind attention

“From conventional to organic farming: aspects to consider”
Novi Sad (Serbia). Seminar to Faculty of Agriculture
January 2011 - Carlo Ponzio PhD
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