

Global Organic Research and Innovation Needs

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Outline

- Introduction
- Research and Innovation Needs
 - Production Systems
 - Breeding and Variety/Breed Development
 - Post-harvest and Quality
 - Processing and Packaging
 - Energy
 - Markets and Consumers
 - Policy Research
- Conclusion

Needs



- Sustainable solutions to
 - Local problems at diverse economic, ecological and ethical conditions,
 - Global problems,
- Research methodologies,
- Archiving of research results,
- Access to the results,
- Integrating Information Technology tools,
- Communication strategies.....

Major global challenges

Climate change, biodiversity loss, water scarcity, energy efficiency

Farm level

- Development of site-specific solutions,
- Evaluating local plant and animal genetic diversity,
- Technology development,
- Training and capacity building,
- Testing adaptation of best practices for sustainability....

Institutional and policy level

- Address issues in respect to organic management,
- Investigate effective, dissemination strategies for all actors,
- Develop guidelines,
- Revise rules and regulations,
- Support demonstration actions,
- Data collection,
- Consumer awareness....

Production systems

- Landscape management for agro-ecosystems,
- Whole farm analysis,
- Soil fertility management,
- Tillage: Practices and tools,
- Evaluation of carbon, nitrogen and phosphorus flows,
- Develop long-term rotations for weed and disease management,
- Integrate locally adapted effective microorganisms; testing their additional benefits for organic farming,
- Methods for soil remediation for heavy metal or persistent pesticide residues,
- Impacts of micronutrients,
- Animal-plant integration,
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Breeding and Variety/Breed development



Secure local seed supplies

- **Plants**
- Stable yields,
- Resistance to biotic and abiotic stress,
- High water and nutrient (esp. N and P) use efficiency,
- High nutritive properties for animals and human,
- Long shelf life,
- Easy propagation,

Improved human and animal nutritional value

- **Animals**
- Well adapted to local environmental conditions,
- Better adapted to withstand diseases,
- Transition management,
- Nutrition programs,
- Stable yields,
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Post-harvest and Quality

Assess and reduce harvest and post-harvest losses

Fresh commodities

1. Assess losses

2. Identify 'organic quality'

Non-destructive methods

3. **High Quality: Development of varieties performing better under organic management**

1. Less perishable after harvest,
2. High nutritive value,

4. **Extend shelf life**

Non-chemical methods and/or treatments suitable for major products and/or uses

Modified atmosphere packaging

5. **Assess microbiological risks**

Monitoring the incidence and frequency,
Identifying factors affecting,
Developing guidelines and rules



Post-harvest

Dry and dried commodities

Drying is a valuable preservation method in developing countries

1. Storage pests

Practical and low cost gas-tight containers for farmer applications,

Non-chemical methods and/or treatments suitable for major products and/or uses

2. Mycotoxins

Monitoring the incidence and frequency,
Identifying factors affecting,



<http://csi.gsb.stanford.edu/transforming-agriculture-ethiopia>





Processing and packaging

- Develop/evaluate processing methods preserving better the nutritive value and intactness of the product,
- Value adding: By-products and their economic analyses for higher competitiveness and less waste,
- Packaging materials,
- Intelligent packaging and sensors,
- *Health impact of healthy food with healthy diets,*

Energy



Energy efficiency: At all practices and levels,

- Renewable energy sources,
- Practices/methods from production to consumption,
- Distribution systems,
- Guidelines,
- Training/awareness,

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Markets and Consumers

- Monitoring markets and consumer preferences,
- Urbanization and food distribution systems,
- Perception of organic and other certification schemes,
- More harmonized and low cost certification systems: Comparisons of other (non-EU, non US..) national standards
- Local/regional/short distribution systems,
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Policy research

- Global measurement tools to assess sustainability under rapidly changing conditions,
- Impact assessment of research and innovation on organic farming and food,
- Examine environmental and socio-economic aspects (*different forms of concentration*) e.g. bio-districts, clusters, reserved areas,
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Research
and
Innovation

Practice

Main challenge: Knowledge Gap

Global

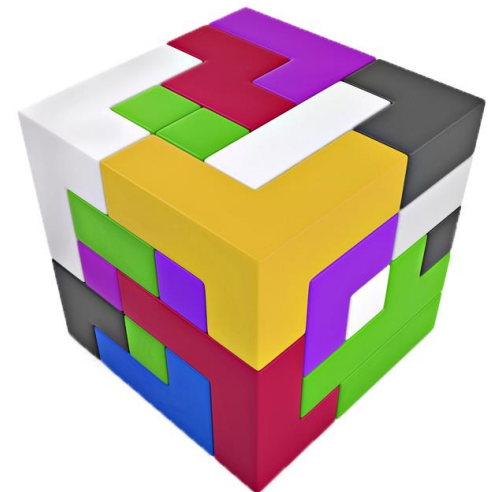
National

Local

Research and innovation needs

Integration into global agenda

- **Setting up platforms (e.g. network, platform, cluster) for exchange at all levels,**
- Consultation at local level to identify needs,
- Inserting local needs into regional research and innovation agenda,
- Identifying national needs by integrating regions and sector as a whole to develop national research and innovation agenda,
- Assessing needs for research and innovation at global level,
- **Delivering the outcomes to relevant agencies**
 - Dissemination activities,
 - Develop policies,
 - Promote participatory research.....



How to be more efficient and effective in setting the GLOBAL AGENDA!!!

Thanks for your attention