



FIRST WORLD CONFERENCE ON ORGANIC SEED



**Challenges and opportunities for the organic
agriculture and the seed industry**

REPORT

FAO, Rome, 5-7 July 2004



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Purpose of the Conference

The recent adoption of regulations, in both Europe and USA, related to the compulsory use of seed organically produced (“organic seed”) in certified organic agriculture, has different implications for small farmers used to saving and exchanging seed of local varieties and for commercial farmers used to buying seed of modern varieties adapted to the demands of supermarket channels. This new situation urges a better understanding and more cooperation in order to facilitate the development of organic agriculture.

The Food and Agriculture Organization of the United Nations (FAO), the International Federation for Organic Agriculture Movements (IFOAM) and the International Seed Federation (ISF) jointly organized the First World Conference on Organic Seed: Challenges and Opportunities for Organic Agriculture and the Seed Industry, in FAO, Rome, from 5 to 7 July 2004.

From the outset, the organic community and the seed industry agreed to disagree on a few issues, namely organic breeding and GMOs. It was a deliberate choice to incorporate the knowledge gained by the so-called conventional seed sector (that ISF represents) on technical and economical aspects of seed production into the context of organic agriculture (whose principles are imbedded in IFOAM). FAO’s main interest in this dialogue was to consider and develop issues of interest to developing countries, with a view to facilitating their participation in organic agriculture development.

The aim of the Conference, therefore, was to provide a discussion forum for knowledge exchange between farmers, individuals operating throughout the organic supply chain, the seed industry, scientists and policy-makers. The specific objectives were to:

- create a platform for international information and knowledge exchange between the organic movement and the “conventional” seed sector;
- focus on scientific/technical aspects related to organic seed issues;
- evaluate regulatory requirements and related issues for organic seed, and
- provide a platform for networking and cooperation.

Participation

Two hundred and sixty participants from 57 countries attended the Conference. These included inter-governmental organizations, government agencies, scientific institutions, private companies, non-governmental and civil society organizations and farmers. The List of Participants is attached in Appendix 1.

A special effort was made to facilitate the participation of developing countries, whose indication of interest in this Conference was overwhelming and beyond expectations. The organizers are grateful to the generous support of the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA), the Government of Norway and the IFOAM-IGO Programme, which allowed the participation of some 20 individuals from developing and least developed countries.



The Conference

The Conference held eight Plenary sessions including aspects ranging from seed production, propagation and quality, through harmonization of standards and technical regulations, to economics and biodiversity aspects. The challenging issue of co-existence between organic agriculture and GMOs was also addressed. Two parallel sessions discussed technical and scientific aspects of seed production and seed quality and a Poster Session was held in the FAO Atrium. A Side Event was held on the International Plant Protection Convention and its possible implications for organic agriculture. The Conference Programme is attached in Appendix 2.

In total, 60 presentations and 27 posters gave a broad overview of relevant topics. The Conference Proceedings, consisting of a 188-page publication, were distributed to participants before the start of the Conference. Copies of the Proceedings can be ordered from the IFOAM Head Office.

The Italian Association for Organic Agriculture (AIAB) generously contributed to the good spirit of the meeting by offering organic seeds (of parsley and peas) to participants and assisting in organizing the cultural event at "Agricoltura Nuova", including an organic farm visit, organic dinner and music with the Balkan Trigrav Opera group. The organizers are grateful to this cultural programme sponsors: Organic Farm Foods (UK), EOSTA (the Netherlands) and Lebensbaum (Germany).

Results of the Conference

The beginning of a dialogue

The major objective of the Conference of creating a platform for dialogue was successfully reached. The Conference allowed an exchange of views, opinions and experiences based on mutual respect. All parties - the organic community, the seed industry and FAO - found the continuation of the dialogue useful. The scientific and technical nature of the debate was unavoidably charged with political and ideological ideas, especially when discussing strategic orientations for the organic sector development. Some priority themes were identified for specific investigation and FAO was asked to continue facilitating the cooperative process.

Two legitimate realities exist

Although this was the First World Conference on Organic Seed, it was not the first step in organic seed production. In fact, many pioneer farmers and commercial companies have already entered this market segment. The Conference revealed that the organic seed sector has two distinct but not mutually exclusive faces:

- Farmer groups (often small farmers), not only in developing countries but also in developed countries, interested in producing for the local market with local varieties or conservation varieties, with sometimes established systems of participatory seed production and exchange. These community-based seed production systems are based on seed saving and aim to conserve existing varieties, including rescue and development of varieties considered best suited to low-input conditions. They deal with issues of farmers' rights, self-reliance and seed security and wish to avoid the journey of the conventional seed sector. FAO is of the view that this group holds real development promises and ought to be supported through targeted capacity-building.
- Large-scale farmers who need to supply local supermarkets or competitive export markets and who have specific quality requirements that are best met by using the modern (hybrid)



varieties of commercial seed companies. Conventional seed companies who also produce organic seed are the main suppliers of this seed. These companies' continued investment in organic seed is at risk if market conditions are not favourable for a profitable business.

In discussing different markets, different requirements, different varieties and different needs, it became clear that the two realities above are developing in parallel. What can be considered one outcome of the Conference was the empathy demonstrated by the different stakeholders and the very recognition of these two different realities.

Good organic seed production and quality is technically possible but at a cost

Despite the diversity of seed producers, seed production remains a specialized activity. While different presentations differentiated the organic sector rather broadly into "traditional/natural" or "modern", good quality seed remains a prerequisite for all. Good cultivation practices, appropriate varieties and plant hygiene are at the base of all seed production.

While the production of high quality seed for the commercial organic sector is not easy, it is certainly feasible, based on the expertise in the seed industry. In general, it is possible to obtain organic seed of comparable physical quality of conventional seed. However, for some species, it remains difficult to prevent seed-borne diseases without relocating seed production in adapted locations (or applying costly long-time rotations). Harmonization of certification standards is necessary to allow production in the most suitable areas and to facilitate the international movement of seed. However, the availability of organic fields remains an issue.

Discussions on organic seed production and quality addressed also means to increase the quantities of available seeds and counteract economic difficulties that result from increased labour and decreased yields. Areas identified for further research and practical experience include:

- improved understanding of pests life cycle;
- optimization of cropping systems, including intercropping to suppress weeds and enhance nutrient supply in order to improve seed quality in the field;
- improving quality of seeds after harvest with methods that detect and treat while keeping a balance between pathogen control and seed damage.

Many technical questions remained unanswered such as: use of micro-propagation in potato propagation; electron treatment with gamma rays or beta rays for cereals, and the relation between organic standards and the prohibition on radiating.

Organic seed certification and regulation should be fair

The different regulations for organic seed use, different country interpretations of the EU regulation and derogations are resulting in a decreased industry interest in investing in organic seed. The seed industry called for a harmonization of the many certification schemes in existence, especially with reference to the question of derogation. More generally, harmonization and equivalency of organic seed regulations was addressed with repeated reference to cultural differences. There was a general agreement that organic seed quality assurance and cost-efficiency required that organic seed certification be an integral part of existing protocols.

The question of whether the organic community needed organic seed was posed. The President of IFOAM stressed that the integrity of the organic claim required organic seeds but the question was how, when and where. The extent of development of the organic sector in a given country determines the level of organic seed standards and regulations. Detailed requirements in a country with a viable critical mass of organic crops (e.g. Denmark, the Netherlands) can become a major burden if applied in a developing country's context where the commercial viability of



organic seeds is lacking and seed certification is not existent. Recognizing that Europe allowed a long transitional period for shifting from conventional to organic seed, a step-by-step approach was recommended for countries with an emerging organic sector.

The mandatory use of certified organic seed in organic agriculture was also debated with regards the double certification it entails. Where regulated, no provisions are made for on-farm and community produced organic seeds. New burdens are created to organic farmers and informal seed systems are marginalized. National regulatory initiatives should encourage the use and exchange of local seed varieties and establish the adequate framework for free access to organic seed.

IFOAM was requested to consider organic seed certification within its current effort to develop alternative certification for local market development. With regards organic seed regulations, related harmonization options will be put on the agenda of future meetings of the FAO/IFOAM/UNCTAD International Task Force on Harmonization and Equivalency in Organic Agriculture. ISF and ISTA¹ were invited to participate to these deliberations.

Economic viability depends on commitment throughout the supply chain

Recognizing that economic efficiency could be improved by increasing the organic seed critical mass (which currently is below 1 percent of the seed market), views diverged on the role of regulations or of the market place in achieving this critical mass.

Seed companies hesitate to invest in organic seed because production batches are small, costs and risks are high (yields are lower and highly variable) and the lack of clear and harmonized rules creates marketing uncertainty. Commitment through the organic supply chain and specialized organic breeders were both mentioned as necessary for an improved availability of organic seed. It was suggested that large seed companies consider licensing small companies for the production of organic seed but the feasibility of this proposal was questioned due to the small quantities of seed involved.

North European farmers largely depend on the supply of organic seed by seed companies. Advantages include quality and distribution but economic aspects constrain both seed industry and producers' entry into the seed market. Companies cannot afford producing a wide range of organic seed varieties and growers are faced with a smaller choice and higher prices.

In some cases, organic seed economics resulting from producers and consumers' varietal choices suggest a more holistic approach that considers farmers' networks. There is need to scientifically evaluate the potential of farmers' seed and to strengthen farmers' capacities to develop better seed. Also, there is need to understand the reasons of success or failure of community-based initiatives.

Knowledge generated by both commercial and participatory breeding systems should be integrated to respond better to farmers' needs and scale up successful experiences.

Biodiversity can be maintained by informal seed systems

Organic agriculture can play an important role in the *in situ* conservation of genetic resources, through local adaptation of varieties by on-farm selection. But organic agriculture also needs continued access to new genetic material, from the formal and informal sectors. Seed exchange and the introgression of wide diversity has always been a feature of agriculture. Agricultural biodiversity is more than a production factor in organic agriculture: it also provides ecological services, through the agro-ecological management of pollinators, pests and diseases, the improvement of soil fertility, and the enhancement of stability in food production.

¹ ISTA: International Seed Testing Association



The International Treaty for Plant Genetic Resources for Food and Agriculture, which came into force on 29 June 2004, will now be the principle framework for cooperation in the management of these resources. It establishes a major new forum in which agriculturalists from North and South can shape solutions to their needs. Governments have engaged themselves to promote an integrated approach to the exploration, conservation and sustainable use of plant genetic resources for food and agriculture. The Treaty facilitates access to the resources that farmers and breeders - including in organic agriculture - need. The focus on the farmer's right to participate in relevant decision-making is of key importance, not least for organic farmers. The Treaty aims to mobilise funds for projects and programmes, aimed particularly at farmers in all countries, especially in developing countries, who conserve and sustainably utilise plant genetic resources for food and agriculture. This can be of importance for organic agriculture in developing countries, both for local markets and for export earnings.

Seed diversity in organic agriculture includes a broad range of issues running from informal seed systems of local varieties and landraces to commercial breeding, including "preserved identity" seeds and derived modern cultivars. Certain modern varieties perform well under low-input conditions and a systematic evaluation of such varieties could provide organic agriculture with useful seed sources, it being noted that the organic market is currently too small to attract commercial breeders.

It was recommended that FAO, in cooperation with IFOAM, governments and civil society organizations, prioritizes efforts for capacity-building on varieties (seed and breed) suitable for organic agriculture by evaluating their agronomic, economic and nutritional potential. Future discussions should address vertical versus horizontal breeding.

Co-existence between organic and GM agriculture is based on mutual respect

Participants agreed on the principle of freedom of choice of agricultural production systems, be it organic or conventional, with or without GMOs. Producers have the right to choose their production system and all farmers and operators need to adopt the best management practices to ensure that they can co-exist with their neighbours and provide the desired product.

Panellists described possible co-existence measures, including regulation (e.g. Denmark), isolation in time and space, notification, prior consultation with farmers, designation of GM-free zones and identification of crops not suitable for co-existence.

Special reference was made to protecting centres of biodiversity origin to preserve future breeding options as well as farming systems that use local varieties from possible gene flow. The supply of pure traditional seed for organic agriculture, as well as farm-raised seed, was reported as specific concerns. Consultation with farmers was extensively addressed.

There was agreement that future steps on co-existence be based on transparency, fairness and respect. All participants felt that the dialogue on co-existence should continue. FAO was requested to lead the different stakeholders towards a consensus on co-existence options and that case studies be made to understand different situations.

Follow up

The Conference raised many complex questions, some are not ripe for being resolved, others represent challenges that can be tackled in the immediate future. The Conference definitely marked the beginning of several cooperative undertakings, dominated by a spirit of mutual responsibility.



The session on co-existence was an initial step of a dialogue that deserves further investigation. There is a real need for a consultative process between organic farmers, the seed industry, consumers and civil society organizations on co-existence between GM and organic agriculture. FAO agreed to facilitate the establishment of an appropriate group of parties concerned that would be entrusted to promote effective measures for co-existence, including the generation of the necessary technical information that can assist governments establishing the required national regulatory regimes on co-existence. A review could be undertaken on co-existence with the four main GM crops, followed by an expert consultation to discuss options.

During the different interventions, it appeared that there was no consensus of what “organic seed” meant: seed grown according to organic production methods; seed bred according to organically accepted methods; and/or seed varieties adapted to prevalent organic agriculture conditions of low-external inputs (including both older varieties and newly developed seeds). Whether organic seed was certified or not did not seem to matter to organic farmers.

As a general proposition on participatory seed breeding programmes, FAO can only agree with the identified need to strengthen small farmers’ capacity, especially in developing countries, to select and improve local varieties for traits necessary for productive and fair organic agriculture systems. In function of its existing resources, FAO will consider joining forces with IFOAM for the development of an Action Programme on Organic Seeds, including an agreed definition, organic seed standards, training on local production of organic seed and key areas for research.

One important issue which remained open was organic plant breeding. Although this topic was deliberately not included in the Conference agenda, all parties agreed that breeding should be the subject of a dedicated meeting. Organic seed production is a crucial step on the way to organic (and more adapted) varieties. Several examples showed that crop management simply comes to an end if appropriate varieties are not available. Under western European conditions, modern varieties can perform better than old varieties, there is a need to identify special traits that can guarantee successful seed-to-seed cycles.

After the closing of the Conference, a group of some 35 organic farmers and trainers who were attending the Conference met and decided to establish a Community Seed Network. The aim is to foster knowledge, values and practical skills for local seed systems and indigenous knowledge. Subject to support and suggestions for improvements, the intended goal of the Network is to:

- provide training workshops and materials to integrate seed production into ecological whole-farm systems;
- establish demonstration seed farms with on-farm workshops for farmer-to-farmer exchange and peer learning, and establish school and community food gardens with seed-saving activities;
- enhance biodiversity of landrace food crops through seed banks, seed exchange and farmers’ seed crops, and on-farm biodiversity of native plant habitats for beneficial insect pollinators and predators of insect-pests;
- support participatory on-farm breeding to select and improve native, locally-adapted varieties for desirable traits, such as resistance to local disease and pests, flavour and nutrition;
- collect, document and share indigenous knowledge of organic seed treatments;
- disseminate activities in an annual conference and on a linked website.

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Appendix 1 – List of participants

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Appendix 2 – Programme

Monday - 5 July 2004

Opening Session

Moderator: Arturo Martinez, FAO

10:00 – 12:00 Plenary – Red Room

- Louise Fresco, Assistant Director-General, FAO
 - Gunnar Rundgren, President, IFOAM
 - Bernard Le Buanec, Secretary-General, ISF
- Discussion*

11:30 – 12:30 Poster Session – Atrium

12:30 **Lunch**

Aspects of Seed Production/Propagation

Moderator: Orlando de Ponti, ISF

14:00 Plenary – Red Room

- *Challenges and opportunities in organic seed production*, Jan Velema, Organic Seeds, The Netherlands
 - *Putting organic seed production in perspective*, Roland Peerenboom, ISF
- Discussion*

15:00 **Break**

15:30 Parallel Sessions: Aspects of Seed Production/Propagation - see page 4

- *Vegetables* – Red Room
 - *Cereals* – Iran Room
 - *Fodder/Forage* – Austria Room
 - *Potatoes* – Malaysia Room
-

Panel on the Co-existence of Organic and GM Agriculture

Moderator: Mahmoud Solh, FAO

17:00 Plenary – Red Room

Panel members

Birte Boelt, Danish Institute of Agricultural Sciences, Denmark
Frederick Sundstrom, California Crop Improvement Association, USA
Reinhard von Broock, Lochow-Petkus GmbH, Germany
Fred Kalibwani, IFOAM, Uganda
Roger Krueger, Monsanto, USA
Ranjith de Silva, Gami Seva Sevena Ltd, Sri Lanka
Beatrix Tappeser, Federal Agency for Nature Conservation, Germany

Discussion



Tuesday - 6 July 2004

Seed Quality

Moderator: Matteo Trevisan, ISF

- 09:00 **Plenary** – Red Room
- *The role of ISTA and seed science in assuring organic farmers with high quality seeds*
Steven P C Groot, Plant Research International, Wageningen University and Research Centre, The Netherlands
 - *Seed quality: an important aspect of organic seed production and seed trade*, Michael Larinde, FAO
Discussion
- 10:00 **Break**
- 10:30 **Parallel Sessions:** Seed Quality - see page 5
- *Vegetables* – Red Room
 - *Cereals* – Iran Room
 - *Fodder/Forage* – Austria Room
 - *Potatoes* – Malaysia Room
- 12:30 **Lunch**
-
- 13:00 – 14:00 **Side event** – Red Room
- *The International Plant Protection Convention and Possible Implications for Organic Agriculture*,
Dave Nowell, FAO

Harmonization in Regulations

Moderator: Bernward Geier, IFOAM

- 14:00 **Plenary** – Red Room
- *The need for harmonization*, Roland Peerenboom, ISF
 - *The steps towards harmonization*, Gunnar Rundgren, IFOAM
 - *The harmonization process of seed rules and regulations in the Southern African Development Community*, Mohammed Tazi, FAO
Discussion
- 15:00 **Break**
- 15:30 **Harmonization process**
- *From opportunity to commitment to dilemma*, Henk Haitsma, European Seed Association
 - *Progress on harmonization of EU and US organic seed regulations*,
Frederick Sundstrom, American Seed Trade Association
 - *Could the OECD schemes be pertinent for organic seed certification?*
Jean-Marie Debois, OECD
 - *Challenges for developing countries' access to equivalency with the main organic export markets*, Felicia Echeverria Hermoso, Programa Nacional de Agricultura Orgánica, Ministerio de Agricultura, Costa Rica
Discussion
- 17:30 **End of session**



Wednesday - 7 July 2004

Economics of Organic Seed

Moderator: Zadok Lempert, IFOAM

09:00 **Plenary** – Red Room

- *The economic challenge for organic seed, The importance of consumer awareness of the need for organic seed*, Dick van der Zeijden, Bejo Zaden, The Netherlands
 - *Organic seed systems in response to agro-chemical deficit in Cuba*, Humberto Rios Labrada, National Institute of Agriculture Sciences, Cuba
- Discussion*

10:00 **Break**

Diversity in Seeds

Moderator: Peter Kenmore, FAO

10:30 **Plenary** – Red Room

- *The relevance of international plant genetic resources instruments to organic seeds*, Clive Stannard, FAO
 - *On-farm seed production: integrity of organic farming system and biodiversity safeguard*, Cristina Micheloni, Italian Association for Organic Agriculture, Italy
 - *Plant breeding and diversity in seeds*, Bernard Le Buanec, ISF
 - *The Seeds of Life: food safety, local community development and organic seeds in Tucuman, Argentina*, Javier Rovira, Asociacion de Técnicos de Programas y Proyectos Sociales, Argentina
- Discussion*

Closing Session

Moderator: Nadia El-Hage Scialabba, FAO

12:30 **Plenary** – Red Room

- *Summary*, Edith Lammerts van Bueren, IFOAM and Radha Ranganathan, ISF
- *Closing remarks*, Hartwig de Haen, Assistant Director-General and David Hallam, Chair, Inter-Departmental Working Group on Organic Agriculture, FAO

13:00 **End of Conference**



PARALLEL SESSIONS

Monday - 5 July 2004 – 15:30 to 17:00

Aspects of Seed Production/Propagation

Vegetables – Red Room

Moderator: Nadia El-Hage Scialabba, FAO

- *Use and availability of organic vegetable seed*, Paul Rubitschek, Hild-Nunhems Seeds, Germany
- *Production of organic seed of groundnut: strategies and practices*, Bhautikkumar Savaliya, Gujarat Agricultural University, India
- *Grower perspective on organic seed production*, Dean Gregg, Mission Ranches, US
- *Organic Seeds and Biodiversity in Spain*, Maria Ramos, SEAE (Sociedad Española de Agricultura Ecológica) and Red de Semillas de Plataforma Rural (RS-PR)
- *Improving local varieties of medicinal plants through organic production and multiplication: a case study from Egypt*, Ahmed Shalaby, SEKEM Academy, Egypt

Cereals – Iran Room

Moderator: Radha Ranganathan, ISF

- *Organic cereal seed production and quality issues in Germany*, Werner Vogt-Kaute, Naturland, Germany
- *Specific seed health standards for organic seeds*, Leopold Girsch, Austrian Agency for Health and Food Safety, Austria
- *Healthy cereal seeds for organic agriculture in Switzerland*, Susanne Vogelgsang, Swiss Federal Research Station for Agroecology and Agriculture, Switzerland
- *The challenges of organic cereal seed production in France*, Pierre de Contes, Biocer, France

Fodder/Forage crops – Austria Room

Moderator: Edith Lammerts van Bueren, IFOAM

- *Organic forage seed production: taking small plot research to farm scale development*, Athole Marshall, Institute of Grassland and Environmental Research, UK
- *Organic seed production of hybrid field corn, alfalfa, red clover and sudangrass*, Maury Johnson, NC+Hybrids, USA
- *Practical aspects concerning organic seed production of clover and grass in Denmark*, Birthe Kjaersgaard, DLF-Trifolium, Denmark
- *The challenges of organic clover seed production in New Zealand*, James Smith, Midland Seeds, New Zealand

Potato – Malaysia Room

Moderator: Monique Hospers, IFOAM

- *Growing organic seed potatoes in the Netherlands*, Jac Vergroesen, Bioselect-Agrico, The Netherlands
- *Putting into practice a diagram of organic seed potato production*, Fabrice Trehorel, Association des producteurs de plants et de pommes de terre biologiques de consommation de Bretagne, France
- *Organic potato seed: questions to the future of it!*, Eric Bonnel, Germicopa, France
- *Feasibility and obstacles in New York State to start growing double certified (blue tag and certified organic) seed potatoes*, Michael Glos, North East Organic Farming Association, US



Tuesday - 6 July 2004 – 10:30 to 12:30

Seed Quality

Vegetables – Red Room

Moderator: Orlando de Ponti, ISF

- *Organic seed and coating technology: a challenge and opportunity*, Bob Legro, Incotec, The Netherlands
- *Critical control points in organic seed production*, Ruud van den Bulk, Plant Research International, Wageningen University and Research Centre, The Netherlands
- *Possible methods for organic seed treatment*, Anna Ertsey, Budapest University of Economic Sciences and Public Administration, Hungary
- *Control of seed-borne pathogens on vegetables by microbial and other alternative seed treatments*, Annegret Schmitt, Federal Biological Research Centre for Agricultural and Forestry, Germany

Cereals – Iran Room

Moderator: Bernward Geier, IFOAM

- *Control of common bunt of wheat (*Tilletia caries*) by alternative seed treatment*, Werner Vogt Kaute, Naturland, Germany
- *Transmission rates of the oats loose smut pathogen *Ustilago avenae* from seed to the crop as basis for inoculum thresholds*, Guro Brodal, Norwegian Agricultural Inspection Service, Norway
- *Comparison of rain healthstatus of winter wheat and spring barley cultivated in organic, integrated and conventional systems and monoculture*, Anna Baturo, University of Technology and Agriculture Department of Phytopathology, Poland
- *Comparison of seed treatments against *Fusarium spp* in spring wheat*, Aart Osman, Louis Bolk Institute, The Netherlands

Fodder/Forage crops – Austria Room

Moderator: Bernard Le Buanec, ISF

- *Seed treatment of corn for control of damage by birds and pea for control of *Ascochyta* blight of pea*, Ralf Tilcher, KWS SAAT AG, Germany
- *Achieved quality in organic seed production of clover and grass in Denmark*, Jørn Lund Kristensen, DLF Trifolium, Denmark
- *Organic forage seed production in Finland*, Markku Niskanen, MTT Agrofood Research Finland, South Ostrobothnia Research Station, Finland
- *What are the limiting factors to seed quality in organic production of grass and clover seed and how to improve yield?*, Birte Boelt, Danish Institute of Agricultural Sciences, Denmark

Potato – Malaysia Room

Moderator: Thomas Osborn, FAO

- *Some approaches in research targeted to varieties and seed production in potato organic farming*, Daniel Ellisseche, INRA Station d'Amélioration de la Pomme de Terre et des Plantes à Bulbes, France
- *Rhizoctonia in organic seed potato production*, Monique Hospers, Louis Bolk Institute, The Netherlands
- *Coping with late blight in organic seed potato production*, Carlo Leifert, University of Newcastle, UK
- *Organic seed potato production in the Andes: from traditional knowledge to modern practices*, Mario Tapia, Association of Puno Organic Farmers, Peru