Survey on regional research needs

Gathered and compiled from the TIPI Board by Carolin Möller and Helga Willer

Science Day, 13th February, 2015, BIOFACH Congress, Nuremberg, Germany
Main questions

• Organic System Challenges
• Field Practises Challenges
• Input Challenges
• Crop Challenges – Pest and Disease Control
• Livestock Challenges
• Socio-Economic Challenges
• Post-harvest and Processing Challenges
Scale of issues

- Global
- Asia
- Pacific
- US & Trading partners
- Europe
- West Africa
- Canada
- Latin America
- Drylands of the World
Organic System Challenges

• Limited understanding of how farming systems work
  → Long-term, multi-disciplinary studies of crop and livestock production systems, with an emphasis on on-farm research

• Most organic research is focuses in temperate zones
  → Need to establish best practices for resilience in varying (e.g. Pacific island) conditions
Organic System Challenges I.

• Need to combine local tradition with innovation for smallholder organic farming

  ➔ Regional adaption is needed of already existing and proven solutions and experience from different regions.

• Contamination risks within the system are not thoroughly identified (pathogens, pesticides)

  ➔ Determine sources of contamination and look at practices to mitigate the risks of contamination.
Field Practises Challenges

• **Soil building**: Basic research on the roles played by different organisms to cycle nutrients, suppress diseases, maintain soil structure, and grow healthy plants for healthy humans and livestock.

• **Tillage systems**: Further development of no-till and reduced till methods for organic (weed suppression)
Field Practises Challenges I.

• **Biocontrol**: Need for further biological pest and disease control

• **Weeds**: Study of weed ecology, cultural practices, effective rotations; development of bio-herbicides that are compatible with organic principles and criteria
Input Challenges

- **Copper alternatives**: Substituting materials, biological controls, crop rotations
- **Varieties suitable for organic**: Testing of locally appropriate varieties, organic breeding, organic seeds
- **Micronutrients**: Identification of micronutrient sources and techniques for their supply for high quality organic products (iron, magnesium, selenium)
Crop Challenges – Pests & Diseases

- *Cocoa Swollen Shoot Virus Disease* (CSSVD) in West-Africa
- *Fire blight* (*Erwinia amylovora*) in fruit production (apples, pears), *Fitoplasma solanii* in vine
- *Citrus greening virus* (HLB) – nutrition control?
- *Brown Marmorated Stink Bug* (*Halyomorpha halys*) in the US (apples) – natural enemy?
- *Spotted Wing Drosophila* (*Drosophila suzukii*) – fruits
- *Fruit fly* (oriental and other varieties) *Red Spider Mite; White Moth*
- *Giant African Snail* - leafy vegetables
Livestock Challenges

• Assessment of *preventive organic practices* to improve organic livestock health
• Reduction of *parasite pressure*
• *Mastitis prevention* and therapy methods
• *Pneumonia*
• *Natural sources of amino-acids* (methionine)
• *Alternative & additional feed* (plant extracts)
• *Aquaculture* practices
Socio-Economic Challenges

• Assessing factors of *consumer trust* in different regions

• *New economic calculations* of food value – linking costs to carbon/water demand

• Research on *possible communication methods*, which may reach policy makers amongst others
Post-harvest and Processing Challenges

• *Innovative organic cocoa processing* (Research & Development trials)

• Efficient *cracking of indigenous nuts, solar drying* (Pacific)

• Development of sustainable *packaging materials*
Conclusions from the survey

• A large part of the world’s organic research needs could be covered by:
  – Dissemination and **local adaptation** of existing research results, solutions
  – **On-farm research** & development seems to be a successful tool

• Most topics came for **biological pest and disease control**

• General need for a **better system understanding**, also in **tropical and subtropical climate**
Anything to add?

Looking forward to your further input!