



How to improve organic value-chains by boosting cooperation between breeding and retail

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Great Challenges for Sustainable food production



European Farm to Fork Strategy

- Facilitation of global transition of food systems
- Circular bio-based economy, **reduction of nutrient losses by 50%**
- Reduced pesticides and **antibiotics by 50%**
- Increase **organic farming to 25%** of total farmland by 2030



Why do we need organic breeding?

- **Strong restriction of the genetic diversity**, patenting of living organisms and increasing dependence on a few multi-national breeding companies
- Conventional breeding with a **focus on industrialised agriculture** is diverging more and more from the demands of organic producers for sustainable production
- **Use of new breeding technologies** (e.g. cell fusion, gene editing) contradict the principles of IFOAM International
- **Continuous adaptation of cultivars** to changing conditions (e.g. climate change, new harmful organisms, customer requirements, legal framework)
- Growing **organic market with high demands** on quality and integrity of production, fair trade, regional production, sustainable animal feed, closed nutrient and energy cycles, no environmental pollution, diverse and nutritious food, vegetarian and allergy free products



Demands of Organic Sector on Crop Cultivars

- Cultivars of large **number of crops** adapted to organic farms, which deliver sufficiently high and above all **stable yields of high quality even** under low-input conditions and build up soil fertility.

Specific variety requirements:

- Rapid early stages development
 - Nutrient efficiency and high N-fixation
 - Weed suppression capacity or weed tolerance
 - Resistance pest and diseases
 - Good digestibility and nutritional value of forage plants
 - Good processability, nutritional quality and taste
 - Long shelf life
- Option for farm-saved seed
 - Genetic diversity (within cultivar, mixed cropping, cultivar mixtures)
 - Prohibition of GMOs (including cytoplasm fusion, gene editing)
 - Conservation and free access to GMO-free genetic resources

Current situation in plant breeding

The integrity of the organic sector is at stake

Large conventional breeders concentrate on a few large crops with a focus on high input conventional agriculture. These varieties account for around 90% of organic farming

- **neglect of niche crops important for organic farming such as legumes, catch crops and special crops**
- **Limited suitability of high-input varieties in organic farming**

More and more methods used in conventional breeding do not comply with the IFOAM guidelines for organic farming.

- **Cell fusion-derived CMS hybrids dominate the market for Brassica vegetables and chicory, but are no longer permitted in most organic labels leading to massive variety bottlenecks for cauliflower and broccoli.**
- **Farmer stop cultivation of these crops**

Organic breeding relies on varieties that are cell fusion-free, reproducible, robust, yield stable, locally adapted and tasteful.

Why Organic Plant Breeding must be strongly promoted?

- Breeding is long term approach **needs 10 to 20 years** before first cultivars can be released, thus it needs long term engagement
 - Special demand of organic sector needs **higher and more diverse breeding efforts** using breeding methods that comply with IFOAM principles
 - **Divergence in breeding goals and techniques** will cause severe shortage of cultivars and contamination problems in near future
- **loss of consumer trust**

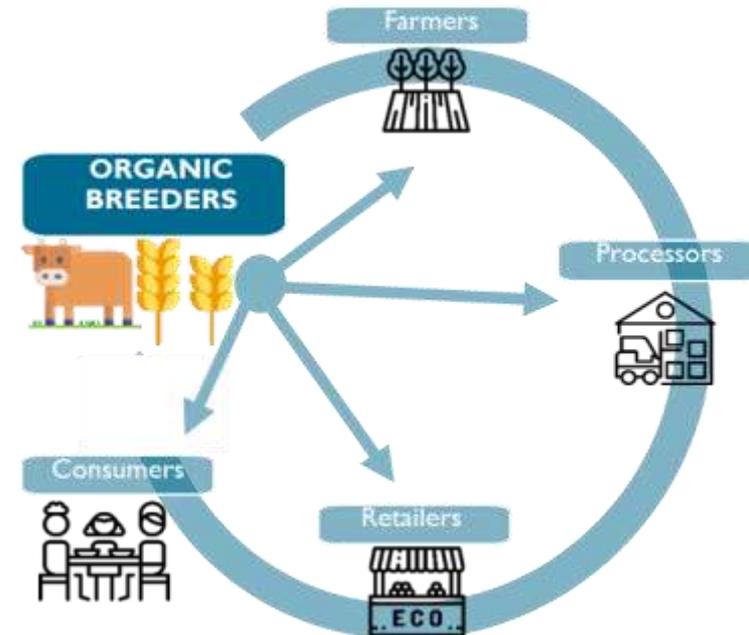
How does the organic sector benefits from organic breeding?

- Organic breeding respects the values and principles of the organic sector and does not use critical breeding methods → ensures the integrity of organic products and strengthens consumer confidence
- Organic breeding takes into account the needs of organic farmers, processors, traders and customers → foundation for the high quality of organic food
- Organic breeding is the basis for a self-determined, independent further development of the organic sector → Organic breeding is important R&D activity to secure supply for sustainable organic food in the future

Participation of the value chain

What distinguishes a Value Chain Partnership

- Joint provision of sustainably produced food for the mutual benefit of all stakeholders. Sharing of risks and benefits.
- Functioning value chains and close cooperation between the actors based on partnership.
- Orientation towards added value for customers.



Participation of the value chain

- Fair-Breeding 0.3% of net sales of fruit and vegetables



- High-Oleic Organic Sunflowers: 12 companies join forces to invest for 7 years



Donors: Organic associations, processors, specialized trader, retailer, consumer

Example for cross-sector promotion of organic cotton breeding

Poolfunding of organic breeding:
50% Foundation Mercator Switzerland
50% **Organic Cotton Accelerator**



Fund raising

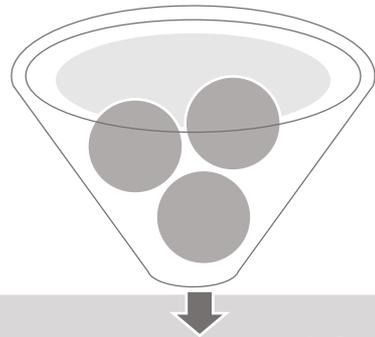
Project governance, activities and Partners



Participatory organic cotton breeding



Pool financing for sustainable organic breeding



0.1-0.2% organic turnover at point of sale

Cross-sector pool funding

- 1
 - Identifying the needs of the sector
 - Prioritisation & tendering
- 2
 - Review of offers according to transparent criteria
- 3
 - Investment in breeding programmes (personnel, infrastructure, training)
 - Review of milestones

Monitoring by independent body

Strategic control

Operational control

Advisory body



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A call for joint action of the value chain

Through cross-sector engagement in organic breeding, it is possible to

- Maintain the integrity of the organic sector (consumer demand)
- Align the breeding methods used to IFOAM guidelines
- Breed plant cultivars of many crops that are adapted to organic agriculture
- Integrate fragmented financing into a long-term approach that meets the needs of the organic sector
- Enlarge financial resources allowing new breeding initiatives to emerge and promotion of young breeders



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