

Engagement of the organic value chain to support Organic Breeding in Europe



Financing and governance strategies in organic breeding

Current state of play of financing and governance strategies in organic breeding.....	2
Case studies of value chain partnerships in organic breeding.....	14
Fact-sheet – recommendations for a solid and sustainable financing with shared responsibilities along the value-chain	32

Mariateresa Lazzaro, Eva Winter, Freya Schäfer, Eliane Steiner and Monika M. Messmer
Research Institute of Organic Agriculture FiBL
February 2023

Current state of play of financing and governance strategies in organic breeding

The principles of organic breeding have implications in terms of governance and financing strategies

Organic breeding is the basis for a self-determined, independent further development of the organic sector.

Organic breeding provides benefits, including marketable and public goods and services, to the organic sector:

- ✓ develops locally adapted cultivars and breeds that satisfy farmers', processors' and consumers' needs
- ✓ considers animal welfare, longevity, sustainable feeding and husbandry
- ✓ contributes to the overall organic farming goal of preserving and enhancing biodiversity
- ✓ respects values and principles of the whole organic sector
- ✓ addresses the complexity of adaptation to climate change by developing robust cultivars and breeds;
- ✓ respects values and principles of the organic sector in terms of breeding methods that are in line with organic farming principles and of Intellectual Property Rights (IPR) with the rejections of patents on plants and animals and the promotion of seeds as common good;
- ✓ ensures the integrity of organic products, adds value and strengthens consumers' trust.

The Engagement.Biobreeding Europe initiative reflected on the definition of organic breeding () in terms of impact on governance and financing strategies adopted by organic breeding initiatives (Figure 2).

Taking account of organic agriculture principles, the financing of organic breeding would differ substantially from that of conventional breeding. Indeed, as financial schemes need to fit to the respective governance models and to the culture and ethical values of reference. The differences in terms of principles of organic *vs* conventional farming have relevant implications on the economic strategies applied in the breeding sector. In the organic sector breeding is not only a commercial activity, but also considered as value driven activity, cultural achievement, and a joint engagement to improve the integrity of the organic food system.

The IFOAM NORMS for Organic Production and Processing

Version 2014

Breeding of organic varieties

General Principles

Organic plant breeding and variety development is sustainable, enhances genetic diversity and relies on natural reproductive ability. It aims for new varieties particularly suited for organic production systems. Organic breeding is always creative, cooperative and open for science, intuition, and new findings. Organic plant breeding is a holistic approach that respects natural crossing barriers. Organic plant breeding is based on fertile plants that can establish a viable relationship with the living soil. Organic varieties are obtained by an organic plant breeding program.

Requirements:

- To produce organic varieties, plant breeders shall select their varieties under organic conditions that comply with the requirements of this standard. All multiplication practices except meristem culture shall be under certified organic management.
- Organic plant breeders shall develop organic varieties only on the basis of genetic material that has not been contaminated by products of genetic engineering.
- Organic plant breeders shall disclose the applied breeding techniques. Organic plant breeders shall make the information about the methods, which were used to develop an organic variety, available for the public latest from the beginning of marketing of the seeds.
- The genome is respected as an impartible entity. Technical interventions into the genome of plants are not allowed (e.g. ionizing radiation; transfer of isolated DNA, RNA, or proteins).
- The cell is respected as an impartible entity. Technical interventions into an isolated cell on an artificial medium are not allowed (e.g. genetic engineering techniques; destruction of cell walls and disintegration of cell nuclei through cytoplasm fusion).
- The natural reproductive ability of a plant variety is respected and maintained. This excludes techniques that reduce or inhibit the germination capacities (e.g. terminator technologies).

Breeds and Breeding

General Principle

Breeds are adapted to local conditions.

Requirements:

- Breeding systems shall be based on breeds that can reproduce successfully under natural conditions without human involvement.
- Artificial insemination is permitted.
- Embryo transfer techniques and cloning are prohibited.
- Hormones are prohibited to induce ovulation and birth unless applied to individual animals for medical reasons and under veterinary supervision.

Figure 1 Definition of organic plant breeding provided in the IFOAM Organics International [Norms on Organic Production and Processing - Version 2014](#) (above).

Further reading on organic breeding principles:

ECO-PB 2012. Position Paper on Organic Plant Breeding, European Consortium for Organic Plant Breeding (ECO-PB) Frankfurt, Germany, 2012. https://www.eco-pb.org/fileadmin/eco-pb/documents/discussion_paper/ecopb_PositionPaperOrganicPlantBreeding.pdf

Lammerts van Bueren ET, Struik PC, Van Eekeren N, Nuijten E, 2018. Towards resilience through systems-based plant breeding. A review. *Agronomy for Sustainable Development*, 38(5), [42]. <https://doi.org/10.1007/s13593-018-0522-6>

IFOAM [Position paper on organic seed](#) approved in 2011 and [on compatibility of breeding techniques](#) approved 2017

EU organic regulation 848/2018:

Preface (j) choosing of animal breeds, having regard to a high degree of genetic diversity, the capacity of animals to adapt to local conditions, their breeding value, their longevity, their vitality and their resistance to disease or health problems;

Annex II (1.8.4.): For the production of organic varieties suitable for organic production, the organic breeding activities shall be conducted under organic conditions and shall focus on enhancement of genetic diversity, reliance on natural reproductive ability, as well as agronomic performance, disease resistance and adaptation to diverse local soil and climate conditions. All multiplication practices except meristem culture shall be carried out under certified organic management.

Video: [Why to engage in organic breeding?](#)



Principles	Approaches	Implications governance & financing
Breeding for diversity & ecosystem services	<ul style="list-style-type: none"> - breeding for many different crops, and diverse farming systems - breeding for diversified livestock systems (e.g. dual purpose breeds) - produce locally adapted cultivars and breeds - address public concern about agrobiodiversity losses - provision of ecosystem services (e.g. pollinator feed) 	<ul style="list-style-type: none"> - refinancing organic breeding through a royalty system is insufficient - alternative financing strategies are needed
Genetic resources as common good	<ul style="list-style-type: none"> - advocating for more public breeding programmes (against privatisation of the breeding industry and the severe consolidation of the sector) - no patents on plants and animals - several organic initiatives do not want to apply for intellectual property rights - open pollinated varieties to allow farm-saved seed 	<ul style="list-style-type: none"> - reduced income via sale of reproductive material (e.g. seeds) - reduced / no income from royalties - non-profit governance model most common - benefit sharing
Respect of living beings	<ul style="list-style-type: none"> - intrinsic value of plants and animal - no intervention below cell level - no genetic engineering - independence of organic breeders, farmers and consumers 	<ul style="list-style-type: none"> - limited collaboration opportunities with global private companies, especially in terms of germplasm exchange - investment needed for independent organic breeding (human resources, infrastructure)
Co-creation and fairness	<ul style="list-style-type: none"> - participatory approach with the involvement of farmers, processors, and citizens - dynamic and sustainable management of genetic resources - collaboration along the value chain - Fair risk and benefit sharing 	<ul style="list-style-type: none"> - refinancing through royalties not appropriate for participatory breeding programmes - need for governance models that allows for collaboration and exchange (often non-profit) - distribution of cost across the value chain needed

Figure 2 Organic breeding PRINCIPLES, related APPROACHES and implications in terms of GOVERNANCE & FINANCING STRATEGIES

Overview of financing strategies in organic breeding

The existing Organic Plant Breeding initiatives (many of which are non-profit organizations) are currently characterized by a high degree of efficiency in terms of cultivars produced with the available funding. However, an improvement in the financial basis is urgently needed in order to reach appropriate number of crops and breeds worked on, number of breeding sites, adequate technology used in the field and laboratory, infrastructure, etc. Additionally, a strong boost to the sector is needed to meet the target of phasing out derogations for non-treated conventional seed use planned by new European Organic Regulation 2018/848. Based on the present debate on deregulating new genomic techniques (i.e., genetic engineering like genome editing, cis genesis, RNAi, etc), a strong and independent organic plant and animal breeding sector is indispensable to guarantee also in future non-genetically modified organic food.

Despite the urgent need for organic breeding and organically bred cultivars and animal breeds, breeding activities are insufficient to cover the demand. To outscale and upscale present initiatives, financing of organic breeding remains the most critical issue. The topic of adequate financing strategies, able to combine the respect of the organic sector values and the need for a strong increase in cultivar availability and adapted animal breeds, is currently a challenge to be tackled by the whole organic sector. This is because the success in building an independent organic plant and animal breeding and seed sector is strongly connected to guarantee the integrity of organic products, and as such to maintain the integrity of the whole organic production cycle.

Engagement.Biobreeding, together with the EU H2020 project LIVESEED (www.liveseed.eu), has contributed to the debate facilitating (with interviews, surveys and workshops) the dialogue among different actors of the organic sector (farmers, breeders, seed producers, processors, wholesalers, retailers, associations, consumers) to map the current financing strategies and design new business models for organic breeding.

The work on this topic is summarised below:

Scientific publications:

Eva Winter, Christian Grovermann, Joachim Aurbacher, Stefano Orsini, Freya Schäfer, Mariateresa Lazzaro, Francesco Solfanelli & Monika M. Messmer (2021) **Sow what you sell: strategies for integrating organic breeding and seed production into value chain partnerships**, *Agroecology and Sustainable Food Systems*, 45:10, 1500-1527, DOI: [10.1080/21683565.2021.1931628](https://doi.org/10.1080/21683565.2021.1931628)

Pauline Verrière, Edwin Nuijten & Monika Messmer (2019) M3.5 - [Organic plant breeding in a systems - based approach and integration of organic plant breeding in value chain partnerships](#)

Christian Grovermann, Mareike Weiner, Likia Levy, Michael Locher, Juan Manuel Herrera & Eva Winter (2022) Three decades of organic wheat improvement: Assessing the impact and returns on investment. *Q Open* 2022, 2, 1–14 <https://doi.org/10.1093/qopen/qoac005>

Presentations:

Monika Messmer, Freya Schäfer, & Eva Winter (2019) [Need for integrated approach for Organic Plant Breeding to secure integrity of organic food](#)

Stefano Orsini, Eva Winter, Francesco Solfanelli, Christian Grovermann, Emel Ozturk, & Monika M. Messmer (2021) [Financing models for organic plant breeding](#)

- **Current strategies**

Refinancing through royalties or reproductive material sales (business model common in the conventional breeding sector)

There is wide consensus in the Organic Breeding community that the strategy of refinancing breeding via royalties or sales of reproductive material financed solely by organic farmers cannot be easily applied to their context. In contrast to commercial breeding companies, the market share of individual organic cultivars and animal breeds is too small. This is especially true as we aim for large number of crops and animal breeds and plurality of cultivars per crop coupled with low percentage of organic farmers in Europe (442'274 in 2021, [Willer et al. 2023](#)¹). In general, it can play a role among other financing sources but it cannot be the only one to rely on.

¹ The World of Organic Agriculture 2023 <https://www.fibl.org/en/shop-en/1254-organic-world-2023>

Public funding

Public breeding programs in Europe have been strongly reduced in the last few decades (OECD, 2018²). In most regions of Europe, the commercial enterprises are the major or even the only entity to place new cultivars and breeds on the market. Nevertheless, public contribution to breeding is still ongoing in some countries. Today, a major part of public funding used in organic breeding comes from EU research projects or national research programs. However, this type of public funding covers mostly research and pre-breeding activities and costs for practical breeding is usually not eligible. In addition, collaborative projects have high administrative workloads for bureaucracy and management.

Private foundations

Private foundations (e.g. www.zukunftsstiftung-landwirtschaft.de in Germany) are important players in organic breeding financing via funds dedicated to organic plant and animal breeders. The advantage of this financing strategy is that the annual donations are passed on to organic plant breeding with low administrative burden. However, also with this type of funding substantial resources may lack for the last 3 - 4 years of practical development prior to release. Other limitations are that foundations work on specific territories which limits the possibility to access to such financial resources in other parts of Europe. For example, at the moment the foundations specifically financing organic breeding are concentrated in Central Europe. As well, several foundations give priority for start-ups and because of this their support may not always be a suitable solution for long-term economic sustainability. How much financial resources foundations can invest depends also on the priority on social issues that they set internally and the economic framework (i.e., interest rates) and crisis. Private donor funds can be a substantial pillar of organic breeding financing but additional sources, especially resources coming from inside the sector are necessary for guaranteeing a strong and sustainable financial base.

Open-Source Seed approach

In the plant breeding sector, the aim of the Open-Source Seed approach (<https://www.opensourceseeds.org/>) is to create a seed sector based on seed and breeds as commons and to establish a counterweight to the patenting and monopoly of multinational seed and breed companies. By securing seeds and breeds as common goods, the increasing shortage of freely available breeding material is to be stopped and the existence of small and medium-sized organic breeders, including farmer-breeders and community-based breeding initiatives, strengthened. Initial experience with the distribution of open-source seed licensed varieties has shown that consumers greatly appreciate this alternative to privatization (www.opensourceseeds.org) . It gives the

² Concentration in Seed Markets: Potential Effects and Policy Responses, <https://doi.org/10.1787/9789264308367-en>

individual the opportunity to take concrete action against monopoly in the seed sector, a motive that can significantly increase the demand for products from open-source varieties. Consumers can therefore generate a pull effect, not only for open-source seeds,

Other suggested reading

Kotschi, J.; Schrimpf B.; Waters-Bayer A.; & Horneburg. B. (2022): Financing Organic Plant Breeding—New Economic Models for Seed as a Commons, *Sustainability* 14, no. 16: 10023. <https://doi.org/10.3390/su141610023>

Kliem, L. & Wolter, H. (2022): How do consumers perceive open-source seed licenses? Exploring a new credence attribute. *International Journal of Consumer Studies*, <https://doi.org/10.1111/ijcs.12780>

Funding information Sievers-Glotzbach, S.; Euler, J.; Frison, C.; Kliem, L.; Mazé, A. & J. Tschersich (2020): Beyond the material: knowledge aspects in seed commoning. *Agriculture and Human Values*, <https://doi.org/10.1007/s10460-020-10167-w>

but for organic breeding in general. Therefore, open source may become a successful narrative to raise consumer awareness and recognize the need for organic plant and animal breeding. The concrete role of this strategy in terms of economic sustainability of organic breeding initiatives needs to be evaluated in the long-term and will depend on how the choice of the open-source licence will actually impact the direct involvement and economic support by the public.

Small-scale value-chain collaborations

Refinancing strategy via direct involvement of the different actors of local food systems is a strategy often applied by decentralised farmer-breeder organisations and peasant seed networks. The direct sale or local and short value chains of the end products from the co-developed cultivars are an asset of this type of financing strategy. Additionally, using collaborative and/or participatory approaches and focusing on organic heterogeneous material and on solutions for local food systems may also help to limit the cost of cultivar development.

Looking more in general at value-chain collaborations, there are examples of small scale collaborations of value chain actors to produce cultivars suited to organic conditions (e.g. Fair-Breeding® and Organic Seeds Sunflower). More initiatives with collaborative financing strategy with the aim to select disease-resistant apple and potato cultivars, are active in the Netherlands, France, and Switzerland. These initiatives have developed various strategies to make the introduction of resistant cultivars into the organic market successful through different types of value chain partnerships (Nuijten et al. 2018). These examples underline that through smart novel approaches of market introduction and good networking new cultivars can enter the market successfully.

- Perspectives

Cross-sector pool funding strategy

The central concept of the pool funding is that all value chain partners of the organic sector join forces to invest in organic breeding to secure the integrity of their future supply. For example, one or two *per mille* of turnover at the point of sale of all organic products and market chains would feed a pool fund, which is coordinated and distributed to individual organic breeding initiatives (Figure 3). This approach was successfully applied for organic cotton breeding where the Organic Cotton Accelerator (OCA) collected pool funding from main players of the textile industry to support organic cotton breeding in India (<https://organiccottonaccelerator.org/programme/seed-programme/>).

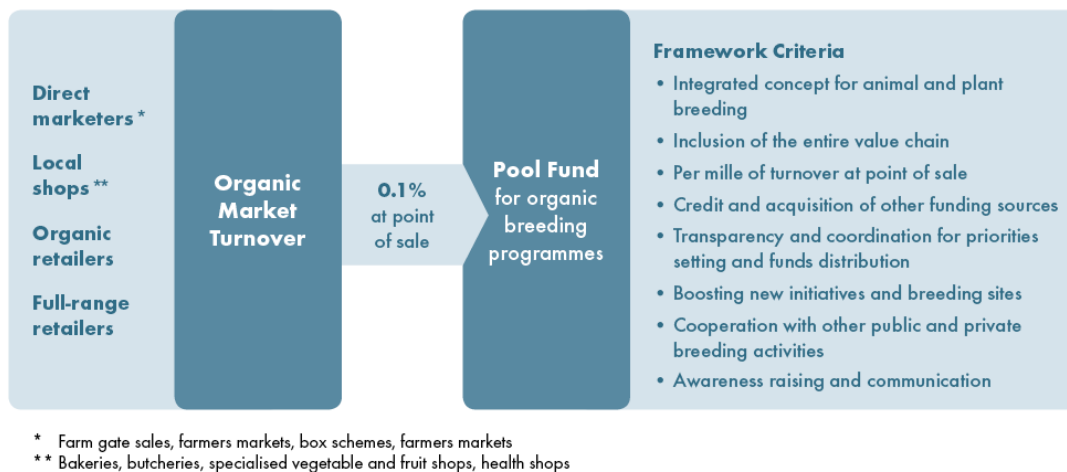


Figure 3 Cross-sector pool funding strategy

Framework criteria identified for a fair cross-sector pool funding strategy in Europe:
Integrated concept for animal and plant breeding: The outcomes of a stakeholder dialogue facilitated by FiBL showed that high demand for organic breeding exists equally in animal and plant production at the European level. Therefore, an overarching pool funding strategy is proposed to facilitate the development of an integrated concept for animal and plant breeding which avoids competition and promotes cooperation between both organic breeding sectors.

Inclusion of the entire value chain: The whole value chain should be involved in the cross-sector pool funding to ensure that the needs of the sector for adequate cultivars and animal breeds are covered and that all actors take responsibility to achieve sufficient funding. Mutual benefits of the pool funding concept for all value chain actors were identified and will have to be clearly communicated when upscaling efforts. Organic breeding can support processors and traders to provide continuous innovation to the market (e.g. with cultivars for a particular use such as grain legumes for meat-free

protein meals). The investment on the integrity of the products including breeding and cultivar choice can be used as a commercial narrative to differentiate the organic sector for a long-term investment perspective and for the commitment towards ensuring future food security, food quality and climate robust agriculture. Increase in food diversity, nutritional value and taste of the products are additional aspects that can motivate retailers.

Per mille of turnover at point of sale: Licenses at the product level tend to lead to distortions of competition or disproportionate price increases; therefore, a flat rate at the point of sale is foreseen as a better funding option. Here, extracting a certain percentage of the organic turnover (similar to a VAT) at the point of sale as engagement from market partners of the organic sector is proposed. An amount in the order of 0.1-0.2% of organic turnover is seen as affordable by food trade actors and has a substantial impact on the financing of organic breeding activities when looking at the European organic turnover of 54.5 billion Euro in 2021 (Willer et al, 2023).

This type of standardised funding would allow a collective pre-commercial investment and long-term commitment of the food industry to facilitate the organic breeding sector in ensuring a constant supply of cultivars and animal breeds.

Credit and acquisition of other funding sources: Existing commitments of organic associations, processors and trading companies in organic breeding through donations or other well-functioning structures should not be curtailed. Moreover, funding contributions already made could be credited (e.g. via blockchain) and included in the transparency management of the pool funding strategy. In addition, more public funding could be attracted, and public-private cooperation could be developed if there is evidence of financial participation by the sector.

Transparency and coordination for priorities setting and funds distribution: Transparency of fund allocation and of the definition of breeding goals was identified as a key factor to a successful upscaling of value chain partnerships in organic breeding. Therefore, an independent coordination office for these purposes should be set up. Value chain actors (traders, processors, farmers, advisors, organic associations) should be involved in the strategic management, and an advisory committee of breeders and experts should be consulted for matching the requirements of all stakeholders in breeding priorities setting and program selection. Criteria and methods for transparent allocation of funds need to be developed together with independent monitoring protocols of the breeding programs financed to ensure that impact objectives are achieved.

Boosting new initiatives and breeding sites: In addition to existing initiatives, new initiatives and breeding sites should also be financed, and active promotion of young breeders must be pursued.

Cooperation with other public and private breeding activities: Close collaboration with other public and private breeding organisations to improve performance is advisable. Increased cooperation between organic breeders and breeders who consider organic

breeding goals, both in the animal and plant sector, could create positive synergies. By forging and maintaining alliances, e.g. with animal protection organisations, breeding associations and other breeders' initiatives using organic breeding, existing networks can be strengthened, expanded professionally and the efficiency of organic breeding can be boosted.

Awareness-raising and communication: The importance of breeding for ensuring the independence of the organic sector and the integrity of organic products emerged as a crucial framework issue to be addressed. The communication of the commitment towards organic breeding and the reasons for this choice should be shared with consumers. It was suggested by stakeholders that the use of simple slogans, such as "We promote organic breeding", could strengthen the competitiveness and meet customers' expectations for fully independent organic production without distorting the market. For plant products derived from organic breeding the label "bioverita – organic right from the start" is implemented in several European countries (www.bioverita.ch).

Case studies of value chain partnerships in organic breeding

Organic wheat breeding by Getreidezüchtung Peter Kunz (gzpk)

A 20-year-old story of value chain collaboration

Breeding philosophy: biodynamic breeding, working under organic conditions from the crosses, support with adapted cultivars an ecologically sustainable, pesticide-free agriculture

Location: Headquarters in Feldbach (CH), operation of sites in Switzerland, Germany and Italy

Breeding programs for: wheat, spelt, triticale, emmer, peas, lupins, sunflower, corn

Size: Budget: 2.5 Mio CHF / year, 20 employees

Breeding since: 35 years ago, Peter Kunz pioneered the need for organic breeding for organic and biodynamic farming. Since then, gzpk varieties have developed into the quality standard in today's market.

Certification: Demeter, Bioverita, Bio Suisse

Governance model: lean non-profit association

Financing model overall: gzpk is the leading biodynamic cereal and legumes breeding organization in Switzerland and Germany

In 2021, gzpk has the following financing structure:

17% from seed sales, licenses, farmer support and specifically from the seed-using value chain

10% from funds at free disposal (in accordance with the purpose of the association) from foundations and private donors

73% from projects with specific research questions and a high degree of self-financing: foundations, Agricultural Professional Organizations (Bio Suisse, SwissSem, etc.), public funding (BLW)



Status 2021

Focus crop: wheat

The focus of this study is the wheat breeding program with Wiwa (winter wheat) as flagship cultivar. Wheat, especially winter wheat, is amongst the most important arable crops in Switzerland. In both, organic and conventional agriculture, most area is used for bread wheat (mainly winter wheat) production and only a small part for fodder wheat. The bread wheat variety Wiwa is the most successful wheat variety from gzpk. It is known for its stability in yield and baking quality and is the organic standard variety in Switzerland. It is the most propagated and sold variety in terms of quantity. A comprehensive study on the impact of the flagship cultivar Wiwa was conducted during the *Against the Grain* project (1).

Breeding program

gzpk started the variety development program for wheat in 1988. The variety Wiwa was released in 2005. In 2022, a total of 8 wheat varieties of gzpk are on the market. The breeding goal for the ongoing wheat breeding program is to breed for varieties that reliably deliver bread quality. gzpk aims to breed wheat varieties with high protein quality, which results in a good backing quality, rather than protein quantity.

Value chain

Seeds of gzpk's wheat varieties are produced by Sativa Rheinau AG in Switzerland and Biosaat GmbH in Germany. Approximately 1'200 tons (2021) of Wiwa seeds are produced per

year, in Switzerland and Germany. Here, we focus on the Swiss value chain.

In 2021, organic wheat (summer and winter wheat) was produced on 7'200 ha, which represents 16% of the organic arable land (2). Farmers sell their wheat to grain collection points. The collection points sell the wheat to mills, where organic flour is produced. The majority of the organic flour is then converted into baked goods in processing facilities of major distributors in Switzerland. As the national production of organic wheat is not sufficient, Swiss and foreign wheat (and other grains) are blended together in these processing facilities. The final goods (breads, plaited loafs, and pastries) are primarily sold under the trademarks Coop Naturaplan, Migros Bio, Manor Bio and others. Contrary to popular assumption, this distribution channel has the biggest market potential for organic cereals (3).

In Switzerland, the organic wheat value chain is more regulated than in other countries. The license price for seed companies is fixed by SwissSem, the national association of seed producers. Further, a variety must be on the official organic variety list in order to be accepted by the collection points. Each collection point only has a certain number of silos in which it can accept a certain number of different qualities and varieties of wheat (conventional, IP, organic, etc.). Finally, the wheat benchmark price is determined by a round table, consisting of different actors, such as Bio Suisse, Swiss Granum and the Federal Office for Agriculture. In addition to the benchmark price, a protein payment system for wheat exists since 2016 in Switzerland. Farmers

receive a bonus if the protein level of the wheat they supply is over the designated range. A deduction is done if the value is outside the range. The main reason for these strict regulations in the bread wheat value chain is, that most of the wheat is processed in the facilities of large retailers, as mentioned above, which rely on standardized wheat properties and qualities.

Financing model for wheat breeding program

Currently, gzpk is financing its wheat breeding program through earning from seed licenses ($1/3$) and project-based money ($2/3$). gzpk spends around 600,000 CHF (in 2022) per year on organic wheat breeding.

One of the projects financing the wheat breeding is a partnership agreement with Coop, a large Swiss retailer. This partnership was established more than 20 years ago and was re-confirmed in 2021 for an additional 5 years. The tasks from the partnership project with Coop include the broad effort on pre-breeding and variety development for wheat and the provision of basic organic seed for wheat. Breeding goals are roughly formulated, as well as the milestones to be met (quantifiable goals). However, it is important to mention that gzpk does not develop varieties specifically for Coop. The payment is conducted annually over 5 years.

In 2021, spelt as an alternative and growing segment as well as grain legumes (focus on peas) have been added into the cooperation. Furthermore, cultivars adapted to

climate change as breeding goals were emphasized.

Strength and Opportunities

The wheat breeding program of gzpk has a higher degree of self-financing than other programs, according to gzpk, because various wheat varieties are already available on the market and significant quantities of seeds have been sold. Projects with the value chain are also more stable and easier, as there is a concrete track record. Seed producers pay a fee per ton of seed sold to gzpk as a license. In addition, farmers and farmer associations have the option to pay a voluntary amount for re-sowing gzpk wheat varieties. gzpk also mentions an increasing trend of donations from producer associations, mainly in Germany, who aim to support the work of gzpk.

The long-standing partnership with Coop (20 years) is a major factor in the success story of the wheat breeding program. Both gzpk and Coop see many strengths in the partnership and will therefore continue it for at least the next 5 years (2021 – 2026). Having a reliable partner is an advantage for both sides. As the breeding cycle is long, gzpk can be sure that it will receive sufficient funds for the whole cycle and not just for a certain period of time. This allows gzpk to concentrate on breeding varieties, that lead to a high-quality organic product. Coop is the market leader for organic products in Switzerland and wants to remain so. High quality is an advantage for them and they consider investments in organic breeding as essential. Through the long-term partnership between gzpk

and Coop, trust has been established. Coop is convinced of the use and success of gzpk's cultivars and communicates gzpk's commitment and achievements in organic breeding to consumers in their Coop magazine and on their webpage.

In general, it is important for gzpk to have a diversity of funding sources. To achieve this, gzpk considers the following aspects as important: i) credibility, which has been achieved through professional work and regular output of viable varieties, ii) a dynamic and professional appearance, and finally, iii) a wide knowledge of the requirements of the value chain. This third aspect has been achieved through the long-term experience and has resulted in breeding programs of varieties that are relevant in organic agriculture and bread production. Furthermore, the governance model of gzpk - the lean non-profit organisation - is beneficial to achieve a diversity of funding sources. It allows gzpk to work with both non-profit organisations and companies. Direct donations from private individuals are also possible.

Weaknesses and Threats

gzpk cannot finance its breeding programs through seed sales only. The long development cycle - 20 years from the first cross to an established variety on the market - and the organic seed market as a niche, make self-financing impossible. The financing model for the wheat breeding program of gzpk (and the breeding activities of gzpk in general) relies therefore on cooperation in the value chain, patrons, donors and organizations that want to invest in a

sustainable future and make their work possible, which makes the financing unstable. gzpk considers this uncertainty the biggest flaw in the financing model. This dependency on donors however is a result of gzpk's business model. gzpk (and most other organic breeders) is only focusing on breeding programs, which in itself do not generate any revenue. Conventional breeding programs on the other hand are usually only one part of an agricultural company. Such companies normally have other business branches such as agrochemicals or seed production. Hence, the development of new cultivars through breeding represents the Research and Development (R&D) branch within the company. Investments in R&D are funded through other business branches. For gzpk this business model does not apply and hence gzpk depends on donations and investments.

According to gzpk, it is possible that donations might decrease in the future, because today's donors might shift the focus of their support to other topics, e.g. to topics related to climate or soil. Coop, however, states that they plan to support organic breeding also in the future. The condition for their support is a certain success of the breeding programs of gzpk. In other words, the profitability and competitiveness of the cultivars for processors and producers must be a given. If this was not the case for a longer period of time, Coop would have to re-examine the partnership. In the future, climate change could jeopardize the achievements of breeding programs in general. However, Coop states that so far, organic breeding has

produced more resilient cultivars than conventional breeding.

gzpk also mentions the challenges posed by the highly regulated organic wheat value chain. Due to these regulations, it is not guaranteed that a certain variety is cultivated by farmers, only based on its agronomic and quality properties. For example, before a variety is cultivated by organic farmers, it must be listed on the official organic variety list. In other words, gzpk needs to invest a lot in lobbying efforts, in addition to the breeding. This is particularly challenging when introducing new varieties to market.

Outlook

Both Coop and gzpk see the need for more involvement of other value chain actors. Value chain based funding, e.g. a pool funding strategy, could fuel organic breeding. Coop states, that for this it would be important to have a neutral institution managing such pool funding initiatives.

The political level is also supporting organic agriculture, with strategies such as the farm to fork strategy (EU)³. In the EU, the inclusion of organic varieties and organic heterogeneous material in the new organic regulation (EU 2018/848), is a good opportunity for organic breeders. In addition, the phasing out of the derogations for the

use of conventional non-treated seeds will open a big marketing opportunity, which at the same time can also stimulate competition.

References

- (1) Grovermann, C., Weiner, M., Levy, L., Locher, M., Manuel Herrera, J., & Winter, E. (2022). *Three decades of organic wheat improvement: Assessing the impact and returns on investment*. Q Open, 2(1), qoac005, <https://doi.org/10.1093/qopen/qoac005>
- (2) Bundesamt für Statistik (BFS), landwirtschaftliche Betriebszählungen und landwirtschaftliche Betriebsstrukturerhebungen, 2021, Agristat 2022
- (3) Agridea. 2020. *Wertschöpfungskette Schweizer Brotgetreide: Integration alternativer Bio-Getreide*.



gzpk wheat variety Wiwa

Note: Information for this case study was collected through interviews with Coop and gzpk representatives in 2022.

³ https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

Kultursaat e.V. Organic Vegetable Breeding Initiative

Diverse Funding Sources for Resilient Financing

Breeding philosophy: biodynamic breeding from the first crosses

Location: Headquarter in Echzell (Germany), operation of sites in Germany, Switzerland, The Netherlands

Breeding programs for: vegetables

Size: Budget: 1.3 Mio € / year, 30 breeders located on 22 farms

Breeding since: The association was founded in 1994 from the initiative group (*Initiativkreis*) for vegetable seeds from biodynamic cultivation. However, a group of pioneering biodynamic vegetable producers engaged in managing their own seeds as early as the 1950s

Certification: Demeter, bioverita

Governance model: non-profit association

Financing model overall: Kultursaat is the biggest biodynamic vegetable breeding organization in Central Europe (Germany and riparian states). The association is financed through (2017):

- 47% from major foundations (e.g. *Saatgutfonds*)
- 19% from the Federal Ministry of Food and Agriculture
- 13% voluntary cultivar development contributions (*Sortenentwicklungsbeiträge*) in exchange for not having any plant protection rights
- 10 % donations from private people or companies
- 3% membership fees
- 2% through market initiatives like FAIR-BREEDING® from Naturata
- 6% other



Status 2021

Focus crop: carrot

The focus of this study is the carrot breeding program. The cultivar Rodelika (reg. by Dec. 1998) is the proclaimed flagship cultivar.

In Germany, carrots are the most important field vegetables. Around 20% of the produced carrots are organic carrots - a high percentage compared to other vegetables. However, only 1% of organic carrots grown in Germany stem from organically bred cultivars (excluding hobby gardeners) (1). Carrots are sold throughout the year either as fresh or stored goods, or as processed products, with carrot juice being the most important processed carrot product.

Breeding program

The breeding program on carrots started in 1985 and in 1998, Kultursaat introduced two varieties, Rodelika and Robila, to the market. In 2022, a total of 12 Kultursaat carrot cultivars are officially listed in the EU Common Catalogue and one is awaiting approval.

Kultursaat aims to breed carrots that are adapted to the conditions of organic agriculture. The characteristics that are considered in Kultursaat's carrot breeding program are: a good general health, yield, uniformly intense coloring, smooth skin and particular attention is given to flavor. In addition, all varieties from Kultursaat are open-pollinated (OP), making it possible for farmers to legally and agronomically reproduce them.

Kultursaat uses around 10 locations for carrot breeding. Breeders make

suggestions for breeding goals and working steps in the coming year. This is then discussed in their working groups and approved by the working group leader. The final decision and resource allocation are taken by the association board (*Vereinsvorstand*).

Value chain

The biggest biodynamic carrot seed companies are Bingenheimer Saatgut and Sativa Rheinau with a market share of 95%. In addition, five other European seed companies, located in Italy, France, Austria, Switzerland and the UK have been granted the license to produce seeds for Kultursaat varieties. (2) Here, we focus on the German value chain. In 2021, organic carrots were cultivated on 3.091ha in Germany and 165 703t of carrots were harvested (3). The majority of organic carrots are produced by big producers who mostly use conventional hybrid non-treated seeds for production, when still permitted. On the other hand, smaller organic producers typically use organic seed and/or seed from biodynamic cultivars (4).

It is estimated, that around half of the organic carrots produced in Germany are sold as fresh products, the other half as processed products (1). Producers who use seed from biodynamic cultivars sell fresh carrots mostly on local markets or to processors to make juice and baby food from the carrots. Big processors for biodynamic carrots are Holle, Sunval, or Alnatura and the biggest juice producers are Voelkel and Beutelsbacher. For some products of Beutelsbacher and Alnatura, the variety name "Rodelika" of the organic carrot

used in the product is declared on the packaging.

Financing model of carrot breeding program

Kultursaat is mainly financed through donations and grants. The main donations come from major foundations, such as the Saatgutfond, but donations from private people or companies also make up a substantial part of Kultursaat's budget. One of the long-standing donors is the German natural foods wholesale BODAN (*Grosshandel für Naturkost GmbH*). Kultursaat also receives contributions from federal funds for specific projects. Voluntary cultivar development contributions (*Sortenentwicklungsbeiträge*) - in exchange for no mandatory royalties or license fees for seed production - and voluntary but regular commitment of the organic sector and grassroots movements are also an important financing source.

In 2021, Kultursaat spent around 60,000 Euro on organic carrot breeding. The biggest part of this money is sourced by general grants (private persons and foundations). Kultursaat also receives federal funding through the project EATMORE⁴ (2020-2023), which aims to improve the quality of organic carrots as fresh product and processed as carrot juice. Additionally, value chain partners (e.g. processors, wholesalers, retailers, or similar) fund the organic breeding initiative.

Strength and Opportunities

According to Kultursaat, the main advantage of their funding model is the diversity of funding sources. This leads to a resilient funding, Kultursaat says, which allows the association to balance the costs of its activities. Furthermore, the financing strategy is detached from seed sales. Kultursaat can therefore breed more independently from the market and work independently from public and political fluctuations. For example, Kultursaat breeds neglected crops and works on non-mainstream objectives and characteristics. Some of these breeding objectives include traits like improved taste and better "internal quality" or prohibition of genetic engineering and hybrid breeding. These objectives are commonly accepted in the organic sector and are attractive to donors like BODAN. The organic food wholesaler invests in the association because they see the ideals of their company and the qualities their customers seek reflected in Kultursaat's work.

Kultursaat's governance structure - an association - makes it possible to obtain a variety of funding sources. But according to Kultursaat, it also brings other important advantages. These include that i) various actors are involved in variety development, ii) practical plant breeding happens in the public rather than behind closed doors, and iii) breeders' rights remain in the public domain.

An important pillar of Kultursaat and a major enabler of their successful financing strategy is the closeness to consumers and the value chain, which

⁴ <https://eatmore.uni-hohenheim.de/>

the association achieves through a strong communication concept. Kultursaat states that “organic right from the start” is a very important communication and promotion strategy. BODAN also names the consistent communication “organic from the beginning” (the seeds) and not only “half way”, as an important factor for their support of Kultursaat. Equally important for Kultursaat is the communication concept “vegetables with character”, which Kultursaat developed together with growers, traders, and consumers to enhance awareness of biodynamic breeding. This concept was developed using three carrot varieties as examples. The carrots are no longer sold just as “carrots”, but by using their variety name and where they were produced, for example: “carrot, Rodelika, Gärtnerei Obergrashof, Demeter, Germany”. Through this communication strategy, Kultursaat aims to make the advantages of specific varieties, and biodynamic plant breeding in general, known to costumers and value chain actors. Kultursaat is convinced, that when people understand that their doing does matter and how effective artisanal practices are, then they are proud to be a part of the development community.

Weaknesses and Threats

Even though Kultursaat has a diversity of funding sources, they mention that a major problem in organic breeding is the constant underfunding of the sector. As a result, breeders only have limited equipment available for their breeding programs and thus breeding goals might not be reached. In addition,

funding of organic plant breeding is often secured only for a few years at a time. Consequently, the annual income fluctuates greatly and no reliable long-term financial planning is possible. Further, the values of Kultursaat in terms of open access of cultivars are partly in conflict with potential larger financiers who would like to have exclusive rights. Kultursaat specifies, that this is only a weakness in terms of funding possibilities, as open access of cultivars is one of the main strengths of organic breeding.

Kultursaat focuses on the breeding part of varieties only, the seed production and sale are not part of the association. The coordination with sales partner, who in other companies simply are a different department within the same company, can become an additional expense in terms of money and time. In addition, decision making processes within Kultursaat can also be time-consuming, because of its organization as an association.

Breeding of Kultursaat is carried out on various on-farm breeding stations. As a result, seeds of a newly developed variety are often only available in small quantities and of inferior quality (low germination capacity and thousand grain weight). Kultursaat emphasizes the need for investment to improve breeding line seed production.

Finally, to be able to achieve a good level of consumer closeness and also awareness about organic breeding and e.g. the benefits of open pollinated cultivars, a lot needs to be invested in communication. Only in this way can farmers, consumers and traders be

motivated to support Kultursaat and cultivate and consume the varieties.

Kultursaat and BODAN also see some threats for the future. Especially the fact that people, governments and companies have to face a long list of national and global challenges. With this, they see it possible that current donors will simply not have any money to support organic plant breeding in the foreseeable future. At the same time, with the argument of feeding a growing world population and the rapid development of corresponding high-performance varieties with nothing but alleged individual advantages such as drought resistance, insect resistance, formation of crop-atypical components etc. the competition in the breeding sector in the future will be strong. Thus, financial means for a privately financed, resilience-oriented, artisanal organic plant breeding might be less available.

Outlook

Kultursaat sees a clear room for improvement in that donors should make a long-term commitment of e.g. 10 years. They state that with a higher availability of money, they can intensify breeding activities (e.g. stronger selection) and the chance will increase to find well performing genotypes. Kultursaat sees some positive trends, that could lead to more and more long-term investment. First of all, organic plant breeding in Germany got more visibility through the in June 22 established umbrella organization *Dachverband ökologische Pflanzenzüchtung*.

Second, the EU Farm to Fork⁵ strategy targets 25 % organic farming by 2030, which requires seed and variety solutions. Such trends could boost investment in organic breeding. Concerning organic sector's companies however, Kultursaat has noted that if such companies thrive, they respond to growth primarily with operational and human investments. This means, that the amount of donations (for organic plant breeding or any other charitable purpose) does not necessarily increase parallel to the positive business development. Contrary, when sales are declining, companies are trying to reduce their losses. In this situation the amount of donations usually decreases. This happened for example in the first half of the year 2022.

BODAN mentions a possible threat that can emerge through the promotion of organic carrots' variety name like "Rodelika". While using the variety name can be a good measure for marketing, it also poses the threat that purchaser, organic stores and end customers get used to the variety name. This can become problematic once better-growing cultivars are available, as then a lot of effort has to be done, to communicate, why a given variety suddenly is not available any more. Because of this, BODAN promotes organic breeding in general, using the bioverita label, rather than focusing on single cultivars too much.

Kultursaat also mentions that the bioverita label, which labels organically bred cultivars, could be increasingly

⁵ https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

used in the future to improve communication, but also marketing strategies.

In general, Kultursaat states that organic breeding and seeds have gained prominence in recent years. New players are interested in supporting organic breeding, also as a marketing strategy. Here, the promotion of a pool fund across the sector also helps the general awareness of organic varieties. Also, the BÖLW works on a financing system for organic plant breeding by including bigger (commercial) players in organic sector. An important strategy with potential for the future is value-chain based funding. Kultursaat plans to contact more processors (juice, baby food, chips) in order to start cooperation projects focusing on quality assurance of the organic sector. According to Kultursaat, there is a need for more easily accessible, understandable information about best practices for using organically bred open-pollinated varieties in order to persuade more organic traders to engage in organic breeding. Kultursaat thus highlights the need for exemplary value chains to be developed. At the same time, a feeling of ownership of variety choice needs to be created in value chain actors.

References

- (1) Winter, E., Grovermann, C., Aurbacher, J., & Messmer, M. M. (2021). Analysing interventions in the seed and breeding system for organic carrot seed use in Germany-a multi-agent value chain approach, <https://orgprints.org/id/eprint/43189/>
- (2) H2020 project DYNAVERSITY, Case Study Kultursaat e.V., Association for Biodynamic Breeding (Germany) 2019, <http://dynaversity.eu/portfolio-items/kultursaat-e-v/>
- (3) Statistisches Bundesamt Deutschland, Ökologischer Landbau in Deutschland 2020 und 2021: Vollständig ökologisch bewirtschaftete Anbauflächen
- (4) Herstatt, M. 2017. Economic analysis of different seed value chains for organic carrot production. *Master Thesis, KU Leuven*



Kultursaat carrot Rodelika

Note: Information for this case study was collected through interviews with Kultursaat and BODAN representatives in 2022.

Dual-purpose chicken breeding in Germany by ÖTZ Towards an umbrella organization making independent organic animal breeding economically feasible

Breeding philosophy: Breeding dual-purpose chicken, 100% organic from the start, organic animal breeding in farmers' hands.

Location: ÖTZ has a decentral organization structure and consists of different actors and partners. The basic breeding activities take place at *Geflügelhof Bodden* in Goch in North Rhine-Westphalia, Germany

Breeding programs for: chicken and cows

Size: Budget: 1.25 Mio €/ year, 13 employees

Breeding since: funded in 2015 by the organic associations Bioland and Demeter

Certification: Bioland, Demeter

Governance model: non-profit organization gGmbH

Financing model overall: in 2021, the funding consistent of:

- 22% from the 1-cent initiative of the specialised organic food trade (BNN members)
- 32% from public funding
- 18% from private donations
- 25% from sales of own hatching eggs, chickens and processed food products
- 3% from the fee paid to ÖTZ to use the trademark label

Status 2021



Focus animal: chicken

Currently, ÖTZ's main-focus is the breeding of laying hens and dual-purpose chickens. Therefore, the focus of this study is the chicken breeding program of ÖTZ.

In Germany, chickens are the most common farm animal, with 159 million animals kept on farms in 2020. With a per capita annual consumption of 13.1 kg of meat (2021) and 239 eggs (2020), chicken meat and eggs are particularly

popular in Germany. Around $\frac{2}{3}$ of the chickens are raised for meat production. The majority of these chickens are fattened on large farms. Farms with fewer than 10,000 places, including organic farms, keep less than 1% of the chicken fattened for meat. 14% of the chicken farms produce under organic conditions, however, only 1% of all the chickens produced in Germany are organic. (1) On the other hand, every 8th egg was produced under organic conditions in 2021, and this number is set to increase even further in the future

(2). Of all the meat and eggs produced, only a minimal amount is from dual-purpose chickens, even in organic chicken farming.

Breeding program

Through ÖTZ's breeding program, animals are selected under organic conditions from the beginning. The resulting chicken breeds are therefore better adapted to the specific conditions and requirements of organic farming. The overall goal of the program is thus to breed chickens that are well adapted to organic farming conditions (e.g. ecological feeding) and at the same time have a sufficiently high-performance potential that allows for an economically viable production. Specific breeding goals are formulated within the four topics: laying performance, feed utilization, health traits and social behavior. Ideally, one animal can produce both meat (male) and eggs (female), so called dual-purpose breeds. This ensures that male chicks are used in an appropriate manner. The aim is to breed animals that can achieve a laying performance of around 240 eggs per year and, on the male side, a live weight development of around 3 kilos in 18 weeks.

Developing pure line breeds according to the above-mentioned breeding goals will take a longer time. In a first step, ÖTZ started with cross breeds from existing pure line populations. In 2022, ÖTZ offers three cross bred animals for sale to producers: ÖTZ COFFEE and CREAM, and ÖTZ Bresse*Gauloise. The breed ÖTZ Caramel is currently under examination.

Value chain

The main breeding station from ÖTZ is at Geflügelhof Bodden in Goch in North Rhine-Westphalia. The eggs for the chickens of the breeding herd are bred by a big hatchery. The breeding stations sell its eggs mainly to small hatcheries in Germany and Switzerland. These hatcheries sell recently born chicks to raising stations. The chicks are then raised and sold. The male chicks to farmers for meat production, the female to farmers for egg production and soup chicken. A few of the hatcheries are also part of the breeding program, in that they also have some parental chickens. Most of the ÖTZ chickens are sold to small-scale farmers, with 200-300 chickens per farm. Since 2020, some bigger producers use ÖTZ chickens, for example Biohenne AG. These bigger producers, who purchase a large amount of ÖTZ chicks for own rearing are very important for ÖTZ. The produced eggs and broilers are distributed to end consumers via different distribution channels. These include organic retailers, e.g. *Naturkost Erfurt*, farm box schemes and direct on-farm selling (3) but many farmers who work with ÖTZ chickens deliver the produced eggs to conventional retailers.

Financing model

ÖTZ financial strategy is based on three main pillars of equal importance: i) funding by the value-chain, ii) project-funding from public entities and iii) donations from foundations and other private donors. In addition to the 3 main funding sources, ÖTZ generates income from own animal and hatching eggs

sales and more recently also from the marketing of processed products.

The funding by the value chain is achieved through two strategies. The most important one is the “1 cent partnership” which was launched in 2017. Organic food retailers (BNN members⁶), who aim to support ÖTZ but cannot yet sell ÖTZ products, as they might not yet be available, can still support ÖTZ through a partnership. Through this partnership, the retailer agrees to pay 1 cent per organic (not ÖTZ) egg sold in their stores to ÖTZ, to finance the initiative. The campaign was extended for the period 2023 – 2027. The second strategy is the ÖTZ product trademark, which is used for actual ÖTZ-products. This trademark can only be used from processors that are Bioland or Demeter certified and can only be sold through organic retailers (BNN members). ÖTZ charges a trademark fee.

Developments in 2022 had a significant impact on the funding of ÖTZ's breeding program. The sale of organic eggs decreased and thus also less income was generated through the 1 cent/egg initiative. Due to lower demand of organic eggs, the demand for organic animals decreased as well and consequently, less hatching eggs and young chicks were sold. Finally, also the income from the use of the label decreased.

Strength and Opportunities

ÖTZ identifies two key factors responsible for the success of the financing of their breeding program and

the general establishment of ÖTZ. Firstly, ÖTZ is the only professional organic dual-purpose chicken breeding initiative in Germany, i.e. there is no competition yet. The second point is the concept of the dual-purpose chicken itself. Naturkost Erfurt mentions that they supported ÖTZ from the beginning, because it puts the future model of dual-purpose chicken in focus. The retailer values that there is no in-ovo selection, no caging, and that male chicken rearing is part of the breeding program – all fundamental points of the ÖTZ breeding philosophy. Furthermore, organic breeding reduces the dependency on industrial breeding structures. Breeding is put back into the hands of farmers. This is absolutely key and necessary from the point of view of a regional wholesaler, who stands for small-scale farming structures. Thus, Naturkost Erfurt is highly interested in supporting ÖTZ. Furthermore, both ÖTZ and Naturkost Erfurt are convinced that the timing was important for ÖTZ's success. ÖTZ was funded when killing of male chicken was under a lot of discussion. Since 2022, this practice is forbidden in Germany and the breeding of dual-purpose chickens delivers one valid alternative to the highly controversial in-ovo selection. Additionally, Consumers are still concerned about the animal welfare topic which is still central in the public debate.

The legal form of ÖTZ – the gGmbH – also brings several advantages. It allows ÖTZ to apply for public funds and the tax burden is low. Compared to an association (German “e.V.”), ÖTZ is

⁶ <https://n-bnn.de/>

allowed to generate economic profit from its activities. However, the profit needs to be used for the charitable purpose of the company and cannot be issued to the shareholders. Of importance is also, that ÖTZ's shareholders are highly engaged and give capital to the gGmbH. Finally, the gGmbH is very useful to involve new partners. The relationship is more closely tied and allows for more exchange. Whole organizations, not only single persons, can join the network

In the past years, ÖTZ was able to build up a close and personal connection with value chain partners. ÖTZ was able to build trust and show the added value of organic chicken breeding. Naturkost Erfurt especially points out the professionalism of the ÖTZ's PR structures. ÖTZ states that it is important to show the efforts and professionalism of the breeding network to the organic sector to reach out to more partners. Like this, ÖTZ achieved the involvement of larger producer associations who purchase larger amounts of ÖTZ chicks for own rearing (Biohenne AG).

Weaknesses and Threats

ÖTZ names difficulties in the marketing of the chicken breeds among farmers as the main problem they are facing. According to ÖTZ, many organic farmers have no or little interest in organic animal breeding. In addition, that not all organic farmers are of the opinion that dual-purpose chicken breeding should be the prioritized solution for the organic sector. Also the EU organic regulation has an unclear position on the use of dual-purpose

breeds in organic agriculture. In general, the fact that there is no binding definition of organic animal breeding can have a negative influence on the organic sector as the absence of specific criteria or prohibitions can create a lack of orientation. This can for example be seen for the topic of in-ovo selection. A clear position against this technique would be important for ÖTZ and might also convince organic farmers of the ÖTZ breeds. ÖTZ therefore states that organic associations need to promote the use of organic breeds for all organic farms. In their opinion, they should even make it mandatory to use organic breeds, if they are available.

Next to the problems concerning marketing of chicken breeds, ÖTZ mentions funding and especially the insecurity in funding, as a big challenge. The 1 cent per egg campaign is based on eggs sale. This works well, as long as there is a high demand of organic eggs, but in 2022 the demand for organic eggs declined. Consequently, also ÖTZ's income through the partnerships decreased. An additional problem poses the fact that many (if not the majority) of farmers who work with ÖTZ chickens deliver the produced eggs to conventional retailers. Because of ÖTZ's own values, the initiative decided that only organic retailers (BNN members) can use the ÖTZ trademark. This means, that there is no money reflow to ÖTZ, when the ÖTZ eggs are sold to conventional retailers. ÖTZ therefore mentions the possibility to consider alliances with retailers that sell both organic and conventional products in the future. Another factor that makes the funding insecure is that it is not possible

to foresee how much public money can be sourced each year. The reason for that is, that the project calls are competitive. In general, ÖTZ states that they need to invest a lot of resources to secure funding.

Another weakness Naturkost Erfurt see is that the timeline is very uncertain and it is hard to estimate, when real successes can be expected from the breeding program. ÖTZ does not give specific information on the outlook for breeding. The retailer recognizes, that this is difficult for ÖTZ to make such an outlook, but from the trader's point of view, this uncertain timeline is a weakness, a risk. According to ÖTZ, the dual-purpose chicken breeds are improving each generation. They see that the structure of breeding works well. However, ÖTZ sees a need for more experienced specialists who get involved in organic breeding, as well as advisors who interact with farmers and market the breeds.

Another difficulty ÖTZ products are facing is the label diversity in the area of organic eggs. In the last years, many labels were created, which has created confusion amongst customers. Naturkost Erfurt mentions that there were so many labels in the area that in the end one had the impression that there were only flawless, ethical eggs on the market. ÖTZ itself certainly still has a lot of work to do to create awareness of what ÖTZ really is, also at the point of sale.

Outlook

According to Naturkost Erfurt, the current weakness of ÖTZ is the

feasibility on the market. This concerns the eggs, but even more the meat. The biggest risk the retailer see for ÖTZ is if it is not economical in the long run. However, Naturkost Erfurt sees a positive development concerning the price of ÖTZ eggs. The purchase prices for ÖTZ eggs are gradually decreasing. Consequently, prices are also going down at the point of sale. This development is important, especially for marketing. Finally, Naturkost Erfurt mentions that their ÖTZ egg supplier reported an incomparable taste and consistency of his ÖTZ eggs. This could be a strength at the product or quality level, which is not well known yet, and could be further used for marketing in the future.

ÖTZ's long-term goal is to achieve at least 50% of their budget through own sales (animals and hatching eggs sales). The remaining part should be covered by the value chain and consumers. ÖTZ states that society should finance breeding via the trade, e.g. through a like value added tax for the public benefits of breeding. Concerning the value chain, a pool funding could be a very good option. ÖTZ has a very strong position concerning this pool funding strategy: in their view, a percentage of all revenues from retailers, not only the revenues from the organic sales, should flow into a pool fund to support organic breeding. ÖTZ is convinced, that also conventional farmers will profit from the organic breeding efforts, as these farms also have to become more environmentally friendly. Strategies like pool funding become especially

important, as private donors and public funds might require ÖTZ to become financially independent in the future. At the same time, accessing public funds might become more difficult in the future. This is especially the case in uncertain times like we are facing in 2022. However, both ÖTZ and Naturkost Erfurt see a possibility for a positive development with the newly appointed green minister of agriculture in Germany and the plan to dedicate 30% of research funding to organic farming research with focus on breeding. On the other side, priorities with regards to research and funding in the specific segment are clearly directed towards in-ovo-selection, which takes place also in organic.

Currently, there are no other organic chicken breeders (beyond hobby breeders) in Europe. ÖTZ also recognized a lack of knowledge with regards to multiplying and rearing chicken, caused by decades of dependence on large companies. To foster the establishment of other breeding initiatives, ÖTZ will become the umbrella organization for other small organizations that will get engaged in organic breeding, not only for chicken, but also for cattle and other animal breeding programs. The fact that ÖTZ will in the future also include cattle and other animals is also highly appreciated from Naturkost Erfurt.

References

- (1) BMEL-Statistik: Geflügelhaltung: <https://www.bmel-statistik.de/landwirtschaft/tierhaltung/gefluegelhaltung/>
- (2) Statistisches Bundesamt: <https://www.bmel-statistik.de/landwirtschaft/tierhaltung/gefluegelhaltung/>
- (3) Puls, S. 2021. Promoting and inhibiting factors for the establishment of organic animal breeding - an exploratory study on initiatives from Germany and Switzerland. *Master Thesis. University of Oldenburg*, <https://zenodo.org/record/4897707#.Y3R6HbMKUk>



ÖTZ Coffee hens

Note: Information for this case study was collected through interviews with Naturkost Erfurt and ÖTZ representatives in 2022.

Fact-sheet – recommendations for a solid and sustainable financing with shared responsibilities along the value-chain

Governance and financing strategies in Organic Breeding

Problem

Organic breeding is the basis for a self-determined, independent organic agriculture sector in Europe. It develops cultivars and breeds suitable to the principles and conditions of organic farming and secures the integrity of future product supply and the livelihood of future generations. It respects the intrinsic value of our crops and farm animals, promotes participatory and fair governance and ultimately provides economic and social benefits along the food system. Currently, the financing of organic breeding is insufficient and fragmented. As a result, the limited facilities available hamper the efficient breeding activities needed to cover the demand of farmers, processors and consumers. A solid and sustainable financing basis for organic breeding is needed, with shared responsibilities along the value chain.

Current situation

- Breeding is a long-term and continuous process. It takes at least 10 to 15 years (depending on crop or animal species) before a new cultivar/breed can be put on the market. Also, climate change, new pest and diseases require constant adaptation.
- In the present system, farmers provide the main source of financing for new cultivars and breeds in form of royalties, voluntary breeding fee or purchase of reproductive material (e.g. seeds, hatching eggs, etc.). While this works for mainstream crops and animal species, this covers only a small proportion of the total cost of organic breeding as the market share is too small.
- Funding of organic breeding is uncertain and limited in time, often targeted to research and not basic breeding. Organic breeders invest large amount of time in fund raising. The annual income fluctuates greatly. This allows only short-term engagement of personnel and infrastructure as long-term financial security is missing.

Key success factors

- Awareness raising on the need of organic breeding to become fit for the future
- Link breeding targets to a wider vision for food systems transformation
- Link up of breeding with processors and consumers
- Provide proof of added value of organic breeding for organic value chain
- Diversify funding sources
- Join forces to achieve greater impact



Recommendations

Awareness raising and targeted communication are key for promoting organic breeding

- Create awareness of why organic breeding is important for the success and upscaling of the organic sector
- Nurture the link with consumers and the value chain through a strong communication concept
- Engage citizens as beneficiaries of the social benefits of organic breeding
- Give visibility to the hidden value of public goods and services provided by organic breeding
- Promote organic breeding in general (e.g. using the bioverita label for plant varieties) rather than focusing on single cultivars / breeds.

Frame organic breeding in a long-term vision of food systems transformation supported by society

- Valuing citizens' concerns and the role of society to foster the transformation towards sustainable and climate neutral food systems for future generations and through the choice of breeding targets and breeding methods
- Address the aspects of: human, animal, plant and environmental health; respectful and fair governance; conservation and use of biodiversity; ecological and societal resilience through systems-based breeding
- Anticipate future trends (e.g. more plant-based diets), nutritional quality and flavor
- Strengthen participation, transparency, freedom of choice and fair trading
- Keep in mind the social and cultural aspects of breeding, importance of food sovereignty, and the relationship between humans and farm animals

Extensive knowledge of value chain requirements in planning breeding objectives

- Invest in personal relationship with value chain partners and integrate their knowledge in breeding activities
- Focus on taste, nutritional values and food processing properties
- Use exemplary cases to demonstrate the profitability and competitiveness of cultivars for processors and producers

Increase credibility and efficiency of organic breeding

- Demonstrate the efforts and professionalism of the breeding network to the organic sector (e.g. cost – benefit analysis) to reach out to more partners
- Invest additional resources to overcome technical bottlenecks in organic breeding (e.g. seed quality) and to reach a competitive level of infrastructure
- Invest in training for actors in theoretical and practical organic breeding

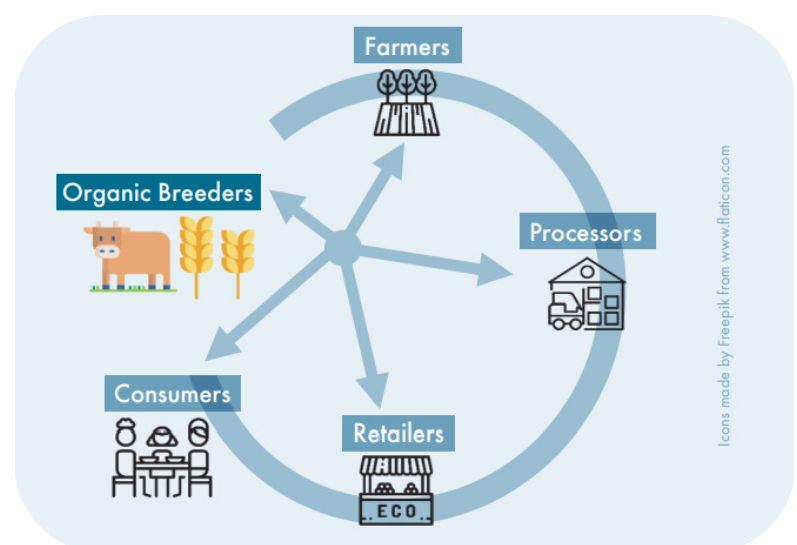


A diversity of funding sources leads to a resilient funding strategy

Financing source	Type of financial contribution (examples)	Motivation for financing organic breeding
Farmers	Purchase of reproductive material, royalties, subscriptions, other participation strategies	Locally adapted and resilient cultivars and breeds, independence from multinational organisations, possibility of farms saved seed
Food processors	Targeted support for a defined breeding goal (bilateral interaction food processor – breeder)	Improved product quality, more efficient processing
Retailers	Individual contribution based on annual profit	Safeguarding integrity and upscaling of value chain
Consumers	Premium price at point of sale (as for the ‘1 cent initiative’) to support breeding	High quality, tasty, regional and GMO-free food products, support of organic agricultural sector
Private NGOs, Foundations	Annual funding based on breeding goals and methods	Foster organic breeding and agriculture, open source seed, promotion of agrobiodiversity, GMO free food
Public donors	Tender for specific crops and breeding goals	Improved food sovereignty, foster neglected crops and agrobiodiversity, upscaling the organic sector
Research donors	Call for competitive project proposals by government, private donors or non-profit stakeholders	Tackling knowledge gaps, developing new breeding tools and approaches in order to improve breeding efficiency. Resources for innovation should not compete with those for practical breeding
Public-private co-funding	Private sector investment to leverage public funding	Supporting and upscaling the organic sector, transition towards sustainable climate neutral food systems
Cross-sector pool-funding	1-2 per mille of turnover at point of sale is provided to organic breeding initiatives (pool funding)	Joint forces to support integrity of organic sector and upscaling
Green investment	Bank provides credit without interest rate	Investment into the organic sector
Crowd funding	Collect money for breeding project or infrastructure via crowd platforms	Support local value chain, GMO-free, independent breeding

Join forces to achieve greater impact

- Enhance the network with other organic breeding initiatives at national and European level to speak with one voice to different stakeholders and policy makers
- Organize joint actions to raise awareness on the importance of organic breeding, e.g. invite stakeholder and policy maker to visit organic plant and animal breeding stations and to specific workshops
- Join forces for marketing of organic cultivars and breeds
- Try to mobilize co-funding (e.g. public-private co-funding; pool funding of value chain partners; promote an EU task force)



Authors: Mariateresa Lazzaro, Monika Messmer
 Contact: mariateresa.lazzaro@fibl.org
 Publisher: Research Institute of Organic Agriculture
 FiBL
 Date: February 2023