

Towards more organics in Europe and worldwide: A contribution to the discourse on ecological or “Organic Agriculture 3.0”

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THE AUTHORS POINT OUT THAT THIS PAPER IS ONLY A FIRST DRAFT,
INTENDED TO STIMULATE DISCUSSIONS WITHIN THE MOVEMENT.

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Any mistakes in the translation are sole responsibility of the translator. An officially endorsed translation is not yet being prepared, because the authors first

<p>Organic Agriculture 1.0 <i>An idea is born</i></p> <p>1900 – 1970</p> <ul style="list-style-type: none"> • Back to nature, • Reforms of lifestyle • The agricultural course (Rudolf Steiner), • Organic-biological farming. • Limits of Growth (Club of Rome) 	<p>Organic Agriculture 2.0 <i>An idea matures into a global standard</i></p> <p>1970 – 2015</p> <ul style="list-style-type: none"> • Standards & Guidelines of farmer associations (“private standards”) • IFOAM Guidelines • EU Organic regulation • Codex Alimentarius • Harmonizing amongst 80 national standards • Global trade in organic products 	<p>Organic Agriculture 3.0 <i>A guarantor for a sustainable agriculture and food security beyond a niche</i></p> <p>2015 -</p> <ul style="list-style-type: none"> • Comprehensive innovation culture • Continuous improvement toward best organic practices • Transparent Integrity • Alliances and partnerships
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Background on context of Organic Agriculture in Central Europe

(added by Thorsten Arnold, translator)

“There is a common understanding that OA must make a great leap forward. This paper will provide a basis for discussion to do so”. The four largest organic farmer organizations of the German-speaking region (Bio Swiss, Bio Autria, and Bioland and Naturland from Germany) have partnered with FIBL, the Research Institute of Organic Agriculture to develop a think-piece on how the organic sector in the German-speaking area will overcome its current stagnation. The farmer organizations represent over 28,000 farmers in central Europe, plus more than 100,000 member farmers from the developing world. With over 150 employees in three countries, FIBL is the world’s largest organic research institute and think tank. Its director, Urs Niggli, hopes that this paper will stimulate a debate within and beyond IFOAM.

The historical context of the German-speaking world is somewhat different than the Northamerican. Associations of organic farmers predate the establishment of national standards by several decades. During the early 90s, such associations promoted a multitude of private standards that were accompanied by even more corporate standards, utterly confusing consumers and undermining the idea of transparency and consumer education. Hence, the farmer associations came together and lobbied for a general organic standard at European level that defines minimum practices for organic agriculture. It required additional lobbying to maintain the existence of some private standards, which must meet or exceed the national EU standard in all aspects. Today, several private standards are well-known to consumers and make a price premium even if compared with basic EU organic products. Despite of many successes, the European organic movement remains fragmented and highly diverse, stretching from corporate organic associations to biodynamic Demeter groups.

During the last decade or two, the growth of consumer demand for organic products has far outpaced the ability of the local organic sector to supply food. This has created an opportunity for other farmers world wide, and the organic market continues its sustained growth with 6-10% annually despite stagnant local supply. At the same time, the increasing reliance on imports has undermined some of the confidence that consumers have in the organic label. “Regional” initiatives that provide access to locally grown conventional products, which may or may not follow best production practices, are contesting the leader role of organic agriculture. At the same time, corporate initiatives are jumping on the band wagon and started promoting a host of sustainability labels. Organic associations fear the return to the general state of confusion that characterized the early 90s, and also the loss of their leader role on sustainable food production.

On March 25, 2014 the EU Commission has presented a draft paper for the revision of the EU organic regulations 834/2007. This advance was not coordinated with the organic farmer associations, and would elevate the entry level for organic farming even higher. The thrust was addressing the concerns of an unlikely alliance of animal rights and consumer groups who responded to negative media about organic producers that follow the national standard, but also industry groups who have an interest in maintaining organic farming as a niche production method. Organic farmer associations are currently coming together in response to this draft, in order to maintain the lead role of formulating the future of organic farming in Europe.

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0. Executive summary

The IFOAM has floated the idea of a biological agriculture 3.0 at BioFach 2014. This was done in response to a widespread sense that organic agriculture (OA), despite great successes, is stalled in dealing with future challenges. The debate has sharpened the discourse about the recent development of OA, as well as it induced a dynamic analysis of how the sector can position itself in the future.

Members of the traditional associations of the organic and ecological agriculture of Germany, Austria and the Switzerland (Bioland, Naturland, Bio Austria and Bio Suisse) have collaborated with the organic research institute FiBL in the believe that four important challenges must be met:

- A. tackle the slow or stalled growth of organic primary production and facilitate entry/conversion of new entrants, partly based on innovation.
- B. Improve the sustainability of ecological farms, as well as up - and downstream industry, by developing dynamic 'Best practices'.
- C. Harness the strengths of Organic Agriculture for food security in the world while fostering sustainable development as well as efficient use of resources.
- D. Collaborate transparently with consumers, civil society and with other initiatives and actions that share goals and values.

Four future scenarios were solidified from this discourse:

- Scenario 1 ("*Organic 2.1*") is the continuation of continuous improvement of Organic Agriculture as it is today.
- Scenario 2 ("*Quality & Values*") focuses on the most demanding customers, who emphasize and desire quality of food and underlying values in the food system. Implementation would further escalate the regulation and certification requirements that govern OA .
- Scenario 3 ("*Productive Greening*"), ecological agriculture is globally brought on a rapid path of growth, such that it becomes a real alternative to address global challenges and moves out of its niche. This comprehensive strategy puts innovation into the foreground, with enhanced, but critical use of technical scientific progress.
- Scenario 4 is a two-tier system that combines scenarios 2 and 3. The productive greening is the introductory level within the organic movement, and corresponds with statutory regulations, while the second tier builds on best practices, as outlined in "quality and values". Scenario 4 was clearly preferred by the authors.

The now-pending discussion about the future of Organic Agriculture has to orient itself by clear principles. These were defined as follows by the authors:

- a) Organic Agriculture is based on the four principles of IFOAM that address health, ecology, fairness and care,
- b) Organic agriculture should become more relevant with regard to the challenges that humanity faces today.
- c) Organic agriculture should take into account sustainability in a holistic manner.
- d) Organic agriculture should always remain a holistic system approach.
- e) Organic agriculture should maintain closed material cycles.
- f) Organic agriculture should be based on natural products.
- g) Organic agriculture should accept an integrated and comprehensive culture of innovation.
- h) Organic agriculture should be in line with the trends of society and consumers.
- i) Organic agriculture shall put high emphasis on the well-being of farm animals, given its important role for the overall sustainability.

- j) “Organic agriculture 3.0” shall be downwards compatible with existing organic certification and production guidelines.

1. Introduction

At the BioFach 2014, the topic of *Organic Agriculture 3.0* (in German: “*Bio 3.0*”) was presented to the public without prior substantive discussion within the organic movement. Within this, the new positioning on the market and the recognition of major consumer trends took much space. Other developments, such as the revision of the EU organic regulation, the rapid expansion of global sustainability certifications, and the stagnation of farm conversions to OA practices [*in the German language regions, comment by translator*] reveal that the organic movement and the whole organic industry faces major substantive challenges with respect of its *content*.

Therefore, representatives of the leading organic farmer association Bio Austria, Bioland and Naturland (both Germany), and Bio Suisse, together with the Research Institute for Organic Agriculture (FiBL), want to make a contribution to the discussion on the future development of this movement. All five organizations have left significant marks on the development of OA in the past. This paper attempts to derive policy options in a transparent manner, driven by the responsible actors inside and a scientific perspective at the outside. We regard this paper as a contribution to a vivid discourse: no positions are carved in stone and no blueprint are attempted for a successful development.

After BioFach 2015, where this paper was presented, the discourse shall continue, both within our associations as well as in the networks of the organic movement. In summer 2015, IFOAM-EU will present a vision for 2030 that shall contribute to this discussion paper. Compared to with how fast a new concept was introduced and a debate was launched with '*Organic Agriculture 3.0*', its translation into the practical work of farmers, into legislation, organic industry and trade practices, as well as in the communication with consumers, will be slow and difficult.

Nuremberg, February 2015

2. Historic development stages of organic agriculture

The ecological or organic agriculture is rooted in the traditional agriculture and social movements in the first half of the 20th century. The latter were very heterogeneous and above all, their communality was the rejection of the chemical-technological intensification and industrialization of the mainstream agricultural industry, which we now call conventional agriculture [1].

The stage of Organic Agriculture 1.0 was shaped by numerous farmer groups, which were engaged with pioneering personalities for the concerns of soil fertility, environmental protection, conservation, diversity, animal welfare, healthy food and family farming [1].

When the International Association of Organic Agriculture Movements (IFOAM) was founded in 1972 in Versailles, it marked the beginning of the second phase of organic agriculture (OA 2.0). The definition of a minimum standard for organic agriculture and thus the protection for the terms "organic" (and, in the German context, "ecological"), was one of the main objectives for its foundation. External audits (third-party audits) were therefore firmly anchored in the guidelines [4, 5].

Various representatives of German, French and English organic organizations brought the IFOAM standards forward to the EU Commission, in order to protect consumers from fraudulent use of the term "organic". This led to a long legislative process to the EU organic regulation (EEC 2092/91), which was immediately implemented in all Member States as law. Since then, the governmental legislative process standards have established worldwide [2].

Because the markets of demand for and supply of organic food have increasingly drifted apart [*within the German language context, addition by translator*], the international harmonisation of the national regulations as well as the private standards has become an important effort of the 2000s. In total, 80 countries had government regulations on organic agriculture as of 2012, and are interested in negotiations about the comparability of policies to facilitate mutual trade [*and have often lead to equivalence agreements, addition by translator*].

From an economic perspective, the first phase of organic agriculture was insignificant. Thanks to standardization of organic food (later also feed and textiles), the global trade of organic agriculture goods experienced substantial growth during in the last 25 years [6].

3. Future challenges for the organic agriculture

Organic agriculture faces several challenges in the future. Therefore a discourse takes place amongst organizations that represent organic farmers, as well as amongst their partners in production and trade, and in science. The essence of this discourse addresses whether and how organic agriculture, as it is currently defined by government legislation and private standards, can meet these challenges.

The challenges that OA and organic food industry must face is

- 1) The lack of growth of agricultural production,
- 2) In the need for policies that address sustainability in a holistic manner,
- 3) Several weak points within the regional and global value chains, and
- 4) Improving communication with consumers and the formation of alliances with other sustainability initiatives.

One example of how important it is to derive answers to these challenges from *within* the organic movement is the proposed revision of the EU organic regulation in the year 2014 by the EU Commission, which were not mature. The four farmer associations (Bio Austria, Bioland, Bio Suisse and Naturland) with approximately 28,000 member companies are facing these challenges and put a lot of human and financial resources [7] in the continuous development of OA .

3.1. Weak growth of organic production and how innovation can be accelerated.

Organic agriculture is subject to a continuous stream of innovation and change. Thanks to these innovations, the risk of income loss has been reduced, the inner and outer quality of biological products has improved, and organic yields have improved [8].

Organic product demand and organic markets continue to grow much stronger than organic production, in spite of the positive developments around the world and in region of German-speaking countries [9]. In Germany, Austria and in the Switzerland, the number of operating transitioning to organic agricultural practices are stagnant, while demand-driven markets are currently growing by more than 10 percent. This has a variety of reasons:

- Not all branches are agronomically equally well developed and there are large gaps in organic research and extension.
- Both in the crop production and in animal husbandry, the yield differences between organic and conventional production are *increasing*, which is not for all products compensated economically by an increasing price premium for organic products or EU transfer payments to organic producers ("*Bioprämie*").
- These direct transfer payments [*of subsidies by the EU, or Bioprämie; added by translator*] neither reflect the public goods created by organic producers nor does it compensate farmers for the value of ecosystem services that they provide [10]. Only full environmental accounting could resolve this challenge, and many simple policies could level the playing field on the market. Examples include the taxation of nitrogen fertilizer or pesticides.

Because there is still no socio political consensus for such a measure, the organic sector must rely on internal measures to stimulate growth.

Such measures should be regarded as part of a comprehensive innovation strategy [16]. This concerns an improved use and dissemination of knowledge, which within the organic agricultural sector is handed down by farmers and constantly evolving. This requires researchers and extension workers/consultants who want to work closely with practitioners. Without a doubt, a large amount of new knowledge must be created, with regard to the functioning and the utilization of agro-ecological systems and with regard to new agronomic techniques in the crop production and animal husbandry [17]. The latter case may not result in the weakening of environmental and social principles, as is often formulated in conjunction with the growing markets. While scientific and technological progress shall be used more aggressively in the future, it must remain responsible and risk-aware with respect to stronger system resilience. New solutions are aimed at replacing those old techniques which are currently not satisfactory.

A comprehensive culture of innovation shall improve the organic agricultural sector not only economically, but it should help inspire more young and tech-savvy farmers to take up organic farming.

→ Die critical review of innovation paths also represents a balancing between returns and interests of stakeholders with the society/customers at large. This balance will be an important component within the development of OA 3.0.

3.2. Positioning OA in the European and global discourse about sustainable food security

The ecological, social and economic sustainability is prominently anchored in IFOAM's principles of organic agriculture. To a large extent, the organic standards (and hence its control counterparts) contain only rules for resources, substances and techniques that are permitted for organic production. Requirements that address actual environmental impacts, or provisions that target the social conditions of farmers, agricultural labourers and other workers within the sectors of agriculture, processing and trade are so far only partially governed within the private standards. Furthermore, health and well-being of livestock are not set by measurable criteria but rather by production norms. However, the four organic farmer associations that are authors of this paper have introduced measurement criteria for animal welfare for certification. Requirements for good business practice (*good corporate governance*) are not designed so far.

When examining governmental and private programs for general agricultural production and marketing that have included environmental and social minimum standards for producers and the downstream value chain, it becomes apparent that most were introduced outside of the realm of organic agriculture. For specific issues, these initiatives may partner with the organic agricultural sector [13], while at the same time compete on the consumer market with their brand and advertisement. Overall, there is a need to emphasize the excellence of these diverse programs and their mutual, complementary effects on sustainability in a transparent manner [11].

For organic agriculture, any assessment of sustainability is of advantage. On the one hand, such assessment promotes best practice at all levels of the value chain and prevents free-riders, which lastingly disappoint consumers. On the other hand it makes transparent the extent of ecological benefits provided by the organic value chain, which in the future will have weight in the discourse regarding social welfare and internalisation of environmental costs [12].

Furthermore, OA is required to provide answers on goal conflicts between the various limited resources (for example, land, energy, nutrients, water, biodiversity, clean air) and the growing demand for food. In this context, OA is in competition with other development and technology paths. Since the protection of soil, biotic and human-made agricultural landscape diversity, respect for the people making a living in agriculture, for animals utilized within the farming sector, and the health of farmers and consumers are important universal values of organic agriculture, the organic sector aims at a large expansion to companies and regions [14].

→ In addition to the control and enforcement of adherence to minimum organic standards, an important accent of organic or organic 3.0 will be the qualitative and quantitative measurement of sustainability. The demand for implementing *best practice* on organic enterprises and across the value chain reveals which services are provided toward the common good, compared to other production systems. Organic farming would play a growing importance for the ecological and social aspects of food security.

3.3. Challenges in local and global value chains

For decades, OA has been a leader in the development of quality assurance systems. Today, OA relies on a wide range of methods that are well adapted to different socio-economic situations [5]. In the future, additional requirements to the quality and integrity of OA will stem from comprehensive sustainability approaches, 'Best practices', and especially the animal welfare. These are embedded within the [IFOAM, added by the translator] principles of organic agriculture, but are only weakly anchored at a policy level. For the sake of transparent integrity of OA, quality assurance would have to address these issues.

Occasionally, the international trade in goods has become victim to criminal actions, because large gains can be achieved with incorrectly declared goods. The consumer confidence into a well functioning control and quality assurance system is essential for the growth of OA. This requires different measures for long supply chains than for short supply chains. The currently practiced methods of hazard analysis and critical control point (HACCP) must therefore be modernized strongly, without significantly increasing the direct and indirect costs. At the same time, the methods for plausibility assessments must be built for the global trade in goods.

Today's control systems need to be developed along. Out of cost reasons, the control agencies themselves have little room for innovation. New techniques and analytical methods must be adapted to the useability within OA, such that direct and indirect costs of controlling process are reduced [5].

→ Today's OA faces major challenges in the development of quality assurance and control. OA 3.0 will complement process assurance with new elements, such as a modernized HACCP or QACCP. One aspect will be to make systems more robust against deceptions, while at the same time reduce the workload for the farmers and the checkpoints. The goal is a transparent integrity of OA.

3.4. More authenticity in the communication with consumers and the formation of alliances with other sustainability initiatives.

Consumers have always played the most important role in the expansion of OA and contributed significantly to how OA has evolved.

With increasing distance between producers and consumers, their expectations were not always reflected by the organic sector. The resulting negative media coverage can not only be attributed to errors in the quality assurance systems, but also reflect fundamental misunderstandings about what modern OA is. These misunderstandings will increase with further growth of the sector, and the advertising industry or media feed them deliberately. For example, an incorrect or not pertinent notion is that organic farms are small, that they the market first and foremost locally, or the calves nurse with the mothers for weeks. If the media picks out such public perceptions, a reality check can lead to overreactions and overregulation by public agencies. One example from the legislature is an unrealistic proposal by the EU Commission, who proposed to set pesticide residue levels to the level of infant food (0.05 mg / kg), because the consumers 'wishes no pesticide residues".

Communication with the consumers must also be differentiated, which is demanding. Such perspective takes both sides serious, the farming sector and consumers/civil society, thus creating a deep and realistic understanding of the concept of OA and its future development.

Growing out of its current niche would require versatile alliances with other, similarly-oriented social and economic initiatives in agriculture and the food sector. In those particular sectors that share the goals of OA, such as healthy nutrition, environmental and nature conservation, animal welfare, fair trade, humus creation, and climate change mitigation, the organic sector should forge strong partnerships. With these partners, a common language is needed. Until now, demarcation and fears continue to prevail, as is common for pioneer movements.

In this dialogue, the individual farmer is the best communicator. He can authentically give account of his activities – both economically and with regards to the practices (s)he choses for his/her operation. In addition to this direct contact, social media and other methods of customer information open new opportunities of engagement.

→ OA 3.0 shall contribute to that its profile (or his promises) is clear and broadly respected. OA 3.0 must develop new communication strategies that are able to easily convey complex causalities of sustainable agricultural food economics. It must distinguish itself from glorification that some marketing campaigns foster. To promote good understanding for organic practice, new cooperation with consumer organizations and other similarly oriented social and economic initiatives must follow. In this context, we see social media is a great opportunity, but equally as a challenge.

4. Summary SWOT-analysis of organic 2.0

Overlooking Central challenges to previously described the strengths and Schwä - chen of today's organic agriculture , but also the potential and risks can be summarized as follows.

Table 1: SWOT-Analysis of Organic Agriculture 2.0:

Challenge	Strength	Weakness	Potential	Risk
Innovation of production	Follows all paths of innovation with great caution. Has more potential, which need more research funding than in the past. Advice and exchange of experience is to operate more intensively as in conventional agriculture.	Missed some technological progress through certain technology prohibitions and not to apply meaningful solutions.	Good example for due diligence and holistic approaches	Opportunity costs and transaction costs are too high, compared with a purely technical approach. Other methods could provide the same sustainability goals as the organic standard at higher level of productivity and efficiency of resource use.
Sustainability	The documented baseline for measureable impacts of organic agriculture is better than for any other approach. Organic agriculture is most successful in minimnizing goal conflicts between productivity and ecosystem service provision.	Increasingly in competition with other mainstream-compatible strategies of trade and producer sectors. Other strategies have lower societal opportunity costs than Organic Agriculture 2.0.	OA 2.0 as “protected space for innovative experiments in sustainability”.	Agricultural politics chose alternative approaches to sustainable agriculture and food security. Private sustainability labels dominate the market and consumers loose interest in OA 2.0.
OA as solution centre for global challenges	Within the scope of a niche market, can contribute to solving global challenges, as proven with many very successful case studies.	With less than 1% of agricultural area, and annual growth of <5%, OA would remain a niche phenomenon for the next 60 years.	If despite of sustainability rethorics the consumption of energy and other resources continues to increase, more radical solutions may become politically attractive	Some environmental doomsday predictions are debunked as overly pessimistic. Agriculture will address challenges mainly through new technologies.
Potential for growth of supply and land use	Has been growing continuously for 40 years at low overall level.	At the same growth rate, OA continues as niche activity for next decades.	If research and extension are massively supported by the general public, then production improvements can be great.	The farming community and consumers loose interest in OA and move to other standards.
Expectations of consumers	OA has high degree of public recognition and awareness. Everyone has an opinion, whether it is positive or negative. Good annul growth	Meets expectations of minority and, despite high public awareness, is not becoming a mass	Various societal trends create a favourable context for organic food products.	Other label standards like fairtrade, rainforest, local food, etc, fulfill the expectations of consumers at a lower

	rates (5-10%)	phenomena.		price.
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5. Potential future development paths for the organic or ecological agriculture

To meet these challenges, we describe the following four scenarios from the perspective of the German-speaking region (Germany, Austria, Switzerland, or DACH) and offer some arguments to the broader debate. We would like to point out that we have described the scenarios as pointedly as possible, to provide a clear starting point for further discussion. We have therefore, if possible, avoided formulations and arguments along the line of “as well as”.

5.1. Scenario 1: The organic agriculture 2.1

Description of the scenario:

The sector does not adopt fundamental changes that justify the designation 3.0 instead of 2.0. The strategy that were successful so far, the gradual and step-by-step improvement of organic farming practices, is continued. The *IFOAM standard for organic production and processing* remains the entry level for agricultural operations and food industry enterprises. Guidelines are subject to small adjustments only, and their character reflects more of the pioneering ideas of the early years than it reflects the progress of science in the context of sustainability.

Evaluation of this scenario:

An evaluation is already given in Table 1, the SWAT assessment of OA 2.0. Organic agriculture lacks strong growth impulses, especially in primary production. The gap between production in the DACH region and market demand continues to grow. Increasingly, other more modern and more innovative development approaches successfully take up and include the issue of sustainable agriculture and nutrition and question the leadership position and innovative force that characterizes organic agriculture today. In scenario 1, the sector will manage to grow out of its current niche only in exceptional cases. The fundamental proposition that the pioneers of OA have already expressed, namely that OA offers a relevant alternative to the conventional production paradigm, is unrealistic.

A positive aspect of Scenario 1 is that OA is and will remain a well-established norm for the production of food and will be positive in the scenario 1. Scenario 1 emphasizes its character and stability, which is an important attribute for robust and successful production standards. Improvements are made in how OA is communicated to consumers, with all its strengths and weaknesses but more honest and transparent. The sector is sensitive to not raising unrealistic expectations from any side, including the political sphere, society and the media, if these expectations cannot be guaranteed through the standards and their correct application.

In this scenario, further consumer education with regard to product quality, ecology and sustainability remains mainly the responsibility of organic associations and individual companies. Any claims must be secured through private agreements between the actors of the value chain. Extension services and additional certification requirements can ensure such additional requirements.

5.2. Szenario 2: Quality and value-based organics

Description of the scenario:

In this scenario, the sector commits itself to a very high quality of organic food. This requires certain adjustments of organic standards, for example the feeding of ruminants (a high proportion of roughage increases the levels of polyunsaturated fatty acids in the milk and meat), or in crop production practices (reduction of total yields increases the fruit quality in the vineyards and orchards). Food quality is above all other attributes of organic products, including naturalness, and the freedom of chemical products, nano technology, and GMO. This is guaranteed by restrictive standards [18]. Such revision includes comprehensive regulations on the processing of organic foods, which not only regulates ingredients and additives, but also prescribes gentle processing methods. Also, socio cultural values are strongly anchored in these stricter regulations, describing terms like 'Naturalness', 'Authenticity', 'Integrity', 'Animal welfare', 'Fairness', 'social and societal commitment of the actors', 'peasant or small business structures', 'employment in rural areas' or 'regional production and processing' to the expression. Other examples are also anthroposophical values, which are common in Demeter-agriculture, including for example the improved 'vitality' of products by the use of biodynamic preparations, or the importance of the horns for the wellbeing of dairy cows. To anchor these values and make them certifiable, additional adjustments of the standards and additional control elements will be necessary.

Evaluation of this scenario:

Due to the increasing industrialization and globalization of food chains, the longing for alternative food that is decoupled from the mechanisms of the mainstream food system. This scenario is geared towards very conscious consumers, who are willing to support significantly more expensive stages of production, processing and trading. This niche is deliberately fostered and still maintains considerable growth potential, assuming that consumer confidence into the industry and its quality assurance mechanisms is maintained and even increased. The value chains are focused on transparency and rather shorter distances.

This scenario is compatible with the prevailing agro - and environmental strategies: high-quality, healthy and safe food, regional sustainably produced, low negative local externalities, better returns for farmers and small and medium-sized enterprises (SMEs), consideration of animal welfare. The growth potential for a coherent "Quality and value OA" is indeed still substantial and can double or triple in the next 10 years in the German-language region, but it is not relevant as a strategy for the global challenges such as sustainable food security.

5.3. Scenario 3: The productive greening.

Description of the scenario:

This scenario is based on a forceful realization of the vision of the technology platform of *TP Organics: 'Eco-functional intensification'* and the *'strengthening of the regional rural economy'*. Using today's OA as a starting point, the agronomic productivity is increased further, as is the efficiency of energy and resource use. *This scenario does not compromise any aspects of animal welfare.* Compared with the status quo, this requires increasing some requirements of the organic standards, as well as an adjustment of the relevant control procedures. However, all innovation paths are examined to achieve the organic principles until they meet a comprehensive sustainability strategy at a high level. This scenario targets the focus on the IFOAM principles of the OA, and implementing a science-based standards for the 21st century.

Evaluation of this scenario:

In this scenario, the innovation has a high significance [16]. Many farmers must be incentivised to convert their operations to organic practices, such that the organic market can rapidly expand and curb the further growth of alternative private sustainability label. Progress would equally focus on social, environmental and technological innovation, taking into account the specific strengths of the organic sector like its system approach, closed nutrient and matter flows, and its stability/resilience with respect to ecological, economic and social diversity.

This scenario would draw heavily on the scientifically-based sustainability discourse [11, 12]. Somewhat blurry qualitative criteria of the current standards, which have prevailed the organic standards throughout the history of organic farming, would be replaced by other that have measurable effects on the health of human and ecosystems.

Should the sector succeed in improving the productivity of organic agriculture by, on average, 30%, while maintaining the same environmental, social and economic excellence, this scenario would be an effective strategy for a global transition to ecological practices. With regional adaptation and variations, this strategy could become the global mainstream and represent ***anywhere between 30 to 50% of global land use.***

5.4. Scenario 4: Two organic levels: entry and best practice

Description of Scenario 4:

The fourth scenario combines the scenarios 2 and 3, under a common umbrella of ecological or organic agriculture. While the entry level would be known as 'Organic', would the second level would be referred to as 'Premium Organic Quality' or something similar. At the same time, the entry level would reflect the level prescribed by national standard(s).

Evaluation of this scenario:

Under such development path, organic agriculture could accomplish the balancing act as (a) successfully remaining at the leading edge with regard to quality and sustainability, and (b) to make organic agriculture accessible to as many people as possible (producers as consumers). Organic agriculture would thus open itself confidently, thus underlining its responsibility as role model amongst non-industrial, agro-ecological farming methods and approaches to alimentering humanity.

In this scenario, organic regulations would focus on sustainability and the provision of public goods and ecosystem services. Currently, this development is undermined by the EU Commission's proposals which would clearly move the EU organic standard into the direction of a quality niche market.

The private labels of organic farmer associations would allow a much higher quality. In a rudimentary form, this development is already reflected in the *Leading Organic Alliance* which was founded in 2012 at the BioFach (for example, Demeter, Bioland, Naturland, Bio Suisse, Bio Austria, Soil Association).

The communication of such two-tier organic agriculture is demanding, but it can build on the lessons that were accumulated over several decades. It was shown that consumers can deal very well with different quality levels. For example, Demeter products are bought by the same consumers that also buy EU-Organic products. Along the same line, Bioland, Naturland, Bio Suisse and Bio Austria distinguish themselves through the quality of products that use their label. Essentially, most consumers can understand that a legal standard (for example, the EU organic regulation) should provide a basic level that is accessible for everyone, while private providers can exceed these standards with targeted claims.

5.5. Alliances between OA and other sustainability labels

In all four scenarios, the organic sector can closely collaborate with other initiatives for an agro-ecological or sustainable agriculture and value chain. While in the pioneering phase of organic or ecological agriculture, many issues were undisputed and unique differentiators of OA (for example soil fertility, environmental protection,

animal welfare, healthy food), the second phase of OA was more characterized by building strong markets, and in interest in discrimination and a clear profile. This growth phase has resulted in a strong role that the organic sector on the global market, in the agricultural policy realm, within the broader society and the research and advisory organizations. With this in mind, OA 3.0 is well positioned to build partnership alliances with organisations and initiatives that share goals [13]. On one hand, these partnerships can raise the general awareness for specific issues. On the other hand, the alliances improve the permeability of the sector, enabling farmers and businesses to enter the organic sector.

Good initiatives of closer co-operation already exist today. The IFOAM EU group organised several conferences on the subject of agro-ecology, which is a diverse and open-defined group of movements and groupings of farmers. And the *United Nations Forum for Sustainability Standards* (UNFSS) also fosters a closer collaboration between various streams of sustainability, including projects by IFOAM (for example, GOMA).

6. Important principles for OA

The development of organic or ecological agriculture - regardless of what scenarios be selected – must address clear principles, which are described below. These principles are the foundation of organic farming now and in the future, and all measures need to focus on these.

6.1. Future OA is based on the four principles of the IFOAM

Within the discourse on the future of OA, are the principles of IFOAM [3] remain to have top priority. These four principles are [elaborated by the translator, citing the IFOAM website]:

- The [Principle of Health](#): Healthy soil, plants, animals, humans = a healthy planet.
- The [Principle of Ecology](#): Emulating and sustaining natural systems.
- The [Principle of Fairness](#): Equity, respect and justice for all living things.
- The [Principle of Care](#) for the generations to come.

6.2. OA provides answers to the central questions of humanity

For mankind's global challenges that come along with alimentering the growing number of humans, several broad analyses exist that are supported by a majority of academia and field experts. This include, for example, the *Millennium Ecosystem Assessment* report (2005), the world agricultural assessment (IAASTD, 2008) or the publication by Rockström et al. (2009) in *Nature*. Scenarios that are suggested for OA 3.0 must be assessed by how relevant they are and how efficiently they contribute to the solution of these challenges. In addition to analyses, the aforementioned reports also include suggestions, most concretely in the IAASTD. In general, all agroecological and systemic solutions are favored, including organic agriculture [14].

6.3. OA should take into account fully the sustainability.

The proposed scenarios must be evaluated using clear criteria, indicators and metrics to assess the contribution to sustainability [11, 12]. As part of this, OA must precisely define which enterprises, landscape structures, and what type of value chains it wants to promote (see, for example, the mission statement of Bioland). Examples for guidelines for such a comprehensive sustainability assessment include SAFA (FAO) or SOAAN (IFOAM). As a consultancy and extension, tools like RISE or SMART can help to optimize organic operations. Such tools allow

using indicators and metrics to assess agricultural and processing enterprises in its complex entirety. Such optimization must take into account **the social aspects of the rural family and the workers, the good business practice and the economic prosperity**, in addition to any ecological/environmental impacts. The certification process of farms would be enhanced with such or comparable tools, always keeping in mind that the enterprises are not [*forced into conventional structures*]. Sustainability is always understood holistically and comprehensively. The reduced consideration by individual criteria, such as for example climate gas emissions, energy consumption, soil erosion, or working conditions of farm workers are insufficient for the impact assessment of organic agriculture.

6.4. OA should be always an integrated system approach

No other agricultural practice broaches holistic system approach as comprehensively, and applies these principles into practice like organic agriculture [19]. In contrast, most regulatory or economic measures that influence agricultural practices, as well as the standards and recommendations of many sustainability labels, usually take a sector approach or target a single production type. They rarely include the production measures, the enterprise, or the value chain comprehensively. A high level of industrialisation of cultivation, for the purpose of economic scale effects, or greatly simplified marketing and logistics structures are out of question for the organic sector.

6.5. OA aims at maintaining closed material cycles

The close connection between farming and animal husbandry is another specific feature of organic farming, which must not be abandoned. Studies have shown that the joint operations are the most effective measure to prevent the eutrophication of environment with excess nitrogen and phosphorus. The organic farming of the future is always based on cycles, which are closed either within a single mixed operation, or regionally through operational partnerships between more specialized enterprises.

6.6. OA must be based on natural products

Particularly in the horticultural specialty crops (especially wine, fruits, berries, vegetables, potatoes, hops, olives, nuts), preventive and system-based measures work insufficiently to keep the yields at a high level and to avoid large annual fluctuations in yields. In addition to plant breeding that focuses on resistance or tolerance, measures of biological plant protection are therefore important. The scientific meta-analysis of factors that guarantee good yields in OA demonstrates the importance of good pest control and plant diseases management.

The ban on chemical pesticides in organic farming is a strong criterion which may not be softened in the future under no circumstances [21]. Similar considerations apply in the animal health and in the processing and packaging of organic products.

6.7. OA shall give high priority to the welfare of farm animals, because it plays an important role for the sustainability.

Soil fertility depends on the excreta of animals. Ruminants and other grazers are important for the maintenance of permanent pasture, which are hotspots of biodiversity. Meadows and pastures that are not used for annual crops or horticulture make up two thirds of agricultural land globally. Only ruminants can make the productivity of these areas accessible for human consumption. There are a variety of reasons why the use of animals is essential for organic farming, with only few exceptions, obligating us strongly to treat animals responsibly and

with respect. Guidelines for animal health and animal welfare should therefore be improved. Through the certification, these claims can be ensured [23].

6.8. OA shall be based on a holistic and comprehensive culture of innovation

Sustainability can only arise if innovation follows a holistic strategy. The inclusion of a comprehensive and useful innovation strategy for OA 3.0 is therefore important.

Essentially, we can distinguish amongst several categories of innovation:

- Social innovations.
- Ecological innovations or ecological modernization.
- Technical or technological innovations (product, service, process and process innovations).

Organic farming is never one-sidedly based on technological innovations, because these increase the susceptibility to malfunctions and cause dependencies. Within the area of social innovation and ecological modernization, the farmers themselves are often the drivers of innovation who have control over this innovation and avoid being at the mercy of cost - or capital-intensive services and inventions from third parties. Furthermore, dominant technological innovations have also often proven to be dead ends. In a comprehensive understanding of innovation, technical and technological innovations are used wisely and are carefully embedded into ecological and traditional knowledge [16].

6.9. OA shall be in line with the trends of the company and the consumer

The discussion on the further development of organic farming must take into consideration the requirements or desires voiced by consumers. Societal mega trends quite strongly influence the development of organic farming and the organic food culture [23].

6.10. OA shall be downward compatible with the existing directives.

Organic guidelines are first and foremost a tool which helps organic farmers and other actors of the food value chain to put into practice the principles and goals of OA, taking into account the current state of knowledge. Organic guidelines are based on a consensus between farmers, the food industry, a part of science, critical consumers and organisation of civil society, and government agencies. Organic guidelines have been adjusted dynamically over the last 40 years and in small increments.

The development of OA 1.0 towards OA 2.0 was characterized by strong continuity. This continuity shall be maintained with any future OA 3.0. This continuity is necessary for the basic reason not to unsettle the actors in the food chain and the consumers. Such continuity will be the biggest hurdle to make fundamental changes. The discussion about OA 3.0 serves to make reforms and small steps in the right direction.

7. Assessment of the four scenarios

A brief evaluation of the four scenarios is already included in the respective descriptions (see Chapter 5). At this point, only general remarks and conclusions follow.

The update of OA 2.0, which we refer to as OA 2.1 or **Scenario 1**, is possible, but has received criticism both from within the movement and increasingly also from outside. Internally, because it seems not to have the growth

potential within the agricultural production sector that the farmer associations and the industry are craving for. Furthermore, OA also fails for various reasons to substantiate its own claim to strongly grow out of a niche into a mainstream land use. Even if OA could manage to accelerate the a global growth rate to an annual 10%, the global land use would only increase from 1% to 2% in 8 years. Locally, the development would look differently of course. In the Alps, where organic farming is a better fit today than any industrial agriculture, a comprehensive organic farming system would be possible with comparable growth in the same period.

From the outside it is criticised that there is significantly more effective ecological renovation strategies, which may make use of some good concepts of organic farming or parts thereof (e.g. crop rotation, operating cycles, habitat management, biological plant protection, preventive animal health strategies) and combine scientific and technological progress more effectively. From an economic perspective, public agencies must consider how to use their limited public funds such that the biggest leverage is achieved with respect to a sustainable diet of a growing world population. Future cost comparisons will also include environmental and social externalities, giving some head start to OA. Still, it can be shown that non-organic production and ecological renovation strategies steadily catch up with OA. The scenario 1 is also criticized because various promises given to society and to consumers (in the form of certified enterprises and products) can be verified on the basis of organic guidelines and the certification mechanisms.

The **Scenario 2** (quality and values-bio) consistently closes any existing gaps between the expectations of consumers and the services that producers provide. Thus, the principles of organic farming are implemented congruently within the organic standards and certification practice. In most cases, this would mean a tightening of the standards (for example the prohibition of antibiotics for the dairy sector, prohibition of copper and phosphoric acid/phosphonate for crop production, or more stringent rules in the processing of food), in some cases would also mean a relaxation (for example useage of phosphorus from sewage sludge on the operations to close nutrient circuits, *[after addressing chemical contamination load at the consumer or retail level, added by translator]*). This scenario is targeted at a very specific clientele and does not claim to have a societal dimension. The public sector provides support within the framework of the general agricultural sector, but does not considered the promotion of organic farming as its priority. The growth prospects of such a scenario are good: a doubling or tripling in the next 10 years is possible, provided that the organic industry can ensure the quality it promises. This needs great efforts in research, extension and control, which requires continued support by the industry.

At the same time, organic agriculture has great potential to be a successful sustainability strategy. This is **Scenario 3**. On one hand, OA is already heavily represented in ecologically vulnerable ecosystems (mountains, nature protection and water conservation, areas marked by temporary drought). On the other hand, there are numerous case studies in developing countries, where OA can alleviate poverty and strengthen food security.

Since it probably easier for organic farming to maintain the social and environmental benefits to productivity than it is for the conventional sector to resolve its environmental and social deficits, a large-scale sustainable development strategy under the term “organic agriculture” therefore would be an exciting, challenging, but presumably successful strategy. However, this can only be achieved through a better use of technical and scientific progress. The use of traditional agricultural knowledge is definitely not sufficient, because it has not arisen under the sign of having to feed 10 billion people. Based on a well-designed extension strategy, the large variability of productivity of organic farmers can be reduced massively. This impact of extension can be observed consistently in all case studies on organic farming.

Nevertheless, it can be expected that the productivity gap between the organic and conventional production will be significantly larger in the future, because new knowledge in conventional research is created faster than the

ecological. In such a scenario, OA 3.0 could be the reference for a responsible, low-risk practice that is committed to public welfare and applies new knowledge and technologies.

The objectives of a sustainable transformation of agriculture could at best realized within Scenario 4, which operates OA under a **two-tier leadership role**: A productive sustainable development strategy is aligned with science and innovation, as an **entry point** to organic farming. Based on it, a second layer addresses issues of quality, values, ethics and environmental protection using **best practice**. The [European, translator] organic sector has applied this dual concept successfully in its communication with outsiders, but has so far offered only a single comprehensive production standard which could not respond to two objectives. In this scenario, the organic sector additionally offers **two production standards** that are designed such that it can address both claims coherently.

In all scenarios, OA should be more open towards collaboration and mutual learning with other sustainability initiatives. Some polarization and separation was important in the pioneering days, because otherwise [*a weak movement could not find its identity and unique position, free translation*]. The tremendously successful performance of OA facilitates to bridge other ideas and concepts. This would open the OA sector to learn important lessons. And it lowers the entry barrier for new producers. At the same time, OA enhances its impact on the general sustainability debate. It fulfills its social function as a "protected space for new, pioneering ideas and experimentation". The self understanding of OA would not be "We are better than all others and solve all problems", but rather "we are the pioneers, please utilize our experiences, to make agriculture and nutrition more sustainable".

8. Outlook

The claim of the four organic farmer associations Bio Austria, Bioland, Naturland and Bio Suisse continues to be that the discourse about organic farming shall remain within the organized movement. Although government agencies have been given the responsibility to legislate and implement aspects of OA, only the producers and their strategic partners can spear-head the development toward OA 3.0. Organic farmer associations have already been important driver for the development and continuous improvement of OA and its performance (development of principles and general orientation [*Leitbild*], animal welfare control, quality assurance, incorporation of new ideas such as phosphorus recycling, the establishment of higher standards for the quality of processed foods, etc.).

Traditionally, the OA associations have a close co-operation with FiBL, as well as with other partners in research and consulting/extension. **There is a common understanding that OA must make a great leap forward. This paper will provide a basis for discussion to do so.**

The four associations and FiBL would welcome to position this discourse under the common umbrella of IFOAM-EU and IFOAM World. For the time being, we at most and in the best case expect that it will contribute to a concrete mission statement by IFOAM, which provides more detail than the generally formulated IFOAM principles. Such vision statement in the form of anticipated best practice can help to influence that public policies develop in the right direction, in small steps. In particular, it can be used to prevent that minimum standard within regulations create too high entry barriers. The mission statement would also provide a basis to facilitate the positioning and labelling policies of private OA organizations.

The concept and the corresponding information base should be refined in connection to BioFach 2015. Furthermore, an action plan is required on how to actually achieve OA 3.0. It will not be easy, because the harmonization efforts of numerous national regulations and changes to the normative foundations (IFOAM, Codex Alimentarius) are a slow process.