

ISO FAR Newsletter no. 3, 2018



Dear ISO FAR Members and Supporters

Greeting from ISO FAR for beginning of autumn and I hope this letter finds each of you having a wonderful season! Welcome to the new academic year and I hope you were able to catch up on rest and relaxation during the summer months, even many scientists continued conducting research duties while universities were officially in holidays. For this season, that might include Halloween, the beginning of basketball and football seasons, and Thanksgiving as well as harvesting time for many farmers around the world.

Newsletters are always a great way to keep in touch with target interested people, boost website traffic and highlight the benefits of using our information. The relevant news on Organic Agriculture with more science base, are regularly publishing in ISO FAR website, and a few times per year compiled into a newsletter submitted by e-mail as the reason and opportunity to keep in touch with all our members and supporters. I am pleased with the progress we're making to ensure the number of members continue to grow.

As we look ahead and seek to engage with the opportunities and challenges facing developing Organic Agriculture today, we continue to be dedicated to make more scientific supports that strengthen our society and create an environment for our members to pursue their passions and position to our ISO FAR for future success which we consider it from research-based ideas into an innovative venturing practices or courses at academic level.

ISOFAR website is the place of what we know and what is new in the world of scientific activities in Organic Agriculture created by organic scientists and supporters. Therefore, on behalf of ISOFAR I would very much hope for continuing a fruitful partnership of all of us.

The current newsletter issue has several interesting information and reports from different countries such as Argentina, Finland, France, Italy, Poland and Turkey which could be considered as the reason for gathering and sharing our knowledge and experiences. Special thanks to all those who actively contributed!

All [members have open access to our scientific Springer journal “Organic Agriculture”](#) where is a nice place to publish your next peer-reviewed paper!

The [ISOFAR website](#) is also open for all ISOFAR members and supporters who want to publish news about events, projects, networks, a country report and you are welcome to get in touch by e-mail (mreza.ardakani@gmail.com) to agree about details.

Wish you and your family health, happiness and a productive season!

Sincerely Yours,

Prof. M. Reza Ardakani, Vice President of ISOFAR

NEWS from ISOFAR:



Message from the president

Dear members and friends of ISOFAR,

The Organic 3.0 approach does challenge us a lot in the organic world, including science. It is a good frame for the new approach: going together to solve

future challenges in food security and safety in context of the Sustainable Development Goals.



Organic Agriculture in France

Since 2010, France knows an increase of organic agriculture, which has continued till 2018. Several organizations and stakeholders are involved in organic farming: producers, researchers, teachers, advisors, processors etc.



Organics in Finland: Developing slowly, but surely

Finnish authorities set several development programmes with quantitative goals for the growth of the organic sector, the latest for 2020.



Organic agriculture in Argentina

Argentina is one of the leading countries in certified organic production and have strict official regulations for organic production. Consumers worldwide demand more healthy products for the population and the environment well-being.

OFSP - Organic Food System Programme



The goal of OFSP is to learn from the organic food system as a living laboratory for sustainable food systems. The [Sustainable Food Systems \(SFS\) Programme](#) of the United Nations' 10-Year Framework on Sustainable Consumption and Production (10YFP) has endorsed the Organic Food System Programme (OFSP) as one of its eight [Core Initiatives](#).



Agroecology supports developing organic horticulture

Istanbul, in Turkey hosted the 30th International Horticulture Congress (12-16 August 2018) under the auspices of the **International Society for Horticultural Science (ISHS)** which provided an excellent platform for scientists, students, consultants etc.



SOILVEG - Improving soil conservation and resource use in organic cropping systems for vegetable production

What's the best way to manage Agroecological Service Crops? Comparing the usual management of ASC as green manure vs the use of roller crimper in a no till system, SoilVeg found that the latter generate an higher overall environment benefit, although with lower yields.

Message from the President October 2018

The Organic 3.0 approach does challenge us a lot in the organic world, including science. It is a good frame for the new approach: going together to solve future challenges in food security and safety in context of the Sustainable Development Goals.

Dear members and friends of ISOFAR

As president of ISOFAR, director of the Thuenen-Institute of Organic farming and world board member of IFOAM-Organic International I am working on fund raising for "Organic Knowledge Centers in Africa", "German policy target: 20% Organic" and others. I support action groups in the design of concepts, recently for "True Cost Accounting", "socio-economic" and "agro-ecology". I still travel a lot and try to promote "Organic Tricks" (like healthy farmer seeds and breeding livestock, intelligent crop rotation, organic pest control, high soil fertility, low water pollution, climate adaptation and mitigation, livestock-crop integration and interaction, nutrient management, food chain traceability and integrity measures, and last but not least fair working and income from producer to consumers) as part of the solution for food security and safety (we call it "plan B").

I know that all my colleagues from the ISOFAR board are active like me. That makes me proud.

Nevertheless, Organic researchers are still isolated and ignored in their competence in many parts of the academic world. I know, we all need more recourses and respect. Organic farming research has not a fair share of the resources. ISOFAR cannot give money, but is a platform to promote our competence and argues for resources. This is always a difficult and slow motion action, but worthy. We all should not be ashamed to ask "give me money". As long as others have more.

Communication of our results and ideas is possible in scientific papers. Our Journal of Organic Agriculture is growing well; we have already 225 accepted papers. Every year we receive 160 new manuscripts and an extended group of editors (27 scientists) does review them for scientific quality. This quality assurance is important to avoid the image of ideology and "wished results" for Organic research. Open source publications make us the world not easy. Many of them offer fast and problem-free publication of results. But the quality is very often not okay and the image of such papers is decreasing. We work in ISOFAR on quality, together with Springer publisher. You as member of ISOFAR help to make this possible.

I wish all of you a good time at your work and with your families and friends, to make our world better - with science.

Prof. Dr. Gerold Rahmann, President of ISOFAR

Organic Agriculture in France

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Beef cattle of the organic experimental farm of Thorigné d'Anjou – June 2017 (meeting Optialibio project)

Since 2010, France knows an increase of organic agriculture, which has continued till 2018. Several organizations and stakeholders are involved in organic farming: producers, researchers, teachers, advisors, processors...

Organic French figures

The French organic observatory's figures produced by the Agence BIO show that, on December 31st, 2017, 54,044 operators were engaged in organic farming in France, what's representing + 14.7% in one year. Of these operators, 36,691 are producers, bringing the share of French farms engaged in organic farming to 8.3%. French organic surfaces reach 1.78 million hectares, which corresponds to 6.59%. The processing, distribution or import companies represented 17,353 operators of which: 12,286 transformers; 4,783 distributors; 284 importers. The consumption of organic products continues to grow. In 2017, the market for organic food products reached more than 8.3 billion euros, an increase of 17% in one year.

Employment

In 2017, it is estimated that organic trades account for almost 134,500 direct jobs (jobs in organic farms and those related to processing and distribution activities). While agricultural employment fell at an average annual rate of -1.1% between 2010 and 2015, employment in organic agricultural production increased by 10,669 full-time jobs between 2017 and 2016, representing +13%.

Crops

Some crops are well developed in organic agriculture: organic dried vegetables represent 27.9% of total surface in this production; organic fruits 19.8%; aromatic and medicinal plants 19.5%; vineyard 10% and forage fields 9.4%. On the contrary, some crops are not developed too much, in particular fresh vegetables (6.1%) and cereals (3.4%).

Animals

In the continuity of 2016, the development of organic farms has remained strong and concerns all species in 2017.

The part of organic livestock compared to the total of French livestock is 4.93% for cows (4.53% for beef cows et 5.40% for dairy cows), 7.09% for sheep, 7.75% for goats, 1.07% for porks. Organic broilers represent 1.40% of the total and poultry hens 10.11%.

Public policy

The first plan for the organic farming development began in 1998 and several plans followed. Since 2008, these plans concern large area: producers, advisors, teachers, researchers, processors... These plans played a role in the organic farming development, as the strong demand for consumption and as the several organizations and stakeholders working in organic farming. In June, The French Minister of Agriculture and Food presented the new plan for organic farming development "Ambition Bio 2022 Program", which has a budget of 1.1 billion euros and is organized into 7 major axes:

- Axis 1: Develop production to reach the 15% of French agricultural area cultivated in organic by 2022;
- Axis 2: Structure the sectors via the "Avenir Bio" Fund; Currently endowed with 4 million euros, the Future Bio Fund will be increased by 2 million euros from 2018;
- Axis 3: Develop consumption and support the supply of organic products for all consumers, including the poorest and most vulnerable publics; In addition to the goal of 20% bio in public catering by 2022, a common desire of organic stakeholders is to encourage the offer in collective and commercial catering;
- Axis 4: Redefining research priorities;
- Axis 5: Train the actors;
- Axis 6: Adapt the regulations; On January 1st, 2021, a new European regulation will be applicable;
- Axis 7: Organic farming in the French overseas territories.

Research

Several organizations are involved in organic researches (technical Institutes in agriculture, national research centers...).

At the end of 2017, in the **National institute of agronomy research (INRA)** transformed its AgriBio program into the 9th metaprogram of INRA. While the other 8 metaprograms were created in 2011, AgriBio is entering its 18th year.

Link to recent Agribio projects : https://www6.inra.fr/comite_agriculture_biologique/Les-outils-de-recherche/Les-programmes-INRA-dedies-a-l-AB/Inra-AgriBio/AgriBio-4

Two theses start in this context: - Operation and evaluation of diversified production systems in organic agriculture: references for the agro-ecological transition (UMRH); - Conditions for linking the greening of agriculture and food in the context of just sustainable development (SAD, Ecodevelopment).

Inra is also involved in European Core Organic call. Link to Inra's projects into Core Organic + (2015-2018):

https://www6.inra.fr/comite_agriculture_biologique/Les-outils-de-recherche/Les-programmes-INRA-dedies-a-l-AB/Core-Organic-Europeen/CORE-Organic-Plus-2015-2018

The French Organic farming technical institute (ITAB) will co-supervise another INRA thesis: "Design combinations of cropping systems at the farm level to manage soil health". The ITAB is involved in several research in organic farming, concerning crops and livestock, seeds and biodiversity, quality, processing... In 2017, ITAB was involved into 62 research projects, including 8 European projects.

ITAB Lab, created in 2017, is an association for research and innovation Bio. It is a collective of actors (Pôle agriculture biologique Massif Central, GRAB Avignon, IBB...) committed to research and innovation, coordination and capitalization of knowledge in AB (Pôle agriculture biologique Massif Central, GRAB Avignon, IBB...).

At the beginning of 2018, ITAB and ABioDoc, the French documentary centre specialized in organic farming, edited a bibliographic review on French technical-economic references in organic agriculture <http://www.abiodoc.com/documents-abiodoc/compilations-listes-bibliographiques/compilation-bibliographique-references-technico-economiques-ab-france>.

Some experimental farms are only or for part in organic farming : Thoirigné d'Anjou (Pays de la Loire), Ferme des Bordes (Limousin), Ferme de Trévarez (Bretagne), Laqueuille (Auvergne) ... managed by a technical institute, an agricultural chamber, the national agronomic research institute...

Several agricultural high schools have a farm or a part of their farm in organic farming, some time with a experimental station like P.A.I.S in Suscinio Higt school. Some private farms shelter experimental station, like Reine Mathilde plateforme in Normandy (farm is GAEC Gilbert).

French research examples in organic farming:

Salamix (June 2015 - May 2018), INRA, funded under the AgriBio 4 program.

The project consists in setting up an experiment based on the comparison of three farming systems producing meat from grassland resources (permanent meadows in mountain areas). It is a question of studying the interest of the sheep / cattle mix, in comparison with specialized sheep or cattle systems, in terms of finished meat production and quality, performance and animal health, grassland production, farmer work and environmental impacts. The project is conducted on the Inra site of Laqueuille (Massif Central), which is being converted to the AB.https://www6.inra.fr/comite_agriculture_biologique/Les-outils-de-recherche/Les-programmes-INRA-dedies-a-l-AB/Inra-AgriBio/AgriBio-4/SALAMIX

Optialibio (Oct 2014 – June 2018), Idele (Technical institute in animal husbandry): this project (Optimization of autonomy and resistance to climatic hazards of organic cattle farming systems) aimed to produce references and tools to strengthen the adaptation capacities of organic cattle systems to climate hazards by improving their autonomy food.<http://idele.fr/reseaux-et-partenariats/optialibio.html>

Covalience: Co-design of management tools and assessment of cross-pollination selection for local adaptation and resilience of agro-ecosystems: case of maize (ITAB, CASDAR funds, 2018-2021).

<http://www.itab.asso.fr/programmes/re-covalience.php>

Bt ID-1528: Tools for identifying, tracing and controlling *Bacillus Thuringiensis* contamination from fork to fork (Casdar 2015-2019, ITAB).

Resilait: Resilience of organic dairy systems; optimization of competitiveness factors and development of more efficient systems for future risk management (Casdar funds, 2016 - 2019 ITAB / IDELE, technical Institutes of animal breeding and of Organic farming).

French participation to European projects in organic farming examples:

Liveseed: Developing seeds and organic breeding in Europe (H2020, 2017-2021)

<http://www.itab.asso.fr/programmes/re-liveseed.php>

Diversifood: Enrich the diversity of cultivated plants through a multi-stakeholder approach to increase the performance and resilience of different agro-ecosystems, and develop new healthy and tasty products (EU, 2015-2019)

<http://www.itab.asso.fr/programmes/diversifood.php>

EcoOrchard (2015-2017) Innovative design and management to boost functional biodiversity of organic orchards, a Core Organic project

https://www6.inra.fr/comite_agriculture_biologique/Les-outils-de-recherche/Les-programmes-INRA-dedies-a-l-AB/Core-Organic-Europeen/CORE-Organic-Plus-2015-2018/EcoOrchard

Organics in Finland – developing slowly but surely

Author: Dr Jaakko Nuutila, Natural Resources Institute Finland, Jaakko.nuutila@luke.fi



The Finnish organic food system has had the same development phases as many other countries producing or consuming organic food, but the current volume of production and the market share is lagging severely behind the best-performing European Union countries. Finnish authorities set several development programmes with quantitative goals for the growth of the organic sector, the latest for 2020.

The consumers' growing interest toward organically produced food enabled the mainstream retailers to increase their assortment of organic products, providing consumers better access to organic products.

Until 2010 the organic products were mainly considered as "service products" for demanding consumers. Positive market development in Nordic countries and consumers increased interest in Finland as well. The consumers, who buy the most organic products, also buy them more often from specialty shops and directly from the farms.

Organic farms and production

In 2017 the share of organic from total agricultural area was 11.7 % with an increase of 10 % from 2016 and the largest shares were in North Karelia, Kainuu, South Savonia and North Ostrobothnia (27.1%, 24.1%, 15.8% and 14.9%, respectively). The average farm size was 56.8 ha and the number of organic farms was 4,641. There were 83 other companies in primary production, such as greenhouses, beehives and mushroom cultivation. The largest share of farmland was for grass and for oats (65% and 15%, respectively). Other plants were rye, wheat, barley, peas, fava beans and turnip rape. Animal production was concentrated in 2016 on bovines: under 8 months old (561 farms), heifers (538 farms), calvers (504 farms), bovines (538 farms), sheep (344 farms), hens (48 farms) and beehives (63 farms). There were minor amounts of farms with pigs, poultry and broiler chickens. Finland has the largest organic certified wild collection area in the world. Where forests cover 86% of the land area in Finland, approximately half of that (13 M ha) is certified organic area. There are 37 edible berries and lingonberry, bilberry and cloudberry have the highest commercial value. Only a small share of wild mushrooms is utilized commercially.

Organic consumer markets

The development of the organic market has been rapid during the last years, The organic market in Finland was worth 273 million euros in 2016 and trade specialists evaluate that organic food sales will have increased to 410 million euros by 2020. The market share of organic products is 2%, but varies greatly between product categories. When the retail companies dominate the markets and widen the food margin they, on the other hand, enable an efficient distribution of organic products around the country

Governmental goal for year 2020

The current government programme aims at a 20% organic share of agricultural land, sufficient production for domestic markets, tripled organic markets in comparison to 2013 and 10% organic share in 2015 and 20% organic share in governmental catering by 2020 (MMM 2014). The aim of the current programme is to produce products that are not harmful to the environment or to the welfare and health of humans, plants and animals (MMM 2014). The same arguments have been presented in other programmes also.

The earlier goals have not been reached and following the current development trend, it is highly unlikely that the current goals could be reached either. In the current government goal for the year 2020, the share of organic agriculture area is set to 20%. The increase from 2016 to 2017 was 10 %, but to reach the goal, a 19.6 % annual increase is still needed for the remaining years. The market development shows as well the increasing trend, although it has been slower than expected. The goal set for the organic markets from year 2014 to 2020, with the current development trend, requires an annual increase of 25.5 % for the remaining years.

The future growth of organics in Finland

With its Nordic location and pure nature, Finland offers exceptional facilities for superior organic production leading to excellent organic export opportunities. To meet the current official and future organic development goals the several obstacles and challenges found in various areas of the Finnish food system have to be discussed openly and addressed. Multi-disciplinary research is needed to recognize the phenomena behind various reasons for slow development of the organic in the whole value chain. It is crucial to have the courage to change the model for providing information about externalities of food systems from subjective to science-based. Food chain-level collaboration is needed to enhance agreement to mutual rules and fairness of the activity of the food system. During 2018 the Finnish organic action plan will be updated. This will provide a good opportunity for multi-stakeholder discussions about the vision and measures for Finland to reach Organic 3.0.

Organic Agriculture in Argentina

"Organic", "ecological" or "biological" products are obtained from an agricultural system whose objective is to produce healthy and abundant supply of food, taking care of the environment and preserving natural resources.

The demand of consumers for organic products is increasing in the world, more farmers grow organically, more land is certified organic, and 178 countries report organic farming activities. The world organic food market reached more than 72 billion euros in 2016. The United States is the leading market with 38,900 million euros, followed by Germany (9,500 million euros), France (6,700 million euros) and China (5.9 billion euros).

Argentina has 3.1 million hectares of certified organic production and ranks 2nd in the world ranking behind Australia (Figure 1). The ten countries with the largest organic agricultural areas represent 74% of the world's organic agricultural land.

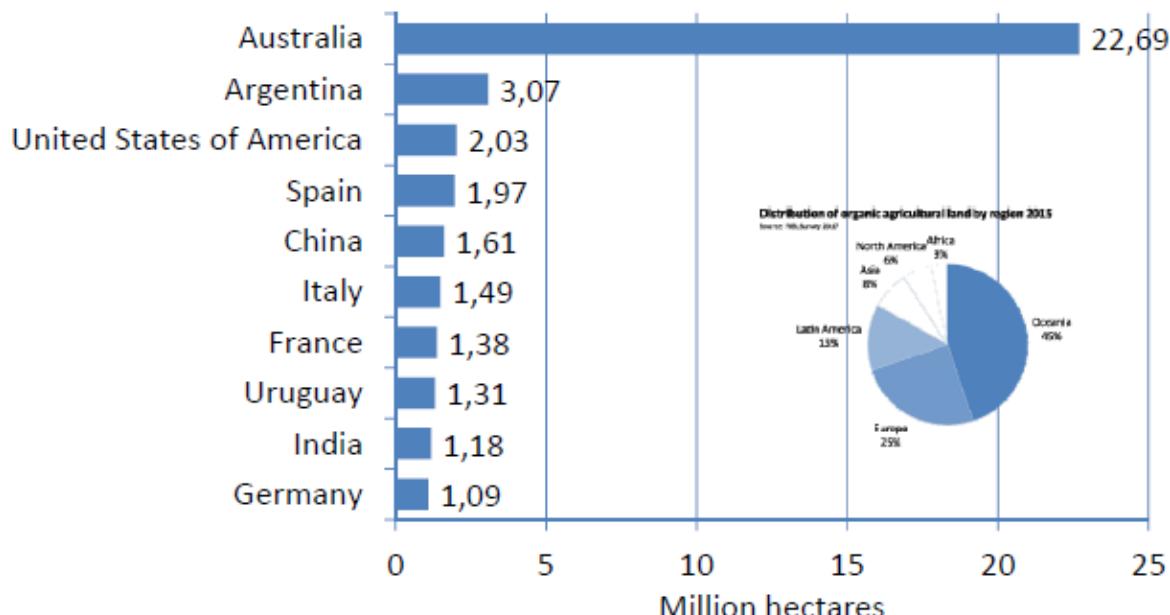


Figure 1. Ten countries with the largest areas of organic agricultural land.

In Argentina there are official regulations for organic products: Law 25.127, with different decrees and resolutions that regulates organic production and its control system.

SENASA (National Health Service and Food Quality) is the competent authority in the control of compliance with official regulations on the entire production-commercial process. In addition, it enables certifying entities to control operators (producers, processors and marketers). SENASA controls the certifying entities through audits and inspections to the operators. This provides transparency, ensures quality and complies with the international requirements. There are 4 certifying bodies authorized by 2017.

Since 1996 in Argentina the area under organic production has been increasing with certain fluctuations according to the years. Animal production occupies 2,814,069 ha

and of these 95% are in Patagonia (Figure 2). The largest volume of organic production, according to official statistics, is exported (99%), but 1% goes to the domestic market, which is continuously increasing.



Figure 2. Argentina. Location.

The most important destination of the production is United States, surpassing 50% of the total exported. Then, the main destination is the European Union, of which Switzerland stands out as the most important buyer, the Netherlands, Germany, the United Kingdom, Denmark, Ireland, Italy, Romania, Poland and Sweden. There are other destinations to be highlighted, such as Japan, Canada, Ecuador, Russia, Brazil, Angola, Algeria, Costa Rica, Colombia, Bolivia, Australia, Chile, China and Korea.

Among the most important productions, it can be mentioned cereals and oilseeds, such as wheat, soybeans (very required in organic form because they are not transgenic or have been cultivated without synthetic products), rice, sorghum, corn, chia, flax, barley, sunflower, peanut, oats and rapeseed.

Fruits include apples and pears as the most important horticultural crop export, citrus fruits are destined for the domestic market.

As for vegetables, the occupied hectares are scarce and the export products are mainly garlic and squash. This activity is mainly intended for sale in the domestic market, where more than 50 varieties of vegetables are distributed throughout the year in various types of commercial channels.

Animal production has not evolved in last years. Sheep production takes place in Patagonia with "dirty wool" and "top wool" products, as well as meat. There are other productions of organic animals, which are llamas, goats, guanacos and bees for honey production.

Among the industrialized products, it can be mentioned wines, soybean and wheat flours, olive oils, sunflower, and rapeseed, applesauce and pulp, dried apple, frozen strawberries, fruit juices, tea, yerba mate, among others (Figure 3).



Figure 3. Organic labeled exported products: Wine, yerba mate and apples

Domestic market grows permanently in vegetables, fruits, cereals and oilseeds and flours of various types, jams, tea, yerba mate, wines, mushrooms, aromatic herbs, sugar cane, olives, oils, juices, dry fruit, baked goods made with organic flours, cheeses, honey, etc.

Requirements for the certification of organic production are high, and for small producers are not easy to meet, that is why small groups of farmers are promoting other forms of "participatory" type certification where the control system is facilitated and cheaper and they can access this quality guarantee with a lower cost and ease.

Among the existing organizations in Argentina linked to organic production it can be mentioned the Argentine Movement for Organic Production "MAPO", created in 1995 is the most important organic Non-Governmental Organization of the country registered as a civil society without profit. It brings together all entities, people, companies or NGOs, which are related in some way to organic production, or establish contacts and agreements with small related organizations. Its associated are producers, certifiers, researchers, scientists, technicians, educators, entrepreneurs and organic marketers. This organization aims to promote organic production, disseminate and demonstrate to the community the benefits of the production system and organic food, ensuring the quality and transparency of organic

markets and express themselves in defense of the organic movement and its members.

Universities do research in different topics related to organic production and also there are extension programs that give advice and trainings to farmers, families and people in general. In this regard, greater financing will be needed in the future to strengthen the sector.

Sources:

SENASA. National Service of agrifood health and quality. 2016. Situation of organic production in Argentina during 2016. 43 p.

Willer, H. and J. Lernoud. 2017. Organic Agriculture worldwide 2017: current statistics. Research Institute of organic agriculture (FiBL). 38p.

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OFSP - Organic Food System Program

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OFSP is an international program that combines theory and practical implementation. Ongoing activities include networking, research, training and capacity building, and practical implementation projects. Special events such as workshops, conferences, and round tables happen across the calendar. Outputs include publications, information brochures, websites, scientific papers, recommendations, and audio/visual media.

The OFSP is a programme on taking and further developing the organic food system as a pilot model and living laboratory for sustainable food systems. We use the organic food system as a model to understand drivers of sustainable food consumption and to link this to real-world examples of sustainable production and consumption. It is important to understand that the OFSP will use the organic food system as a kind of window for exploration but not as the exclusive solution. There are many commonalities between healthy (e.g. WHO 2014) and sustainable diets (e.g. FAO 2012); organic agriculture is not necessarily a component of achieving either of these goals, but can contribute to enhancing both and may act as a model to bridge health and sustainability. The OFSP works with proven and innovative diet models and works on food production based on latest knowledge of best practices for regenerative agriculture and nutritional quality. Partners of the OFSP have detailed knowledge of various regional diets such as Mediterranean Diet and New Nordic Diet and are connected to a vast network of organic farming practitioners and research.

Read more on:

<https://organicfoodsystem.net/>

<http://www.oneplanetnetwork.org/initiative/organic-food-system-program-ofsp-organic-food-systems-models-and-living-laboratories>

Agroecology Supports Developing Organic Horticulture

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The ISHS President (Prof. Roderick A. Drew) and the board members as well as Congress President (Prof. Yüksel Tüzel) and working groups of the local hosts acknowledged for their energy, creativity and organizing a wonderful congress.

Istanbul, in Turkey hosted the 30th International Horticulture Congress (12-16 August 2018) under the auspices of the International Society for Horticultural Science (ISHS) which provided an excellent platform for scientists, students, consultants, engineers, extension agents, growers, industry, trade and consumer organizations, policymakers and other professionals having an interest in horticulture.

The impact of input intensive horticultural production elevates concerns for product and environmental safety not only for food but also non-food products. Organic horticulture is accepted as a solution to both well-being of the populations and the environment. ISHS as the main conference organizer and specially Professor Uygun Aksoy (Chair of the Scientific Committee) kindly supported the concepts of Organic Horticulture with considering specific scientific symposium on **Organic Horticulture for Wellbeing of the Environment and Population (2nd International symposium)**; a Short Training Course on **Organic Agriculture**; a Workshop on **Soil**

and Soilless Organic Production Systems, and a workshop on Agroecology and Education: Socio-ecological Resilience to Climate Change.

Organic systems bring solutions to not only the production chain but provide public services mainly for agro-ecosystems, rural landscapes and rural and urban populations. Agroecology is conceived as a holistic model of global change that includes technical, social, organizational and political dimensions. It favors new learning conditions by abandoning old, compartmentalized models of knowledge in which disciplines often ignore the complex realities of human, agricultural, and natural environments. Learning from action research provides answers to immediate questions and contributes in the long run to the consolidation of a sustainable food system based on local reality knowledge and with students prepared to deal with complex problems in the future. The workshop on soil and soilless organic production systems established a platform to discuss the current state-of art especially in the EU, USA and Canada and exchange experiences in drawbacks and advantages of such systems. The participants agreed that the basic principles of organic should guide the practices rather than commercial interests, and that further research results are required to develop the standards.

The outcomes of the workshop on Agroecology and Education:

- Consolidate agroecology in higher education towards the formation of solid professionals in the subject.
- Promote an agroecological network in the International Society of Horticultural Science.
- Strengthen research and extension projects in agroecology with the methodology Participatory action research (PAR).
- Join forces for a future symposium on agroecology



Scientists from 82 countries attended in this congress. Turkey's history as well as agricultural and agro-industrial potential of research activities was introduced to all international participants.



Prof. Roberto Ugas (Prof. of Agroecology and Organic Agriculture, National La Molina Agricultural University, Lima, Peru) gave an inspiring key note presentation on "Agroecology and organic agriculture in Latin America" in which he stated the most relevant issues to innovations and agroecological best practices in the world.



This can be the start of more Agroecology and Organic Horticulture across the ISHS world! All speakers at the Agroecology and Education workshop agreed with Roberto's pledge for more agroecology science approaches in horticultural science. Left to right: Prof. M. Reza Ardakani (Iran), Prof. Ulrich Schmutz (United Kingdom), Prof. Beatrix Alsanius (Sweden), Prof. Martine Dorais (Canada), Prof. Uygun Aksoy (Turkey) and Prof. Maria Claudia Dussi (Argentina).



The relevant commission in ISHS with the title of “Agroecology and Organic Farming Systems” launched to develop and support science in horticultural organic movements in which Prof. Martine Dorais (Protected crops and organic horticulture, Plant science department, Laval University, Quebec, Canada) elected as the Chair and Prof. Maria Claudia Dussi (Agroecology Facultad de Ciencias Agrarias, Universidad Nacional del Comahue, Rio Negro, Patagonia, Argentina) became the Vice Chair. Participants of the business meeting on agroecology and organic farming systems are shown in the picture.

Improving soil conservation and resource use in organic cropping systems for vegetable production

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Terminating ASC with roller crimper

What's the best way to manage Agroecological Service Crops? Comparing the usual management of ASC as green manure vs the use of roller crimper in a no till system, SoilVeg found that the latter generate an higher overall environment benefit, although with lower yields.

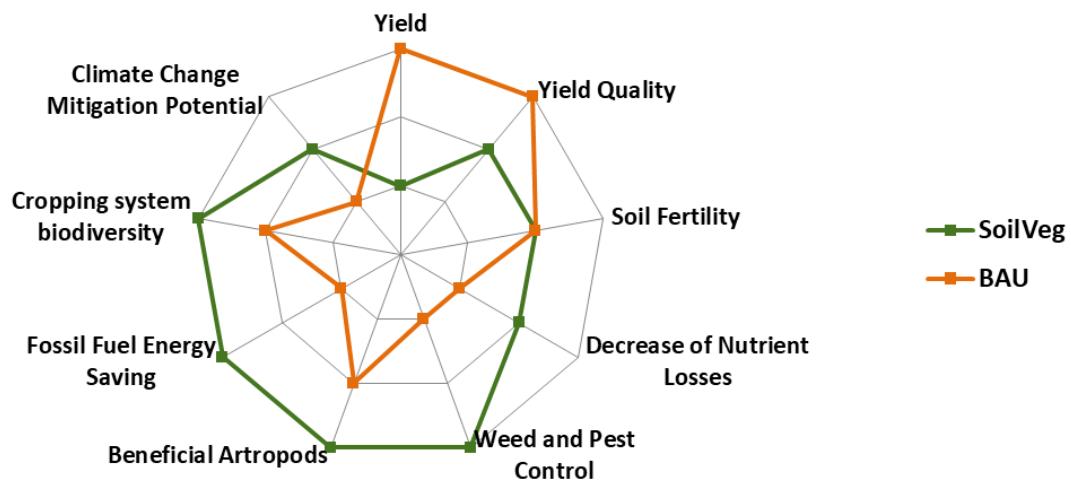
SoilVeg is an applied research European project involving 9 European countries and 14 partner institutions for 3 years. It aimed at introducing the no-till technique and at improving the management of agro-ecological Service Crops in organic cropping systems for vegetable production in order to get better soil conservation and resource use.

The ASC crops are often introduced in the agro-ecosystem to provide or enhance ecological services promoting the whole soil-plant system equilibrium. Indeed, ASC introduction have impact on soil quality and fertility and soil nutrients losses and they also contribute to increase soil C sink potential, to mitigate GHG emissions and influence weeds, diseases and pests occurrence.

But what's the best way to manage ASC? This has been SoilVeg main challenge. Project team has been testing the hypothesis that, compared with the incorporation of ASC into the soil as green manure, the use of the no-till technique, based on the use of the roller crimper reduces nutrient losses from the soil/plant system and GHG soil emission.

This spider graph highlight, at a glance, the difference between the two examined systems - Business As Usual which use ASC as green manure and SoilVeg which utilize the roller crimper in a no till system of management – showing how they score on a variety of indicators. The orange defined area marks the benefits gained by BAU while the green defined area highlights the benefits of using SoilVeg devised management.

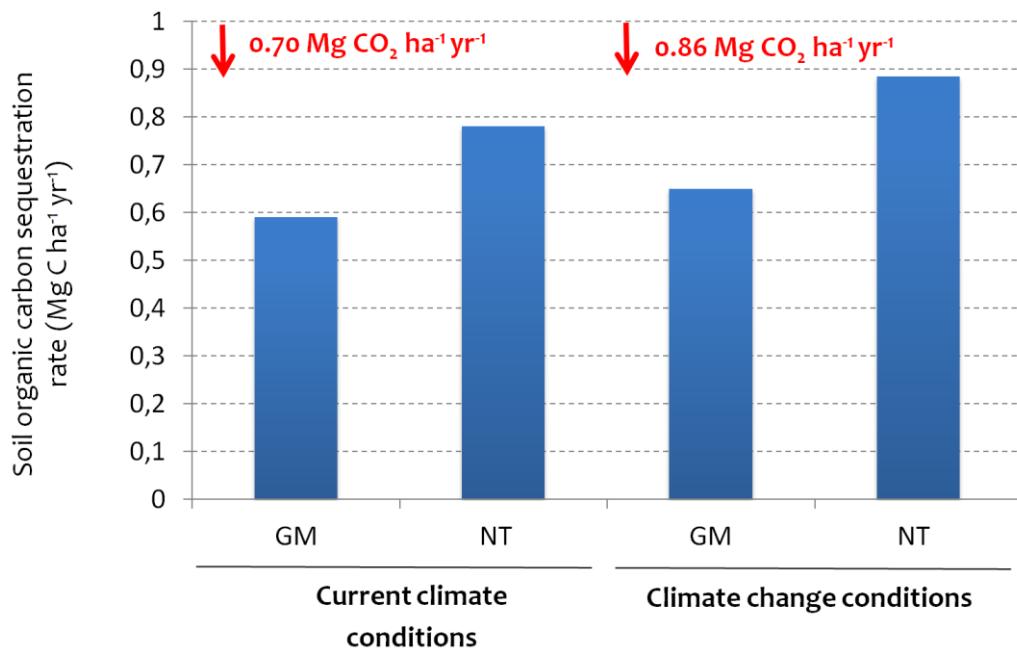
As it is clearly showed, SoilVeg management generate an higher overall environment benefit, scoring higher on environment related indicators such as climate change mitigation potential, fossil fuel energy saving, loss of nutrients and overall biodiversity. However, it implies lower yields and lower yield quality.



Simulations have shown how no-tillage contributes to mitigate climate change through Increasing soil carbon sequestration and, at the same time, reducing soil N₂O emissions.

Data gained in Spain and elaborated by DayCent over a 30 years simulation predicted a decrease of CO₂ emission of 0,70 Mg per ha per year under the current climatic conditions and of 0,86 Mg per ha per year under adverse climate change scenarios and a 10% reduction of soil N₂O emissions when comparing no-till with green manure management.

- FTB experiment, Spain
- 30 years simulation (mean value)



Even when dealing with energy analysis the project reached some crucial points: namely, no-till ASC operations generally require less energy than conventional management through green manure which requires additional chopping and plowing in the soil. If properly set, ASC mulching induced energy saving to weeds control and for irrigation.

Furthermore, it is interesting to note that weed communities changed in function of ASC and termination strategies and that roller crimper treatments reduced weed species richness but also contributed to weed control thanks to weed density reduction. Thus, SoilVeg trials open up the hypothesis of stressing weed contribution to agroecosystem functioning without the need of controlling them.

Moreover, the introduction of ASC with no-tillage seems a good strategy to maintain higher system biodiversity. Roller crimper proved not to be harmful to arthropod

populations and proved to promote the conservation of important soil predators. Actually, the use of roller crimper enhanced the presence of important groups of predator arthropods.

On the basis of the results obtained within the SoilVeg Project scientists have identified the next research needs to further implement and to enhance the impact of the no-till techniques in the organic vegetable systems and these research needs are all focused on how mitigate yield reduction in no-till systems; i.g.

- Identify high biomass production ASC species and *cultivars*
- ASC proper sowing density
- ASC species and *cultivars* screening for their attitude to be flattened (in order to get a low regrowth)

- Cash crop density and planting layout
 - Cash crop and *cultivars* attitude to be cultivated in no-till systems
 - Plant breeding for no-till (namly, appropriate rooting system)
 - Roller crimpers design
 - Innovative no-till transplanter design (In-line tillage and ASC root pruning)
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Read more at the CORE Organic website: <http://www.coreorganic.org/> , find publications from the project at: <http://orgprints.org/view/projects/soilveg.html> or watch the videos at: <https://vimeo.com/234648899> .

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Note: This press release has been translated and broadcasted at national level by the project partners in all the involved Countries (Italy, Slovenia, Denmark, Spain, Belgium, France, Latvia, Estonia).