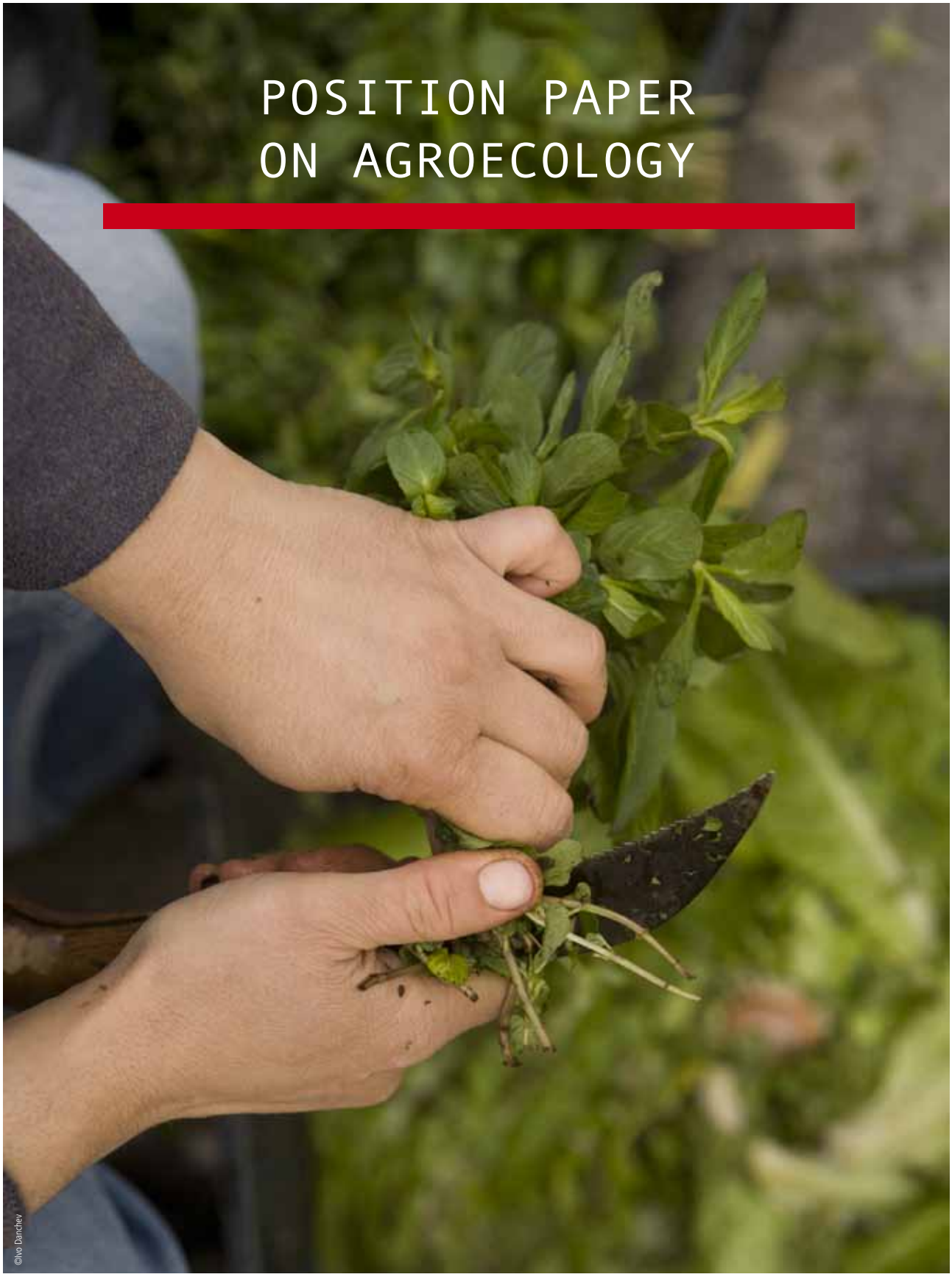
Slow Food®

POSITION PAPER ON AGROECOLOGY



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1. Introduction

A lively debate is underway in Europe on the subject of agricultural sustainability. This document analyzes problems connected with the industrialization of agriculture and the simplification of agrosystems, which have caused the loss of biodiversity and a sharp decrease in ecosystem services fundamental for agriculture and society.

Slow Food promotes agroecology as a keystone for ensuring access for all to a diet rich in nutritive substances and respectful of cultures, for preserving biodiversity and natural resources, for dealing with climate change and for restoring agriculture and farmers their central role in the agrifood system.

2. The context

Agriculture occupies a third of the surface area of the planet (about 1.5 billion hectares – Jason 2004) and constitutes the central activity of most of the world population.

In 2001 Bill Vorley, a researcher for the International Institute for Environment and Development (IIED) proposed a distinction of farming agricultural systems into three categories:

• 'Rural World 1': farmers and entrepreneurs, a minority who own vast tracts of land and disposable financial and other assets, who produce for the market and are thus connected into the global agrifood economy, and who have often benefited liberally from state subsidies and credit programs.

• "Rural World 2": so-called 'traditionalists,' namely family farmers and small-medium landed peasantry who, besides producing for family consumption, are also able to allocate a small part of their production to the market. They generally enjoy land property rights and are often organized into associations.

• "Rural World 3": so-called 'survivors,' namely subsistence smallholders who manage to produce just enough for family consumption. Their livelihoods are precarious and fragile, they often emigrate, they enjoy few rights and they receive minimum wages.

Besides these categories, it is also necessary to remember that, especially in the Global South, many farmers have no access to land and are forced to offer their labor to others, while their families often suffer from malnutrition (Lovisolo, 2013).

3. The problem

Analysis calls attention to paradoxes such as: global overproduction and, at the same time, the impossibility of many people to have access to food; the efforts of the various national and international institutions to ensure food safety and security against increasingly vast sections of the population who eat unhealthy and insufficiently varied food.

This imbalance is due to two closely interdependent factors: on the one hand the heavy industrialization of agriculture during the Green Revolution, and on the other the consequent replacement of pre-existing agroecological systems with a different productive system (Benten et al., 2003). Still today, the increase in global demand for food commodities (in both industrialized countries and developing countries) is being addressed with the adoption of agricultural practices—advised, formulated and developed by a large section of the scientific community—whose sole aim is to increase quantities produced.

Slow Food defends traditional skills as a source of wisdom, as the very core of technical and scientific knowledge. These skills can help to disseminate ecological methods of production and food consumption, and thus have to be preserved as part of a dynamic exchange: vertical (between generations) and horizontal (among communities in different countries and between different worlds, official science and traditional skills, for example). Protection of traditional skills has to move forward in step with innovation and research, and dialogue between different ambits is fundamental.

The consequence of the industrialization of agriculture has been an increase in the size of farms and a drastic decrease in (natural and semi-natural) fallows on farms and in surrounding areas, which causes a high level of homogeneity and imbalance.

The simplification of agroecosystems has brought about a loss of biodiversity and a consequent drop in the supply of ecosystem services fundamental for agriculture and society (Tscharntke et al., 2005; Zhong et al., 2007). The Millennium Ecosystem Assessment describes four categories of ecosystem services in order of importance:

• support for life (eg, the nutrient cycle, soil formation and primary production);

• provisioning (eg, food, drinking water, material and fuel production);
• regulation (eg, regulation of the climate and tides, water depuration, pollination and pest control);
• cultural values (aesthetic, spiritual, educational, recreational and so on). Industrial agriculture is based on the concentration of resources (oil and phosphate fertilizers, for instance) from different parts of the world in areas of cultivation. Resources are extracted from vast faraway geographic areas and earmarked for circumscribed production areas, while the food products derived from them are delivered to other areas still. Discarded and waste food within the system is not restored to production areas, as would happen in a biological cycle, but are transported and conveyed to other spaces (dumps). In this sense, industrial agriculture does not respect the principles of a circular economy (a priority item on the current European Commission agenda). In a circular economy, in fact, flows of organic matter are reintegrated into the biosphere, while in the prevailing agricultural system flows of organic matter become refuse and pollute the biosphere (produced in excessive amounts, manure, for example, does not become a fertilizer but, rather a pollutant).
This system exploits resources, notably outstripping the capacity of the planet and single ecosystems to regenerate them.

The environmental and social consequences are:
• Soil impoverishment/degradation
• Eutrophication and fixation of surface and under-surface waters
• Loss of biodiversity
• Increased greenhouse gas emissions
• Creation of dead zones in seas and oceans
• Release of toxins into food chains
• Exposure of farm workers to phytopharmaceuticals, and of others through diet
• Climate change and greater vulnerability to its impact
• Increased debt induced by a number of factors, among which increased costs for farmers resulting from the use of pesticides
• Multinationals' oligopoly over production factors
• Small producers' inability to compete on the global market
• Loss of access to land, hence uneven distribution of resources.

4. Agroecology as an answer to the problem

The term 'agroecology,' coined more than 80 years ago, refers to the analytical, comparative and experimental study of the biological, ecological and social processes that influence agricultural systems (Altieri, 1991). The concept was revived and strongly driven by the environmentalist movement in the 1970s, and translated into the 'rediscovery' of the technologies of indigenous agricultures that seek to adapt crops to environmental, biological and economic variability to reduce risks and preserve the soil over the course of time.
These mechanisms exploit renewable local inputs by involving the management of resources other than the main crop (Altieri, 1991). Agroecology defines a cultivated field as an ecosystem in which the same ecological processes take place as in other plant communities, such as the cycle of nutritive substance, prey/predator interactions, competition, commensalism and successions (Altieri, 1991). Based on these premises, agroecology analyzes the form, dynamics and function of ecological relationships in order to 'manipulate' agroecosystems to 'improve production and to produce more sustainably, with fewer negative environmental or social impacts and fewer external inputs' (Altieri, 1991). One of the most interesting aspects of agroecology is the awareness that an agroecosystem is not influenced and determined exclusively by biological or environmental factors but also by important social factors (the involvement of local communities, for example, and the cultural context or the producer-consumer relationship), which require that the production system be interpreted not only from an agronomic point of view but also from a much broader perspective.
Agroecology cannot be defined exclusively as a scientific discipline or as a social movement or even as an approach to agriculture. It is, rather, a concept that intersects with all three.
Although the number of scientific works dedicated to the subject has increased in the last few years (Soldatinseri, Wezel, 2009; Schaller, 2013), and despite growing recognition of agroecology's value worldwide, it is still too often perceived as a set of practices to be applied only in given contexts, and it is believed that, as such, it cannot contribute to an increase in global sustainability. In actual fact, agroecology is a valid model for agriculture as a whole insofar as it is based on the idea of implementing a set of key principles (listed below and common to all farming systems), designing them and adapting them according to context (Schaller, 2013). It is a model that not only sets itself productive goals, but is also mindful of a

system's social equity and environmental sustainability. Unlike the conventional agronomic approach, which focuses on the diffusion of uniform technologies (equal in every context), agroecology stresses vital principles such as biodiversity, nutrient recycling, crop-animal-soil synergy and interaction, and resource regeneration and conservation.
The technologies promoted by agroecology are based on local competences and adapt to the agroecological and socio-economic conditions of every context. In this system every single element is interconnected with and dependent on the others, interacts in synergy with the surrounding physical environment, and supplies resources and essential services for agriculture and livestock farming.

Though the term 'agroecology' is assigned different meanings by different authors (Altieri et al, 2015; Wezel et al, 2009; Stassart et al, 2012), it is nonetheless possible to identify a set of common principles that are described and emphasized by all:
• increasing and recycling the biomass and achieving a balanced flow of nutritive substances by using compost and applying crop cultivation techniques such as green manure;
• ensuring favorable conditions for the terrain (cover cropping, polyculture, mulch with organic matter) and a high level of organic substances and biological activity in soils;
• minimizing the loss of nutrients by implementing closed systems in which the interaction between livestock farming, production and fertilization permits the maintenance and/or growth of organic substance and soil vitality without recourse to external and/or semi-closed inputs in which, in the absence of livestock, green manure, rotations and polyculture are used to protect soil fertility;
• promoting the functional biodiversity of the system (species, breeds, microorganisms in the soil, landscapes);
• promoting biological interactions within systems (reducing external inputs), paying special attention to the presence of entomofauna useful for creating environments with balanced insect populations, reducing/modifying the need for crop protection inputs.

The application of these principles reduces the use of non-renewable resources that could cause harm to the environment or the health of farmers and consumers (Pretty, 2008) and activates endogenous development dynamics, also from a social point of view. For agriculture itself is a coevolution of culture and nature, man and landscape (Zimmerer e Bassett, 2003; Wells, 2011). Industrial agriculture and the food system have increasingly invalidated this relationship by increasing the physical and cognitive gap between producers, consumers and environment.
As a consequence, engaging with sustainable agriculture means addressing its socioecological nature and understanding that agriculture produces social, cultural and ecological landscapes.

5. What Europe has done

Since 1970, the EU common agricultural policy (CAP) has incentivized intensive agroindustrial methods, drawing criticism and protest on account of the various environmental and social problems that have subsequently emerged. One of the main criticisms regards the impossibility, or at least the difficulty, for small-scale producers (and family farmers) to access Community aid either because of their size or, very often, because they do not fit into the intensive agricultural model proposed. In this way, sharp imbalances have been created in local areas, provoking disparity of treatment between intensive flat land farming and farming in marginal areas (often in mountains and hills), where pedoclimatic and social conditions demand diversified models.

In 2010 the European Commission changed its policy significantly and began to propose 'greening' measures (Arc 2020, 2010). The new CAP obligates farmers to dedicate at least 5% of their arable land to areas of ecological interest as a condition for receiving 30% of CAP direct payments. Areas of ecological interest are areas that favor agroecological processes such as pollination, soil formation and the regulation of water flows and nutritive cycles. However, numerous exemptions and legal shortcuts—such as the use of the equivalent practices, namely environmental agro-climatic commitments undertaken in accordance with rural development and national and regional certification systems—have made the measure totally ineffective. The full list has been drawn up by Member States and varies considerably according to different situations. One of the shortcuts allows for the use of chemical fertilizers as nitrogen fixers and pesticides in areas of ecological interest.

SEEDS

In 2013 the European Commission presented a proposal on plant reproductive material, the so-called 'seeds law.' The law was designed to replace 12 basic acts on seeds drawn up in the 1960s and 1970s and now dated. The European Parliament threw out the Commission's proposal, 650 MEPs (against 15) judging it unsuitable for and contrary to the interests of farmers, especially smallholders, whom it would have weighed down with a heavy administrative burden. On February 25 2015, the Commission withdrew the proposal and the recently presented working agenda for 2016 does not envisage the presentation of a new law.

ORGANICS

The growth of the organic agriculture recorded internationally over the last few years is a confirmation of general interest in the sector. Nonetheless, its production and market shares are still limited, accounting for about 1% of arable land, the equivalent of about 40 million hectares (Crea data, 2015).

In Europe, Spain and Italy are the countries with the most land devoted to organic agriculture (1.6 and 1.2 million hectares respectively in 2012), followed by Germany and France with just over a million hectares each. According to EuroStat data, the countries of the EU-15 have the highest share of land given over to organic agriculture in the Union (78%), but in the 2002-2012 period they were less dynamic in terms of annual growth (-5%) than the countries of the EU-27 (+13%), where Community support seems to have added greater impulse to the sector.

In any case, a certain inadequacy is evident in the legislation in force—Council Regulation (EC) no. 834/2007 and subsequent amendments and integrations—on account of its complexity and the difficulties involved in enforcing it. At the request of the Council, the European Commission proposed a new regulatory framework for the sector (presented in March 2014 together with an Action Plan for the future of organic production in the European Union). The new regulation is intended to enter into force by the end of 2017.

The general aims of the proposal, the fruit of wide-ranging public consultation, are: to improve the quantity and quality of organic production in the EU, increase consumer confidence in organic products through a stronger system of guarantees, to remove obstacles to development in the sector, to ensure operators a broader market.

More specifically, it is necessary to consolidate and harmonize regulations both inside the EU and for imported products, eliminating most of the exceptions to the rules introduced by the previous legislation, such as those on reproductive material and animal feed. The new legislative proposal also introduces a rationalization of controls, which are currently numerous and carried out by different authorities. The new proposal also addresses another important subject, organic production on small farms, offering the latter the opportunity to participate in a system of group certification designed to allow them to share costs and administrative burdens.

The new proposal adopts a concrete approach to some of the problems of the present system in the European organic system, increasing transparency (for example, by providing for the traceability of the animal feed supply chain and increasing commitment to the prevention of fraud) and increasing consumer confidence. This procedure is widely promoted by all European ministers who regard as essential: support for research and innovation, especially within the framework of European Innovation Partnerships (EIPs); support for the sector through the new CAP; and promotion through on-line information, for example, and the organization of specific campaigns to increase the consumption of organic products.

Doubts about the proposal still linger. It fails, for example, to mention and valorize the potential of organic agriculture, yet to be fully expressed, in terms of social function and the creation of public goods. Driven by growing market interest, many certified organic farms are increasingly resembling conventional ones, often producing over vast areas, practicing monoculture and blandly replacing synthetic chemical products with 'natural' chemical ones authorized by EU and national regulations, thus overlooking priority actions such as rotations, polycultures and organic defense. Albeit referred to small-scale producers, the new legislation fails to fully address these problems but concerns itself principally with promoting an increase in organically cultivated areas and in consumption.

At European level, until a few years ago the debate on the sustainability of agriculture focused on the 'clash' between organic and conventional (partly in terms of the aid provided for in the measures of national Rural Development Programs). Today, instead, the question of the sustainability of agrarian systems involves a number of actors within the system and, above all, civil society movements, farmers and consumers.

Besides the EU, some of the most influential actors in the debate on food and sustainability at world level (the US and UK governments, FAO, IFAD, World Bank, CGIAR and Foundations such as that of Bill and Melinda Gates) are hoping for so-

called 'sustainable intensification,' which may be defined as the process of improving agricultural yields with minimum environmental impact and without extending the present area of farming land. From the first, insofar as it incorporates a set of agroecological practices, this approach might appear attractive. De facto, however, sustainable intensification continues to concentrate exclusively on increasing harvests, ignoring other variables that are just as or more important for food security. This vision offers us a glimpse of a sequel to the Green Revolution in a more sustainable guise. The external inputs envisaged by sustainable intensification include GMOs, promoted as part of the solution alongside classic agroeconomic practices (The Royal Society, 2009; IFAD, 2010; Diamond Collins et al., 2012).
In a report published in 2009, the Royal Society argued that approaches should be assessed on their results and that crop yields can be improved with genetics (with conventional techniques and molecular genetics) and crop management practices (with agronomic and ecological methods). The reference to the use of GMOs is related to a possible increase in crop resistance to climate change (patenting drought-resistant crops, for example), to attacks from parasites (semi-tolerant of herbicides) and to the improved nutritional quality of food (Golden Rice to counter vitamin A deficiencies, for example). According to IFAD, the second generation of GM crops, designed to resist drought, flood, heat and salinity, might even 'play a greater role in addressing this set of issues, which can greatly contribute to reducing the risks faced by smallholder farmers' (IFAD, 2010). As Oxfam has already pointed out, such approaches are unlikely to be compatible with the agroecological development paradigm (Oxfam, 2014).
This vision of agriculture does not question the prevailing system today, but simply proposes minimum updates on sustainability to conform with environmental legislation (EU directives, for example). It also ignores completely the holistic vision of' agroecology and, more specifically, its political and social dimension. The agroecological approach, in fact, introduces a paradigm shift to the visions of farming systems, especially to their objectives and expected performances (Caron et al., 2014), in order to understand and manage interactions between environment and production (Levidow et al., 2012a, b).

6. What needs to be done

Today's agrifood systems are faced with multiple challenges: ensuring access to an appropriate healthy diet, rich in nutritive substances, for all; helping economic growth, hence eliminating poverty; preserving biodiversity and natural resources; coping with climate change; restoring a central role to agriculture (and farmers) inside the agrifood system.
It is necessary to address these challenges simultaneously since all the various elements are interconnected.

Agroecology represents an important turn in this direction because, compared to other sustainable farming models:
• it is based on local plant varieties and animal breeds and draws on their ability to adapt to any changes in environmental conditions;
• it avoids the use of synthetic chemical products and other technologies that have had a negative impact on the environment and human health (heavy machinery, for example);
• it uses resources efficiently (nutrients, water, non-renewable energy etc.) to reduce dependence on external inputs;
• it valorizes traditional technical skills, promotes participative solidarity systems by creating farmers' networks and incentivizes the sharing of innovations and technologies;
• it lowers the ecological footprint of production, distribution and consumer practices, thus reducing water and soil pollution as well;
• it boosts the adaptability and resilience of the production and livestock farming system by maintaining the diversity of the agroecosystem;
• it promotes farming systems based on social cohesion and sense of belonging by reducing phenomena of land abandonment and migration.

In order to promote and disseminate an agroecological approach, a number of different actions have to be undertaken and it is fundamental to overcome the numerous obstacles that have impeded real global change to date.
Below we list a set of recommendations for CSOs (civil society organizations), producers' associations and institutions to disseminate the agroecological approach.

Civil society organizations and associations of producers who adhere to the agroecological movement ought to:
• make every effort to raise awareness of and disseminate the key messages of agroecology among politicians involved;
• collaborate with researchers and professionals to improve knowledge of agroecological approaches;

• ask national governments and research centers to replace the present measures for economic growth with measures that take into account negative externalities (pollution and the irrational use of air, soil and water, for example);
• create a space for political sharing by developing closer partnerships between organizations sensitive to the issues in question, such as ESAFF (Eastern and Southern Africa Small Scale Farmers' Forum) and ROPPA (Réseau des organisations paysannes et de producteurs de l'Afrique de l'Ouest);
• support the efforts of farmers and agroecological networks by orienting buying choices (short supply chains, direct sales etc.).

The EU ought to:
• grant institutional and political recognition to local, regional, national and international networks of agroecological farmers;
• provide funds to finance these networks and organizations, and, while respecting their autonomy, facilitate their functioning and strengthen their capacity to participate in research and the horizontal diffusion of agroecological innovations;
• envisage incentives (such as credit schemes, assistance policies and fiscal measures) to favor the expansion of ecological practices, taking into account the ratio between their positive and negative externalities;
• protect farmers from imports of cheap food products;
• support the development of 'short' sales circuits (producers' shops, ethical purchasing groups, community-supported agriculture, consumer networks) to narrow the gap between consumers and producers;
• promote the use of local produce from farms that apply agroecological techniques in public procurement procedures (for public canteens, for example);
• upgrade health, phytosanitary and quality legislation to cater for the specific constraints of small producers and agroecological production;
• guarantee respect for the rights of farmers with regard to the principal natural resources: seeds, land, water and so on;
• improve smallholding farmers' access to fair credit to facilitate investment, individual and collective, in the development of agroecological approaches;
• increase public investment to guarantee the provision of public goods, such as rural infrastructure (technologies, roads, electricity, information and communication, sustainable irrigation systems), insurance policies for climate-related risk, research services and the propagation of farming techniques;
• promote public research and training (at all levels) on matters of agroecology;
• adopt governance mechanisms to ensure that all policies that have a direct or indirect impact on food systems (energy policies, trade, agricultural research, soil use, planning policies and so on) sustain radical change to the present system in the direction of an agroecological approach;
• promote agricultural and environmental policies for coherent, coordinated biodiversity to ensure the heterogeneity and diversity of agroecosystems;
• ensure the participation of farmers' and other civil society organizations in governance structures on bilateral and multilateral programs that can influence agroecological approaches.

7. Slow Food in action

The Presidia: since 1996, with its Ark of Taste project, Slow Food has catalogued more than 2,900 products in danger of extinction. With the Presidia, it made a further step forward, entering the world of production, to find out more about local areas, meet producers, understand their realities and difficulties, and promote their products, their work and their knowhow. Over the years the project has become one of the most effective vehicles for the implementation of Slow Food's agricultural and biodiversity policy.
The Presidia support small-scale traditional food products that risk disappearing, valorize local areas, revive old skills and processing techniques, and save native animal breeds and fruit and vegetable varieties from extinction. The producers of each Presidium agree upon a production protocol in which they delineate their agroecological practices. In the case of the products of conventional agronomy, the project also requires that producers be accompanied towards the adoption of agroecological practices.
Today more than 450 Slow Food Presidia involve more than 13,000 producers in 62 countries, 326 of whom in the EU alone.

Gardens: the Slow Food local network cultivates school, urban and community gardens in Europe and the rest of the

world. Slow Food gardens are based on knowledge and valorization of local resources, from soil to seeds to the biodiversity of plant varieties, and follow the principles of agroecology. There are more than 470 gardens in Europe and more than 2,000 in the rest of the world.

The narrative label: a label that does not replace the compulsory label but completes it, where necessary, with additional information about varieties and breeds, cultivation, production, breeding and processing methods, areas of origin, and animal welfare to enable consumers to make conscious, discerning buying choices.

Slow Food

Slow Food is an international association involving millions of people passionately dedicated to good, clean and fair food. It attracts cooks and chefs, young people, activists, farmers, fishers, consumers, educationalists, experts and scholars in more than 150 countries. Slow Food's mission is to combine the pleasure of good food with commitment to local communities and the environment. According to Slow Food, food must be:

- **Good.** The flavor and aroma of a foodstuff, recognizable by educated, well-trained senses, is the sum-total of the producer's skill, choice of ingredients and production methods, which in no case should alter its naturalness.
- **Clean.** The environment must be respected and sustainable farming, livestock breeding, processing and production practices must be applied to the entire supply chain. Every phase in the agrifood production chain, consumption included, must protect ecosystems and biodiversity, thereby safeguarding the health of consumer and producer.
- **Fair.** Social justice must be achieved by creating workplace conditions mindful of human beings and their rights and capable of generating adequate remuneration, by pursuing balanced global economies, by practicing comprehension and solidarity, by respecting cultural diversities and traditions.

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