

Some reflections on the future of agriculture and the role of family farming in the current food production context with examples from Italy

Fernanda Guerrieri

The Food and Agriculture Organization of the United Nations (FAO)

Correspondence: Fernanda.Guerrieri@fao.org

Abstract

Today, hunger and rural poverty persist and intersect with food insecurity and under nutrition in complex ways. Hunger can be defeated and agriculture can be an important part of the strategy to eradicate it. Agriculture is not just about food production, but a very important means of income generation. Empirical evidence suggests that compared to growth from other sources, growth in agriculture generates welfare gains that are much more sustainable for the poorest segments of the population. However today agriculture requires more investment in knowledge, partnership, attention to gender and respect for natural resources. The today farmer is an agronomist, an entrepreneur, an economist and an environment custodian. Family farming is part of the solution to eradicate hunger and produce sustainably. This article wants to highlight some of the main challenges of the today farming underlining the major contribution modern and sustainable agriculture can bring.

keywords: Sustainable agriculture; family farming; women's empowerment; R&D

The global context

Agriculture is not just about food production, but a very important means of income production. Recent empirical evidence suggests that compared to growth from other sources, growth in agriculture generates welfare gains that are much more sustainable for the poorest segments of the population. There are a number of elements for optimism surrounding the current international focus on hunger and agriculture. First, there is a significant increase in donors including non-traditional donors' interest in food and agriculture. Major donors are providing more support than has been the case for many years (WB and regional development banks, the European Union, the Bill and Melinda Gates Foundation, some of the BRIC countries in particular Brazil and China, etc.). Secondly, climate change has alerted many to the critical moderating or exacerbating role that terrestrial and aquatic food production can play, depending on policy choices. Thirdly, there has been a new thinking on options for technology and policy partly driven by China, Brazil and India's growing roles in development. This has led to an unprecedented attention to the financial interest of new technologies also for food production.

Research and Development and Government support

Much agricultural investment in research and development (R&D) is private. Commercial imperatives have no hunger reduction as their principal focus. In Italy the extraordinary agriculture development of the last century was prompted by the modern and efficient agriculture extension system that operated in the last part of the XIX century and in the first part of the XX century. For over a century (1863-1970) the government, in recent times through the Farmers' Associations, funded research and extension. The first extension structure was the network of the "*Cattedre Ambulanti dell'Agricoltura*" (Walking Chair of Agriculture). For nearly a century, the Walking Chairs of Agriculture have been the most important institution of agricultural education, especially aimed at small farmers, with the support of the most advanced intellectual circles, the academic world and the local authorities. In 1935 the Chairs were transformed into provincial Public Inspectorates of Agriculture, ceasing to be enactment of local initiatives and becoming executive offices of the Ministry of Agriculture and Forestry. A director (with the title of University professor) held the chair with one or two assistants, all graduates in agricultural science. They were flanked by helpers with various qualifications. Education activities were carried out through conferences held in public places, visits to farms, collection and dissemination of data especially on market days and later guided visits for farmers to the most important agricultural fairs and expositions. Moreover, many of the chairs were publishing pamphlets and newspapers. Women received special training in animal husbandry, vegetable production and home economy. This system allowed Italian farmers to open to innovations as the use of agricultural machineries, greenhouses, biotechnology, attention to food safety, use of improved vegetative material, chemical fertilizers and pesticides. In that period farmers started diversifying their crops and activities (vegetable, flower, seed crops, orchards, livestock) and began to export processed agricultural products wine, olive oil, cheese, etc. The farmers more advanced and innovative became leaders in their own geographical areas and were considered a point of reference for junior or less prepared farmers. All these changes have significantly influenced the agrarian structure leading to the disappearance of the "*mezzadria*" (share-cropping system) and the creation of the small family enterprise. At the present time R&D is in the hands of the private companies in Italy. Companies provide information and advice with the aim to sell technology and equipment. The farmers need to consult their colleagues and look for the most suitable and eco-friendly solutions by themselves.

At European level, the Common Agriculture Policy of the European Union supports farmers. Support takes the form of better targeted income assistance channeled towards active farmers with a special attention to the most vulnerable ones. It involves the use of instruments to increase the economic and environmental competitiveness of farming and provides incentives to help farmers to adopt sustainable farming methods.

In many other parts of the world while publicly funded R&D in the agriculture and food sector is more likely to address the needs of the poor, it can also be driven by self-interests that divert it from hunger reduction as its principal objective. With much technology development taking place ever-more distant from the farmer's plot, stronger mechanisms are needed to ensure representatives of poor farmers and groups experiencing chronic hunger and poverty have a meaningful seat at the table where decisions are taken. Small farmers need to be involved in assessing R&D priorities, the benefits and risks of different options, development of regulation, and ways to widen access to the gains that science and technology can bring. There is space for more innovation and a tolerance for innovative approaches. A new generation of flexible, adaptable, democratic mobile technologies offer much potential in terms of monitoring, innovating and responding to hunger. An active extension service is vital to present farmers the raising opportunities, win their resistance to changes and engage them and their families.

Innovation and bottom up research plans are also key to empower women who too often are excluded from the decisional process and face the challenge to use technologies that are not appropriate for them or do not solve their most urgent needs. Women in low-income countries play a critical role in agriculture, and agriculture plays a critical role in women's livelihoods. Empowering women and focusing on their unique challenges will bring much wider and often more sustainable gains in terms of malnutrition, education, poverty and productivity.

Hunger today

Ending hunger is one of the greatest world challenges. Today, there are over 800 million people who suffer from hunger and perhaps an additional two billion who, while having access to sufficient macronutrients, suffer from the 'hidden hunger' of not having enough vitamins and minerals. However for the first time in man's history in the last two decades many countries must address problems of both underweight and massive overweight.

The hunger challenge was already recognized in the target of Millennium Development Goal (MDG) 1 and it has been reflected again in the Sustainable Development Goals in the Post 2015 agenda of the United Nations. 72 countries have met the MDG Hunger Target (to halve the number of undernourished people from the 1990 level in 2015); more than 29 have met also the more challenging World Food Summit (1996) target (to reduce by 2015 at least by half the number of people in the country suffering by undernourishment). Now, additional nine countries are close to achieving the hunger MDG.

There are substantial difficulties in defining and measuring hunger, under nutrition and food security. This issue contributes to a serious shortfall in the evidence and data available to inform policies. For example, in recent years household surveys have demonstrated that, in some countries, the Food and

Agriculture Organization of the United Nations (FAO) data may underestimate the number of people suffering from hunger by as much as a factor of three. This is the reason why a new FAO methodology that tries to give Voice to the Hungry is being tested, to collect the experience of the people where they live.

Hunger and under nutrition

Hunger intersects with food insecurity and under nutrition in complex ways. It is important for policy-makers to take a broad view of the nature and causes of hunger and its many impacts, including the severe and long-lasting nature of the effects that hunger and under nutrition can cause, particularly in children and especially if it is experienced during the first 1,000 days of life and by pregnant women.

Hunger results in increased morbidity and mortality, through diseases caused by nutrient deficiency, and a greater susceptibility to diseases. It leads to a behavior that undermines development, including the sale of assets, the withdrawal of children from school (particularly girls) and into the labor force, outmigration and, in the worst scenario, permanent destitution, prostitution and child trafficking. It also contributes to the onset of armed conflict. The food price rises of 2007–08 and their impacts, particularly on the poorest households, highlighted the inability of the current global food system to protect the most vulnerable from volatility in food prices. The poor farming families have not been able to take advantage of the price increase due mainly to the sector structural problems as poor market infrastructure, capital availability, labor, export policy as export bans, etc. Several of the factors that enable poor people to access money and other resources to consume, purchase or grow good-quality food lie from outside the food system and often out of the control of the poor people. However, there is much that national and international actors can do to defeat hunger through the food system itself.

There is consensus that for people to be free of hunger there has to be physical, economic and social access to food. Strong political commitment and leadership will be required to make it possible.

Making agriculture work harder to reduce hunger

In the countries where hunger is most chronic (south Asia and sub-Saharan Africa) agriculture can be a major contributor to its eradication. For this to happen, agricultural development must be designed and receive incentives with hunger reduction as a primary goal. Food production has a powerful potential role in ending hunger. It is worth to notice that:

- Production is essential for physical access to food.
- Research, technologies, institutions, infrastructure, education and information that support increased sustainable productivity in an

equitable manner can augment the supply of a diverse, locally available, healthy and attractive food at affordable prices.

- Improvement of social access can be obtained by empowering women and other vulnerable groups.

In the poorest countries, agriculture provides not only food for households, but it is also a very important means of income generation. For many governments, the purpose of agriculture is seen primarily as food production. In reality, agriculture is a complex activity that needs pronounced entrepreneurial skills. It requires flexibility to adapt to multiple agro-ecological conditions; social analysis to understand issues of equity and exclusion; environmental skills to work, among other challenges, within the climate change mitigation and adaptation agendas; understanding food safety concept and importance; and political capacity to forge new alliances that enable agriculture to leverage additional funds and gain influence. This means a repositioning of agriculture as a professional activity of which hunger, poverty reduction and sustainability are at the core. Sustainable food production should be seen as the means, not the end. It has a clear social function to maintain social, human and natural values and resources. This new way to see agriculture would imply changing the formal and informal training of professionals in agricultural development, the ways in which Ministries of Agriculture provide services, are organized and staffed, and how the media and the society perceive agriculture. These changes will have the power to attract young people into the sector, efficiently support women farmers and promote innovative association initiative (*El Banco de Tierra*– Land Bank - in Spain, Youths and Women Cooperatives, Agro tourism in all its multiple forms, etc.).

Smallholder farming has been long neglected. It is not a single solution, but an important component of both hunger and poverty reduction.

For long time agricultural transformation has been largely perceived as a move towards larger capitalist farms, dominated by large scale agribusiness companies. Even so, family farms still are the dominant mode of production in many developed and developing countries. Poverty is constantly evolving due to factors such as climate change, rising energy and food prices, the production, even if now declining, of biofuels, and increasing migration and urbanization. Family farming continues to play a decisive role in developing sustainable responses to these challenges, as most of the world's poor people work on family farms. In accordance with FAO data, globally, there are over 570 million farms in the world, 90 percent of which (more than 500 million) are family farms. Family farms occupy approximately 70 percent of the world's farmland. Only in Italy, in accordance with the last General Census of Agriculture (2010), there are 1,620,884 agricultural enterprises; almost 99 percent of them utilize family labor. In all continents family farmers (fisher folks, small forestry and agro-forestry farms, etc.) play a vital role in rural areas where the large majority of those facing hunger and poverty live.

Opinions about the role of smallholder farms in the future of agriculture and hunger reduction are strongly divided. Advocates underline that (a) growth and poverty reduction start with agriculture; (b) smallholder farming is efficient at poverty reduction; and (c) improvements in technology, extension and markets are needed. The skeptics argue that smallholders' agriculture is hardly sustainable and that an 'exclusive' focus on smallholders is unwise. Nevertheless, half of the world undernourished people (urban poverty is rapidly increasing), three-quarters of Africa's malnourished children, and the majority of people living in absolute poverty can still be found on small farms and globally small farms produce 70 percent of the food of the world.

Some family farmers tend to produce for their own consumption (subsistence farming) and to sell to local markets, the large farms produce for national and international markets. It is important to note that family farming structures, activities and functions are affected by diverse national and regional contexts. These include a large variety of factors such as agro-ecological conditions, territorial characteristics, available infrastructures, policy environment, access to markets, land and natural resources and also access to technology and extension services, access to finance; demographic, economic and, socio-cultural conditions and availability of specialized education.

Given these peculiar sets of conditions, policy makers need to design rural development strategies and policies which take into account the dimension of family farming and its potential in sustainable rural agriculture development.

In all contexts however it is crucial farmers are fairly compensated for their productive work and for the environmental services that they are now requested to provide. This is not always the case. In Italy in the fifties, during the wheat harvesting period when labor exchange was common, a farmer had to work two days in a neighboring farm to be compensated with 100 kg of wheat. Nowadays the market value of a quintal of wheat is less than the cost of three working hours of a non-specialized worker. The market value of the wheat represents 12 percent of the price of the cheapest Italian bread (2.2 Euro per Kg); less than 4 percent of the French baguette in the center of Paris and 2.2 percent of the baguette sold in the centre of London. Meanwhile the cost of all agricultural inputs as fuel, fertilizers, pesticides and labor has increased exponentially. There is a strong need to balance farmers' income and the cost of the food made largely by the value added by the agro-industry and trade actors.

Particularly in this moment, in many areas, the migration-development nexus is increasingly in the forefront of the debate, both in academic research and in the international arena. The growing importance of migration, which is now often not anymore a family decision but a security-prompted action, and remittances is changing the socio-economic scenario of the agro-rural sector in most developing countries. Recently International Finance Institutions as for example the International Fund for Agriculture Development (IFAD) based in Rome, are focusing on innovative ways to finance agriculture development and poverty

reduction. In accordance with recent data, annual world remittances are few times higher than the Official Development Assistance (ODA). The use of remittances could be a powerful instrument for development. Diaspora communities can contribute to a dynamic agricultural sector, able to ensure the sustainable development of family farming. In fact family farming can deploy quickly its potential productivity if an enabling policy environment is put in place.

The rural exodus of young people and gender inequality in terms of access to productive resources are two issues that are of primary importance in terms of stabilizing the rural world. Women farmers face a gender-gap. The key role played by women in family farming in agricultural activities, home care, nutrition and reduction of food waste and losses is not recognized in terms of income earned, asset ownership and opportunities for development. Youths are increasingly losing interest in agriculture and rural areas and are looking for jobs in urban areas. The availability of adequate goods and services and job opportunities and the elimination of the social prejudice towards farming would convince more youths to stay closer to the family farm. Young generations would significantly benefit from off-farm jobs that allow them to also continue supporting, even if part-time, the family farm. To do that, Governments need to invest more in rural infrastructure, facilities and leisure to attract new businesses and create more opportunities for off-farm employment. This support also reflects the most countries' desire to bring life back to the countryside.

The Future of Food and Farming: Challenges and choices for global sustainability

Hunger cannot be ended by agriculture alone. Other policies and investments to increase food access, income, reduce differences in gender power and improve nutrition status are vital. There has been considerable recent innovation in different forms of social protection to improve access to food. Cash transfers – with or without conditions –, the establishment of public-private investment funds to finance start-up companies in developing countries are all mechanisms that are quickly becoming the main type of programme for social protection to help vulnerable households be less exposed, less sensitive and more adaptive to a range of shocks. The forthcoming Third UN Conference on Financing for Development that will take place in Addis Ababa in July 2015 has the objective to respond to the key question about how to finance the Sustainable Development Goals. Although it is expected that in Addis Ababa the industrialized countries themselves will no doubt be pushing mostly for measures that also benefit their own enterprises abroad as well as their well-to-do citizens, the international community expects to see innovative funding mechanisms for development and social protection. However, it is important not to view social protection policies uncritically. Social protection can compete with agriculture for political support and may only be affordable for the poorest segment of the population. It is therefore only one of the measures needed to escape poverty and promote sustainable development.

Work with farmer associations

Associations of smallholders offer a valuable platform for their members to negotiate R&D priorities, access inputs, sell products, purchase inputs and share knowledge. In Italy even the smallest farms tend to subscribe to one association, despite the requirement for a membership fee and the now limited range of services mainly limited to administrative support. This is true also for women and part-time farmers. Globally, in rural areas farmer associations have great potential for smallholders particularly if they provide technical advice and the type of support that has been identified and requested by their constituency. An excellent example of association, based on the concepts and principles of people centered learning, are the FAO Farmer Field Schools. The Farmer Field School Approach (FFS) was developed as an alternative to the conventional top-down extension approach. It uses innovative and participatory methods to create a learning environment, including learning networks, in which the land users have the opportunity to learn for themselves about particular crop production problems with the focused guidance of experts from the Government who initially act as facilitators. The school members learn about their production constraints and ways to address them, through their own observation, discussion and participation in practical learning-by-doing field exercises. FFS are open to women and youths, all members of the rural community can actively participate and have the right to raise concerns and make observations. FFS have been in several countries a vehicle for democracy, gender equity and transmission of know-how particularly important when there is a large generational gap (e.g. HIV/AIDS affected areas).

Women empowerment

Women play a key role in agriculture, although the food system's reliance on female labor is often not matched by the power they have to influence decisions over what is grown and how it is used. Among other tasks, women around the world plant, weed, harvest, process, and market crops, look after livestock and fishponds, fetch water and fuel-wood and prepare food. A wide-ranging body of empirical work suggests that increasing resources controlled by women could promote increased agricultural productivity. In 2010 FAO concluded that *"if women had the same access to productive resources as men, they could increase yields on their farms by 20-30 percent. This could raise total agricultural outputs in developing countries by 2.5-4 percent which would in turn reduce the number of hungry people in the world by 10-12 percent"* (State of Food Insecurity - SOFI 2010-11). In many instances, however, the roles women play in farming and production are not formally recognized. A revitalized agricultural research and development system is dependent on, and can contribute to women's enhanced role, equal access to credit, stronger rights to land and water use and inheritance. Women should be involved in the design of technology that should meet their needs, and ensures their opportunity to participate fully in extension services and farmer cooperatives. The eradication of gender-based discrimination (such as land ownership and user rights) and steps to actively

promote women's status (such as quotas for representation in agricultural decision-making bodies) are essential.

Women have a crucial role to ensure that under nutrition needs are efficiently tackled by direct and by indirect interventions. 'Direct nutrition' interventions focus exclusively on improving nutrition status – for these the main issue has been the challenge of scaling up and women as care givers are essential elements. 'Indirect' interventions refer to programs and policies that do not include improvements in nutrition as a primary objective, but have the potential to be beneficial against under nutrition. Programs relating to agriculture, social protection and women's status fall within this category. It has been noticed that when demand for female labor is high, for example in electronics, garment, or food-processing activities, women may abandon agricultural production, leaving it to younger and older family members. This is a common phenomenon in certain countries where women have much more off-farm job opportunities and often can contribute more than men to the family economy. Women financial gains could be invested in the farm allowing the family to produce sustainably and ensuring children education and family members' access to health care.

Conclusions

For the past 15 years the best estimate of the number of hungry people has been stuck between 800 million to one billion people. Currently FAO data indicate that approximately 810 million people suffer from hunger. At least twice this number suffers from the 'hidden hunger' associated with micronutrient deficiency while obesity in children and adult is going up very quickly. The current food system only recently has started focusing on these numbers and there is every reason to fear that these numbers will rise, given growth in global population and income. Food production will have to increase globally by 60 percent just to keep up with demand. Meanwhile food waste and losses should be reduced to the minimum from the current 30-40 percent. The whole food production and consumption paradigm should adapt to the rapidly changing world environment.

There is a worrying disconnect between the widely accepted need to focus on hunger and the actual evidence and data available. Investment in agricultural growth is essential. They have much higher returns in terms of tackling poverty than growth elsewhere in low-income economies. In medium and high-income economies investments in agriculture and extension services are crucial to produce safe and high quality food sustainably. Innovation and people centered approaches are important.

A vibrant family farming sector serves as a powerful tool for stabilizing rural areas by providing a great deal of the agricultural output while being key for sustainable development, employment generation, local development and social cohesion in rural areas and most important now providing highly needed environmental services. Family Farmers run crop-diversification based agricultural systems and preserve traditional food products, contributing both to a balanced diet and the safeguard of the world's agro-biodiversity. Family farming is part of the solution to eradicate hunger and produce sustainably.