



ORGANIC AGRICULTURE AND THE MILLENNIUM DEVELOPMENT GOALS

DOSSIER





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***ORGANIC AGRICULTURE AND THE
MILLENNIUM DEVELOPMENT GOALS***

LIST OF ABBREVIATIONS

EJF	Environmental Justice Foundation
EPOPA	Export Promotion of Organic Products from Africa,
FAO	Food and Agriculture Organization of the United Nations
GHG	Greenhouse Gas
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
IFAD	International Fund for Agriculture Development
IFOAM	International Federation of Organic Agriculture Movements
IPCC	Inter-Governmental Panel on Climate Change
MDG	Millennium Development Goals
NGO	Non-Governmental Organization
PES	Payment for Environmental Services
PGS	Participatory Guarantee Systems
SSA	Sub-Saharan Africa
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
WHO	World Health Organization
WFP	World Food Program
WTO	World Trade Organization

FOREWORD

This dossier is the first attempt by IFOAM to document how organic agriculture can contribute to achieving the MDGs. While some studies and projects are beginning to shed light on the topic, there is a lack of long-term data collected and compiled on the subject. It should thus be noted that, although organic agriculture certainly contributes to achieving the MDGs, more research is needed to authenticate and substantiate the contribution. This dossier and the topic of organic agriculture's contribution to the MDGs will be revisited in five years.

EXECUTIVE SUMMARY

Around 850 million people continue to suffer from hunger, and more than 1 billion still live on less than 1 dollar a day. How organic agriculture will contribute both directly and indirectly to achieving the Millennium Development Goals (MDGs) is the scope of this dossier.

In 2000, the member states of the UN adopted the Millennium Declaration which established eight MDGs:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), malaria, and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development.

Although the contribution of organic agriculture to the MDGs depends on local agro-ecological and socioeconomic contexts, in general it provides a long-term solution to poverty and food insecurity. Moreover, it has the ability to empower women, improve human health, promote environmental sustainability and enhance and preserve biodiversity. The contribution of organic agriculture to achieving the MDGs is even greater when entire communities, as well as indirect benefits are considered.

With increasing evidence and awareness of the advantages of organic agriculture and its contribution to the MDGs, a number of measures can be adopted by governments and policy makers to encourage organic agriculture on a wider scale. Included in this dossier are the “Organic Agriculture MDGs” - goals that are meant to widen the horizon of the current MDGs, and provide a perspective on what organic agriculture implies.

INTRODUCTION

DEFINITION OF ORGANIC AGRICULTURE

Organic agriculture, also ecological or biological agriculture, has been well defined in a number of documents, especially by IFOAM:

“Organic agriculture includes all agricultural systems that promote the environmentally, socially and economically sound production of food and fibers. These systems take local soil fertility as a key to successful production. By respecting the natural capacity of plants, animals and the landscape, it aims to optimize quality in all aspects of agriculture and the environment. Organic agriculture dramatically reduces external inputs by refraining from the use of chemo-synthetic fertilizers, pesticides, and pharmaceuticals. Instead, it allows the powerful laws of nature to increase both agricultural yields and disease resistance. Organic agriculture adheres to globally accepted principles, which are implemented within local social-economic, climatic and cultural settings. As a logical consequence, IFOAM stresses and supports the development of self-supporting systems on local and regional levels.” (IFOAM 2000)

Organic agriculture does not, as is widely misunderstood, merely refer to a form of farming that does not use chemical inputs. Rather it implies “understanding the farm as an organism, in which all the components, the soil minerals, organic matter, microorganisms, insects, plants, animals and humans interact to create a coherent, self regulating and stable whole. Reliance on external inputs, whether chemical or organic, is reduced as far as possible” (LAMPKIN ET AL 1999). Based on agro-ecological principles of diversity and soil fertility management, organic farming implies a degree of awareness of the functioning of, and inter-relationships (between animals, plants, and the environment) within the farm system.

Organic agriculture is the only agricultural production method in the world that is based on international standards. The IFOAM Basic Standards have been democratically developed over the last 20 years (IFOAM 2005a). During the 1990s the CODEX Alimentarius (a joint FAO/WHO body) also developed international organic guidelines, which are very similar to the IFOAM Basic Standards in their scope (FAO/WHO CODEX ALIMENTARIUS GUIDELINES FOR ORGANIC FOOD).

THE MILLENNIUM DEVELOPMENT GOALS

In 1996, world leaders gathered at the World Food Summit and committed to reduce by half the number of hungry people by the year 2015. After a series of international meetings during the 1990s, other major goals were identified within the same time horizon. These commitments were brought together in the Declaration adopted by the UN Millennium meeting in September 2000 and were later restated in the form of eight Millennium Development Goals (MDGs). The Declaration was endorsed by 189 countries. Of course, longer term commitments (>10 years period) for agricultural productivity, physical and institutional infrastructure development, and capacity building are necessary for efforts to achieve scale and impact.

Nevertheless, with the UN Millennium Declaration, the world made an agreement: Poor developing countries committed to good governance and development policies based on sound science and the scaling up of best practices. More specifically, governments of developing countries agreed to review, evaluate, and reform policies for their impact on hunger, remove the constraints that impede progress toward hunger reduction, and make allocations for hunger reduction in national budgets. Developed countries, on the other hand, committed to providing greater financial and technical assistance, market access, and knowledge transfers, and to put in place suitable policy reforms at the global level (UN MILLENNIUM PROJECT, 2005).

After the formulation of the MDGs and their reaffirmation at the Monterrey Summit in 2002, some encouraging signs to resolve the fight against hunger have emerged (FAO, IFAD, WFP 2005). For example, there has been some progress in East Asia and the Pacific, especially in China, since 1990 (UN MILLENNIUM PROJECT 2005). In South Asia, Central America, the Middle East, North Africa, and West Africa, however, figures indicate that the number of hungry people has actually increased. Sub-Saharan Africa (SSA) is facing the largest and fastest increase in food insecurity worldwide. In fact, around 40% of people in SSA are undernourished, among the highest rates in the world. From these worldwide figures, it is clear that much dedication and work is still needed to achieve the MDGs.

THE MILLENNIUM DEVELOPMENT GOALS AND ORGANIC AGRICULTURE

Although organic agriculture plays an important role in achieving individual MDGs, its impact is far greater when considered holistically due to the interrelationships among the MDGs. In many cases, the positive impact of organic agriculture in achieving one MDG in turn has a positive impact on achieving other MDGs. Thus, the old adage “the whole is greater than the sum of its individual parts” has much relevance to the topic of organic agriculture’s contribution to achieving the MDGs.

Goal 1. Eradicate extreme poverty and hunger

Around 850 million people continue to suffer from hunger and more than 1 billion still live on less than 1 dollar a day. Starvation during famines and disasters, however, represent only 10% of the world’s hungry. The remaining 90% are chronically undernourished. Chronic undernourishment results in underweight and stunted children—as well as high child mortality brought about by associated diseases (UN MILLENNIUM PROJECT, 2005).

There is some reluctance to the idea that organic agriculture could play an important role in alleviating these problems and helping to feed the world. Often, the reluctance has arisen from popular misconceptions about organic farming. For example, many doubts are rooted in the experiences of the north - where the conversion period to organic almost invariably leads to a temporary decline in yields- at least in the early years (IFOAM, 2006).

Despite these concerns, studies have shown that, in the long term, organic agricultural methods can work to increase farmer’s yields. In some cases, organic methods have actually doubled crop yields per hectare for the involved farmers (SCIALABBA & HATTAM, 2002) thus further reducing

poverty and hunger pressures. Higher yields from organic agriculture not only bring higher incomes, also less investment in input on the farm adds to the economic return to the farm. Certified organic products also bring premium prices. All in all, it has been observed that small-holder farmers increase their income after the conversion period from 30-200% (ONDURU ET AL., 2002; PARROT ET AL., 2006).

Increased yields and economic return to the farm are not the only benefits of taking up organic methods. Having a larger variety of crops and adding new productive elements to the farm spreads the risk for crop failure, and investment in knowledge instead of synthetic fertilizers and pesticides builds up the farmer's own possibilities to continuously improve farm management.

Systems that depend upon sustainable use of locally available natural resources and farmers knowledge are far more likely to meet the needs and aspirations of resource poor farmers than those which requires costly or scarce external inputs (PARROTT ET AL. IN HALBERG ET AL. 2006)

In addition, for subsistence farms, non-certified organic farming can play a major role introducing a larger variety of crops, leading to a more staple and diversified outcome and a better diet, where surplus can benefit local access to quality food.

Goal 2. Achieve universal primary education

There is an indirect relationship between organic agriculture and education. When farmers practicing organic agriculture sell their products and get higher yields and incomes (price premium), this extra income is often used to school girls. As a result, the degree of female illiteracy can be reduced in small farmer communities that practice organic agriculture.

Educational opportunities for women, in turn, often lead to an improvement of both the status and incomes of women (MADELEY, 2002). It has been shown that education better equips women to participate in activities that improve agricultural productivity and their economic and social status within the household and the community. In fact, farm yields rise around 22% when women receive the same education as men (IFAD, 2001).

Educational opportunities for women can also play an important role in promoting the health of future generations. Around 43% of the reduction in child malnutrition in developing countries (period 1970 to 1995) is directly related to education received by women (SMITH & HADDAD 2000). The effects of improved education for girls are reflected in the welfare of the next generation: each added year of schooling for a mother results in a 5–10% decrease in child mortality among her children (WFP 2001).

Finally, although organic agriculture is not widely considered to be education in its traditional sense, it nevertheless provides a form of education to those who practice it. Organic farmers must acquire knowledge on key issues that are relevant to organic agriculture, for example, ecosystems, human health, soil-plant interactions and pest management. Moreover, organic farmers may transfer this knowledge to other farmers. In other words, organic agriculture is an important and useful form of education because it enhances knowledge of the local environment, constitutes a learning-by-doing process, and creates a farmer-to-farmer knowledge exchange.

Goal 3. Promote gender equality and empower women

The ancient African proverb “without women we all go hungry” reveals the importance of women in agriculture. They supply much of the labor for agricultural production and perform many activities key to the household economy. In fact, women produce more than half the food in Latin America and South Asia (HAYZER 2003) and 80% in Africa (FAO 1997). Although women work twice as long as men do, there is a real and apparent gender bias with few policies oriented to correct the situation.

Fortunately, many women around the world are taking a leading role in the development of organic (IFOAM, 2006), which has an impact on their empowerment. At the production scale, practicing organic agriculture results in more diversified plots and crops. The diversity calls for women to play a more diverse role in the household economy and to perform tasks of more responsibility (for example taking care of nursing fields, seed-beds, etc.). The added responsibility increases their self-esteem and decision-making power, promoting their empowerment within their family and community. Moreover, because organic agriculture requires specific knowledge and specialized skills, women are exposed to more educational and skills development opportunities.

Organic agriculture’s ability to empower women has further beneficial impacts on food security. The empowerment of women is vital for increasing food output and distribution, and raising nutritional values in rural populations. It has been shown that when women have responsibility over resources, such as land and productive resources, they have a greater capacity to optimize their use, increasing food production and enhancing the nutritional health of their families (MADELEY, 2002).

Goal 4. Reduce child mortality

The death rate from disease among undernourished children is much higher than among those better nourished (FAO 2001). The most vulnerable cohort that faces increased risk of mortality are undernourished children under two and children born with low birth-weight. Of the nearly 12 million children under age five who died in 1995, about 70% were affected by one or more of just four conditions: malaria, acute respiratory infections, undernutrition, and diarrhea (UN MILLENNIUM PROJECT, 2005).

Organic agriculture provides a pathway directed to reduce both child malnutrition and mortality. Since the organic farming system is more diversified than conventional farming systems, children have access to more diversified diets, thus providing them with mostly all nutrients and oligo-elements necessary for their growth (AUBERT & LECLERC 2003). Moreover, the avoidance of pesticide or herbicide use reduces the risk for health-related problems that might affect child survival, especially during their first two years.

Goal 5. Improve maternal health

Many low-income women have been malnourished from childhood. They tend to marry early, typically having their first child in adolescence, and have closely spaced births. Often, malnourished girls become malnourished mothers and give birth to low birth-weight babies (less than 2.5 kilograms at birth) who fail to thrive as infants. Once the children pass 18 to 24 months, the opportunities for them to catch up are highly reduced (UN MILLENNIUM PROJECT, 2005).

Women are more vulnerable than men to malnutrition, and they require a higher intake of proteins and vitamins (FAO, 2001). Organic agriculture helps reduce maternal mortality by promoting consumption of better quality and more diversified food. In fact, the food and products derived from organic agriculture have higher iron (Fe), magnesium (Mg), and vitamin C contents, higher quality proteins in cereals, and greater contents of unsaturated oils (AUBERT & LECLERC, 2003). Although there is still a lack of studies on the subject, some increasing evidence has also shown that organic food may prevent the apparition of some diseases and therefore have an important role in health. For example, polyphenols, carotenes, glucosilates, and terpenes have been detected to be 19-50% higher in fruits and vegetables from organic farming than in those of conventional agriculture (ADAMI ET AL. 2003).

Access to safe drinking water is also important for improving maternal health. Households dependent on well or surface water for drinking are more likely to have increased prevalence of underweight children because the water is more likely to be contaminated (FAO 2001). In much of the world, water contamination results from conventional agricultural practices that leach synthetic fertilizers and pesticides into water systems. According to WHO, in the developing world, a minimum of 40,000 people die annually from ingesting pesticides, either on their food or in their water, and a further 3-4 million are severely poisoned in the developing world. The estimation would be far greater if taking into account that many of the rural poor might not be treated in hospitals. Because organic agriculture does not allow the use of synthetics, it can prevent some health problems arising from water contamination.

Goal 6. Combat HIV/AIDS, malaria and other diseases

Since 1985 some seven million people have died of HIV/AIDS in 27 African countries (MADELEY 2002). As for malaria, according to WHO there are almost 300 million acute cases each year, causing more than a million deaths annually. Some 90% of the burden falls on tropical Africa, where malaria is a major cause of mortality and morbidity in children under five years of age.

The consequences of these illnesses have serious consequences for agriculture and food security. HIV/AIDS in particular, reduces the number of males able to work in agriculture. As the illness progresses and eventually causes death, the productivity of the household economy declines, thus feeding the spiral of hunger and poverty (MADELEY, 2002).

Improved nutrition and diets have the potential to prolong the asymptomatic phase of HIV infection (WHO 2003). Good nutrition enhances the immune system and reduces both HIV/AIDS transmission and prenatal mortality caused by a range of diseases. Some studies, for example, have shown that when micro-nutrients are given to HIV/AIDS infected women, their health and the health of their children are improved (KUMWENDA ET AL. 2002; FAWZI 2003).

Therefore, the same reasoning in favor of organic agriculture given for goals 4 and 5 apply here. Improved and diversified diets permitted by organic agriculture have a positive impact in preventing and reducing illness and helping to cure some diseases (PIWOZ & PREBLE, 2000; ROSEGRANT ET AL., 2005).

Goal 7. Ensure environmental sustainability

Mitigation of Environmental Degradation and Global Change

Environmental degradation, especially land degradation processes, cause shortages of food, lower yields, increased incidences of pest and pathogens, soil erosion, loss of fertility, lower forage availability for livestock, and higher dependency on imported staple crops. Environmental degradation, therefore, increases the vulnerability of the poor and the hungry, especially in marginal areas (UN MILLENNIUM PROJECT, 2005).

Other global changes, most notably climate change, are also expected to have serious implications for the poor. Climate change is predicted to cause an increase of strong rainfall events with subsequent flooding and erosion of the most fertile topsoil layer, which fosters desertification.

In other regions, climate change may make areas that were previously unproductive productive. At the same time, however, the social and economic costs and consequences for poor people will cause other problems, for example, regional armed conflicts over natural resources, such as water. (UN MILLENNIUM PROJECT, 2005).

Organic agriculture can play a role in mitigating the impacts of land degradation and global change. Organic agriculture increases the resilience and stability of the production system, thus decreasing the vulnerability of small farmers to natural disasters and others disturbances (ALTIERI, 2002). For example, after Hurricane Mitch hit the lands of Central America, farmers who used traditional cropping methods suffered less damage than their neighbors who used conventional techniques. The sustainable plots had on average more topsoil, greater soil moisture, and less erosion, and experienced less economic losses (HOLT-GIMÉNEZ, 2002).

In addition to mitigating the effects of global change, organic agriculture also directly ensures environmental sustainability. The environmental benefits of organic agriculture has been widely documented and include the provision of ecosystem services, preservation of biodiversity, lower resource use, environmental protection, landscape values, and reduced energy use (Box 1) (HANSEN ET AL., 2000; STOLZE ET AL., 2000; SCIALABBA & HATTAM, 2002; DABBERT ET AL., 2004).

Box 1. Organic Agriculture and energy consumption

“Organic farming approaches for maize and beans in the US not only use an average of 30% less fossil energy but also conserve more water in the soil, induce less erosion, maintain soil quality and conserve more biological resources than conventional farming does” (D. Pimentel, Food production daily, July 15, 2005).

Provision of Ecosystem Services

More specifically, organic agriculture promotes a number of ecological functions and ecosystem services, (for example, nutrient cycling, organic matter dynamics, maintenance of soil structure (thus reducing soil erosion problems), suppression of soil-borne pests due to higher diversity (and therefore predators) and pathogens, and mitigation of CO₂ emissions (Box 2). The benefits of these ecosystem services reach far beyond the individual farm. For example, since organic agriculture reduces water contamination, organic farmers upstream bring positive externalities to people and communities located downstream.

Protection of Biodiversity

Organic agriculture also contributes to ensuring biodiversity, as it favors the development of a diverse and active community of organisms above and below ground. Biodiversity in organic farms also include weeds and pests. These are generally controlled through manual or mechanized removal (e.g., by hoeing or harrowing), crop rotation, inter-cropping (LIEBMAN, 1995), using plants as antagonists, relying on wild or domesticated animals to consume unwanted species (ALTIERI, 1999), and rotational grazing to prevent infestation and contagion. These practices limit the impact of pest outbreaks and the resulting loss of production. The contribution of natural predators like spiders and carabid beetles also helps reduce and mitigate the incidence and damage of insect pest-related problems (Box 3). The multitude of small organisms associated with organic production systems, from pollinators to beneficial predators and soil organisms have been shown to contribute positively to many important ecological processes (LAVELLE & SPAIN, 2001). Soils, for example, contain a great diversity of living organisms assembled in complex communities (WARDLE, 2002) –ranging from the myriad of invisible microbes, bacteria and fungi to the more familiar macro-fauna such as earthworms.

Box 2. Global warming and mitigation of CO₂ emissions with organic agriculture

Organic matter in soils is decomposed under aerobic and anaerobic environments and carbon (C) is returned to the atmosphere as CO₂ and CH₄, respectively. In soils under conventional agricultural practices, 50 Pg (1015 g) of C in the soil has already been released as CO₂ into the atmosphere (Paustian et al., 1997). A 10% reduction in the C pool in the soil and its emission into the atmosphere equals a 30-year period of the anthropogenic emissions of CO₂ by fossil fuel (Kirschbaum, 2000). Organic agriculture can contribute directly and indirectly to reduce CO₂ emissions and mitigate the negative consequences of climate change by preserving soil resources due to reduced tillage, increased surface residues (thus reducing soil erosion and C losses) that will be later incorporated through the combined action of soil invertebrates and soil micro-organisms (fungi and bacteria) and therefore reduced mineralization of organic matter.

A significant proportion of agricultural genetic diversity or local breeds remain in the hands and care of pastoral peoples, and traditional livestock owners in developing countries. Through seed saving, women are also a key component in preserving the “genetic resources” of local varieties. Unfortunately, every week, two local breeds become extinct (FAO, 2003). A reduced diversity in terms of plant breeds or varieties can result in drastically negative consequences for farmers.

