

Promoting Organic Foods through a Blend of Organic and Cutting-Edge Farming Methods: Feeding the World While Saving the Earth

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Abstract: We receive a multitude of benefits from the natural environment that are hard to quantify in monetary terms. In addition to producing food and medicine, lowering chemical and noise pollution, reducing flooding, calming our streets, and cleaning the air and water, environments also aid. Therefore, it is imperative that the environment be taken into consideration in order to prevent food insecurity. A prevalent notion is that organic farming is more sustainable than conventional farming. In order to support the production of organic foods through organic farming, this study makes use of a comprehensive review of studies and literature. Therefore, this paper restates just how essential it is for organic food to be produced everywhere in the world. When compared to conventional farming, organic farming produces fewer pollutants per unit of agricultural production in terms of the environment and climate change. However, other critics would say that expanding organic farming would result in more destruction of natural ecosystems and higher production costs, which would make food more expensive for low-income people in developing nations. Sustainable agriculture and food security do not revolve around organic farming; however, clever blending of organic and conventional techniques can lead to long-term gains in agricultural productivity worldwide without destroying the environment.

Keywords: Organic Foods, Organic Agriculture, Food Insecurity, Home Economics, Environment, Sustainability.

1. Introduction

Food has indisputable value. One of the fundamental needs of existence is food. Nutrients, or compounds necessary for the development, maintenance, and repair of bodily tissues as well as the control of critical functions, are found in food. Our bodies require nutrients for energy in order to function. The most important necessity for maintaining human life is food. If a human was given a healthy diet, they could exist without a roof over their heads or clothing covering their bodies. For this reason, throughout human history, people have been driven to look for and gather food.

Human well-being depends on food, but in a global food system where agribusiness dominates, people frequently lack the means to meet their demands (McMichael, 1998; Patel, 2008; Clapp and Cohen, 2009). Due to the expansion of the global supply chain, which treats food as a commodity on par with other products on the market, globalization has led to the creation of large-scale agricultural production (Friedland, 2004; Magdoff and Tokar, 2010). A significant section of the world's population has limited food sovereignty as a result of such dynamics, which have profound effects on one's ability to control what is eaten, where food comes from, and how much it will cost (Gottlieb and Joshi, 2010).

In 2009, amidst the global food crisis, the number of hungry people surpassed one billion for the first time in human history; however, by 2012, that figure had dropped to 870 million (FAO, 2012). Hunger continues to be a significant component of this system. Threats to food security, such as land grabbing and climate change, which impact Asian food security and peasant persistence, are the main issues facing the food industry in the Philippines. In terms of the four pillars of food security, the Philippines came in at number 64 out of 113 nations according to The Economist's 2021 Global Food Security Index (GFSI).

Numerous research works have examined the factors that influence food security in Filipino households. A study conducted in the 1970s by Herrera (1976) employed household survey data pertaining to rural Laguna, Philippines, homes. Herrera discovered a positive correlation between the mother's education level, wealth,

income, and ability to make meals. Conversely, according to Evenson et al. 1980 and Roa 2007, diet quality is adversely impacted by the following factors: 1) size of the home; 2) the mother's employment; and 3) distance from the town center. Regression analysis was done in a different study by Valenzuela (1978), who discovered that nutrient intake is increased by the mother's education and the amount of time spent preparing food (as reported in Evenson et al. 1980 and Roa 2007).

According to Angeles-Agdeppa's 2009 study, the Philippines' ongoing pressing issues are poverty, food insecurity, and nutrition insecurity. In 1997, the ordinary Filipino required a minimum yearly salary of P7710 to cover their food needs, or P11,319 to cover both their non-food and food expenses. The majority of impoverished households—roughly 4,511,000 families, or 31.8 percent—live in rural areas. The nation's economic growth has been described as a "boom and bust" cycle, with expansion being halted by a mix of foreign shocks like the Asian currency crisis, unfavorable domestic political circumstances, and energy shortages. The GDP (gross national product) peaked in 1988 at 7.2% and fell to less than 1% in 1991. Thus, to lessen the problem on the possible food shortage, the government has implemented the (Republic Act No. 10068 or known as the Organic Agriculture Act of 2010 which provides for the development and promotion of organic agriculture in the Philippines and for other reasons, is being implemented by the Philippine government in an effort to lessen this food insecurity. In order to improve soil fertility, boost agricultural output, lessen pollution and environmental damage, and stop the depletion of natural resources, this Act states that the state's policy in the Philippines will be to promote, propagate, develop further, and implement organic agriculture. The Act establishes a National Organic farming Board to oversee the implementation of the policy and program as well as a comprehensive organic farming program.

As explained by Siddique, Hamid, Tariq, and Kazi (2014), organic farming provides consumers fresh, natural farm products in a modern, ecologically sound way. Instead of resisting nature, organic farming cooperates with it. By employing methods to increase crop yields without endangering the environment or the people who live and work there, this goal is realized. A unique combination of environmentally beneficial techniques with minimal input requirements is provided by organic agriculture, which helps boost the food supply. In particular, organic farming has a particularly favorable impact on wildlife, birds, insects, weeds, and the flora and fauna of the soil. Organic farming is labor- and knowledge-intensive, while conventional farming is capital-intensive and needs more manufactured inputs and energy. The fact that organic farming uses less synthetic chemicals than conventional farming might be one of its biggest benefits. Natural techniques for controlling weeds and pests are employed by organic farmers. These techniques include companion planting, crop rotation, and the introduction of beneficial insects.

Therefore, combining scientific findings and making them understandable could offer novel ideas on how to improve the production of organic foods for Filipinos. This study provides an in-depth analysis of these issues and possible remedies.

2. Related Literature and Studies

Organic Foods and Agriculture: Organic farming has a controversial history and is viewed as an ineffective method of producing food by some (Reganold, J., Wachter, J. 2016). However, the market for foods and beverages that are organic is expanding quickly within the global food business. Here, we evaluate the effectiveness of organic farming using four important sustainability indicators: social welfare, economic viability, environmental impact, and productivity. When comparing organic farming systems to conventional agriculture, the yields produced are lower. In contrast to conventional farming, they are more profitable, less harmful to the environment, and produce foods that are either as nutritious or more nutritious with minimal or no pesticide residues.

Preliminary data suggests that organic farming practices yield higher ecological services and societal advantages. No conventional farming method can securely feed the world, even though organic agriculture has a hidden potential to contribute to the development of sustainable farming systems. Instead, a combination of other cutting-edge farming techniques and organic farming is required. Adopting these systems, however, is fraught with difficulties; therefore, a variety of initiatives will be needed to support their development and implementation. (J. Wachter, J. Reganold, 2016)

Furthermore, energy is used more effectively in organic agriculture than in conventional agriculture. In contrast to traditional farming, organic farming yields more affordable food products that are free of artificial fertilizers and pesticides. Additionally, it offers local communities financial advantages and opportunities for employment.

Although organic farming practices are more expensive and labor-intensive at first, they end up being more economical in the long term. Changes to organic farming practices can help farmers worldwide address the climate crisis because they produce more greenhouse gasses in the soil. Furthermore, organic farming may help with problems related to food security.

There is enough data to conclude that organic crops offer better nutrient content than their conventional counterparts. Higher animal immunity and better plant resilience to disease are provided by organic systems, which also result in 50% less mycotoxins in crops and longer shelf lives. Higher levels of micronutrients, more conjugated fatty acids, and plant secondary metabolites in organic food contribute to improved human health, including a decreased risk of noncommunicable illnesses. Modernism, tradition, and science are used in organic agriculture to manage the common environment, promoting just relationships and a high standard of living for all (Kazi, Tariq, Hamid, and Siddique, 2014). However, the environment is seriously endangered by agriculture as it is now practiced. More than 25% of all greenhouse gas (GHG) emissions to the atmosphere come from agriculture and food production (Tilman & Clark, 2015). Every year, fertilizer with higher levels of nitrogen and phosphorus than those found in any terrestrial ecosystem's natural processes is applied by the world's agricultural sector (Smith, McTaggart, and H. Tsuruta, 1997). Most of these nutrients are not usually absorbed by crops; instead, they leak out of agricultural areas and contaminate lakes, rivers, and aquifers in a process known as eutrophication (Stephen et al., 1998).

These extraneous nutrients can cause low-oxygen "dead zones" in the ocean, which can destroy nearby aquatic ecosystems and the fisheries that support our livelihoods (Rabalais, Eugene Turner, and Wiseman, 2002). Agricultural nutrients have the ability to travel through the atmosphere and land in terrestrial ecosystems, where they can negatively impact the ecosystems' ability to operate and decrease biodiversity. Long-lived pesticides, fungicides, and herbicides used in agriculture can have detrimental effects on human and ecological health when they penetrate terrestrial and aquatic ecosystems (Tilman & Clark, 2015).

The agronomist Norman Borlaug (2005) started the "green revolution" by breeding new strains of wheat that, when given fertilizer and water when necessary, could produce many more crops per unit of area than native types. Work that led to comparable gains in rice output came after yield increases in wheat. Yields nearly doubled when this method was quickly adopted, as they were for wheat production in Pakistan and India between 1965 and 1970. Globally, the production of cereal grains doubled between 1960 and 1995, primarily due to the development of green technology (although land clearance for farmland creation was also a factor). Notably, most African countries had not yet implemented these technologies. What had been predicted to be worldwide periods of mass hunger was avoided thanks to this quick growth in the world's food supply, which helped fulfill the demands of a rapidly expanding population (Paul, 1968). The green revolution had many positive effects, but it also had some negative effects on the environment and human health, which must be taken into account in order to shed light on the possible effects of the projected doubling of world agricultural production over the next forty to fifty years.

Saving the Earth from Food Shortage

The Food and Agriculture Organization (FAO) defines food insecurity as "the limited or uncertain availability of nutritionally adequate and safe foods or the limited or uncertain ability to acquire acceptable foods in socially acceptable ways." Food security is defined as "physical and economic access to sufficient, safe, and nutritious food that meets dietary needs and food preferences for an active and healthy life." When one has no regular access to adequate, reasonably priced, nutritious food, it is referred to as food insecurity (British Red Cross, 2023). Food insecurity has devastating consequences and is caused by a multitude of circumstances. When one has no regular access to adequate, reasonably priced, nutritious food, it is referred to as food insecurity (British Red Cross, 2023). Food insecurity has devastating consequences and is caused by a multitude of circumstances.

Communities in Africa, including portions of Kenya, Nigeria, Ethiopia, and Somalia, are currently experiencing a major food insecurity crisis that is causing hunger. More than 150 million people are unable to obtain the food they require due to food shortages. Famines have happened often throughout history, but unfortunately, they aren't unheard of and might happen anywhere in the world at any time. In certain parts of Africa, a combination of these variables has a disastrous effect on people's lives, families, health, and means of sustenance. That may imply that people are losing their lives and those of their loved ones, that they are skipping meals, which may have an adverse effect on their health, that they are forcing young girls into early marriage so that their parents will have fewer children to support, that they are forcing them into prostitution, which leaves them vulnerable to

violence, and that they are hoping they might find safety elsewhere. Currently, no nation on Earth satisfies the official definition of famine; South Sudan was the last to proclaim famine in 2017. In Africa, there are several factors that lead to food insecurity. Seven million people have died as a result of one of the worst droughts East Africa has seen in 40 years due to climate change.

The individuals who are forced to make these last-ditch decisions have already experienced a great deal, whether it be from COVID-19's effects or extreme weather events linked to climate change, such droughts and floods. Humanity depends on a stable food supply and a habitable climate, yet these needs are increasingly at conflict (Barrett). The need for food and animal feed is predicted to double globally over the next forty to fifty years, which means that the expansion of agriculture in the upcoming decades could have a significant negative impact on the environment (Bajželj, 2014).

3. Research Objective

Conduct a systematic review on the promoting organic foods through a combination of organic and cutting-edge farming techniques to prevent food insecurity.

4. Methodology

In order to support the contention, the researcher first designed the type of review depending on the quantity of available literature. This paper used a semi-systematic literature review because there is adequate literature on the subject. The review was carried out following the gathering and classification of the literature. The analytical stage came in third, and drafting the review came last. This procedure was created based on real-world experience and is a combination of many criteria and recommendations made for literature reviews (Wong et al., 2013).

5. Discussions

On the Significance of the Production of Organic Foods

Organic food is becoming more and more popular. According to Funk & Kennedy (2016), consumer worries about the detrimental effects of conventional agriculture on the environment and human health are the primary cause of the rising demand. Most consumers believe that organic food is safer and healthier than food that is produced conventionally, especially in industrialized nations. According to Seufert et al. (2017), wealthy customers frequently believe that organic farming is better for the environment, climate protection, and animal welfare. Organic farming, in particular, enjoys such popular acceptance in Europe that it is frequently referred to as the model for sustainable agriculture (Mercati 2016).

According to a survey conducted in Germany for the Klümper et al. (2013) study, over 50% of people believe that expanding the use of organic agriculture is an essential strategy in the battle against world hunger. According to the same survey, people frequently view genetically modified organisms (GMOs) and agrochemicals as significant dangers to food security. Although awareness of organic agriculture is still low in underdeveloped nations, European food tastes and views are beginning to spread, particularly among wealthy urban consumers (Greenpeace 2015; Probst et al. 2012). Though there is more nuance in the scholarly literature, there are significant differences in the conclusions on the contribution of organic agriculture to global sustainable development.

Some argue that organic agriculture is mostly motivated by ideology and is inefficient (Connor & Mínguez 2012, Lotter 2015, Trewavas 2001). According to some, organic farming has a lot of promise to feed the world sustainably (Badgley et al. 2007, Reagan & Wachter 2016). High-yielding crop varieties and supplementary inputs like synthetic fertilizers, pesticides, and irrigation water, along with other green revolution technologies, have significantly increased agricultural productivity over the past few decades and improved global food security (Evenson & Gollin 2003; Qaim 2017). However, the majority of the 800 million individuals who suffer from chronic undernourishment reside in Asia and Africa (FAO 2017). The need for food will rise during the ensuing decades as a result of rising wealth and population.

Furthermore, the utilization of plant-based goods as renewable resources is growing. It is predicted that until 2050, worldwide agricultural production will need to rise by at least 60% and maybe up to 100% in order to

meet this growing demand (Godfray et al. 2010, Herz 2015). The scarcity of land, water, and other natural resources makes this a significant challenge. Moreover, important environmental issues like land degradation, biodiversity loss, water pollution, and climate change are caused by—or at least exacerbated by—the input-intensive agricultural production systems that are found in many regions of the world (Foley et al. 2011). Significant adjustments to the food and agricultural systems, as well as the kinds of technologies employed, will be necessary to increase production while decreasing the negative environmental effects.

6. Conclusion and Recommendations

It has taken humanity 10,000 years to expand food production to the current level of about 5 billion gross tons per year. Within the next 30 years, we will have to expand the current harvest by at least 50% and double the world food supply sometime later in the century. Between agriculturalists and environmentalists, a growing impasse has developed over what constitutes “sustainable agriculture.” Only through increased investment in dynamic agricultural and rural development programs can we hope to alleviate poverty, improve human health, and reduce political instability in 2005. Furthermore, had more environmentally fragile land been brought into agriculture, the extinction of wildlife species would have been enormous. This is not possible, according to Borlaug and Dowsell (2005), unless farmers worldwide have access to newly developed biotechnological advancements that hold great promise for enhancing the nutritional quality, yield potential, and yield dependability of our food crops, as well as for improving human health in general. The technology to sustainably feed 10 billion people is either already in place or very well along in the development process. The two most important questions that need to be addressed by society and science are (1) will farmers and ranchers be able to access this constant stream of new technologies that are required to address the challenges related to food, fiber, and nutrition, and (2) can a more equitable global distribution of benefits in food supplies be guaranteed in the future. Thus, this issue is significant in the area of home economics because it may give people the tools they need to understand daily life in a globalized society and to encourage responsible living. Because it offers professional and scientific knowledge to families, schools, and society as entirety, home economics education is essential.

7. References

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