

Understanding Organic Food Qualities in the Global South: *An East African Perspective*

Francis Richard Jumba^{1,2}, Bernhard Freyer¹, Julius Mwine² & Phillip Dietrich¹

¹ University of Natural Resources and Life Sciences, Vienna, Department of Sustainable Agriculture Systems, Division of Organic Farming, Austria

² Uganda Martyrs University, Nkozi, Faculty of Agriculture, Uganda

Correspondence: Francis Richard Jumba, University of Natural Resources and Life Sciences, Vienna, Department of Sustainable Agriculture Systems, Division of Organic Farming, Gregor Mendel Strasse 33, 1180 Vienna, Austria. Tel: 43-688-946-7254/25-677-261-8506. E-mail: francis.jumba@boku.ac.at/ziryawula@gmail.com/fjumba@umu.ac.ug

Received: July 11, 2012 Accepted: July 27, 2012 Online Published: October 12, 2012

doi:10.5539/jas.v4n11p86

URL: <http://dx.doi.org/10.5539/jas.v4n11p86>

Abstract

Quality is a major component of the process of food production, delivery and consumption because it plays an influential role in consumer acceptability of the food. It has been widely suggested that food quality consists of both tangible and intangible (e.g., aesthetic) components although much of the debate has been based in the global north with little focus on southern countries. This paper therefore aims at exploring the concept of quality and more specifically organic food quality in East Africa (Uganda, Kenya and Tanzania). We carry out an extensive review of the relevant literature on food quality from a variety of electronic databases while exploring the cross cutting issues that are intrinsically connected to it in a bid to better understand both its explicit and implicit components. The findings suggest that in addition to the product and process qualities prominent in the global north, organic food in East Africa possesses context specific qualities which appear to play a greater role in the understanding of food quality within rural farming households because they satisfy some of their most pressing needs. This implies that how quality is interpreted will always depend on the situation or circumstances under which the user is operating in whether at the microcosmic (individual) or macrocosmic (regional) level.

Keywords: quality, organic food, food quality, east africa

1. Introduction

1.1 Problem Background

The terminology of quality is prominent in our everyday life and is used nearly in all sectors in society particularly the natural, technological, socioeconomic and cultural. Quality is always defined from a wide range of perspectives (Zúñiga-Arias, Ruben, Verkerk, & van Boekel, 2008) and acts as the basis for product differentiation in any given social-cultural context (Stolz, Stolze, Janssen, & Hamm, 2011). The occurrence of food scares (Noordhuizen & Metz, 2005), means that consumers are now very sensitive to food quality issues and increasingly turning to organic products that are deemed healthier.

1.2 Relevance of the Problem

The discourse on organic food quality mainly focuses on countries in the global north specifically their cultures, lifestyles, economies and technologies but is less articulated in the global south. Following an extensive review of relevant electronic databases, this paper therefore examines organic food quality in the global south and more specifically in East Africa, where the overall ecological, socioeconomic and socio-cultural conditions differ from those in the north. We show that in East Africa, organic food contains both context specific qualities as well as product and process qualities that are prevalent in the global north.

Firstly, we reflect on the general meaning of quality and food quality before we shift our focus to the organic food qualities in the global North with some reference to East Africa. We then introduce the systemic nature of quality in organic agriculture before further exploring organic food quality in East Africa. We conclude by proposing models which should help to better understand organic food quality in East Africa while serving as a strong foundation for further empirical studies.

1.3 A Review of Relevant Literature

1.3.1 What is Quality

Quality cannot be defined from one universal perspective (Sage, 2003; Zúñiga-Arias, 2008; Olsen, Harmsen, & Friis, 2008; Otegbayo, Samuel, Kehinde, Sangoyomi, & Okonkwo, 2010; Warner, 2007). How quality is defined will depend on the product itself, the user of the product and the situation within the product user is operating in (Cardello, 1995; Moskowitz, 1995; Sloof, Tijskens, & Wilkinson, 1996; Olsen et al., 2008). Quality represents how good a product is (Barrett, Beaulieu, & Shewfelt, 2010); it's those physical characteristics purchasers are willing to pay for (Goodhue, 2011) or the intrinsic features consumers feel are acceptable to them (Brosnan & Sun, 2004; Otegbayo et al., 2010). However, quality is not only material, it's also affective. For instance, it's based on the perceptions users have about a product and its process of production (Noordhuizen & Metz, 2005) and even the extent to which the product satisfies their needs (Kumawat, 2006). This satisfaction is based on the comparison of what is expected and what is actually experienced.

The operation of the global economy under market institutions and the interconnectedness of quality with commodities and services intuitively ties quality to the markets. Quality is an institutional mechanism that organizes markets by prescribing the rules of exchange through standards (Allaire, 2010). From this point of view, quality can also be interpreted as a products' conformance to a given standard (Saunders, 1997) that serves a particular market. Furthermore within the market spheres, quality can be defined as how well a transaction between a buyer and seller transpires. It is a judgement on three items; the nature of social interaction between the buyer and seller during the transaction, the suitability of the product to the buyers' needs and the state of the physical environment within which the act of exchange occurs (Brady & Joseph Cronin Jr, 2001). Similar to the transaction based analysis of quality, Grönroos (1990) defines quality as the extent to which the service received conforms to the expected service, the service in this case being the transaction.

1.3.2 Approaches to Food Quality

The approaches aimed at understanding food quality can be categorised into two namely; product- process approaches and product-process amalgamations . Both have an orientation towards the users who are mainly consumers and are therefore in line with the definitions of quality in the general sense (section 1.3.1). Under product- process approaches, quality can be understood from two separate perspectives; a product perspective and a process perspective. Products are composed of characteristics (Becker, 2000) which have been classified as search, experience and credence (Ponte & Gibbon, 2005; de Freitas & Bottega, 2009; Mason, 2009; Mondelaers, Verbeke, & Van Huylenbroeck, 2009; Grunert, 2010). Search characteristics (e.g., Size) can be determined before actual product purchase, experience characteristics can only be determined after product usage whereas credence characteristics can not be ascertained even after consumption.

From a product perspective, food quality is defined as a composite of a products' physical, functional, organoleptic and nutritive characteristics (Burlingame & Pineiro, 2007; Namkung & Jang, 2008). The physical aspects of food quality include colour, size whereas the organoleptic characteristics include taste and flavour (Barrett et al., 2010). Functional aspects entail how the product is presented to the customer whereas the nutritional aspects also include healthiness (Peri, 2006). The difference between what is anticipated of the food characteristics and what consumers actually experience will ultimately determine whether a food product will be perceived to possess quality or not.

However, for some consumers the physical and nutritive aspects of food may play a secondary role in what they would describe as quality. Some of these attributes like the vitamin composition of food play a prime role in keeping our bodies alive and healthy yet may be viewed as second order attributes of food quality. The prioritisation of foods' ethical attributes by some consumers over the very nutrients that keep them a healthy life portrays the process perspective of food quality. Peri (2006) argues that food quality entails the circumstances under which the food was produced (e.g., Food origin and tradition) and extent of fulfillment of consumers' ethical desires. These latter two aspects represent the process quality of food.

Product-process approaches to food quality as separate constructs are flawed because they try to disconnect two items which seem to be inextricably linked and clearly depict the weaknesses of reductionism.

Unlike the product-process approaches, the product-process amalgamation approach views food quality as a unique combination of the food product and its process of production. In elucidating food quality as a product-process interaction, Grunert, Baadsgaard, Larsen and Madsen (1996) mention that food quality is composed of; the physical attributes of the food, the foods' production process and lastly the adherence of the product as well as its process of production to a set of standards also known as quality control. Peri (2006)

provides a more detailed analytical illustration of food quality as a combination of the product and its process of production. According to this author, consumers judge food quality according to the level of performance of the food product in relation to their needs. These needs include the food products' physical and accompanying intrinsic characteristics (e.g., chemical composition) and process aspects like ethical concerns, quality guarantee, etc. The food performance levels in turn also depend on the food characteristics whose quality also depends on how well the production process chain was managed.

The product-process interaction approach is the most holistic in analysing food quality because it clearly shows that food quality is not just about the physical aspects but also other psycho-social dimensions. This suggests that food is a social object.

1.3.3 Quality from the Organic Perspective

Organic agriculture is defined as a method of production that not only avoids the use of synthetic chemicals, genetic modification techniques and pharmaceuticals (Angood et al., 2008), but also "relies on ecological processes, biodiversity and cycles adapted to local conditions and combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved." (International Federation of the Agriculture Movement [IFOAM], 2008a).

Although some qualities are present in both organic and conventional products, evidence suggests that organic products score higher on some. Moreover, there are some qualities unique to the organic sector specifically process qualities. In sub section 1.3.2 of this paper we showed how food quality can be examined using product, process and product-process approaches. In Organic agriculture, nutritional, sensory and health qualities fall under the product approach. Ethical, quality control, localness, and environmental qualities can be categorised under the process approach whereas the product-process approach is manifested in the systemic nature of quality in organic foods.

1.3.3.1 Nutritional and Sensory Qualities in Organic Products

Nutritional quality not only encompasses the nutrient content of food but also its level of contaminants (Burlingame & Pineiro, 2007). The latter two parameters can only be ascertained using instrumental techniques that employ specific types of equipment to test for food quality and safety (Barrett et al., 2010). There is compelling evidence to show that organic food has superior nutritional qualities compared to the conventional counterparts.

Leifert (2009) reports that in a series of European Union [EU] field trials, products grown under organic field conditions were found to contain more desirable nutrients and less of undesirable compounds in comparison to conventional produce. Herencia, García-Galavís, Dorado and Maqueda (2011) in their study involving a fairly wide range of crops (cereals, vegetables and fruits) discovered that crops grown under organic conditions contained more phosphorous and lower nitrate levels than conventional produce. Hunter et al. (2011) carried out a more comprehensive analysis of results from thirty three studies that compared the micronutrient content of organic and conventional plant foods. They concluded that organic crops contained higher micronutrient levels than conventional crops. Other studies that followed a social scientific approach (e.g., Naspetti & Zanolli, 2006; Hjelmar, 2011) also found a favourable consumer ranking of organic over conventional produce. Studies have also shown that organic product possesses unique sensory qualities in the form of better taste and flavor (Sonnino & Marsden, 2006; Kihlberg & Risvik, 2007; Wood, Lenzen, Dey, & Lundie, 2008; Leifert, 2009) as compared to conventional produce.

1.3.3.2 Health Qualities in Organic Agriculture

Consumers are increasingly becoming conscious of the food they eat due to food safety concerns (Codron, Sirieix, & Reardon, 2005; Ponte & Gibbon, 2005; Rodríguez, Lupin, & Lacaze, 2006; Espejel, Fandos, & Flavián, 2009). Such food safety concerns have arisen because of food scares like the Bovine spongiform encephalopathy (Noordhuizen & Metz, 2005). Since food quality is directly connected to people's health (Huda et al., 2009), this consciousness of food safety has led them to increasingly demand that producers and processors provide high quality and healthy foods (Grunert, 2005; Innes & Hobbs, 2011; Naspetti & Zanolli, 2006; Rodríguez et al., 2006; Chen, 2007). An enormous amount of literature suggests that organic food can meet this demand. For example, organic food products are perceived to address most of the food safety concerns (Carvalho, 2006; Roitner-Schobesberger, Darnhofer, Somsook, & Vogl, 2008). A couple of studies also conclude that consumers perceive organic products to be healthier than conventional products (e.g., Padel & Foster, 2005; Magistris & Gracia, 2008; Roitner-Schobesberger et al., 2008; Mondelaers et al., 2009; Boon & Semakula, 2010; Jenny, & Verhoef, *in press*). This is probably because organic production excludes the usage of synthetic

compounds and genetic modification techniques (Magistris & Gracia, 2008). However there is still need for more concrete scientific evidence to authenticate this claim.

1.3.3.3 Socially Derived Quality in Organic Agriculture

Food quality should not only take care of the needs of consumers but the entire food chain actors and institutions (Müller & Steinhart, 2007; Burlingame & Pineiro, 2007). Moreover quality is also formed under a set of formal governance structures that operate under a set of rules (Allaire, 2010) but with informal institutions like trust (e.g., trust in quality regulating institutions) also playing a great role in formation of qualities (Rodríguez et al., 2006; Peri, 2006; Achilleas & Anastasios, 2008). In formal organic certification systems, the creation of qualities in consumers' minds is based on trust in the certifying bodies (Naspetti & Zanolli, 2006; Rodríguez et al., 2006; Innes & Hobbs, 2011; Bellow, Onyango, Diamond, & Hallman, 2008). This shows that quality embeds itself in social relations as food traverses the supply chain (Sonnino & Marsden, 2006; Noe & Alrøe, 2011) and is thus socially constructed (Allaire, 2010).

Therefore social capital which is defined as the collection of norms, values, relations of trust and reciprocity operating under a set of rules to achieve co-operation (Pretty, 2003) acts as a basis for organic socially derived qualities. Organic socially derived qualities are the specific gains in the level of organic quality that arise from the presence of social capital within the organic food sector. For example, Khosla (2006) reports how organization of organic farmers into groups under Participatory guarantee systems in India enabled them produce crops with higher organic quality than those that would have been produced on an individual basis. This was achieved through rigorous setting up of organic quality standard knowledge networks and in group monitoring for quality infringements among members.

1.3.3.4 Ethical and Quality Control in Organic Agriculture-the Inter Linkages

Individual socio-psychological conditions are an important determinant of people's expression of quality (Sloof et al., 1996; Peri, 2006). From the organic perspective, such expressions are strongly influenced by the individuals' beliefs about the attributes of the product in question (Stolz et al., 2011). Ethical behaviour in organic farming is driven by the altruistic motives of chain actors in relation to the production process (Sloof et al., 1996; Grunert, 2010) and has grown in importance due to increasing consumer influence in the food chains. Ethical quality mainly revolves around animal welfare (Peri, 2006; DeWit & Verhoog, 2007), equity among food chain actors and environmental conservation (Midmore et al., 2005).

As spelt out by IFOAM (n. d.), ethics in organic farming is practiced and guided by the care and integrity of all living entities for now and the future. However, with growing concerns about the authenticity of quality in organic foods (Padel & Foster, 2005; Kahl et al., 2010) and given the fact that most of the organic products' ethical qualities are credence in nature, there is a need for mechanisms to assure consumers of the authenticity of these qualities. The obvious strategies needed to achieve such a goal will entail inspection, quality certification and labelling based on a specific set of standards typical of control procedures. A product that adheres sufficiently to these standards will then automatically have satisfied the requirements for quality control. The credence nature of ethical attributes of organic food (Bottega, Delacote, & Ibanez, 2009) dictates that authentication of these attributes is only possible using the above control mechanisms and as such ethical and quality control are intrinsically connected.

1.3.3.5 Quality of Localness in Organic Agriculture

The quality of localness is based on space where the food produced at a shorter spatial distance is considered to possess a higher quality than that produced at longer distances (Stræte, 2008; Sirieix, Kledal, & Sulitang, 2011). Within the domain of localness quality, Pringent-Simonin and Hérault-Fournier (2005) have also shown how direct producer-consumer relationships create qualities in consumers' minds due to trust formation.

However, localness qualities are not only based on space but also the product, place and process of production as well as their interactions (Ilbery et al., 2005). The product-place aspects emphasize the product origin including its' unique environmental characteristics (e. g., landscapes), traditions whereas the product-process aspects entail the sustainable production practices involved in producing that food.

The quality of localness (Sonnino & Marsden, 2006; Kanemasu & Sonnino, 2008; Stræte, 2008) is eminent in organic farming because of its focus on process aspects of production e. g., food origin and sustainability. Interestingly, sustainable production practices are also associated with quality (Midmore et al., 2005; Warner, 2007) and more specifically the quality of localness (Ilbery et al., 2005).

1.3.3.6 Environmental Quality in Organic Agriculture

Environmental quality in organic farming is exhibited by production systems that minimise or avoid pollution, promote biodiversity conservation; naturalness and general ecosystem health (Carvalho, 2006). Organic farming is seen as a production method that counteracts the bad effects on the environment due to agriculture (Herencia et al., 2011). For example the application of organic manure in organic farming improves the soil physical characteristics (Marzouk & Kassem, 2011), and by avoiding the usage of synthetic inputs, organic farming will use less energy and consequently minimize environmental damage (Wood et al., 2006). Even within the EU guidelines 834/2007 (EU, 2007), organic quality is based on processing techniques that avoid the use of genetically modified organisms, chemical processing, Ionic radiation (Leifert, 2009; Kahl et al., 2010) that would otherwise harm the environment.

Organic farming promotes the usage of natural recycling systems, increases soil fertility and biodiversity and general conservation of all ecosystem components. As such it vehemently avoids interference with the earth's natural systems and hence promotes environmental quality.

We conclude that in the global north, quality in organic food is composed of sensory, nutritional, health, socially derived, ethical, quality control, localness and environmental quality attributes. We call these the *formal* organic qualities because of the wide range of empirical evidence to prove their validity. Of these qualities, ethical, nutritional, environmental and health qualities seem to be predominant because of increasing consumer consciousness of health, ethical and environmental aspects of food.

1.3.4 Systemic Nature of Organic Quality

Systems approaches are now viewed as more appropriate in studying scientific phenomena (Meadows, 1999; Peri, 2006) and for quality in organic food, this should be no different. According to IFOAM (n. d.), organic agriculture calls for the respect of the entire nature as well as integrity of all living organisms which depicts its holistic and systemic character.

Process approaches have been used before in the systemic understanding of quality (e.g. Peri, 2006). The process based nature of organic quality (Darnhofer, Lindenthal, Bartel-Kratochvil, & Zollitsch, 2010) dictates that all stages from the farm to the final consumer are critically controlled in a systemic manner with an aim of attaining a high final product quality. In the EU for example, organic food quality is systemically formulated in the EU Council Regulation (EC) 834/2007. This regulation specifies conditions for achieving organic quality initially at the plant production stage (Article 12) through to the processing (Article 19) and labelling stages (Article 23-26) using the implementation Commission Regulation (EC) No 889/2008 (EU, 2007).

Organic consumers demand quality indirectly from the farmers but directly from the retailers from whom they purchase the product (Figure 1). These retailers in turn demand quality from the processors and handlers with the process going on downstream to the producers in a systemic fashion. Any infringement on quality along the chain can easily be detected at the consumer stage and can be easily traced back along the chain. Meadows (1999) mentions that in any system, correcting loops for the inflows and outflows are present which serve to maintain system stability. In the organic quality system, the main goal is to attain organic quality in the final product. In the event that quality outflows (consumer stage) are less than the quality inflows (farmer stage) then the inflows have to be increased if the stability of the whole quality system is to be maintained. This can be achieved through stricter monitoring and inspection mechanisms of organic quality at the farm stage right through the production chain. Therefore quality in organic production systems is self reinforcing unlike in conventional farming.

In East Africa the systemic nature of quality in organic food is quite different from the one shown above and is depicted in Figure 2. It mainly entails a web of micro-meso linkages operating across boundaries. Smallholder producers organised under groups provide quality through domestic exporters that serve to meet the quality demands of importers and ultimately consumers in the global north or regional markets.

1.4 The Study Hypothesis

- i) A number of contextual factors in East Africa influence the understanding of quality in organic food.
- ii) Some *formal* organic qualities prevalent in the global north may play a less significant role in East Africa.

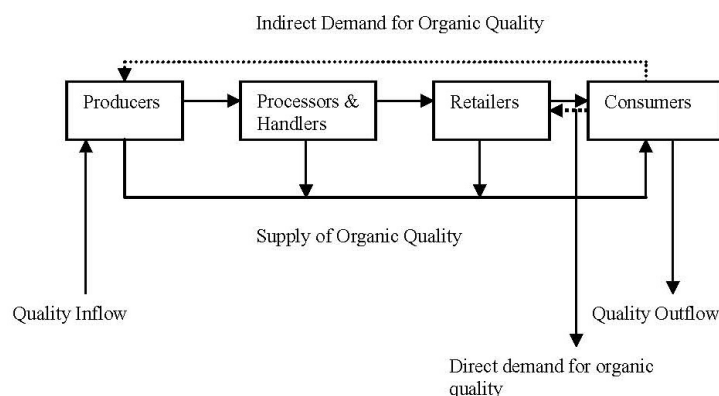


Figure 1. Systemic nature of quality in organic food in the global north

source: Own

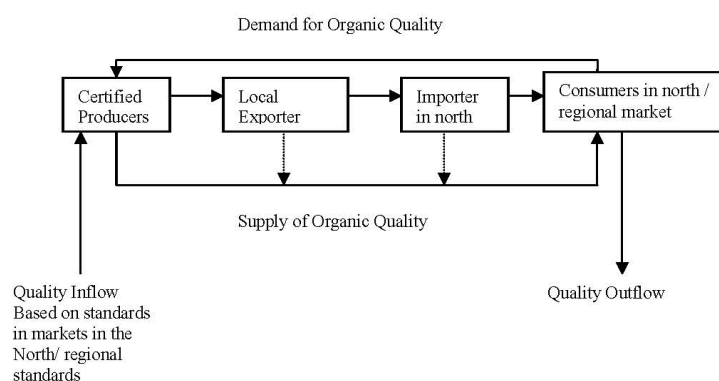


Figure 2. Systematic nature of quality in organic food in East Africa

source: Own

2. Methods

We reviewed 64 journal articles, 6 books, 4 conference papers, 1 working paper, 20 bulletins as well as some grey literature in the period lasting June, 2011 to May, 2012 and thereafter carried out a meta analysis of the same. We did this by examining the concept of organic food quality in the global north and carefully correlated its implications within the East African conditions based on empirical studies.

3. Results and Discussion

In this section, we present our discussion on the *formal* organic qualities in East Africa while providing evidence of their existence where possible. At the same time, we discern the contextual influences on the formation of quality in organic foods within East Africa. We later present conceptual models that can act as a framework for understanding organic food quality in East Africa. We focus our attention on the smallholder farmers who are the main organic producers in East Africa (Taylor, 2006) because as Darnhofer et al. (2010) point out, when analyzing quality in organic systems, the farm should be the point of focus for organic quality is process based.

3.1 Nutritional and Sensory Qualities

Like all human beings and what has been shown by most studies on food quality perception, East Africans will evaluate organic food quality basing on their sensory experience of taste, smell etc... Organic food is nutritious (Hunter et al., 2011); however there have been no studies so far to compare the nutritional and sensory quality of organic vis-à-vis conventional foods within the East African local conditions. Lack of education reduces the acceptability of foods with high levels of micronutrients in low income countries (Joffe, 2007). With high levels of illiteracy in sub-Saharan Africa (Mukudi, 2003) nutritional aspects may play a trivial role in the understanding of quality in organic food. It is not surprising therefore that a study by the same author which analyzed the correlation between education and nutritional status in 42 African countries (including all the three East African

countries), concluded that lack of education significantly led to nutritional stress within households .

3.2 Socially Derived Quality

A study by Hine and Pretty (2007) showed that organic agriculture increased the social capital base of farmers through better networking with NGOs and organic umbrella organizations like Kenya Organic Agriculture network, Tanzania Organic agriculture Movement. Through such arrangements, farmers were trained on organic quality issues and were in a better position to access certification services.

Group certification schemes through internal control systems in East Africa are another clear example of socially derived qualities in this region. In such arrangements farmers are organized into groups and self monitor for organic quality under the supervision of a local certifying body which is also monitored by an external certifying agency in the North. This increases the farmers' capacity to meet quality standards through constant trainings, inspections and curtails the high inspection costs for an individual farmer.

3.3 Environmental Quality

Farmers in low income countries have been exposed to the inimical effects of pesticides as well as environmental destruction (Joffe, 2007) yet most of them derive their livelihood from this very stock of natural resources (Cooper et al., 2008) thus highly value them. Since organic agriculture has already been shown to improve the natural environment in East Africa (Hine & Pretty, 2007), farmers would view environmental conservation as one quality attribute of organic food production systems.

An analysis of 44 organic projects in East Africa by Hine and Pretty (2007) showed that 93% of these cases reported an improvement in the natural environment of farmers' localities through improved soil fertility, increased biodiversity and flood control. Studies by Langat (2011) in Kenya and Naturinda, Tumushabe, Masiga, and Ruhweza (2008) in Uganda concluded that organic farming improved soil fertility whereas Mwaura et al. (2008) in a study in Kenya also discovered that organic farming improved agro-biodiversity. These are all clear indications of the contribution of organic farming to the quality of the environment.

3.4 Health Quality

Organic foods are naturally healthy because they don't contain chemical residues (see also Magistris & Gracia, 2008). In one study by Kimemia & Oyare (2006) of the Mirichi Organic Farmers' Association in Kenya, it was established that organic farming produced food which perceived as healthier than conventional food. Boon & Semakula (2010) in their study in Uganda also concluded that organic agriculture improved the health of farming households by averting cases of malnutrition. However, more concrete studies need to be done on this aspect of organic food in East Africa.

3.5 Quality Control and Ethical Qualities

Certified organic farming is on the rise in East Africa (UNEP, 2010). Organic certification for smallholders in East Africa mainly operates through internal control (Harris, Browne, Barrett, & Cadoret, 2001) and Participatory guarantee systems that calls for farmers' maximum commitment in ensuring that quality standards are met. Such quality standards include the EU standard (Walaga, 2005; Taylor, 2006) and the East African Organic product standard (East African Community, 2007; IFOAM, 2008b). The extent of organically certified land (as of 2007) and number of certification companies in East Africa is presented in

Table 1. Area under certified organic production by 2007 and organic certifiers in East Africa by country

Country	Area under organic certified production (Ha)	Certification companies
Uganda	296,203	UgoCert, IMO, Ceres Africert, BioSuisse,
Kenya	4,636	Encert, Soil association, IMO, EcoCert France.
Tanzania	62,180	BioSuisse, TanCert, IMO, EcoCert France

source: Bouagnimbeck (2009), UNEP (2010).

The entwinement of ethical quality and quality control in organic agriculture as earlier on argued in sub section 1.3.3.4 of this paper is also evident in East Africa. This is because in the East African Organic products standard, there are provisions for social welfare issues(sec. 4.5), animal welfare (sub sec. 6.3.2 and 6.3.3) as well as environmental conservation in sec. 5.3 to 5.6 (East African Community [EAC], 2007). Farmers in East Africa regularly undergo training on quality issues, are inspected and certified in relation to the corresponding organic standards so it's only logical that they are aware of organic certification as an indicator of quality in organic food.

3.6 Localness Qualities

Localness qualities in East Africa are mainly prevalent in non certified organic farming where products are sold within the local community. However even for certified organic farming, farmers retain surpluses of products meant for export and sell them on local markets or even consume them within the household. From the origin dimension of localness, some regions within countries in East Africa are traditionally known for growing certain types of organic produce because of their unique environmental features e. g., in Uganda, Luwero district is known for growing high quality organic pineapples because of its unique soils that are suitable for this crop.

3.7 Contextual Influences on the East African Organic Farming System

In East Africa there exist both certified and non-certified forms of organic agriculture. Both meet the organic standards but the latter is not subject to control procedures of inspection, certification and labeling (Scialabba & Hattam, 2002). The whole East African organic farming system and its standards operate in line with the IFOAM norms (see EU, 2007 & EAC, 2007). The main contextual factors which may influence the organic farming systems and probably the understanding of organic food quality in East Africa include a low capital base of the majority of farmers, tradition, lack of national organic agriculture policies, food insecurity, tradition, high levels of risk entailed in farming and poverty.

3.7.1 Low Capital Base

Organic agriculture is reliant on the social, human, physical, financial and natural capital bases (Hine & Pretty, 2007). In East Africa, the low capital base will directly influence the success of organic agriculture. For example, poor physical infrastructure, poor or lack of adequate knowledge of organic farming technologies and poor finances (that also hinder organic certification) are major impediments to the progress of the organic agriculture sector in Uganda (Ndugire, 2010) and generally in the whole of East Africa (UNEP, 2010). Moreover, the capital base also plays a major role in the attainment of quality in organic food products. For example a farmer with adequate amounts of all forms of capital will be able to buy good quality seed, have access to clean natural environment, carry out proper agronomy practices that ensure a high quality final product and also afford proper storage facilities that ensure a high post harvest quality of the produce.

3.7.2 Lack of National Organic Agriculture Policies

Macroeconomic tools particularly government policies are crucial to the smooth running of any sector of a given economy as they clearly spell out the rules of operation. Given that the organic sector in East Africa is relatively young, policies even become more fundamental. Lack of national policies on organic agriculture is a major hindrance to organic agriculture development in East Africa (UNEP, 2010). From the organic quality outlook, a lack of government policies for the organic sector implies a lack of a strong government backup for nationwide institutionalised quality regulation and monitoring. This pushes the burden to NGO's and the private sector that may have limited capacity to meet the various demands within the quality sector e.g., certification services, capacity building for quality awareness, setting up of quality standards and regulations. Consequently, this leaves the farmers in a very vulnerable position.

3.7.3 Food Insecurity

The tremendous role of food security in the livelihoods of Africa cannot be underrated. "Food security is defined as a situation where every individual has access to enough food to maintain a healthy and active life." (McCalla, 1999). A study by the same author based on analysis of global food security projections, reported that food needs in developing countries were expected to double by 2030 with Africa likely to face the greatest deficiencies. By 2002, 33% of Kenyans, 19% of Ugandans and 44% of Tanzanians were malnourished (Hine & Pretty, 2007). In some cases, of the three conditions necessary for food security (McCalla, 1999), food access and availability are seen as more fundamental than food utilisation (nutritional quality). In such instances, food quality tends towards food quantity.

Doss, McPeak and Barrett (2008) in their study also found out that food insecurity was one the major risk concerns of the livelihoods of the inhabitants in semi arid and arid regions of East Africa. Food insecurity is

expected to persist in sub Saharan Africa for the foreseeable future (McCalla, 1999) mainly due to the problem of climate change and losses in soil fertility that negatively affects agricultural productivity. A form of agriculture that would address this problem in a sustainable manner would be greatly valued in this region. Organic agriculture can help combat food insecurity in Africa (Boon & Semakula, 2010; Vaarst, 2010). A comprehensive study in Africa by UNEP–UNCTAD (2008) showed that organic agriculture increased agricultural productivity by 116% with positive outcomes for food security. In East Africa, a study by Hine and Pretty (2007) also showed that organic agriculture improved the food security status of a majority of households through improved productivity and sale of food surpluses to the local community. In Uganda alone, a study by Boon and Semakula (2010) showed that organic farming increased food utilisation levels of a number of households by enabling farmers grow and consume a variety of nutritious foodstuffs like fruits, cereals etc.. The ability of organic agriculture to mitigate one of the major challenges of a majority of especially rural households, suggests its association with a special quality i. e., one that meets food security needs.

3.7.4 Tradition

Tradition farming styles and mindsets in rural farming households may also play a major role in organic farming systems in East Africa. Before the IFOAM organic movement began in East Africa, farmers were already practicing “near” organic farming for example in Uganda, where farmers traditionally revered nature (Taylor, 2006). This shows as also demonstrated by Preißel and Reckling (2010) in their study, that farmers in Uganda aren’t ‘organic by default’ the latter meaning that they practice organic farming only because they can’t afford chemical inputs. The sharing of a common characteristic: ‘a natural approach’ means that farmers’ local or traditional farming knowledge can easily complement organic farming as acknowledged by Twarog (2006). This suggests that environmental concerns are a quality attribute of organic farming in East Africa.

3.7.5 Risks and Poverty

The presence and importance of risks (e.g., erratic weather patterns, poor market prices, conflict) in the livelihoods in East Africa has been documented (e.g., Doss et al., 2008). Risk in African agriculture is exacerbated by poor infrastructure and lack of proper functioning institutions which means that farmers have to rely on their ingenuity in order to survive in a competitive economic environment. Risk aversion therefore becomes a priority for them. Avoiding risk has already been recognised as one of the major objectives of rural farmers in the global south (Parrott & Marsden, 2002). Risk aversion will thus be a subtle determinant of food quality as a farmer will utilise only those inputs and processes that will most minimise his or her losses associated with risky events such as price drops. From this perspective, organic farming scores higher than conventional farming in East Africa because farmers utilise low cost and locally available natural inputs and yet are guaranteed a premium price through contractual arrangements. Organic farming therefore provides a financial buffering mechanism for these farmers and satisfies their risk aversion needs.

Like risk aversion, income rewards play a great role in the thrust of the organic movement in East Africa. This is not surprising given the high levels of poverty in the majority of the inhabitants in rural East Africa. The opportunity to benefit from the lucrative markets in the global northern countries has been cited as the most important driving factor in the supply of organic products from the south (Bolwig, Gibbon, Odeke, & Taylor, 2007; Sultan et al., 2008). In East Africa organic agriculture was promoted as a means to improve rural household incomes (Taylor, 2006). Walaga (2005) also reports that most farmers in East Africa view the ability to export their products and earn better incomes as the main motive for engaging in organic production. Moreover organic agriculture has been shown to considerably increase farmers’ incomes in East Africa (e.g., see Hine & Pretty, 2007; Bolwig, Gibbon, & Jones, 2009). Monetary incentives will thus continue to play an increasingly pivotal role in the organic movement in this region.

3.8 Defining Quality of Organic Food from an East African Farmers’ Perspective

An analytical model for understanding quality in organic food in East Africa is shown in Figure 3. At the beginning of this paper (sub section 1.3.1) we mentioned that the way quality is defined will depend on the product in question, the product user and the situation or circumstances under which the event occurs (see Olsen et al., 2008). In the East African context, the product is the organic food and the user is the farmer because he or she uses the product to earn an income or even in most cases consumes it at home. The situation is the collection of contextual factors discussed in section 3.7 and is macro in nature because there are so many farmers in East Africa experiencing these same contextual factors. Therefore what is termed as quality by so many farmers (macro level quality) in East Africa is influenced by the macro situation entailing the contextual factors.

However we also showed that some of the contextual factors namely food insecurity, risks and poverty create critical needs of a typical farm household in East Africa which can be satisfied with organic farming. These

needs are food security (mainly access and availability), risk aversion and adequate income. Yet quality has been defined as the ability to meet peoples' needs (Kumawat, 2006; Peoria, 2006). Therefore organic food in East Africa also possesses quality because;

- i) It meets the food security needs of the farmer.
- ii) It minimises risks associated with agricultural production.
- iii) It satisfies the financial needs of farmers better than conventional farming.

We call the above three context specific qualities. It should also be noted that in section 3 we showed that product and process qualities (formal organic qualities) also exist in East Africa and thus will be comprised in the organic foods.

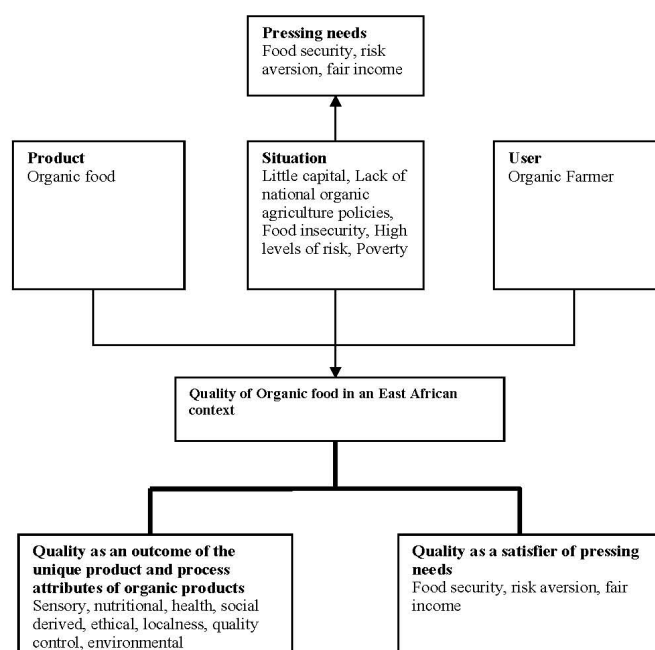


Figure 3. Quality of organic food from a rural farmers' perspective in the East African context

Source: Own.

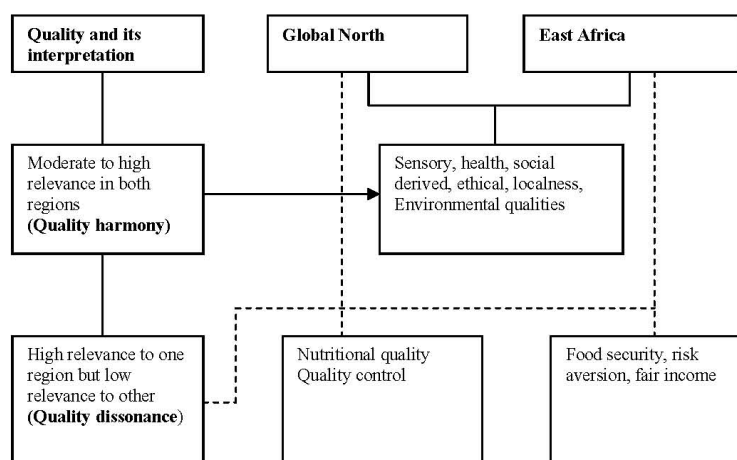


Figure 4. Relevance of organic food qualities in the global north and East Africa

Source: Own.

The relevance of both context specific and formal organic qualities in both the global north and East Africa is depicted in Figure 4. We argue that because certification is internationally driven and most farmers have a low educational status, quality control and nutritional quality play a less role in what is perceived as quality of organic food in East Africa.

4. Conclusions

This study shows that in addition to the formal qualities of organic food prominent in the global north, organic food in East Africa also possesses context specific qualities which appear to play a greater role in the interpretation of organic food quality because they serve to meet some of the most pressing needs of rural farming households. There are also patterns of both conflict and harmony in quality and its interpretation between the global north and East Africa. This suggests that in sensory science, the situation (within which a quality event occurs) will always influence what is perceived as quality, not only at the micro (individual) level but also at the macro (regional) level. NGOs in East Africa should increasingly promote organic farming among rural communities based on the context specific qualities which fit more within the farmers day to day livelihood needs and local conditions. Mass education campaigns should be carried out to sensitize people on nutritional aspects of food.

Acknowledgements

The authors would like to express their gratitude to APPEAR for funding this study. We are also grateful to Rebecca Paxton for improving on the English language of the earlier drafts.

References

- Achilleas, K., & Anastasios, S. (2008). Marketing aspects of quality assurance systems: The organic food sector case. *British Food Journal*, 110(8), 829-839. <http://dx.doi.org/10.1108/00070700810893359>
- Allaire, G. (2010). Applying economic sociology to understand the meaning of "Quality" in food markets. *Agriculture Economics*, 41, 167-180. <http://dx.doi.org/10.1111/j.1574-0862.2010.00498.x>
- Angood, K. M., Wood, J. D., Nute, G. R., Whittington, F. M., Hughes, S. I., & Sheard, P. R. (2008). A comparison of organic and conventionally-produced lamb purchased from three major supermarkets: Price, eating quality and fatty acid composition. *Meat Science*, 78, 176-184. <http://dx.doi.org/10.1016/j.meatsci.2007.06.002>
- Barrett, D. M., Beaulieu, J. C., & Shewfelt, R. (2010). Color, Flavor, Texture, and Nutritional Quality of Fresh-Cut Fruits and Vegetables: Desirable Levels, Instrumental and Sensory Measurement, and the Effects of Processing. *Critical Reviews in Food Science and Nutrition*, 50, 369-389. <http://dx.doi.org/10.1080/10408391003626322>
- Becker, T. (2000). Consumer perception of fresh meat quality: A framework for Analysis. *British Food Journal*, 102(3), 158-176. <http://dx.doi.org/10.1108/00070700010371707>
- Bellows, A. C., Onyango, B., Diamond, A., & Hallman, W. K. (2008). Understanding Consumer Interest in Organics: Production Values vs. Purchasing Behaviour. *Journal of Agricultural & Food industrial Organization*, 6(1), Article 2. Retrived from <http://www.bepress.com/jafio/vol6/iss1/art2>
- Bolwig, S., Gibbon, P., Odeke, M., & Taylor, A. (2007). Certified organic export production-implications for economic welfare and gender equity amongst smallholder farmers in tropical Africa. *Summary report and policy conclusions submitted to the United Nations Conference on Trade and Development*. Trade & Development Research Unit, Danish Institute for International Studies, Agro-Eco, Uganda Branch.
- Bolwig, S., Gibbon, P., & Jones, S. (2009). The Economics of Smallholder organic Contract Farming in Tropical Africa. *World Development*, 37(6), 1094-1104. <http://dx.doi.org/10.1016/j.worlddev.2008.09.012>
- Boon, E., & Semakula, H. M. (2010). Assessing the Prospects and Challenges of Greening Agriculture in Africa: A Case Study of Organic Agriculture. 'IAIA 10th Conference Proceedings' *The Role of Impact Assessment in Transitioning to the Green Economy*. 30th Annual Meeting of the International Association for Impact Assessment. International Conference Centre Geneva, Switzerland. Retrieved from <http://www.iaia.org> (accessed on 8.10.11).
- Bouagnimbeck, H. (2009). Organic Farming in Africa. In H. Willer, & L. Kilcher (Eds.), *The world of organic Farming: Statistics and emerging trends* (pp 216-223). Bonn, Frick and Geneva: FiBL, IFOAM.
- Bottega, L., Delacote, P., & Ibanez, L. (2009). Labelling Policies and Market Behaviour: Quality Standard and Voluntary Label Adoption. *Journal of Agricultural & Food Industrial Organization*, 7(2), 1-15. Retrived

- from <http://www.bepress.com/jafio/vol7/iss2/art3>. <http://dx.doi.org/10.2202/1542-0485.1273>
- Brady, K. M., & Joseph Cronin Jr, J. (2001). Some new thoughts on Conceptualising Perceived Service Quality: A Hierarchical Approach. *Journal of Marketing*, 65, 34-49. <http://dx.doi.org/10.1509/jmkg.65.3.34.18334>
- Brosnan, T., & Sun, D. (2004). Improving quality inspection of food products by computer vision-a review. *Journal of Food Engineering*, 61, 3-16. [http://dx.doi.org/10.1016/S0260-8774\(03\)00183-3](http://dx.doi.org/10.1016/S0260-8774(03)00183-3)
- Burlingame, B., & Pineiro, M. (2007). The essential balance: Risks and benefits in food safety and quality: A Commentary. *Journal of Food Composition and Analysis*, 20, 139-146. <http://dx.doi.org/10.1016/j.jfca.2006.12.005>
- Cardello, A. V. (1995). Food quality: Relativity, context and consumer expectations. *Food Quality and Preference*, 6, 163-170. [http://dx.doi.org/10.1016/0950-3293\(94\)00039-X](http://dx.doi.org/10.1016/0950-3293(94)00039-X)
- Carvalho, F. P. (2006). Agriculture, pesticides, food security and food safety: A Review. *Environmental Science & Policy*, 9, 685-692. <http://dx.doi.org/10.1016/j.envsci.2006.08.002>
- Chen, M. F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference*, 18, 1008-1021. <http://dx.doi.org/10.1016/j.foodqual.2007.04.004>
- Codron, J. M., Sirieix, L., & Reardon, T. (2005). Social and Environmental Attributes of Food products in an emerging Mass Market: Challenges of Signalling and Consumer Perception with European Illustrations. *Working Paper No.7. Moisa*.
- Cooper, P. J. M., Dimes, J., Rao, K. P. C., Shapiro, B., Shiferawa, B., & Twomlow, S. (2008). Coping better with current climatic variability in the rain-fed farming systems of sub-Saharan Africa: An essential first step in adapting to future climate change? *Agriculture, Ecosystems and Environment*, 126, 24-35. <http://dx.doi.org/10.1016/j.agee.2008.01.007>
- Darnhofer, I., Lindenthal, T., Bartel, Kratochvil, R., & Zollitsch, W. (2010). Conventionalisation of organic farming practices: from structural criteria towards an assessment based on organic principles. A review. *Agronomy and Sustainable Development*, 30, 67-81. <http://dx.doi.org/10.1051/agro/2009011>
- De Freitas, J., & Bottega, L. (2009). Standards, Voluntary Labels, and International Trade. *Journal of Agricultural & Food industrial Organization. Special Issue: Quality Promotion through Eco-labelling*, 7 (2), 1-25. Retrived from <http://www.bepress.com/jafio/vol7/iss2/art5>
- De Wit, J., & Verhoog, H. (2007). Organic values and the conventionalization of organic agriculture. *NJAS*, 54-4, 449-462.
- Doss, C., McPeak, J., & Barrett, C. B. (2008). Interpersonal, Inter temporal and Spatial Variation in Risk Perceptions: Evidence from East Africa. *World Development*, 36(8), 1453-1468. <http://dx.doi.org/10.1016/j.worlddev.2007.06.023>
- EAC. (2007). East African standard: East African organic products standard. The East African Community. Retrived from www.eac.int (accessed 26.03.12).
- Espejel, J., Fandos, C., & Flavián, C. (2009). The influence of consumer involvement on quality signals perception: An empirical investigation in the food sector. *British Food Journal*, 111(11), 1212-1236. <http://dx.doi.org/10.1108/00070700911001040>
- EU. (2007). Union Council Regulation (EC) No 834 / 2007. Retrived from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:189:0001:0023:EN:PDF> (accessed on 10.11.11).
- Goodhue, R. E. (2011). Food Quality: The Design of Incentive Contracts. *The Annual Review of Resource Economics*, 3, 119-140. <http://dx.doi.org/10.1146/annurev-resource-040709-135037>
- Gronroos, C. (1990). *Service Management and Marketing*. Lexington Books, Lexington, MA.
- Grunert, K. G., A. Baadsgaard, A., Larsen, H. H., & Madsen, T. K. (1996). Market orientation *In Food and Agriculture*. Boston: Kluwer Academic Publishers.
- Grunert, K. G. (2005). Food quality and safety: consumer perception and demand. *European Review of Agricultural Economics*, 32(3), 369-391. <http://dx.doi.org/10.1093/eurag/jbi011>
- Grunert, K. G. (2010). European consumers' acceptance of functional foods. *Annals of the New York Academy of Sciences. Issue: Foods for health in the 21st Century*, 1190, 166-173.

- Harris, P. J. C., Browne, A. W., Barrett, H. R., & Cadoret, K. (2001). Facilitating the inclusion of the resource-poor in organic production and trade: opportunities and constraints posed by certification. DFID. Retrived from http://83.138.151.200/pdfs/international_programme/FacilitatingtheResourcePoor.pdf (accessed 29.03.12)
- Herencia, J. F., Garcia-Galavis, P. A., Dorado, J. A. R., & Maqueda, C. (2011). Comparison of nutritional quality of the crops grown in an organic and conventional fertilized soil. *Scientia Horticulturae*, 129, 882-888. <http://dx.doi.org/10.1016/j.scienta.2011.04.008>
- Hine, R., & Pretty, J. (2007). Promoting production and trading opportunities for organic agricultural products in East Africa. Capacity building study 3: Organic agriculture and food Security in East Africa. University of Essex. Retrived from http://www.ifoam.org/growing_organic/3_advocacy_lobbying/pdf/Organic_Agriculture_and_Food_Security_in_East_Africa.pdf (accessed 4.04.12).
- Hjelmar, U. (2011). Consumers' purchase of organic food products. A matter of convenience and reflexive practices. A Research report. *Appetite*, 56, 336-344. <http://dx.doi.org/10.1016/j.appet.2010.12.019>
- Huda, S. S. M. S., Muzaffar, A. T., & Ahmed, J. S. (2009). An inquiry into the perception of food quality among urban people: A case of Bangladesh. *African Journal of Business Management*, 3(5), 227-232.
- Hunter, D., Foster, M., McArthur, J. O., Ojha, R., Petocz, P., & Samman, S. (2011). Evaluation of the Micronutrient Composition of Plant Foods Produced by Organic and Conventional Agricultural Methods. *Critical reviews in Food Science and Nutrition*, 51, 571-582. <http://dx.doi.org/10.1080/10408391003721701>
- IFOAM (n. d.). Principles of Organic agriculture. Retrived from http://www.ifoam.org/organic_facts/principles/pdfs/IFOAM_FS_Principles_forWebsite.pdf (accessed 15.12.11).
- IFOAM-International Federation of Organic Agriculture Movement. (2008a). Definition of Organic Agriculture. Retrived from http://www.ifoam.org/growing_organic/definitions/doa/index.html (accessed 4.01.12).
- IFOAM (2008b). Growing Organic: Development of a regional organic agriculture standard in East Africa 2005-2007. A Public Report. Retrived from http://www.ifoam.org/growing_organic/7_training/training_pdf/OSEA_public_report_pdf.pdf (accessed 27.03.12).
- Ilbery, B., Morris, C., Buller, H., Maye, D., & Kneafsey, M. (2005). Product, Process and Place: An Examination of Food Marketing and Labelling Schemes in Europe and North America. *European Urban and Regional studies*, 12, 116-132. <http://dx.doi.org/10.1177/0969776405048499>
- Innes, B. G., & Hobbs, J. E. (2011). Does it matter who verifies Production-Derived Quality? *Canadian Journal of Agricultural Economics*, 59, 87-107. <http://dx.doi.org/10.1111/j.1744-7976.2010.01194.x>
- Jenny van Doorn, J., & Verhoef, P. C. (in press). Willingness to pay for organic products: Differences between virtue and vice foods. *International Journal of Research in Marketing*.
- Joffe, M. (2007). Health, livelihoods, and nutrition in low income countries. *Food and Nutrition Bulletin*, 28(2), 227-236.
- Kahl, J., Van der Burgt, G. J., Kusche, D., Bügel, S., Busscher, N., ... Huber, M. (2010). Organic food claims in Europe. *Food Technology*, 64(3), 38-46. <http://dx.doi.org/10.1016/j.foodqual.2006.03.023>
- Kanemasu, Y., & Sonnino, R. (2008). Dynamics of Power and Cooperation in Rural Development: The Case of Chianina Beef Production in Italy. *International Journal of Sociology of Agriculture and Food*, 16 (2), 36-53.
- Khosla, R. (2006). *A Participatory Organic Guarantee system for India: Final report*. Retrived from http://www.ifoam.org/about_ifoam/standards/pgs/pdfs/PGS%20for%20India%20_Final%20Report.pdf (accessed 28.03.12).
- Kihlberg, I., & Risvik, E. (2007). Consumers of organic foods – value segments and liking of bread. *Food Quality and Preference*, 18, 471-481.
- Kimemia, C., & Oyare, E. (2006). The status of organic agriculture, production and trade in Kenya: Report of the initial background study of the national integrated assessment of the organic agriculture sector in Kenya. Nairobi: Bridge Africa. Retrived from

- http://www.unep-unctad.org/cbtf/events/arusha/Report%20of%20IBD_OA%20January%2006.pdf (accessed 5.04.12).
- Kumawat, R. D. (2006). *Credit Seminar report on Quality control in Agriculture*. Rajasthan Agricultural University. Bikaner 334006.
- Langat, C. H. (2011). A comparative study of organic and conventional farming in Kalama division of Machakos district, Kenya. Retrived from <http://etd-library.ku.ac.ke/ir/bitstream/handle/123456789/1942/Langat%2c%20Chepngeno%20Hellen.pdf?sequence=1> (accessed 28.03.12).
- Leifert, C. (2009). Quality low input: Quantifying the effect of organic and low input production methods on food quality, safety and human health. Quality Low input Food Subproject 2. Retrived from <http://www.google.com/search?client=safari&rls=en&q=leifert+quality+organic&ie=UTF-8&oe=UTF-8> (accessed 10.12.11).
- Magistris, T., & Gracia, A. (2008). The decision to buy organic food products in Southern Italy. *British Food Journal*, 110 (9), 929-947. <http://dx.doi.org/10.1108/00070700810900620>
- Marzouk, H. A., & Kassem, H. A. (2011). Improving fruit quality, nutritional value and yield of Zaghoul dates by the application of organic and/or mineral fertilizers. *Scientia Horticulturae*, 127, 249-254. <http://dx.doi.org/10.1016/j.scienta.2010.10.005>
- Mason, C. F. (2009). Certification of socially Responsible Behaviour: Eco label and Fair Trade Coffee. *Journal of Agricultural & Food industrial Organization*, 7(2), Article 2. Retrived from: <http://www.bepress.com/jafio/vol7/iss2/art2> (accessed on 6.10.11).
- McCalla, A. F. (1999). Prospects for food security in the 21st Century: with special emphasis on Africa. *Agricultural Economics*, 20, 95-103. [http://dx.doi.org/10.1016/S0169-5150\(98\)00080-2](http://dx.doi.org/10.1016/S0169-5150(98)00080-2)
- Meadows, D. (1999). Leverage points: Places to intervene in a system. *Hartland: The Sustainability Institute*.
- Midmore, M., Naspetti, S., Sherwood, A. M., Vairo, D., Wier, M., & Zanolli, R. (2005). Consumer attitudes to quality and safety of organic and low Input foods: A Review. Report from Intergrated Project No. 506358, "Improving quality and safety and reduction of cost in the European organic and "low input" food supply chains." Deliverable 1.2 of subproject 1: Determining consumer expectations and attitudes towards organic / low input food quality and safety. Retrived from <http://www.docstoc.com/docs/70377687/CONSUMER-ATTITUDES-TO-QUALITY-AND-SAFETY-OF-ORGANIC-AND-LOW-INPUT> (accessed 11.12.11)
- Mondelaers, K., Verbeke, W., & Van Huylbroeck, G. (2009). Importance of health and environment as quality traits in the buying decision of organic products. *British Food Journal*, 111(10), 1120-1139. <http://dx.doi.org/10.1108/00070700910992952>
- Moskowitz, H. R. (1995). Food quality: conceptual and sensory aspects. *Food Quality and Preference*, 6, 157-162. [http://dx.doi.org/10.1016/0950-3293\(94\)00030-Y](http://dx.doi.org/10.1016/0950-3293(94)00030-Y)
- Mukudi, E. (2003). Education and nutrition linkages in Africa: evidence from national level analysis. *International Journal of education development*, 23, 245-256. [http://dx.doi.org/10.1016/S0738-0593\(02\)00050-0](http://dx.doi.org/10.1016/S0738-0593(02)00050-0)
- Muller, A., & Steinhart, H. (2007). Recent developments in instrumental analysis for food quality. *Food Chemistry*, 102, 436-444.
- Mwaura, F., Tumushabe, G., Ruhweza, A., & Masiga, M. (2008). *Organic agriculture in Kenya: An integrated assessment for policy advocacy*. Geneva: UNEP-UNCTAD-CBTF. Retrived from <http://www.unep-unctad.org/cbtf/publications/Kenya%20Organic%20Agriculture%20Final%20Report.pdf> (accessed 7.04.12). <http://dx.doi.org/10.1016/j.foodchem.2006.10.015>
- Namkung, Y., & Jang, S. S. (2008). Are highly satisfied restaurant customers really different? A quality perception perspective. *International Journal of Contemporary Hospitality Management*, 20(2), 142-155. <http://dx.doi.org/10.1108/09596110810852131>
- Naspetti, S., & Zanolli, R. (2006). Organic food quality and safety perception throughout Europe. Paper prepared for presentation at the 98th EAAE Seminar on the marketing dynamics within the global trading system: New Perspectives, Chania, Crete, Greece, June 29-July 2, 2006.
- Naturinda, B., Tumushabe, G., Masiga, M., & Ruhweza, A. (2008). Integrated assessment of Uganda's organic

- agriculture sub-Sector: Economic opportunities and policy options to mitigate negative socioeconomic and environmental impacts. Geneva and New York: UNEP-UNCTAD-CBTF. Retrived from <http://www.unep-unctad.org/cbtf/publications/Uganda%20report.pdf>. (accessed 4.04.12).
- Ndugire, N. (2010). Scaling up organic agriculture and enhancing its foreign market access : Lessons learned from Eastern Africa. Africa Trade Policy Centre. Retrived from www.uneca.org/atpc/.../80.pdf (accessed 27.03.12).
- Noe, E., & Alrøe, H. F. (2011). Quality, Coherence and Co-operation: A Framework for Studying the Mediation of Qualities in Food Networks and Collective Marketing Strategies. *International Journal of Sociology of Agriculture and Food*, 18(1), 12-27.
- Noordhuizen, J. P. T. M., & Metz, J. H. M. (2005). Quality control on Dairy Farms with emphasis on public health, food safety, animal health and welfare. *Stocarsstvo*, 59(1), 39-55.
- Olsen, R. J., Harmsen, H., & Friis, A. (2008). Linking quality goals and product development competences. *Food Quality and Preference*, 19, 33-42. <http://dx.doi.org/10.1016/j.foodqual.2007.06.002>
- Otegbayo, B. O., Samuel, F. O., Kehinde, A. L., Sangoyomi, T. E., & Okonkwo, C. C. (2010). Perception of food quality in Yams among some Nigerian farmers. *African Journal of Food Science*, 4(8), 541-549.
- Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British Food Journal*, 107(8), 606-625.
- Parrott, N., & Marsden, T. (2002). The Real Green Revolution: Organic and agro-ecological farming in the south. Greenpeace Environmental Trust, U.K.
- Peri, C. (2006). The universe of food quality. *Food quality and Preference*, 17, 3-8. <http://dx.doi.org/10.1016/j.foodqual.2005.03.002>
- Ponte, A., & Gibbons, P. (2005). Quality standards, conventions and the governance of global value chains. *Economy and Society*, 34, 1-31. <http://dx.doi.org/10.1080/0308514042000329315>
- Pretty, J. (2003). Social capital and the collective management of resources. *Science*, 302, 1912-1915. <http://dx.doi.org/10.1126/science.1090847>
- Preißel, & Reckling. (2010). Smallholder group certification in Uganda-Analysis of internal control systems in two organic export companies. *Journal of Agriculture and Rural Development in the tropics and Subtropics*, 111(1), 13-22.
- Prigent-Simonin, A., & Hérault-Fournier, C. (2005). The role of trust in the perception of the quality of local food products with particular reference to direct relationships between producer and consumer. *Anthropology of food*. Retrived from <http://aof.revues.org/index204.html> (accessed 15.08.11). <http://dx.doi.org/10.1016/j.foodpol.2007.09.004>
- Rodríguez, E., Lupín, B., & Lacaze, M. V. (2006). Consumers' perceptions about food quality attributes and their incidence in Argentinean organic choices. Poster paper prepared for presentation at the International Association of Agricultural Economist Conference, Gold Coast, Australia, August 12-18, 2006.
- Roitner-Schobesberger, B., Darnhofer, I., Somsook, S., & Vogl, C. R. (2008). Consumer perceptions of organic foods in Bangkok, Thailand. *Food Policy*, 33, 112-121.
- Sage, C. (2003). Quality in Alternative Food Networks: Conventions, Regulations and Governance. *International Seminar on Policies, Governance and Innovation for Rural areas*. Department of Geography, University College Cork.
- Saunders, M. (1997). *Strategic purchasing and supply chain management* (2nd ed.): Financial Times. London, Pitman.
- Scialabba, N. El. H., & Hattam, C. (2002). Organic agriculture, environment and food security. Environment and Natural Resources series No 4. Rome: FAO. Retrived from <http://www.fao.org/docrep/005/y4137e/y4137e00.htm> (accessed 5.04.12).
- Sirieux, L., Kledal, P. R., & Sulitang, T. (2011). Organic food consumers' tradeoffs between local or imported, conventional or organic products: a qualitative study in Shanghai. *International Journal of Consumer Studies*, 35 (6), 603-710. <http://dx.doi.org/10.1111/j.1470-6431.2010.00960.x>
- Sloof, M., Tijssens, L. M. M., & Wilkinson, E. C. (1996). Concepts for modeling the quality of perishable products. *Trends in Food Science & Technology*, 7, 165-171.

- [http://dx.doi.org/10.1016/0924-2244\(96\)81257-X](http://dx.doi.org/10.1016/0924-2244(96)81257-X)
- Sonnino, R., & Marsden, T. (2006). Beyond the divide: rethinking relationships between alternative and conventional food networks in Europe. *Journal of Economic Geography*, 6, 181-199. <http://dx.doi.org/10.1093/jeg/lbi006>
- Stolz, H., Stolz, M., Janssen, M., & Hamm, U. (2011). Preferences and determinants for organic, conventional and conventional-plus products – The case of occasional organic consumers. *Food Quality and Preference*, 22, 772-779. <http://dx.doi.org/10.1016/j.foodqual.2011.06.011>
- Stræte, E. P. (2008). Modes of qualities in development of specialty food. *British Food Journal*, 110(1), 62-75. <http://dx.doi.org/10.1108/00070700810844795>
- Sultan, T., Mursal, A., Salem, S. G., Liu, Y., Oelofse, M., Knudsen, M. T., ... Høgh-Jensen, H. (2008). Market integration shape organic farmers' organisation. 16th IFOAM Organic World Congress, Modena, Italy, June 16-20, 2008. Retrived from <http://orgprints.org/view/projects/conference.html> (accessed 10.08.11).
- Taylor, A. (2006). Overview of the Current state of Organic Agriculture in Kenya, Uganda and United Republic of Tanzania: Opportunities for Regional Harmonization. United Nations Conference on Trade and Development-United Nations Environment Program: Capacity Building Task Force on Trade, Environment and development Project, United Nations. Symbol No: UNCTAD/DITC/TED/2005/16. Retrived from http://www.unep.ch/etb/pdf/cbtfOA_study_text.pdf (accessed 3.04.12).
- Twarog, S. (2006). Organic agriculture: A trade and sustainable development opportunity for developing countries. *Trade and Environment Review*, 141-223. Geneva: UNCTAD.
- UNCTAD-UNEP (2008). Organic agriculture and food Security in Africa. UNCTAD/DITC/TED/2007/15. Retrived from www.unctad.org/trade_env (accessed 12.5.12).
- UNEP. (2010). Organic agriculture: Opportunities for promoting trade, protecting the environment and reducing poverty: Case studies from East Africa. Synthesis report of the UNEP-UNCTAD CBTF initiative on promoting the production and trading opportunities for organic agriculture in East Africa. Retrived from <http://www.unep.ch/etb/publications/Organic%20Agriculture/OA%20Synthesis%20v2.pdf>
- Vaarst, M. (2010). Organic Farming as a Development Strategy: Who are Interested and who are not? *Journal of Sustainable Development*, 3(1), 38-50.
- Walaga, C. (2005). Organic Agriculture in Kenya and Uganda. Study visit report. Technical Centre for Agricultural and Rural Cooperation (CTA). Retrived from http://www.anancy.net/documents/file_en/Study%20Visit_Organic%20Farming%20NEW.pdf (accessed 3.04.12).
- Warner, K. D. (2007). The quality of sustainability: Agro-ecological partnerships and the geographic branding of California wine grapes. *Journal of Rural Studies*, 23, 142-155. <http://dx.doi.org/10.1016/j.jrurstud.2006.09.009>
- Wood, R., Lenzen, M., Dey, C., & Lundie, S. (2006). A comparative study of some environmental impacts of conventional and organic farming in Australia. *Agricultural Systems*, 89, 324-348. <http://dx.doi.org/10.1016/j.agsy.2005.09.007>
- Zúñiga-Arias, G., Ruben, R., Verkerk, R., & Martinus van Boekel (2008). Economic incentives for improving mango quality in Costa Rica. *British Food Journal*, 25(4), 400-422.