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Benefits of organic farming and effect on increase yield

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ABSTRACT: There are exuberance definitions of organic farming, which is as well as known as ecological husbandry (Gosling, 2006) or biodynamic farming (Lampkin, 2002). According to Lampkin (1994, 1997), the purpose of organic farming is: "to make integrated, humane, environmentally and economically supportable manufacture systems, which maximize support on farm-derived renewable resources and the management of ecological and biological activities and interactions, so as to furnish acceptable levels of crop, livestock and human nourishing, protection from pests and malady, and an appropriate return to the human and other resources. Yields on organic farms, although may not be as great as those produced by conventional exercise, fall within an acceptable span. Between the benefits of organic farming is an enhancement in soil microbial actuality and biological proceedings. However, it has been shown that microbial activity and biomass is higher in fields with organic amendments than fields with conventional fertilizers.

***Keywords*:** organic farming, benefit, yield.

INTRODUCTION

Organic management has become one of the most popular sustainable strategies to produce agricultural goods but reduce negative environmental effects of intensive agriculture such asbiodiversity decline (Zechmeister, 2003; Tscharntke, 2005; Whittingham, 2011). At first, the model appears ideally suited to the process of adoption of organic agriculture. However, some doubts arise if the background of the adoption research is considered. It was developed at the height of the productivity paradigm for agriculture and the 'green revolution.' Organic farming, on the other hand, is a challenge to this productivity paradigm, with a wide range of environmental and sustainability objectives, and one of the main areas of criticism of the model was concerned with its suitability to study environmental change in agriculture (e.g. Buttel, 1990; Heffernan, 1982; Nowak, 1982). There is some indication that gender is a factor in the decision to convert to organic farming, although the role of women in organic agriculture in general and in the decision making in particular has not been studied in detail. On several of the 100 organic farms whose motives to go organic were studied in a qualitative social study in Switzerland, the initial 'organic' ideas came from the woman (Fischer, 1982). Organic methods were tried at first in the vegetable garden, which is traditionally the woman's domain, before they were introduced on the whole farm (Dettmer 1986; Fischer 1982; Fisher 1989). To achieve this goal, organic manage-ment abandons pesticides and synthetic fertilizers, and restricts livestock density and the use of organic fertilizers from ani-mal husbandry (maximum of 170 kg N ha^{-1}) (European Union,2008). Hence, the resulting lower pressure of land-use intensity can benefits agro-biodiversity (Gomiero, 2011). However, critics of organic management argue that especially restricted fertilizer input may significantly reduce quantity and quality of yields (Offermann and Nieberg, 2000). While starting from a small base, organic agriculture is now a fast growing agricultural section in the U.S. Dimitri and Greene, (2002) report a doubling of acreage in organic production from 1992 to 1997, currently on more than 500,000 ha. Organic food sales total more that $7 billion per year and are growing at double-digit rates (Greene, 2000 and 2004; Odwalla, 2002; ERS, 2003). With continuing consumer concerns related to the environment and the chemicals used in food production, and the growing availability of certified organic production, the outlook for continuing growth of organic production is bright (Dimitri and Greene, 2002). Yields of crops grown in organic and conventional production systems can be equivalent. Vegetable fields under organic production in California produced yields equal to those under conventional production (Drinkwater, 1995; Stamatiadis, 1999). Long-term research in Pennsylvania has also demonstrated little difference in yields between conventional and organic production systems (Drinkwater, 1998). Numbers of thermophiles microorganisms were also higher in soils amended with organic amendments than soils amended with synthetic fertilizers. Actinomycetes were a major constituent of the thermophilic microorganisms detected in our study. Greater propagule densities of actinomycetes in tomato field soils under organic production compared with conventional production systems in California have also been reported (Drinkwater, 1995).

Definition of organic farming

There are exuberance definitions of organic farming, which is as well as known as ecological husbandry (Gosling, 2006) or biodynamic farming (Lampkin, 2002). According to Lampkin, (1994, 1997), the purpose of organic farming is: “to make integrated, humane, environmentally and economically supportable manufacture systems, which maximize support on farm-derived renewable resources and the management of ecological and biological activities and interactions, so as to furnish acceptable levels of crop, livestock and human nourishing, protection from pests and malady, and an appropriate return to the human and other resources”. Several have considered organic farming and sustainable husbandry equipollent, because they are both based on sustainability of agro ecological systems. Sustainability can be specified as meeting the need of the present without compromising the capability of future descendant (WCED, 1987).

Yield in organic farming

Yields on organic farms, although may not be as great as those produced by conventional exercise, fall within an acceptable span (Avery, 2007). Encouragingly, organically produced yields at the moment are significantly higher than those produced before the 1950s. Part of this advance can be impute to new varieties and better knowledge of biological processes used in farming. For example, if N mineralization is slow because of cool/wet growing- status, crops on organic farms may not have adequate N primary in the season. However, better knowledge on N simultaneity between N liberation by manures and N request by crops could minimize or even clean this N deficiency difficulty (Hue and Silva, 2000; Myers, 1997).

Soil biological characteristics

Between the benefits of organic farming is an enhancement in soil microbial actuality and biological proceedings (Gunapala and Scow, 1998; Petersen, 1999; Scow, 1994; Werner, 1997). Some of the disturbance elects are of the order of hours or days, a shorter time frame than usually considered in agricultural studies of microbial processes and communities. For example, incorporation of cover crops into agricultural soils can produce rapid uncut actions (lasting one to several days) in microbial bio- mass (MB) and inorganic N (Wyland, 1995, 1996). Microbial community composition may also respond rapidly to disturbance. Phospholipid fatty acid (PLFA) composition of a sediment microbial community shifted substantially during the rest 12 h after sieving (Findlay, 1990). Increases in MB often occur following increased amounts of organic inputs. Short term increases occur for days to months after organic amendments are applied (Ocio, 1991, Wyland, 1995; 1996; Gunapala and Scow, 1998). Axelsen and Elmholt, (1998) estimated that a transformation to 100% organic farming in Denmark inclination enhancement microbial biomass by 77%, the population of springtails by 37%, and the density of earthworms by 154%. Limited field studies have been conducted to determine the impact of soil amendments on microbial communities in actual organic and conventional production systems in the fields (Drinkwater et al., 1995; Gunapala and Scow, 1998). However, it has been shown that microbial activity and biomass is higher in fields with organic amendments than fields with conventional fertilizers (Drinkwater,1995). Many studies on soil microbial communities, as affected by organic amendments, have examined functional groups, or classes of organisms, while few studies have examined the impact on community composition and genera within these groups. One such study in organic tomato fields in California found that suppression of corky root disease was associated with increased actinomycete activity (Workneh et al., 1993; Workneh and van Bruggen, 1994). In organically managed systems where no synthetic fertilizers are allowed, soil microbial biomass is important to supply plant nutrients by mineralization processes and to avoid nutrient leaching (Friedel, 2001). Soil microbial biomass, the living part of soil organic matter (SOM), acts as an important ecological indicator and is responsible for organic matter decomposition and nutrients mineralization (Marinari, 2006). Any changes in soil microbial biomass may impact these important functions in the soil. In addition, as microbes are living, they respond more quickly to changes in soil conditions than does SOM (Araújo and Melo, 2010). On the other hand, SOM fractions, such as light fraction or humic substance, also can be considered indicators of land use and management effect on the soil environment as reported by several authors (Bayer, 2006; Cookson, 2008; Leite, 2003; Okore, 2007; Triberti, 2008).

Organizations worldwide offer

Today, 395 organizations worldwide offer organic certification services. Most certification bodies are in Europe (160) followed by Asia (93) and North America (80). The countries with the most certification bodies are the US, Japan, China and Germany. Many of the certification organizations also operate outside of their home country. Forty percent of the certification bodies are approved by the EU, 32% have ISO 65 accreditation, and 28% are accredited under the US National Organic Program (Yussefi and Willer, 2007).

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