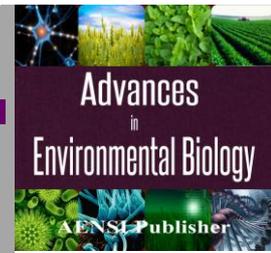




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### Organic Farming and Sustainable Farming in Ecological Farming Systems in Iran

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#### ABSTRACT

In the case of organic farming have been emphasized on the use of pesticides and fertilizers. Mainly in the method of production that mainly are not used pesticides and artificial fertilizers, and other chemicals in it. Organic farming methods uses in order to provide soil productivity, supply plant nutrients, and pest and weed control, crop rotation, if possible, with the remaining crop, animal manure, legumes, green manure, off-farm organic wastes, mechanical cultivation and biological control pests. Organic farming is known by different names in different countries, with 16 names for it, including biological farming, sustainable farming and agriculture creator is mentioned. Today, with increasing agricultural production to meet the growing needs of an expanding population, has raised concerns about future food supply to the people. Contamination of water, soil, air and soil erosion, pest resistance to pesticides and spread fertilizer has decreased due to conservation and cultivation of industrial return to the past. Soil conservation and increase its productivity (soil management) can assure productive capacity for future generations. Agricultural soil degradation is often the main reason cited for the adoption of organic management. Thus, we can suppose, farmers have adopted organic management practices through new administrative practices, or at least a way to improve the quality of soil erosion have found. Agricultural land is one of the constituent substrates as mainstream culture and its growth is the cultivation of plants. At the beginning of the implementation of organic farming are significantly reduced the creation and maintenance of the same and the costs and agricultural productivity. Potential effects on the public health system can be natural resources, livestock, water and enrichment of soil fertility etc.

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## INTRODUCTION

Organic farming is a new form of traditional agriculture that farmers have been together for many years, but with the beginning of the Green Revolution and the beginning of its development, its role was less important with this type of culture and gradually deteriorated in agricultural systems worldwide. Green Revolution created profound transformation in the agricultural world, but failed for various reasons. The reason for the failure of the Green Revolution and the approach to the world of agriculture organic farming methods is investigated. At present, different countries have a level of agriculture to organic farming. Unfortunately, there is not enough organic farming in Iran. In the case of organic farming have been emphasized on the use of pesticides and fertilizers. Mainly in the method of production that mainly are not used pesticides and artificial fertilizers, and other chemicals in it. Organic farming methods uses in order to provide soil productivity, supply plant nutrients, and pest and weed control, crop rotation, if possible, with the remaining crop, animal manure, legumes, green manure, off-farm organic wastes, mechanical cultivation and biological control pests. Organic farming is known by different names in different countries, with 16 names for it, including biological farming, sustainable farming and agriculture creator is mentioned.

The remainder of this paper is to investigate the potential of organic farming development prospects and is studied problems and bottlenecks in the development of this type of culture. There are currently more than three decades of international attention to the issue of environmental protection issues surrounding sustainable development are approximately two decades ago. Before this time, in all development projects, and establish a purely economic perspective and were considered greater economic efficiency. But in the 1970s this mentality in the minds of policy makers and development planners proposed that such economic growth contributes to environmental degradation, social inconformity, at the reduced resources and a long-term these problems fallout

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abundant economic will able to subjugate. Organic farming and sustainable agricultural development in order to set the operation is said that the purpose of reducing abnormal input comes into force and the use of fertilizers and chemical pesticides, synthetic preservatives, synthetic drugs produced by genetically engineered organisms and wastewater aside. Studies show that Getting the process of the global organic farming is hopeful that one of the reasons for it are increasing concerns about pollution, resource base, the safety of food human and animal and due to the most nature and the scenery on. The purpose of organic agriculture, while protecting soil fertility and increase crop yield with less reliance on the use of chemicals. The goals of this preserve culture system resources. In other words, object oriented organic agriculture, traditional agriculture and modern science is that our ancestors did. A chemical used in conventional farming has been reduced to the minimum needed.

Instead of producing more dependent on the maintenance and use of resources in the field, such as animal, human and plant waste (residues'). Primary goal of organic agriculture, achieve stability in production with GHORBANI principal objective of the (yield) without contamination of water, soil and air. Avulsion ready to buy consumers in developed countries such as higher prices, the government is subsidizing and promoting ecotourism, organic farming provides income increases. Studies in developed countries have shown that consumers are willing to organic products cost ten to forty percent more than non-organic products to buy. A lot of stores offer organic produce and market these products to prosperity and potential demand exceeds supply. Expected future demand growth continues. The short supply of organic products it creates opportunities for developing countries to enter the market and have won a share of it. In addition to the environmental and economic benefits, social benefits associated with organic farming increases in terms of price and non-imported for the use of inputs and on the above to the work force, employment opportunities.

#### *The history of the rise of organic farming and sustainable agriculture:*

Organic farming is not new, organic farming method that we attend is from thousands of years before the advent of pesticides and fertilizers (in the last century). By now we know. During World War II, agricultural land use in the discovery of two chemical substances used as sources for spread of cheap fertilizers and pesticides have been used. At this time the plants are increasingly mixed farms, monoculture production, extensive irrigation and mechanization were based. But on an industrial scale, chemical-based agriculture grew so criticism of this type of agriculture began. In 1924, an Austrian scientist named Dr. Rudolf Steiner's vision of agriculture that uses science and spirituality was rooted in human nature. His views on biodynamic agricultural development in many countries of the world created which now comes into force. At about the same time Dr. Hans Mueller in Sweden based on the beliefs of the Christian movement founded for reform in order to protect and preserve agricultural land and family farms. Later Dr. Ness Peter is important theoretical approaches in relation to soil fertility and micro-biology tools that lead to greater agricultural development in Central Europe. The popularity of the method of organic agriculture in the late 60's and 70 AD increased respectively. The popularity has been increased especially with the publication of *Silent Spring* by Rachel Carson in America (1962), respectively. Soon after the United States banned the use of DDT. Organic agricultural organizations in many countries around the world were created. International Federation of Organic Agriculture Movement, one of which (IFOAM), respectively. Getting the process of the global organic farming is hopeful that one of the reasons for it are increasing concerns about pollution, resource base, the safety of food human and animal and due to the most nature and the scenery on. The purpose of organic agriculture, while protecting soil fertility and increase crop yield with less reliance on the use of chemicals. The goals of this preserve culture system resources. In other words, object oriented organic agriculture, traditional agriculture and modern science is that our ancestors did. A chemical used in conventional farming has been reduced to the minimum needed. States at the peak of development. In the early 1930s, the number of farms reached a peak of 8.6 million. Mechanization has expanded rapidly expanding cultivation and agriculture competed with industry and technology quickly spread. At the beginning of the twentieth century, the holistic concept of individualism was formed. The emergence of holistic thinking that it looks natural systems as a model of the role of agriculture in development of the system relies, to develop concepts that today are called alternative agriculture. Agriculture during the 1900s as an alternative to industrial agriculture took shape. The first organized movement of farmers, farming movement of biodynamic that speech, "Rudolf Steiner" (1924) was the founder of the science of identifying human nature. Biodynamic farming principles and practices include diversification of agriculture and horticulture; re-cycle materials, avoiding the use of chemicals, lack of concentration, etc. in its production and distribution. Biodynamic the 1920s, farmers have developed the principles and practices of traditional re-introduced.

#### *Profitability of organic farming:*

Getting the process of the global organic farming is hopeful that one of the reasons for it are increasing concerns about pollution, resource base, the safety of food human and animal and due to the most nature and the scenery on. The purpose of organic agriculture, while protecting soil fertility and increase crop yield with less reliance on the use of chemicals. The goals of this preserve culture system resources. In other words, object

oriented organic agriculture, traditional agriculture and modern science is that our ancestors did. A chemical used in conventional farming has been reduced to the minimum needed. In general, organic farming can be profitable for the comparison between conventional farming and organic farming systems did. Organic agriculture:

- The final yield was lower, but the difference in performance compared to conventional systems, depending on the type and intensity of the current system is different.
- Variable input costs, the costs of agricultural chemicals is less, specially?
- Return of providing additional price paid for organic products is satisfied if the system is similar to or greater than the current supply efficiency, but otherwise less and Security Returns and the collection of detailed activities, should be considered in consideration of the farm system.
- Use more labor done, but it was more than the activity on a particular crop, the number and scope of activities in the field and creating new markets and activities related to the process of getting rid of the products concerned there.
- Other fixed costs include items such as electricity, repairs and depreciation of machinery, assets and real estate depreciation and capital costs are usually similar.

By studying these we find that the difference between organic and conventional agriculture on the lower profitability of organic farming and use of organic farming is labor. Consumers from paying higher prices for organic products are expressed rather than their willingness to change and the need to conduct agricultural production in a way that is not done harm to the environment. Due to lower variable costs of inputs, the same fixed costs and higher prices of organic products compared to conventional agriculture, organic farming can be concluded that the cost will be.

#### *Forestry – farming:*

The development of organic farming has the potential to be the case according to the power and remove the barriers can be seen in the coming years the growth of this type of culture in our country. Here we investigate the potential of organic farming techniques. Intercropping trees and crops in many parts of the world is still around. Forest systems - especially in tropical farming emphasized again. Forests - agricultural and agro-ecology is more capable than other cropping systems. In this system, the movement of wind and water erosion is reduced and minimized, trees reduce air temperature and modulate the micro repeat it again and they are distributed in soil [7].

#### *Integration of animal and plant:*

Cropping systems, livestock are more than one form. In arid areas might be pastoral livestock systems. Over the past 50 to 40 years, in the vast field that many inputs used in the agricultural animal is isolated. Chinese people with a variety of cropping systems, crop and livestock animal to have invented the system is breaking in connection with chain details. In these systems, the main crop is rice. When the grain is harvested and straw with manure, digestive tract in a bio-compost and methane gas produced from this process is used for cooking and lighting. Mud and silt from the digestive tract is also used for the production of edible mushrooms. After the mushrooms have been harvested, remnants of organic matter as fertilizer in rice fields is returned, the system is extremely efficient in terms of energy consumption and nutrient Spin [7].

#### *Weed Control:*

The development of organic farming has the potential to be the case according to the power and remove the barriers can be seen in the coming years the growth of this type of culture in our country. Here we investigate the potential of organic farming techniques. Weed control methods include the use of competitive or allopathic cultivars or both, using allopathic crop are residues for mulching and intercropping systems and thus the competitiveness of farm raised or extended for long periods during the growing season [1].

#### *A- Competing plants:*

The evaluation is based on a 25 percent reduction in crop yield were taken by weeds are located crop tops, IV soybean, corn and onions in the bottom of Table VII. Differences in the classification of crops mainly to track the growth of vegetation, which depends on the distance between the rows and possibly life-cycle.

#### *B- Allopathic plants:*

Differences between crops compete with weeds may produce allopathic inhibitors by the roots and aerial parts of life are related. Most cultivars produce allopathic substances that can better compete with weeds. Therefore, the choice of competitive and allopathic cultivars could be improved weed control and herbicide application or tillage therefore less feasible [1].

### *C- Biological Control:*

With the help of insects or insect grazing and other parasitic insects that can be many pest insects such as wasps TRICHOGRAMMA normally dealt with has been very successful in the north of function [1].

Today, the uses of transgenic plants that are resistant to insect attack or to induce endogenous have been proposed allopathic properties. These products contribute to a disease or pest resistant gene transfer via a plasmid or virus; protozoan pests have developed resistance to plant early. And therefore less need to use poisons. However, despite the increased cleanliness and environmental groups oppose it and why do the men know that inoculation of transgenic plants and weeds of the family may plant weed property abnormal arise. In other words, a cloud of weed face, they may be in which case the routine methods for the destruction. Today, many are looking for ways to be more like the natural breeding during the insemination process between plants and their early ancestors who have a low production potential, but resistant to pests. Plants able to withstand a higher bring as much as possible to a Healthy Environment around hitting not. In addition, the health of farmers due to contact with insecticides is in jeopardy is raised and the attention it is necessary. Due to this fact, numerous studies in this field was done at the international level and finally to the commercialization of transgenic crops in 1995 finally come to pass. Interest in planting these products so much that within a few years the commercial value of \$ 1 million seed consumption in 1995 was more than four billion dollars in 2002 [6]. Meanwhile, the United States EPA (Environmental Protection Agency) issued a license to use these products. 5 major crops that have annual export value of more than \$ 75 million, including corn, forage crops, potatoes, sugar beet and wheat. Meanwhile, the share of developing countries in transgenic crops increased from 14 percent in 1997 to 30 percent in the year of 2003. In other words, about one-third of the acreage of such crops is allocated to developing countries [2].

Our country, IRAN due to the growth of these products at the international level began working on these products and finally the type of products under the name of rice BT AMOL 1 the products of 3 AMOL 2, but faced with opposition from environmental organizations. These opponents argue that transgenic crops are not permanent traits and also on the environmental conditions may be pest resistant. Cartagena biosafety protocol is performed strongly in the assessment and management of risks is possible. Two of these protocols, namely Articles 15 and 16 relating to the assessment and management of risks. In Article 15 has been conducted the risk assessment. The article states that the risk assessment should be based on reliable scientific information to identify and evaluate potential adverse effects of genetically modified organisms on biodiversity, taking into account human health [2]. Risk assessment is necessary in the organism and the environmental benefits that it provides organism be considered. The possible effects of the survival of an organism or genetic trait changed over the environment should also be evaluated. Article 16 of the Cartagena Protocol on biosafety risk management states that all member countries should have appropriate systems for monitoring, control and management of risks in the evaluation of the risks to create specified [2].

### *Status of organic agriculture in Iran:*

#### *World Status of Organic Farming:*

"Organic farming in recent years has spread rapidly around the world and at present (2006) this type of farming is done in nearly 120 countries. According to the latest survey (SEOL survey, 2006) is now more than 31 million hectares of farm land in the world at 623,174 in organically managed. Significant increase in the area of organic farming between 2005 and 2006 from China, which recently happened (3 million) acres of land their range is certified organic.

The countries like Australia, China and Argentina are the biggest land to organic farming. Australia has 12.1 million hectares of the world's largest organic farms. After that, China has 3.5 million hectares and 2.8 million hectares are located in Argentina.

In total, Australia / Oceania, 39% of the world's organic land is allocated, and then Europe 21%, Latin America 20%, and Asia 13%, North America 4%, and 3% are African.

The proportion of organic land of total agricultural land, Austria, Switzerland, more than 10 percent of agricultural land is managed organically. In 2004, the market value of organic products worldwide reached \$ 27.8 billion. The largest part is in Europe and Latin America. "

At present organic law in a number of Asian countries importing organic products to keep the compulsory and exporting countries, the trend toward being optional. Palestine is the only country in Europe to reach equal status with union rules. Exports, considerably, the products that are consumed fresh and is comprised of products that junk. Recently, aquaculture, especially shrimp farming through projects in China, Indonesia, Thailand and Vietnam is common.

### *Status of Organic Agriculture in IRAN:*

Status of Organic Agriculture in According to global statistics, the cultivation of organic products (figures published in the report, The world of organic agriculture 2006) 200 hectares and the number of organic farms, a farm, but according to Deputy Agriculture Ministry of Agriculture (1380) the total area under crops in the

country without the use of pesticides and fertilizers have been produced about 239,462 acres, of which 125,802 hectares and 113,659 hectares of crops are horticultural products. The total area under crops without using chemical pesticides have been produced only about 808,612 acres, including 254,134 acres of planted crops and orchards that produce them without the fertilizer and pesticide is carried out. Respectively 1 and 2.7 percent of the total surface of the country's crops and orchard form.

These figures are only indicative of the country's potential to produce organic products. Due to the lack of organic certification centers for these products in the country, the cultivation of these crops not listed on global statistics, so the table is in place.

To determine the development prospects of organic farming, potential problems and bottlenecks in the development of this type of culture will be discussed:

The development of organic farming has the potential to be the case according to the power and remove the barriers can be seen in the coming years the growth of this type of culture in our country. Here we investigate the potential of organic farming techniques.

One characteristic of organic farming is that this type of crop cultivated in small acts better. It is for this reason that the sizes of farms are larger, more complex interactions in ecosystems, agriculture and farm management becomes more difficult. But small farms can control most of the farmer, and he could earn principles of organic farming was a good farm. Because of the small size of farms is an opportunity for organic farming, the agricultural sector of our agricultural land can be split as a positive factor in the development of organic farming. Smallholder farmers can rely on mechanized farming and organic farming compared to conventional make more money from their small plot of land. Compared with conventional farms, organic farms than in the labor force, either part-time or full-time, most-used. Much of this is due to the greater variety of activities, operations, marketing and processing of fruit and vegetables and higher proportion of organic farms is rooted in the rotation. Small farms, and require the use of labor per hectare than larger organic farms is higher. What is the most organic farms, family labor plays an important role in cases where the scope and extent of the work required, proceed to the employment of labor will be additional.

#### *Increasing consumer desire to consume healthy products:*

Middle-class Iranians found that increased mortality from cancer and food poisoning due to increased pesticide residues in agricultural products. Iran has repeatedly rejected the goods that have excessive pesticide residues are faced Production of organic products that are public knowledge about the Alternatives to produce food for currently exists increased. Increasing consumers' willingness to consume healthy food, positive potential for manufacturers and farmers will have to be informed of future market trends towards organic farming to action. Since the Iranian consumer desire for organic food is no market for these products will grow.

#### *Conclusions:*

In the case of organic farming have been emphasized on the use of pesticides and fertilizers. Mainly in the method of production that mainly are not used pesticides and artificial fertilizers, and other chemicals in it. Organic farming methods uses in order to provide soil productivity, supply plant nutrients, and pest and weed control, crop rotation, if possible, with the remaining crop, animal manure, legumes, green manure, off-farm organic wastes, mechanical cultivation and biological control pests. Organic farming is known by different names in different countries, with 16 names for it, including biological farming, sustainable farming and agriculture creator is mentioned. Organic farming is a new form of traditional agriculture that farmers have been together for many years, but with the beginning of the Green Revolution and the beginning of its development, its role was less important with this type of culture and gradually deteriorated in agricultural systems worldwide. Green Revolution created profound transformation in the agricultural world, but failed for various reasons. The reason for the failure of the Green Revolution and the approach to the world of agriculture organic farming methods is investigated. At present, different countries have a level of agriculture to organic farming. Unfortunately, there is not enough organic farming in Iran. In the case of organic farming have been emphasized on the use of pesticides and fertilizers. The development of organic farming there are problems that must be action to resolve them. Legal vacuum in terms of certification for organic products, organic certification centers in the country, there existed Until the vacuum is not resolved, foreign firms over Iran will certify organic products and the benefits they will receive from the sale of these products will gain very little agriculture in Iran. So organic farming is one of the options to increase rural incomes, improving natural resource management and employment in rural areas. By removing the limitations and potentials are given with respect to the development of organic farming in the country had hoped. Farmer's access to technical knowledge and market information on organic production and strengthening of organizations of organic producers in this field is very important.

On the other side of the ship they hold minimal tillage, agro-forestry and integrated crop and livestock production potential. Most of these operations, history and some very long historical background and others are very old. Sustainable agriculture must be ecologically appropriate, economically feasible and socially desirable. There are two key principles of sustainable agriculture, in particular the use of chemical fertilizers and

agricultural pesticides and fertilizers shall be minimized to comprehensively consider. Some experts emphasize that the ecological aspects of farming systems to organic farming, biological, ecological, and natural or alternative schedule. Sustainable agriculture is a biological process and tried to mimic the key features of a natural ecosystem, but most of its objectives. Sustainable agriculture, agro-ecosystems will be complex, Rotate efficiency in this type of agricultural nutrients increases and the sun as the main source of energy used to drive the optimal of the utilization.

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