

# ON ORGANIC AGRICULTURE

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## Abstract

Enlargement of human population and enhancement of requirement for quality are always the impulsion for agriculture development. Organic agriculture is the inevitable trend of the future agriculture. The paper analyzed the necessity and feasibility of developing organic agriculture; pointed six principles should be followed in the course of developing organic agriculture; and at last put forward several measures to develop organic agriculture.

**Key words:** organic agriculture, necessity, feasibility, principle

Organic agriculture means based on the tenets of dependence and restriction one another among livings and livings' adaptation to its environment, applying modern science and technology, adopting measures of maintaining the balance of ecologic system and promoting the increasing and improvement of quantity and quality of agro-products, to ensure no pollution and no residual poisons in the products, and then satisfy the human's demand of healthy and forever development. In this case, no transgenic varieties can be used (for some countries' standard); no using of chemicals such as fertilizer, pesticide, weedkiller, hormone, regulator, defoliant, etc. in farming and forestry; no using of feed additive in fishery and animal husbandry; no using of chemical preservative, chemical dye in product processing, instead of using manure, and as such organic wastes to increase the productivity.

Organic agriculture has been developed for half a century since it was initiated. Nowadays a lot of countries are popularizing, exploring, and studying organic agriculture actively, such as USA, EU, Japan, Indian, and some of African and South American countries. China has only about 10 years of implementing organic agriculture.

## . Necessity of developing organic agriculture

The development of organic agriculture will surely help to improve the ecologic sanitation condition of the human existence and the quality of the human's living. Therefore organic agriculture is the impulsion of the agriculture development.

### 1. Developing organic agriculture is the regression and sublimation of the human's progress

Things are developed in whirling line, coming back to the origin but higher than the origin. Agriculture, as the base of the human's existence and development, has been practiced for more than 10 thousand years. In the long history, agriculture has experienced three periods: primary agriculture, traditional agriculture and modern agriculture.

In traditional agriculture period, intensive cultivation was practiced. The field was cultivated by green manure, compost manure. The disease, pest and weed was controlled by rotation, applying enemy, or manual work. Organic agriculture is the regression of traditional agriculture, but more important is the sublimation of the

traditional agriculture.

**2. Developing organic agriculture is the fundamental way to improve the health of our mankind.**

Because developing organic agriculture is an effective way to dispose the rural organic waste, meliorate rural sanitary condition, worsen the living environment of pathogeny, and then improve the health condition in the rural area.

**3. Developing organic agriculture is the guarantee of maintaining the balance of ecologic system and keeping the natural environment stable**

Modern agriculture has buried great hidden trouble for the human's existence and development, at the same time of providing evangel to our human. Because the chemical energy (fertilizer and pesticide, germicide, weedkiller) applied to the field and the plant deplete lots of the unrenewable resources on one hand, and on the other hand, destroy the stability of the ecologic environment. A great amount of application of pesticide results in the vermin's more and more resistant to the pesticide, and the enemy's smaller and smaller of its colony. So it is needed for the pesticide to be more and more poisonous, the concentration of the pesticide applied to be greater and greater, the applying of pesticide to be more and more frequent. The vicious circle will result in deterioration of the ecologic system and being fragile of the environment.

**4. Developing organic agriculture is the prerequisite of minimizing pollution and eliminating residual poisons**

The application of pesticide and fertilizer can also result in pollution of the soil and the water body, toxin collection in the products. It will threaten indirectly the human's health.

As stated above, agriculture must follow the path of organic production.

**. Feasibility of developing organic agriculture**

To develop organic agriculture is not only necessary, but also feasible.

**1. By more than 20 years endeavor, the supplying market of agro-product is being surplus in total, but short in variety.** People in most areas demand different products in different quality, since they already has sufficient products for consumption. This is the premise of developing organic agriculture.

**2. The development of science and technology has provided favorable condition for developing organic agriculture.** For example, new varieties of higher yield and better quality combined with resistant to disease and pest can be bred. Some component harmful to a certain kind of fungi, pest in some plants can be separated and purified. Sex hormone of the pest can be separated or synthesized. The genes charging for the expression of the above harmful material, sex hormone can be integrated to the carrier, such as E. coli, to produce those kind of material in large scale.

**3. The surplus labor in the rural area is the guarantee for developing organic agriculture.** Organic agriculture is labeled in no using of chemicals, and manual control of the pest, disease and weed. Hence more labor is needed in practicing organic agriculture.

## . Principles of developing organic agriculture

Developing organic agriculture is necessary and feasible, but never blindfold, never optional. The following principles should be kept to in order to exert fully the advantages of organic agriculture, harmonize the relationship of quantity requirement and quality requirement.

### 1. Organic agriculture is our pursuing target, developing trend

It is necessary, in order to enhance the living quality, under the condition of abundant supply of agro-products, to improve the product quality continuously, eliminate or minimize the product pollution gradually, keep to a stable ecologic environment. However quantity and quality is an eternal contradiction, and improvement of quality is a lasting theme. Organic agriculture is the strive to fulfill the theme, and the organic agriculture itself has no final standard.

### 2. Developing organic agriculture should be distributed rationally nationwide

In the first 3—4 years of implementing organic agriculture, the output of product will be lower than the conventional agriculture obviously. So it is stressed that organic agriculture can only be practiced under the condition of enough product supplying, and should be arranged nationwide.

### 3. Developing organic agriculture should be strictly follow the technique rules

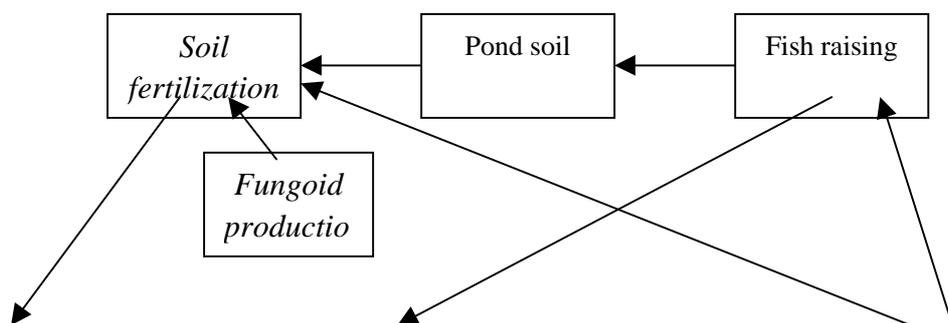
Organic agriculture has a set of strict technical regulations, such as rotation annually, no using of chemicals, no using of polluted water for irrigation, no using of transgenic varieties. And what's more, 3—4 years are need to be ratified of transferring from conventional to organic agriculture.

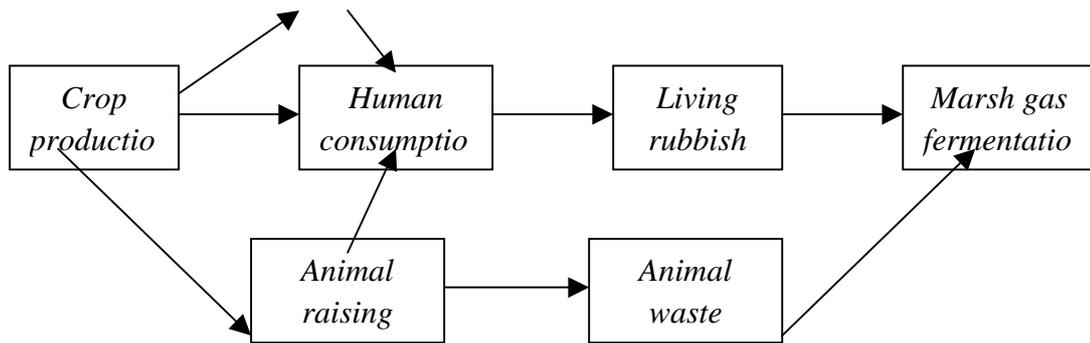
### 4. Developing organic agriculture should be consummated continuously and cooperated internationally

Organic agriculture has no final standard, needs to be studied deeply and be consummated continuously. Consequently, international cooperation is urgent to absorb the other's experience and to discuss more effective way.

### 5. Developing organic agriculture should pay attention to being integer, in large scale, and industrialization

Organic agriculture should be integer.





To be in integer should have a certain scale, only in this case can the function of being in integer be exerted, can it be extended. The scale is dependent on the scale of the farming, and the market condition of the main product of the farming. The scale is also dependent on the margin effect of enlarging scale. A rational scale is no bigger than the scale when the margin effect is zero.

Large scale should be accompanied by industrialization.

### **6. Developing organic agriculture should not only pursue the social benefit, ecologic benefit, but also the economic benefit**

Good social benefit is the precondition, balanced ecologic benefit is the base, and rational economic benefit is the guarantee of developing organic agriculture. Under the market economy, it is not vital not to seek economic benefit. Thus organic agriculture should intensify scientific management, optimize resource collocation, minimize production cost, boost output and quality, increase economic benefit.

#### **. Measures of developing organic agriculture**

Organic agriculture product has a bright market prospect, thereby develop organic agriculture the early the better. The following measures should be taken to develop organic agriculture:

#### **1. Encouragement in policy, support from the government, introduction by the public opinion**

Organic agriculture needs more labor, and has lower benefit in the first few years, so encouragement and financial support are necessary. And the level function of price and introduction function of the public opinion should be used to induce more and more knowledged persons to invest in organic agriculture.

#### **2. Rotation, inter-cropping and relay cropping , utilizing combined with cultivating the field**

In China, rotation, inter-cropping and relay cropping are prevail from the ancient time. It is proved that it can control the development of disease, pest, and weed, cultivate the field and heighten the land productivity.

#### **3. Integrating management to control the development of disease, pest and weed**

The development of disease, pest and weed is beneficial to the evolution of the plant, although they harm the growth of the plant as well. So that, disease, pest, weed, and their enemy and plant form a uniform integer. From this sense, management of disease, pest and weed is advocated. That is to say to control disease, pest and weed under a certain degree, by adopting their enemies, deteriorating the living condition.

**Agricultural measures:** adopting variety which is resistant to disease, pest; ploughing the land to let the fungi, pest and weed seed or root be dead by freezing in the winter season; rotation between paddy field and dry land; increase sunshine into the plant population, decrease the humidity in the population; grow inducing plant; adjust the sowing date to avoid the heap period of the pest; grow green manure in between the lines to surpass the weed.

**Biologic measures:** a lot of organism can be used to control disease, pest and weed.

**Physical measures:** seed treatment, such as selection, sunshine, laser, high temperature, electric magnet, etc.; manual and mechanic tillage; manual arrest of pest, clearance of sick individual plant or part of the plant; cover the grass under the sunshine; kill the pest according to its photokinesis or its loving to a certain color.

**Chemical measures:** kill the pest by using sexual hormone , etc..