

Research on the current situation and countermeasures of clean agricultural production

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Abstract

The agricultural cleaner production is a new pattern of the 21st century agricultural development, for example farmland pollution is more and more serious, agricultural cleaner production legislation is urgently demanded, the government policy - type encouragement is insufficient, the farmer knows a little about this and so on. This article tries to obtain some facts from the agricultural clean production definition with advanced experience of other country, then to solve these problems in our country agriculture cleaner production and put forward the proposal.

Keywords

Agriculture; Clean Production; Soil; Countermeasures.

1. Introduction

With the expansion of the world's population, economic prosperity, industrial expansion, human beings have brought heavy pressure to natural resources and social ecological environment, the deterioration of the living environment, land desertification, soil erosion and other ecological crisis further deepened. More and more ecological problems threaten survival, and mankind realizes that it is imperative to seek a new development model to ensure a better life for all mankind in this beautiful home of the earth and to achieve sustainable development in the future. And countries' environmental policies are also moving from the previous end pollution control policy of first destruction and then control to pollution prevention in the production process, that is, clean production management. The concept of "clean production" has been widely recognized in the academic circles since the early 1990s with the improvement of people's understanding. Clean production refers to the continuous adoption of improved design, use of clean energy and raw materials, the use of advanced technology and equipment, improve management, comprehensive utilization and other measures to reduce pollution from the source, improve the utilization of resources, reduce or avoid the production, service and product use of pollutants and emissions, in order to reduce or eliminate harm to human health and the environment. In order to prevent the further deterioration of the ecological environment, protect the environment, pay attention to human health, ensure the survival and development of mankind, and realize "clean production" has become the common needs of all countries in the world and the urgent task of achieving development.

Agricultural clean production refers to the whole process of raw materials, production processes and products of agricultural production, through the control of technology,

management and monitoring system, to avoid or reduce all kinds of pollution, to achieve environmental health and agricultural product safety purposes. At present, most of the areas where ecological problems occur in China are concentrated in rural areas, due to ecological deterioration, natural disasters occur frequently, and limited agricultural resources become more scarce, which not only aggravates the poverty level in some rural areas, but also increases the pressure of economic and social development[1-2]. Therefore, the need to carry out clean agricultural production in the country is very prominent.

2. The current situation and problems of agricultural production

China is a large agricultural country, which has long been responsible for solving the unreasonable environmental and ecological behavior of farmers caused by the supply of basic agricultural products. Serious resource and environmental problems have arisen, and agricultural pollution is becoming more and more serious[3-4]. Its main manifestations are in the following areas.

2.1. Agricultural fertilizer pollution

Long-term overuse of fertilizer will lead to soil plate knots, deterioration of the chemical structure, poor permeability, etc., more serious is that the large use of nitrogen fertilizer will cause nitrate accumulation leading to agricultural nitrate exceeding the standard[5]. Many phosphorus fertilizers contain heavy metals and even radioactive metal elements, excessive use will lead to soil heavy metals rich harm to the human body. In addition, some farm fertilizer due to untreated heavy metals and microbial pollution is also very serious.

2.2. Pesticide contamination

Pesticides contain a large number of heavy metals into mercury, arsenic, copper and other heavy metals, there are serious teratogenic, carcinogenic, such as methamidophos, furandian, oxidizing fruit, these highly toxic pesticides are extremely difficult to degrade, although banned for many years but still in the biosphere still have residues. Excessive spraying of pesticides will not only affect the chemical and chemical properties of soil, but also through runoff, gonorrhoea into the surface, underground pollution of the water environment, resulting in heavy metal pollution, affecting the safety of human life.

2.3. Land degradation is serious

Land is the foundation of agriculture and the foundation of various agricultural activities. With the gradual decrease of overexploitation and the decrease of quality, soil degradation has become serious, soil erosion and soil salinization have appeared in many areas. Some studies have found that the content and quality of black soil organic matter (humus) in Northeast China have decreased significantly, with the average content of black soil organic matter decreasing by more than 10% and organic matter activity decreasing by more than 30% in the past 20 years. In Xinjiang, due to over-extraction of groundwater, the vegetation on the north slope of Tianshan And Tuha Basin has been seriously degraded in some flaky deserts, while the surface water diversion rate of most rivers is generally high, and a large amount of irrigation water is not discharged in time, resulting in river breakage, grassland degradation, soil salinization and soil secondary salinization.

2.4. Green food is not competitive

China put forward the concept of green food in 1989, after three decades of development has begun to take shape. However, there are also some problems, mainly manifested in:

(1) Green food standards are not sound enough. Today's international market is in the process of improving product quality and standards marked by the "upgrade", many export enterprises because agricultural products do not meet this standard and heavy losses. It can be seen that it

is imperative to improve export competitiveness, increase farmers' income and establish a sound green food marking system.

(2) The market security system is missing. China has long been dominated by traditional agricultural production methods, farmers in the production process lack of awareness of the implementation of clean production standards. The mechanization, intensive and low-scale level of green food result in high production of finished products, which is difficult to popularize, and the market system is not standardized, and counterfeit food disturbs the market order and combats farmers' enthusiasm for production.

3. Measures related to clean production of agriculture abroad

Developed countries such as Europe and the United States attach great importance to the quality of the agricultural environment and the safety of agricultural products, and early implementation of the legal guarantee system to ensure the quality and safety of agricultural products, from laws and regulations to market regulation and control have a perfect and reasonable system. In the 1970s, the United States put forward the HACCP (Risk Analysis and Key Control Point) system, and then introduced the GMP (Good Practices) model in the field of production, all of which took origin pollution as the key object of control, so as to minimize the risk of food quality. In addition, they have strengthened the monitoring of environmental pollution and the quality of agricultural products, put strict restrictions on the use of agricultural chemicals such as fertilizers and pesticides, and closely linked the sale and use of major agricultural products to the environment of origin to ensure that they achieve the required quality. Projects focusing on research on greenhouse gas emissions, including the AgSTAR Program and the Ruminant Livestock Effective Use Project, and the Water Purification Action Plan for water pollution prevention and control, have resulted in more complete policies to guide agriculture and rural development, thereby contributing to the benign development of agriculture[6-8].

European countries also have well-developed agricultural cleaner production systems, with Germany and other EU countries subsidizing farmers engaged in organic farming and additional compensation if they participate in cleaner production projects. This has largely stimulated farmers' enthusiasm for cleaner production. In terms of legislation, the core is also to clearly enlarge food safety management into the whole process of the food chain, covering all production and operation links. The concept of "farm-to-table" was first proposed and clearly embodied by Europeans. There are also relevant legal safeguards for cleaner agricultural production in European countries[9].

In the 1970s, Japan established the non-government Japan Organic Agriculture Association (JOAA), which developed the relationship between consumption and production into a partnership between consumers and producers, providing a good platform for government advocacy and adjustment. This in turn promoted clean agriculture in Japan[10]. The greatest feature of JOAA is that it can protect the interests of the vast majority of farmers through overall coordination. Farmers report their planned crops and areas for the year to JOAA, which adjusts them by counting the cultivation of various agricultural products throughout the country to avoid price fluctuations caused by oversupply or lack of a particular product, thereby safeguarding farmers' returns[11]. At the same time, the farmers who have been adjusted to plant varieties to give some compensation, because of the cooperation of farmers, it also ensures the smooth implementation of JOAA policy.

4. Countermeasures and suggestions

Although some countries already have complete policy measures to ensure cleaner production. However, Chinese more land, poor soil, planting area is vast, it is impossible to directly copy the

model of other countries, can only be integrated with some existing models to learn from and improve. Academician Zhao Qiguo pointed out that china's agricultural production objectives and content can be summed up as the establishment of the "five systems and one guarantee" [12]in the implementation of clean production process, can be derived from some countermeasures.

4.1. Ensure clean production of agriculture

Due to the late introduction of the concept of "clean agricultural production" in China, bound by traditional ideas, there is a tendency to favor industrial governance in the implementation of clean production and the cross-cutting characteristics of agricultural cleaner production, the formulation of fertilizer and metal pollution residues in agricultural production regulations throughout China are not rigid, resulting in people can not distinguish what fertilizer is clean production fertilizer, these problems objectively caused China's agricultural environment deterioration, serious water pollution, land degradation and other phenomena. Therefore, to realize the clean production of agriculture, we must improve the legal provisions, establish a clear division of labor, unified and coordinated management system, on the one hand, to reflect the binding force of the law, on the other hand, through policies to mobilize the enthusiasm of farmers to implement, the establishment of a corresponding agricultural associations of real significance, the scientific distribution of various agricultural products planting area ratio, the need to adjust the part of the reasonable subsidies to farmers. Second, we should increase policy support for agricultural research, give full support in credit, and provide farmers with a financial base for cleaner production. Finally, we should also pay attention to the establishment and promotion of agricultural product quality brands, so that products obtained through agricultural cleaner production have a higher value. In this way, farmers can essentially promote the implementation of agricultural clean production enthusiasm.

4.2. Increase publicity on cleaner agricultural production

On the one hand, farmers should be carried out environmental protection knowledge, ecological knowledge and agricultural sustainable development knowledge of the popularization of publicity work, through publicity, so that they realize the importance of environmental protection and the harm of agricultural environmental pollution, enhance public awareness and understanding of agricultural cleaner production, so that they clearly realize the huge environmental benefits and economic benefits of agricultural clean production. On the other hand, we should teach them the way of scientific fielding, reduce input costs while cleaning production, increase economic benefits and improve farmers' enthusiasm for production. Most of the pollution of the agricultural environment is caused by the improper use of pesticides and fertilizers, so the scientific use of pesticides and fertilizers must be solved in order to promote clean agricultural production. In addition, the use of pesticides, fertilizers, agricultural film should also reflect the idea of precision agriculture, the appropriate amount of application, reduce waste. Agricultural clean production is a sustainable agricultural development model, which should run through the whole process of agricultural production.

4.3. Promote the industrialization of clean agricultural production

To realize the clean production of agriculture, we must fully mobilize the enthusiasm of farmers' production, and the increase of farmers' income is the internal driving force to promote the clean production of agriculture. The essence of agricultural industrialization is the specialization of production, the regionalization of layout, the integration of operation, the socialization of services, the enterprise of management, and through the realization of one-stop production and marketing to make the market form a driving force for agricultural production, improve the enthusiasm of farmers to participate directly in market activities, drive regional specialized production, expand the scale of production, the formation of industrial

excellence[13-14]. Thus forming regional characteristic industries and establishing regional agricultural brands, the world market is the battleground of the international competitiveness of agriculture in various countries. Put an end to the market of inferior agricultural products posing as green agricultural products to disrupt the market behavior, to protect the fundamental interests of farmers to promote the enthusiasm of farmers to produce, green origin of agricultural products brand protection policy, and through a sound detection and reporting mechanism to ensure the clean production of agricultural products and ordinary agricultural products.

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