



From Seed to Feed: Organic Food Leisure Park Construction

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ABSTRACT

Food quality and safety has become the key problem that China faces today. As a new type of urban agricultural development model which combines organic food production with leisure tourism, the organic food leisure park performs multiple functions, including production, leisure, ecological and social. As the important measure to promote food quality and safety, organic food leisure park has vast future development potential. Based on the "seed to feed" idea of RUAF Foundation, this work takes the construction of organic food leisure park in Qinyang City, Henan Province, China as an example. The discussion is made in three aspects: environmental quality, function layout and the ecological cycle model. The results show that the combination of organic food production and leisure sightseeing effectively improves the comprehensive benefits of organic agriculture.

INTRODUCTION

In recent years, the food safety issue in China has caused extensive concern (Jiehong Zhou et al. 2011, Shan Liu et al. 2013). Because of the massive use of chemicals including pesticides, fertilizers and hormones in agricultural production, which causes the pollution of ecological environment, the quality of agricultural products cannot satisfy the customers' demand and even threaten public health (Shuo Wang et al. 2009). To improve the quality of agricultural products, the Chinese government has issued the Three Products and One Indication (organic food, green food, hazard-free agricultural products and agricultural products with geographical indications) Certification System. The agricultural products that satisfy the Three Products and One Indication have become the first choice in the market, as the implementation of this system promotes the safety awareness and brand consciousness of the manufacture.

As the degree of recognition of organic agricultural products is improving (Rongduo Liu et al. 2013, Pei Xu et al. 2012), the organic food leisure park and organic food eco-industrial park are developing rapidly in China. Organic food leisure park is a new agriculture development model that combines organic food production with leisure tourism. Such parks integrate multiple functions, such as production, leisure, ecological and social. Besides, they also play an important role in improving agricultural structure and increasing technological content in agriculture and farmers' incomes. The organic food leisure park is a new project in China, and there is no mature theoretical system for reference. Therefore, relevant research on its construction is

necessary to provide theoretical support to the development of the organic food leisure park.

RESEARCH AREA AND METHODS

An Overview of Research Areas

China Qinyang Organic Food Park, located in Xizhangzhuang Village, Qinyang City, Henan Province, is about 20 km from Qinyang city and 30 km from Jiaozuo city. It is adjacent to Changji Highway. It covers an area of 5.05 hectares (Fig. 1). The park has a superior geographical position and favourable tourist market since it is near the urban area.

Research Methods

Learning from the international advanced organic food production concept: The project "from seed to feed" of RUAF Foundation provides reference for the development of China's organic food leisure park. The target of this project is to realize the quality and purity control of raw materials and the integration of the raw material supply chain. Each link of the industrial chain in "from seed to feed" project strictly controls the food quality and safety. The goal of organic food leisure park is to promote the sustainable development of urban agriculture, enhance urban food safety and improve innovating ability of local farmers as participants in the agricultural production system and market value chain.

Enhancing comprehensive benefits of organic food production: Since the output value of the traditional agricultural production is very low, the production, ecological,

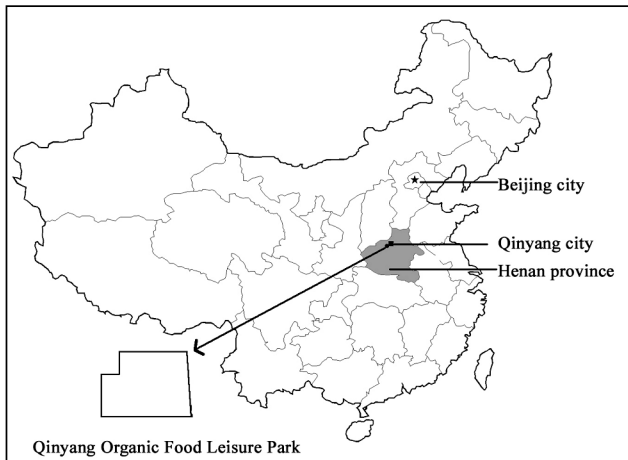


Fig. 1: The location of China Qinyang Organic Food Leisure Park.

economic and social benefits of organic agriculture should be combined together to improve the comprehensive benefits through the construction of organic food leisure parks (Fig. 2).

CONSTRUCTION OF ORGANIC FOOD LEISURE PARK

The construction of an organic food leisure park mainly consists of three aspects: environmental construction, layout structure and the establishment of eco-economic mode. Among them, environmental construction is the basic guarantee for its development, while layout structure and ecological cycle model provide support for its sustainable development.

Environmental Construction

The construction of the overall environment of the organic food leisure park consists of the selection of ecological environment, production environment construction and processing environment construction. The overall environmental construction should comply with the requirements of the National Standard GB/T19630 for Organic Food (Jiping Sheng et al. 2009).

Selection of eco-environment: Eco-environment is very important for the construction of an organic food leisure park. Thus, the site selection of an organic food leisure park plays a crucial role. The air quality standard, soil environmental standard, and farmland irrigation water quality standard (Table 1) issued by the State are the basis for the selection of the eco-environment. The test results indicate that the air quality, soil environment quality and irrigation water quality of this park are in compliance with the production requirements for organic food.

Production environment construction: In order to satisfy

the organic food requirements, a strict organic food production operation rules should be established. As for the production rules of vegetables, fruit trees and edible fungi, the site condition, variety and seed preparation, seed selection and reservation, planting methods, field management, pest prevention and treatment, harvest and storage should be considered and a complete record should be made. But for the livestock products, variety, livestock breeding tools, warehouse management, feeding process, organic feed management, reproduction management, daily management, disease prevention and control, product inspection, equipment maintenance, pollution prevention and other aspects should be focused.

Construction of product processing environment: Most of the organic food in the park is sold to organic restaurants, with some products also sold to the market. Product processing environment, therefore, should also meet the requirements for the manufacture of organic food. Moreover, a strict management regulation concerning food additives, food process aids control, storage environment, processing environment and harmful pest control should be established to ensure the quality of organic food.

Layout Structure

Functional division: Functional division of an organic food park is very important for its development. Four functional divisions (Table 2, Fig. 3) are identified according to the development position and area of the park, each division performing different functions.

Road and traffic: Both the production and leisure demands should be taken into consideration in building the roads in the organic food leisure park. Generally, the road system consists of main roads, secondary roads and field paths. The main road is 5 m in width, the secondary roads 3.5 m, and the field paths 2 m. Roads are designed naturally to fully satisfy the demand of organic production and recreation.

Facility layout: The main facilities in the park are divided into four types: production facilities, service facilities, catering facilities and leisure facilities. Production facilities include greenhouses, livestock farms, tools room, cold storage, operating room; service facilities include the management centre and product inspection center; catering facilities include organic food restaurants, floating restaurants and orchard restaurants; leisure and tourism facilities include pavilions, chairs, wood platforms and viewing platform.

Leisure landscapes: Organic food leisure parks combine recreational and cultural functions. Therefore, the overall landscape appearance (Fig. 4) should embody the pastoral landscape style and allow the public to get close to the nature and perceive the charms of agricultural landscape

Table 1: Indexes and reference standards for eco-environment selection of an organic food leisure park.

Environment types	Main control indexes	Reference standards
Atmospheric environment	SO ₂ , TSP, PM10, NO _x , NO ₂ , CO, O ₃ , Pb, B[a]P, F	National Ambient Air Quality Standard (GB 3095-1996)
Soil environment	The metal contents in soil; pesticides, fertilizers, additives and other chemical substance residues in the soil; harmful bacteria in the soil, diseases and pests control.	Environmental quality standard for soils (GB 15618-1995)
Irrigation water quality	16 indicators including fluoride, chloride, sulfide, total mercury, cadmium, total arsenic, chromium and lead.	GB 5084-2005 Standards for irrigation water quality

Table 2: Functional division and main functions.

Functional division	Main functions
Organic planting division	The planting of organic vegetables, organic fruits and edible fungi.
Organic breeding division	Establish standardized organic beef cattle raising system.
Organic catering division	Food processing by using the organic raw materials produced by the park.
Integrated service division	Product quality inspection, product processing and unified park management.

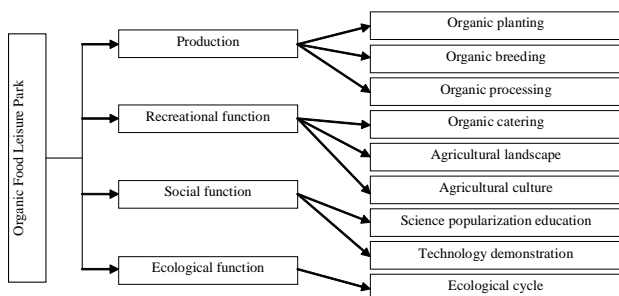


Fig. 2 Comprehensive benefits of organic food leisure park.

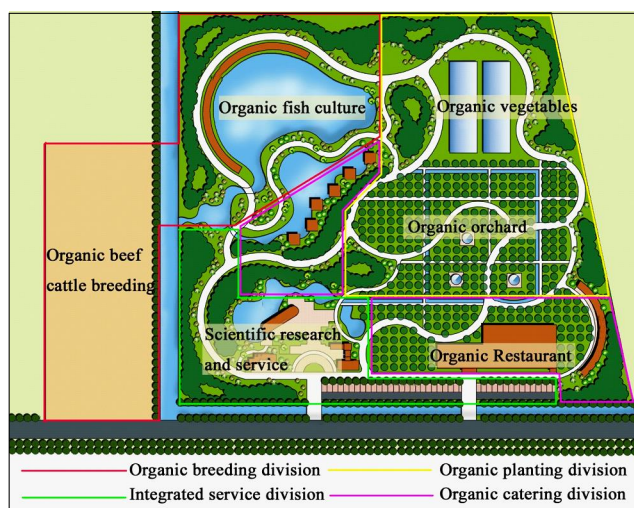


Fig. 3: The functional division graph.

and culture. It is a good way for enhancing the public awareness of ecological environment protection and food quality and safety.

Establishing the Ecological Cycle Model

Eco-economic mode is the operation mode favoured by the modern organic agriculture, which enables the reuse of wastes in the park and conversion of wastes to organic products by building the ecological cycle chain (Li et al. 2012) (Fig. 5).

CONCLUSION

As a new type of urban agricultural development model that suits the Chinese market, organic food leisure park has vast development potential. Organic food leisure park combines production, ecological, economic and social benefits to effectively increase the agricultural output value.

The construction of the organic food leisure park involves environmental construction, layout structure construction and establishment of the ecological cycle mode. Environmental construction is mainly composed of selection of ecological environment, production environment construction and processing environment construction. Layout structure construction is mainly focused on functional division, road building and facilities layout. The main target of establishing the ecological cycle mode is to build an ecological chain to protect the environment and save investment.



Fig. 4: Effect drawing.

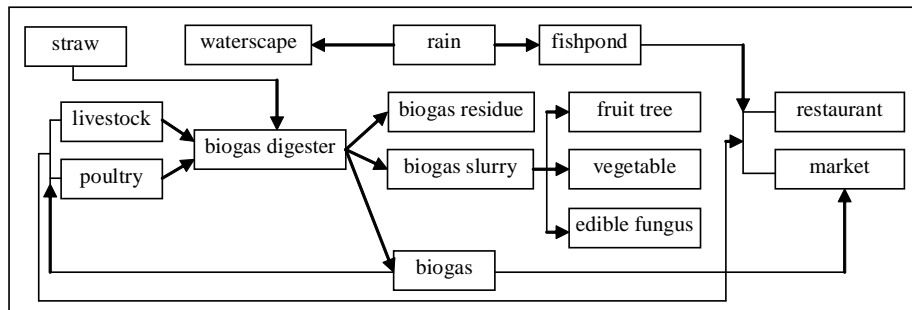


Fig. 5: Eco-economic mode.

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