Practice and Exploration of Leisure Agriculture Construction in Inner Mongolia Agriculture and Animal Husbandry Science and Technology Park

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Abstract This article introduces the basic information about Inner Mongolia Agriculture and Animal Husbandry Science and Technology Park, and the practice concerning leisure agriculture; summarizes the experience obtained. Finally, some ideas are put forth for further construction and development of leisure agriculture in science and technology park as follows: making unified layout and rational planning; integrating the local tourism resources, to establish the system of leisure agriculture; creating features of leisure agriculture in the park; establishing the brand of leisure-oriented training base in science and technology park; carrying out exploration into operation mode of leisure agriculture in the park.

Key words Inner Mongolia, Agriculture and animal husbandry, Science and technology park, Leisure agriculture, Practice

Leisure agriculture is a new tourism industry combining agriculture and tourism, with triple property of production, tourism and entertainment, which integrates agricultural activities, natural landscape, technology demonstration, entertainment, and environmental protection. It displays the eco-tourism agricultural road, breaks through the predatory mode of production in traditional agriculture, achieves advantage complementation of the primary industry and tertiary industry, enhances the level and benefit of the primary industry, and enriches the connotation of the tertiary industry, so that the ecological benefits, economic benefits, social benefits are integrated [1]. With the acceleration of the urbanization process in China and mounting pressure in urban residents' living and working, more and more people want to return to the countryside and sample village life, thus leisure agriculture has huge market potential and broad prospects for development [1-3]. At present, the construction of leisure agriculture in the world and China's developed coastal areas, has achieved great success, forming a lot of good modes of construction and operation. Leisure agriculture in Inner Mongolia Autonomous Region has just started [4], and Inner Mongolia Agriculture and Animal Husbandry Science and Technology Park has carried out constructive practice and exploration in developing and building leisure agriculture within the park, initially forming some characteristics and precious experience, which will be bound to provide useful reference and ideas for further development of leisure agriculture in each region of Inner Mongolia.

1 Overview of Inner Mongolia Agriculture and Animal Husbandry Science and Technology Park and Vocational and Technical College of Inner Mongolia Agricultural University

Inner Mongolia Agriculture and Animal Husbandry Science and Technology Park was established in 1997 with the approval of Department of Science and Technology of Inner Mongolia (formerly Scientific and Technological Commission of Inner Mongolia), staged by Vocational and Technical College of Inner Mongolia Agricultural University. It is a comprehensive technology-intensive science and technology park, combining production, learning and research; demonstrating and promoting high-tech achievements of agriculture and animal husbandry. The park is named "Youth Science and Technology Education Base" and "National Popular Science Base" by the Central Propaganda Department, Ministry of Science and Technology, the Association for Science and Technology and other departments. It is also the "Production and Teaching Demonstration Base of Organic Food and Green Food in Inner Mongolia", established with the approval of Green Food Development Center in the autonomous region. In 2010, it was honored as "Advanced Unit for Rural Improvement by Means of Science Promotion" by The State Ministry of Finance and the Association for Science and Technology.

Vocational and Technical College of Inner Mongolia Agricultural University is the earliest vocational and technical college established in Inner Mongolia Autonomous Region, mainly focusing on the cultivation of higher vocational and technical application-based talents. It is located in Tuyou Banner of Baotou City, now having 53 majors, 16 campus training bases, 38 off-campus training bases, forming distinctive school system (a wide coverage of subjects, a combination of diverse disciplines, and an emphasis on agriculture and animal husbandry). It has obvious advantages and features among similar colleges in China. The school covers an area of 5 000 mu, with 6 500 full-time students and more than 334 full-time teachers.

2 Practice of leisure agriculture construction in science and technology park

Over the years, according to college's teaching, research and

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social services and other requirements, the science and technology park has built 16 training teaching bases in the college on horticulture, integrated farming, teaching orchard, high-efficiency field, water-saving irrigation, food processing, economic management, vehicle engineering, business English, *etc.*, forming regions with different characteristics. In the construction process, it has fully focused on sightseeing and tourism functions of the base. It has basically achieved facilities intelligence, farming mechanization, water-saving irrigation, agricultural leisure, integrated benefit and sustainable development in the park on the whole.

2.1 Construction of facility horticulture sightseeing and picking zone It is composed of the multi-function self-control greenhouse, efficient sunlight greenhouse, and plant tissue culture room, covering 30 mu, showing the efficient three-dimensional soilless culture, common desert plants, conservation and breeding of southern tropical plants, seedling raising through automated management of water, fertilizer and pesticide, plant cloning and other advanced technologies, where we can sample the production and picking of organic and green vegetable, strawberry, grape; personally carry out the operation of plant cloning technology; carry out picking and production of plant specimens.

2.2 Construction of modern breeding and feed processing sightseeing zone It is composed of pig farms, ecological chicken farms, racetracks, sheep feeding farms, feed mills, and Taoze Lake, covering an area of 210 mu, showing standardized visual and controllable automatic breeding, free-range ecological chicken, domestication and breeding of racing horses, feeding of the cashmere goat under the conditions of rearing in confinement, and animal feed preparation technology, where we can experience feeding, watch horse racing performances, boat, angle, taste or self-do farmhouse repast, and other participatory recreational activities.

2.3 Construction of green orchard picking and sightseeing zone It is composed of grape, plum, apple, apricot and other fruit trees, covering an area of 1 030 mu. In the base, multifarious greening tree species are planted, such as the mountain peach, Chinese pine, *Ceratoides*, rose, *Prunus Cistena Pissardii*, *Malus micromalus*, and *Sambucus racemosa Plumosa Aurea*. From April to September each year, flowering shrubs and fruit trees flower and fruit successively, thus we can thus we can watch ornamental trees, shrubs, flowers; identify and watch colored-leaves trees; identify varieties of fruit trees; pick fruits; experience the production of green fruits; enjoy fun of production and planting.

2.4 Construction of efficient production zone of field crop It covers an area of 300 mu. In the field crops area of the base, some areas form, such as core super-high-yielding corn demonstration and promotion area, sugar beet breeding display area, sunflower high yield research and demonstration area, regional oatmeal pilot area, and core potato high-yielding cultivation demonstration area, where we can experience and feel high-tech of production and testing of local characteristic crop varieties.

2.5 Construction of water-saving irrigation demonstration zone in campus It uses the China-canada agricultural cooperation project funds to lay underground pipe network in various bases of the park; comprehensively implements water-saving irrigation projects in the campus, displaying a variety of advanced irrigation techniques, such as the drip irrigation of fruit trees, flower garden drip irrigation, lawn sprinkling, vegetables drip irrigation and irrigation under film, and hanging spray of the southern plants.

2.6 Sightseeing and education for social groups and youth Since the founding of the science and technology park, it has received the leaders, experts, and scholars, 3 520 people in total, from Mongolia, Korea, Canada, South Korea, Japan and China, having a great influence. Since 2005, the park and Jiufeng campus travel agency have jointly carried out the activity of "10 000 students' popular science tour on campus" repeatedly, receiving nearly 18 500 students from Hohhot, Baotou and other cities.

3 Experience obtained in construction of leisure agriculture in science and technology park

3.1 Making full use of the college's resources to enhance the scientific and technological content of the park In the process of construction, it focuses on building each training base into a tourist spot, fully demonstrates the scientific research and popular science content, and invites professional teachers to explain, to make visitors personally experience all and learn the basic knowledge of modern agriculture. Compared with other agricultural leisure estate, the technology demonstration of the park is more comprehensive, and the lecture is more professional, so that the visitors' experience is more realistic.

3.2 Relying on the college's tourism education resources and closely combining with local tourism resources Relying on the science and technology park, the travel major in the college has established Jiufeng Campus Travel Agency, which in the process of carrying out work, combines the construction of leisure agriculture in the science and technology park with the surrounding attractions such as the National Jiufeng Nature Reserve, lamasery, Zhaoyang Cave, The Zhao Empire's Great Wall, and Jiahe resort, to form a unified and perfect leisure and vacation system. In the process of organizing tourism, visit, and inspection, it pays attention to combining with these attractions, expanding the tourism function of travel agency, improving service quality; in turn, greatly promoting the construction of leisure agriculture in the park, expanding the external impact of the park.

3.3 Combining the function of leisure and popular science training to play a greater role The construction of leisure agriculture in the park not only attracts a large number of young people to come to receive the education of popular science knowledge; at the same time, also attracts many units to carry out training task in the park, such as the women's federations in the autonomous region, the labor and security department in the autonomous region, the council for the promotion of construction in the old revolutionary areas, Mengniu company, Mengniu Dairy Company and Science and Technology Bureau of Baotou City. And these science popularization and training activities also further promote the develop-

ment of leisure agriculture in the science and technology park.

3.4 Combining leisure construction and project construction The park is actively applying for various kinds of scientific and technological projects, such as national, regional and local governments' pig raising by shed and net, horticultural development, water-saving irrigation, Tuyou Banner modern agricultural science and technology demonstration zone building, forage center building, the racetrack construction, avian incubation base building in the old revolutionary areas, automatic control of facility agriculture, and transformation of low-yielding farmland, greatly promoting the construction of various bases in the park, and the leisure and popular science construction of the park.

3.5 Forming mutually reinforcing situation between leisure agriculture construction and college teaching The college has carried out integrated knowledge and skills training on leisure agriculture for the students who major in tourism management, economic management, horticultural technology, animal husbandry technology, and so on. The close combination of campus culture construction and leisure agriculture construction, provides good practice space for tourism major, improves the practical skills of students, and promotes the employment of students and university's fame.

4 Ideas for further construction and development of leisure agriculture in science and technology park

4.1 Making unified layout and rational planning In next five years, the science and technology park will make unified planning and layout on 5 000 mu of land, to form the overall layout "one center, one belt, four zones, seven parks" (science and technology park management and service center; popular science and leisure sightseeing belt taking the main road in the park as axis; efficient crop planting zone, breeding zone, processing zone of agricultural and livestock products, facility gardening zone; horse industry park, new energy and new materials park, forestry park, grass industry park, water conservancy and construction park, vehicle engineering park, and industrial art park). These zones with different functions can meet the needs of teaching, scientific research, demonstration and technology promotion, so that the entire park becomes one leisure agriculture park with sound function and clear layout.

4.2 Integrating the local tourism resources to establish the system of leisure agriculture The science and technology park is jointly constructed by Inner Mongolia Agricultural University, Baotou municipal government and Tuyou Banner government, aiming to be built into the technology demonstration core of agriculture and animal husbandry development in Baotou City, the modern agricultural tourism paradigm in the north. At the same time, it seeks the unified planning and joint development with the surrounding Jiufeng Nature Reserve, Lama Temple, Meidaizhao, Zhaoyang Cave, Zhao Empire's Great Wall, Hasuhai scenic spot, to build harmonious leisure vacation system, constituting the superior leisure tourism region in the Huhhot and Baotou area.

4.3 Creating features of leisure agriculture in the park It builds the park into three characteristic bases: agriculture and animal husbandry high-tech demonstration base, agro-ecological recycling base, and youth popular science base. It aims to be built into the demonstration park integrating urban agriculture, organic and green agriculture, and competitive agriculture; carries out the demonstration and extension work of new varieties and new technology; leads the direction of modern agriculture and animal husbandry development in autonomous region; highlights agro-ecological recycling characteristics in the park; fosters tourist's low-carbon concept; improves the construction of carrying water by wind, solar power generation and wind power generation; forms the eco-cycle system "feeding animals with crop stalks, breeding earthworms with animal dung, feeding ecological chicken and fish with earthworms, producing biogas for lighting using manure, using biogas slurry as fertilizer for leaves, using fish pond sludge as basic fertilizer" in the park; uses the agriculture and animal husbandry high technology and eco-cycle system in the park to strengthen the construction of the plants, animals and insect specimens preparation studio and image data; by means of display panels, plate and multimedia, displays modern agriculture and animal husbandry scientific and technological knowledge; strengthens youth participation-based agriculture and animal husbandry production construction, and carries out popular science tourism for teenagers.

4.4 Establishing the brand of leisure-oriented training base in science and technology park It gives play to the scientific research and human resources advantages of Inner Mongolia Agricultural University, and the advantages of leisure agriculture in the park; actively carries out the training for all levels of society; combines leisure agriculture and modern agricultural science and technology, to cultivate versatile talents with practical skills for the society, and build the brand of leisure-oriented training base in the science and technology park.

4.5 Carrying out exploration into operation mode of leisure agriculture in the park It explores and tries the operational mode of leisure agriculture in the park, in order to provide a reference for the construction and management of leisure agriculture in the autonomous region. It focuses on exploration and attempt on the following aspects of management.

(1) Company-oriented management of college. The park establishes agricultural tourism and sightseeing development department, responsible for developing leisure agriculture, integrating with local attractions, creating benefits for the college, adding the leisure agriculture development funds, and promoting the sustainable development of leisure agriculture.

(2) The management of enterprises in the park. It introduces social enterprises, conducts unified planning and management using the agricultural tourism and sightseeing resources in the park, provides services for the park, and obtain benefits in accordance with a certain proportion.

(3) Bundled management. The park carries out joint operation

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strengthen training, and guide the rural labor forces to transfer to the secondary and tertiary industries, especially the rural labor forces in southern Xinjiang, thereby gradually reducing the agricultural population, enhancing the proportion of non-agricultural population, and improving people's livelihood. Reducing the number of farmers moderately is a fundamental way to increase farmers' income[11]. Only by doing these can we break the rural-urban segmentation and regional segmentation, promote the free movement of labor in rural areas, and speed up the process of urbanization[12].

3.2 Improving the function of agriculture, increasing the proportion of non-farm income We should conform to the actual and objective conditions in Xinjiang, optimize and improve the original operating mechanism and development mode of agricultural industry step by step, to enhance the competitiveness of agricultural industry. We should also scientifically and rationally expand the original agricultural industry chain, build the brand of fruit products, livestock products, and other processed products with Xinjiang's characteristics, strengthen the close relationship between agriculture and secondary and tertiary industries, make the farmers participate in the economic operation process, and increase the wage of migrant workers in the industry that they are engaged in, to steadily increase the proportion of non-agricultural income.

3.3 Gradually bridging the widening income gap between urban and rural areas, coordinating urban and rural development Based on the actual development situation in urban and rural areas of southern Xinjiang and northern Xinjiang, we should fully respect the local customs, habits, and the real gap left by history; progressively and steadily adjust and perfect the mechanism of income distribution in Xinjiang; strictly in accordance with the requirements of ensuring and improving people's livelihood, prevent great fluctuation in farmers' income growth rate, curb the widening urban-rural income gap, and gradually narrow the rural income gap between southern Xinjiang and northern Xinjiang. Only by doing these can we improve the enthusiasm of farmers of all ethnic groups for participating in economic construction, achieve the coordinated growth of the economy and farmers' income, and ensure farmers' right to share the fruits of economic growth.

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with the tourism companies, catering companies, accommodation companies, popular science companies, science and technology development companies, and other companies, each responsible for a part and each reaping respective returns.

(4) The management of supporting agricultural cooperatives. The park supports the local agricultural cooperatives to conduct joint management and gaining. The members of cooperatives can adopt some ways to cooperate with the park, such as entrusted breeding, planting supported by technology, and development of rural catering.

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