Study on Potential Problems of Shandong Economic Forest Construction and Standardization Construction Scheme

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Abstract Shandong is a culturally powerful province with excellent natural geographical condition and the warm temperate monsoon climate creates abundant benefits to the agricultural development there. In 2009, Shandong administration bureau of Yellow River economic development held the forum on related issues of national new countryside industry office planning to build economic forest base around the Yellow River in Shandong. The primary intention was settled and the construction of Shandong Economic Forest was formally started. Although impressive progress has been achieved in recent years, there also exists potential problems in the construction of economic forest, among which heavy metal pollution and soil acidification are the worst, causing huge damage to the physiological health of the consumers of economic forest. The writer proposes the countermeasures against standardization construction of economic forest. Scientific management is to be adopted to improve the professional skills of the employees in economic forest and brand innovation should be emphasized to quicken the quality certification of the products of economic forest. Besides, standard production demonstration is to be created and promoted in order to boost scale development. Furthermore, mechanism innovation is also to be stressed and forestry specialized cooperation organizations should be largely supported.

Key words Economic forest, Potential problems, Countermeasures, Construction scheme, Shandong province

1 Background of Shandong economic forest construction

Shandong, named because of being on the east of Taihang Mountains, is located in the coastal area of eastern China and the lower Yellow River with the total area reaching 157 100 km^2. The climate there is warm temperate monsoon climate, so it is warm and humid throughout the province and the hydrothermal conditions are better than inland region with the same latitude. It is generally dry and windy in spring, hot and rainy in summer, sunny and clear in autumn while dry and cold in winter. There is abundant light while unbalanced rainfall among different seasons. Rain and heat are abundant in summer, which is quite beneficial to agricultural production. Moreover, there are various kinds of plants in Shandong. More than 3 100 kinds of plants grow in Shandong, among which 645 kinds are wild economic plants. There are more than 600 types of trees, belonging to 74 species and 209 genera and most of them are coniferous and broadleaved species in north temperate zone. Fruit trees amount to over 90 kinds and Shandong is also known as " kingdom of north deciduous fruit trees". Based on the excellent natural conditions, Shandong administration bureau of Yellow River economic development held the forum on related issues of national new countryside industrial development office planning to build economic forest base around the Yellow River in Shandong in March, 2009 and reached the primary intention. After investigation, the national new countryside industrial development office planned to build 333.3 hm^2 standard production base of economic forest around the Yellow River in Shandong. Meanwhile, land arrangement, seedling supply, cold storage construction, management and capital funds are required to be planned scientifically and specifically. Base construction should be planned, with proper measures and in stages. The construction of 333.3 hm^2 demonstration base is to be completed within two to three years. The first large-scale training about economic forest management was carried out in Shandong in March, 2012, promoting the standard production of economic forest in order to achieve the industrial restructuring, improve quality, increase efficiency, ensure quality safety of products and enhance the competitive ability of products comprehensively. This is not only the key of achieving the model transformation and structure adjustment of economic forest but also the necessity of promoting the construction of powerful economic forest province.

2 Potential problems of economic forest construction

There are many potential problems in the construction of economic forest in Shandong province though impressive progress has been achieved.

2.1 Excessive heavy metal content in soil According to the result of sampling inspection by State Forestry Administration, heavy metal is detected in the soil in Shandong economic forest, which severely damages the healthy growth of economic forest. With close analysis, the writer believes that the main causes of soil heavy metal pollution can be classified into the following aspects. Firstly, heavy metal infiltrating into soil with atmospheric deposition, which is mainly caused by automobile transportation. Economic forest closer to cities suffer from more serious pollution. Secondly, heavy metal infiltrating into soil with sewage. Domestic sewage, petrochemical waste water, industrial and mine waste water and mixed sewage are the main pollution sources. Thirdly, heavy metal infiltrating into soil with solid wastes. Mine and in-

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dustrial solid wastes cause the most serious pollution. Lastly, heavy metal infiltrating into soil with agricultural materials. Most traditional pesticides are organic compounds and have relatively large content of heavy metal. The result of sampling inspection by State Forestry Administration shows that pesticides like acephate and dichlorvos in some specific products of Shandong economic forest surpass the standards. The over standard rate of pyrethroid pesticide in jujube samples detected in 2012 even achieved 11.1%.

2.2 Soil acidification Soil acidification is a form of soil degradation and can cause vicious results. Nothing can be planted and grow. No fertilizer can be effective and toxicants in soil may poison crops. There may be some main reasons for soil acidification. Firstly, heavy and intense rainfall brings strong eluviation, causing great loss of alkaline salt like calcium, magnesium and kalium, which is the fundamental reason for soil acidification. Secondly, abandoning traditional agricultural measures like limestone fertilizer, faeces and organic fertilizer causes unbalanced soil nutrients of cultivated land, which is the primary reason of soil acidification. Lastly, high use of chemical fertilizer, especially urea, is the key of soil acidification. Heavy metal pollution and soil acidification create large damage to the physiological health of the consumers of economic forest. It is commonly shared that fruits produced by economic forest are favored by the general public while if these fruit trees are planted in the polluted soil for years, their fruits will also be polluted. Since heavy metal cannot be decomposed by soil microorganism, it is easy to accumulate and transform into more poisonous methyl compound. Some even accumulate in human body with harmful concentration through food chain, causing severe threat to the fitness of human body. Therefore, measures should be carried out to combat soil contamination, build standardized economic forest and perfect the traceability system of product quality safety in order to guarantee the product quality of economic forest.

3 Countermeasures against standardization construction of economic forest

3.1 Scientific management should be adopted to improve the employees' professional skills Municipal forest bureau of each economic forest is required to transfer related technicians every year to inspect and accept the economic forest construction in each county. The target, assignment and responsibility of economic forest construction should be implemented to each related department with market operation, engineering management, professional construction and standard acceptance, motivating the enthusiasm of each department and their coordination. Scientific management like variety distribution, scale development, standardized production, industrialization management, market guiding and process control should be stressed and insisted on in order to ensure the popularity and reputation of economic forest products.

3.2 Brand innovation should be emphasized to quicken the quality certification of the products of economic forest Most fruits in Shandong province are planned to gain quality certification with great effort of three to five years. Brand is the intangible asset of economic forest construction and can increase the competitive ability. After years of working, Shandong has already possessed some famous brands, such as Yantai apple, Laiyang pear, Zhanhua dongzao and Tancheng ginkgo, which have already entered several international chain supermarkets and enjoyed high reputation in both domestic and foreign market. These natural and pollution-free green products establish an index, which will surely push the standardization construction of economic forest to a new platform.

3.3 Standard production demonstration is to be created and promoted in order to boost scale development Construction of standard economic forest requires the treatment of various pollutants in soil to build the economic forest with high yield and good benefits, thus scale development can further improve profits. According to the primary statistics, total area of economic forest throughout the province has reached 1 510 000 hm^2 by the end of 2012, 37 300 hm^2 more than that in last year. Annual output of economic forest products achieved 20.72 million tonnes, 1.1 million tonnes more than that in last year and output value of planting amounted to 85.1 billion yuan, 7.7 billion yuan higher than that in last year, which has created impressive ecological, social and economic profits. Moreover, there are 4 towns of tree species and another 2 towns of economic forest in Shandong named " town of Chinese economic forest", winning impressive public praise. With typical economic forest construction, the construction of economic forest should transform from small-scale extensive management to large-scale intensive management, from low level to high level and from extensive processing to intensive processing.

3.4 Mechanism innovation is also to be stressed and forestry specialized cooperation organizations should be largely supported Peasant special cooperative organizations should be established to resolve the conflict between household decentralized management and standard requirement of market economy in order to adapt to the requirements of scale and standardization development of market economy. The management pattern of "leading enterprise + cooperative organization + base + peasant household" can be taken into consideration to form a close interest community with classified guidance and strict assessment to ensure the quality.

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