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Research on the Legal Regulation of Market Access for Agricultural Products in China

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Abstract On the basis of defining the concept of market access for agricultural products, this paper analyzes the necessity of establishing market access system of agricultural products, proposes the conception of establishing market access system of agricultural products in China; sets up the frame of market access system of agricultural products; analyzes the rationality of the frame of market access system of agricultural products; poses the consideration of economic law regarding setup of market access system of agricultural products. This paper also puts forward the legislative suggestions for establishing market access system of agricultural products as follows: establish the frame of market access system of agricultural products taking quality access as core; establish and perfect the compensation and relief system of guaranteeing benefit of manager and producers; establish the market access system of agricultural products with hierarchical structure; sort out existing laws and form the sound the legal frame of market access system of agricultural products.

Key words Agricultural products, Market access, Quality safety of agricultural products, Legal system, China

The meaning of the concept of market access for agricultural products in international law is different from that in domestic law, but the connotation has consistency. The basic national conditions of China and agricultural development status determine that it is necessary and important to establish market access legal system of agricultural products. We have to establish the market access system of agricultural products taking quality safety access for agricultural products as core, in harmony with access system of agricultural producers, environment access system of place of producing agricultural products and access system of agricultural inputs, in order to promote the quality safety level of agricultural products in China, guarantee the production order of agricultural products and promote the consumption safety level of consumers.

1 The definition of market access system of agricultural products

It was translated by scholars who had researched documents of World Trade Organization and relevant system of all countries when China prepared to join the World Trade Organization at the time. It has become a common academic term at present. Market access is a kind of promise reached by contracting parties on the basis of mutual negotiation that allows the products (including goods, technology and services) and investment market of other countries to enter into home. Market access is the specific obligation that the contracting parties should fulfil and is a kind of macroscopic regulation and control over the openness of the domestic market by implementing various laws and regulations on the part of the country^[1]. The governments adopt various restriction measures on import and export for opening market mutually, including the commitment

on easing degree of tariff and non-tariff barriers. The connotation of market access is basically tantamount to "freedom and openness of market", namely that the subject and trading partner can enter a market of one country freely, equivalent of "free market access rule" in English^[2]. The market access in sense of international law, in nature, is one country's intervention on scope and degree of allowing the specific goods or services in one foreign country to enter domestic market.

Market access is directly used in *Agreement on Agriculture of WTO*, and Article 4.2 stipulates that the members cannot maintain, use or reuse any measure which has been required to change into ordinary duty, unless there are other stipulations in Article 5 and Rider 5. The aim of this stipulation is to establish and strengthen market access mechanism of agricultural products taking simplistic tariff protection as general principle; to enlarge market access and put the restriction measures of market access mechanism of agricultural products of members under effective regulation, by eliminating the restriction of non-tariff measures on import of agricultural products, implementing tariff quotas in non-discriminatory areas, and reducing measures of high tariffs universally existing in trade of agricultural products, which reduces trade protection and unfair competition, and conduces to liberalization of trade of agricultural products.

The purpose of the legal framework of the WTO is to eliminate trade barriers amid countries and regions, so as to achieve trade globalization and liberalization. It should be in line with the ultimate goal of market access system of agricultural products. However, based on the special nature of agricultural industry, the members are engaged in the excessive long-term blockade and protection on agricultural products and the trade of agricultural products is long free of constraints of relevant system of international trade, so the progress of market access system of agricultural products is slow. *Agreement on Agriculture of WTO* in itself is built on the basis of the long-term regu-

lation measures of all members including restriction of import of agricultural products. Therefore, the market access system in *Agreement on Agriculture of WTO* is to require all members to open their markets, rather, is to require members to reduce import restrictions and provide trading opportunities for the same type of agricultural products from other members. When the members offer opportunities of lowest market access, it also indicates that as for the agricultural products over commitment access opportunity, the import restrictions are implemented by measure of raising tariffs. Therefore, the market access in terms of sense of international law which is comprehended from this perspective is equivalent to the market access prohibition under the condition of fulfilling the commitments.

As for "market access" which is analyzed from the perspective of domestic law in China, there is no precise definition. It appears frequently in academic research and various types of policies, laws and regulations, and in terms of usage, it includes the access for enterprise, the access for main body of market, the access for regions, and review of the qualification and ability of main body and so on. According to common views of China's economic law circle, the market access system is generic term of various systems and norms concerning conditions and rules regarding citizens and legal persons who are allowed by related country and the government to be engaged in production and management activities of commodity. Market access system includes general market access system, special market access system, and foreign market access system^[3]. Market access system in sense of national law, in nature, is a form of national economic regulation, and an important part of economic law. The purpose of market access is to achieve openness and unification of market access, achieve fair market competition and oppose monopoly. The market access is an important tool of achieving freedom and fair competition.

Agricultural products are the basic survival necessities the masses need, closely related to the benefit of lives and health of people. The market access for agricultural products in sense of national law is the system guarantee for healthy development of China's market agricultural products, and it is significant to improving the quality and safety of agricultural products. From this level point of view, the market access for agricultural products in sense of national law is also embodied as "market access prohibition", namely prohibiting the agricultural products detrimental to people's benefit of lives and health to enter circulation chains of market of agricultural products.

The market access for agricultural products in sense of international law can be generalized as "market access prohibition", the same as the market access for agricultural products in sense of national law. The meaning of the market access for agricultural products in sense of international law and the meaning of the market access for agricultural products in sense of international law are consistent. The difference is that the access system in international law focuses on reducing restrictions at the level of trade quality, and focuses on the openness of quantity, while the access system in national law focuses on prohibiting agricultural products which do not meet the minimum quality stand-

ards to enter the market, and focuses on quality and safety.

2 The necessity of establishing market access system of agricultural products in China

Agricultural product, as important output of agricultural industry, has great significance in people's daily life, because its yield, quality and value are important standards for measuring the level of a country's agriculture. The access system of agricultural products has a positive effect in promoting marketization development of agricultural products in China, maintaining market order of agricultural products, and even promoting the consumption safety of all consumers. Based on characteristics of China's national conditions and marketization process of agricultural products, establishing and improving the market access system of agricultural products is significant to promoting the level of quality safety of agricultural products in China.

China is a large agricultural country, and China is also a large populous country, which is highly dependent on self-sufficiency of agricultural products. According to the statistical data of National Bureau of Statistics, as of the end of 2008, the total planting area of China's agricultural crops was 0.156 billion hm², that is, China uses less than 9% of the world's arable land to feed 21% of the world's population, which is great achievement attracting worldwide attention, but the agricultural products of China are still confronted by arduous supply pressure. There are many people with little land, the water resource is scanty, and the environmental carrying capacity is weak, which are the situation of China at present. Meanwhile, the land is decreasing while the population is mushrooming along with the increasing demand for consumption of agricultural products. China's per capita arable land area is only 40% of the average of world, per capita water resource is only 28% of the average of world, and the agriculture annually is in want of 30 billion m³ water resources^[4]. The grain, a class of agricultural product as national security strategy, is the foundation of social stability and security, and is the guarantee and supporting of the national economy^[5]. Therefore, once there is a domestic shortage of major grain crops, merely relying on international trade cannot play a fundamental role. A country with 1.3 billion people must always be based on domestic production to achieve self-sufficiency of major agricultural products.

It is because China's agricultural supply and demand is very unique, with strong reliance on self-sufficiency that it is different from the countries or regions in the world. This requires us that we should proceed from the basic national conditions, establish the market access system of agricultural products conducive to China's agricultural industrial development according to its own characteristics and needs, and we must not entirely copy the rules and legal system in developed countries and regions in the world.

In recent years, the overall level of quality and safety of agricultural products continues to increase, but the events caused by poor quality agricultural products are still frequently exposed. At the present time, China's market of agricultural products takes on characteristic of "lemon market", which has

become the greatest obstacle to sound development of market of agricultural products.

China's agricultural industry is based on small-scale family management of farmers, with low concentration degree of market, both close to perfectly competitive market and there being excessive competitions. The multitudinous farmers within industry are recipients of the market price of agricultural products. Prices of agricultural products are determined by supply and demand relations of the market under the impact of market mechanism^[6]. According to the theory of industrial organization, in accordance with consumers' mastering degree of quality information of commodity, we can divide commodities into search-based products, experience-based products and trust-based products^[7]. Because of the biological characteristics of agricultural products, the quality of information often can be judged precisely after consumption. Majority of agricultural products have characteristics of experience-based products and trust-based products, which causes high degree asymmetry of safety market information of agricultural products, and deteriorates the imperceptibility of quality safety of agricultural products^[8]. Under the impact of the market mechanism, because of the information asymmetry of information of quality safety of agricultural products amid producers, sellers and consumers, the consumers cannot distinguish between true and false, goodness and badness in the process of purchase, so the agricultural products with high quality and cheap prices can not win the market. In this case, the cost of producing high quality and safe agricultural products is high, and the profit is low, and even cannot make up cost, thus ultimately high quality and safe agricultural products gradually decrease, and consumers' price expectation that they are willing to accept accordingly decline, so that the price mechanism the market spontaneously forms does not work, high quality and safe agricultural products even disappear from the market under this vicious circle, and the market is glutted with poor quality agricultural products. The phenomenon of poor quality agricultural products ousting high quality and safe agricultural products appears, the market of agricultural products takes on characteristics of "lemon market", due to the malfunction of market mechanism, which not only scathes the economic interests of producers who produce high quality and safe agricultural products, but also finally infringes upon the choosing rights and health benefit of consumers.

The information asymmetry of quality and safety of agricultural products is the underlying cause of "lemon market" of China's agricultural products, which determines that when China establishes market access system of agricultural products, we should take the access for quality safety as the core access condition, so as to establish sound market access mechanism of agricultural products, and promote sound development of China's market of agricultural products.

3 Construction of market access system of agricultural products in China

3.1 Setting of frame of market access system of agricultural products

The access for quality safety of agricultural

products is the market access system of agricultural products which has been established in current practice. It has drawn the attention of scholars and various circles of society, but it should not be the sole system of market access for agricultural products. The quality safety of agricultural products is impacted by many factors, so the market access system of agricultural products should likewise cover multiple content specifically including quality and safety of access system of agricultural products, the access system of agricultural producers, environment access system of place of producing agricultural products and access system of agricultural input. We should form sound institutional framework of market access system of agricultural products through the interaction and coordination of all system.

The quality safety market access system of agricultural products is the core of the market access system of agricultural products, and the fundamental guarantee for consumers' health benefit. The specific signification is the regulatory behavior and process that the government allows the agricultural products conforming to the standard of quality safety of agricultural products to enter market for sales through necessary legal procedures^[9]. Although, with the implementation of *Quality and Safety Law of Agricultural Products*, the quality safety market access system of agricultural products has been initially established and it achieves certain result, the standard system of quality of agricultural products is still not perfect, and inspection and quarantine technology and facilities are still relatively backward. There is obvious difference among provinces, cities, and regions, as for the establishment and implementation of the market access system. The quality safety market access system of agricultural products still has a long way to go.

The quality safety market access system of agricultural products and the access system of agricultural producers are at the two ends of the circulation process of agricultural products. The results of the quality safety market access system of agricultural products directly face market, and have direct and positive impact on consumption safety of consumers. The access system of agricultural producers, at the front end of chain of circulation, points to agricultural groups, and plays an indirect role through management on producers. The group of agricultural producers in China is mainly farmer, and it is impossible and unnecessary to implement qualification access system on 0.25 billion farmers who are engaged in agricultural industry. Here the objects the access system of agricultural producers points to are the scale producers and managers, such as production and processing enterprises of primary agricultural products, and farmers' specialized cooperatives which are engaged in processing of primary agricultural products. Implementing the access system of agricultural producers is conducive to conducting comprehensive regulation on industry chains from the source, and is also conducive to the perfection of market order of agricultural products. In addition, it is conducive to finding out the cause of quality and safety problems of agricultural products.

The production process of agricultural products has particularity, which is impacted by natural environment, such as soil, air, water and other factors. The production process of agricul-

tural products may change due to the use of agricultural inputs, such as chemical fertilizers, pesticides and other inputs. Merely by the way of the main body access, we cannot effectively ensure the realization of quality and safety of agricultural products, and the comprehensive regulation on the objective factors, such as the environment of producing places and use of inputs, is necessary.

With the continuous development of industrialization and modernization, agricultural pollution problems become one of unavoidable problems when talking about quality and safety of agricultural products. The impact of soil pollution, air pollution and water pollution on the environment of producing places can be directly reflected in the quality of agricultural products. However, due to the different levels of pollution, the low moderate pollution of producing places may not impede the minimum testing standards of the quality and safety of agricultural products. The chronic diseases which is caused by eating contaminated agricultural products has a long lag period, and even if it is pathogenic, it is difficult to identify the real cause of pathogenesis, therefore, such agricultural products still poses potential threat to consumption safety of consumers. The access system of the environment of producing areas starts from the source of production to control the possible contamination of agricultural products, which is necessary means of perfecting market access system of agricultural products.

Many behaviors of farmers in the process of production may affect the quality of agricultural products, and make the level of quality and safety decrease, such as fertilizer and pesticide residue, veterinary drug residue and so on. Pesticides, fertilizers, veterinary drugs and other agricultural inputs have the effect of double-edged sword. On one hand, the pesticides, fertilizers, veterinary drugs and other agricultural inputs undoubtedly promote rapid development of agricultural production; on the other hand, the pesticides, fertilizers, veterinary drugs and other agricultural inputs inflict the pollution and damage on the environment of human survival which are difficult to eliminate. The access system of agricultural inputs, not only protects the quality and safety of agricultural products, but also protects resources and environment that human depend on to survive. Market access system has different emphases for the market regulators and market main body.

3.2 Analysis of rationality of frame of market access system of agricultural products From the perspective of macro-economic regulation and control, the market access means that it is to regulate the market, promote reasonable competition and safeguard consumer's interests; while from the perspective market main body, the market access is required to open markets and promote fair competition.

As for the market access system of agricultural products, we have to establish the market access system of agricultural products taking quality safety access for agricultural products as core, in harmony with access system of agricultural producers, environment access system of place of producing agricultural products and access system of agricultural input, in order to promote the quality safety level of agricultural products in Chi-

na, guarantee the production order of agricultural products and promote the consumption safety level of consumers. We should establish the market access system framework of agricultural products integrating quality and safety access for agricultural products, the access system of agricultural producers, the environment access system of place of producing agricultural products and the access system of agricultural inputs. By the interrelation and cooperation of all system, it is conducive to guaranteeing the health benefit of consumers. However, whether the emphasis on the establishment of the institutional framework of the access system means superposition of access system, whether it is the restriction on market competition, and so on, are the key questions regarding whether the market access framework of agricultural products is appropriate.

Agricultural products have properties different from those of industrial products. The particularity of agricultural products determines that the market access system of agricultural products is more stringent in comparison with other market access system. Large-scale production of agricultural products, multifarious varieties of products and multitudinous producers, pose a prodigious challenge to guarantee of quality and safety of agricultural products. Moreover, most agricultural products, with the long production cycle and numerous chains of production and operation, are impacted conspicuously by natural factors and human factors. This impact is more prominent than that of other products. This makes the quality access system of agricultural products at the end of production process insufficient to cover all types of agricultural products and all processes.

With the development of technology, the diversification of agricultural production mode requires market access system of agricultural products to be more cautious. Being that some new production methods and use of inputs will have impact on consumption health of consumers, this impact is still difficult to determine, and the residual condition of some inputs is difficult to be reflected from the quality of terminal products, in order to safeguard the benefits of life and health of the masses, as for this type of particular production process and use of inputs, we should hold the principle of prudence, and conduct whole-process supervision and coverage. The access system along with the production process from beginning to end including the access for inputs is the embodiment of the principle of prudence.

China has a vast territory with rich resources. According to variety, demand and other factors, the characteristic of scattered producing areas is very prominent. As for some agricultural products, especially edible agricultural products, cotton, oil and other products in vast rural areas, they are circulated within the market scope of non-government's effective regulation, such as roadside, field, village fairs and so on. Due to scattered production of agricultural products and extensive circulation, the single quality safety access for products cannot guarantee the basic benefit of all consumers who purchase agricultural products.

In summary, the characteristic of scattered production of agricultural products and the characteristic of extensive circulation of agricultural products determine that the market access system of agricultural products should cover multiple access

system. We should establish the market access system of agricultural products taking quality safety access for agricultural products as core, in harmony with access system of agricultural producers, environment access system of place of producing agricultural products and access system of agricultural input, in order to promote the quality safety level of agricultural products in China, guarantee the production order of agricultural products and promote the consumption safety level of consumers. However, it is worth noting that the interaction and cooperation of multiple access system, to some extent, pose higher standards and requirements on producers and operators. In order to avoid increasing the burden on producers and operators, the setting of the all access system should be serious and cautious. We should not set barriers arbitrarily and should not repeat the specific functions of all system. Meanwhile, we should establish and perfect the compensation and relief system of guaranteeing benefit of manager and producers in order to guarantee the exertion of market access system, and exert no negative impact on freedom of competition and market order of producers and operators.

3.3 The consideration of economic law regarding setup of market access system of agricultural products The important content in market access system of agricultural products is the setting of access standards. The setting process of standards is a complex process, and we need to take into account various factors, including the benefit of small-scale producers and scale producers, benefit of consumers and operation cost of government. In fact, the process of setting standard of market access system of agricultural products is the process of establishment of legal system of the market access system of agricultural products. In the field of law, there is a basic proposition that is generally recognized, namely that the basic function of law is to balance various interests. Heck, the representative of the school of interest law, noted that interest is the reason of law, the law is to regulate the interest conflicts, and the most important task of law is to balance the interests^[10].

Based on the generation basis, properties, and the system function of giving concurrent consideration to public and private interests one the part of economic law, the legal interests the economic law adjusts not only include the private interests among the main body of economic activity, but also include the socialized interests of majority of consumers, operators and other social groups, and the national interest and public interest in the process of the state maintaining fair competition and implementing public economic management^[11]. Economic law attaches great importance to the maintenance of personal interest. In the process of setting standards of market access for agricultural products, we need to consider the personal interests including personal rights and interests and material life benefits. Personal interests mainly involve the benefits of life and health of consumers, which are the most important benefits in personal interests. The material life interests include producers' benefit of independent management and consumers' fair trading. In the setting of access standards, we should not neglect the protection of the interests of society. The interests

of society not only cover basic interests, such as social ethics and business ethics, but also include public policy interests comprising the order of competition, price order, economic development and social development. The national interest, no doubt, is also the important interest that economic law protects. In fact, the national interest includes two parts, namely the interest of the ruling class and the interest when fulfilling social public functions. In terms of the interest when fulfilling social public functions, it is the common public interest of all citizens, and the public interest that anyone in any country can equally share, so in many cases it is consistent with the social interest^[12]. Amid influencing factors of market access standards of agricultural products, the market order of agricultural products reflects the national interest consistent with social interest, while the operation cost of government reflects the interest of the ruling class.

Among individual interests, social interests and national interests that the economic law protects, and within every type of interest, there are conflicts and contradictions of interests. In the process of setting standards of market access for agricultural products, we should coordinate the interests and mutual contradictions of all parties, and especially consider the following aspects.

Firstly, in the process of setting standards of market access for agricultural products, we should consider the problem of standard coordination of farmers and scale producers. The land managed by every rural household on average is only 0.55 hm² in China, and the small scale of production makes single farmer have small market share, but there are about 0.25 billion farmers in China, so we can see that the proportion of agricultural products produced by small-scale producers and operators in total agricultural products is not low. As for the regulation on market access for agricultural products in China, it mainly focuses on whole-process supervision on scale producers "from farm to fork". As for the scattered management model of farmers, the supervision is often conducted by sampling and other methods, which underlies supervision difficulties and ineffective monitoring of agricultural products.

Secondly, in the process of setting standards of market access for agricultural products, we should consider the problem concerning the contradiction between consumers' consumption safety and farmers' income. Simply from theoretical analysis, high standards can improve the overall product quality of market. As for consumers, if the market access standards of agricultural products are higher, it will have greater ability to protect consumption safety of consumers. However, too high access standards may lead to sharp drop of the number of agricultural products in market, because a large number of products that do not conform to standards have been eliminated. Under the impact of market, in order to ensure certain income level, the farmers are bound to share the cost arising from the products that has been eliminated to the qualified agricultural products that has entered market for sales, thus the consumer will become the one who foots the bill.

Thirdly, in the process of setting standards of market ac-

cess for agricultural products, we should consider the problem concerning the contradiction between the goal set by the standards and the government's supervision cost. In the process of setting standards of market access for agricultural products, we should consider the interest relations among small-scale producers, large-scale producers and consumers, and the setting goals should be established on the basis of a balance of interests. However, the implementation of the standards requires government's regulation, so we have to consider the operability of access standards, so as to ensure interests balance among parties and restrict the supervision cost of governments to a reasonable extent.

4 The legislative suggestions for establishing market access system of agricultural products

4.1 Establish the frame of market access system of agricultural products taking quality access as core The quality safety market access system of agricultural products is the core of the market access system of agricultural products, and the fundamental guarantee for consumers' health benefit. The specific signification is the regulatory behavior and process that the government allows the agricultural products conforming to the standard of quality safety of agricultural products to enter market for sales through necessary legal procedures. It is the fundamental guarantee for life security and health security of consumers. But the quality safety market access system of agricultural products should not be the sole system of market access for agricultural products. The quality safety of agricultural products is impacted by many factors, so the market access system of agricultural products should likewise cover multiple content specifically including quality and safety of access system of agricultural products, the access system of agricultural producers, environment access system of place of producing agricultural products and access system of agricultural input. We should form sound institutional framework of market access system of agricultural products through the interaction and coordination of all system which will impact quality and safety of agricultural products in the process of production of agricultural products from every aspect, in order to guarantee health benefit of consumers, maintain market order of agricultural products, and protect resources and environment.

4.2 Establish and perfect the compensation and relief system of guaranteeing benefit of manager and producers As for the whole-process coverage of production and management of agricultural products, the market access system of agricultural products can effectively protect consumers' benefit, but it poses higher requirements on producers and managers. In the process of establishing all system of market access for agricultural products, we should be serious and cautious. We should not set barriers arbitrarily and should not repeat the specific functions of all system. Meanwhile, we should establish and perfect the compensation and relief system of guaranteeing benefit of manager and producers in order to reduce the possibility that the superimposition of all access system may be detri-

mental to interests of producers and managers; guarantee the exertion of market access system; maintain freedom of competition and market order of producers and operators.

4.3 Establish the market access system of agricultural products with hierarchical structure The standard of market access for agricultural products is an important component of the market access system of agricultural products. We should establish the standard system with hierarchical structure. First of all, it should include the minimum standards of agricultural products into the market, namely the mandatory standard system. This is not detrimental to the minimum conditions of consumers' benefit. Secondly, we should establish and improve the corresponding supporting system of agricultural products, such as inspection and testing system of agricultural products, and authentication and certification system of agricultural products, which is the fundamental guarantee for effective realization of the market access system of agricultural products. Thirdly, we should establish high level standard system of agricultural products on the basis of the minimum standard of market access for agricultural products, including labeling system of agricultural products and traceability system of producing areas which aim at solving the problem of asymmetry. It is the necessary condition for promoting equality of market trading and the necessary requirement of meeting consumers' higher health standard.

4.4 Sort out existing laws and form the sound the legal frame of market access system of agricultural products In China's current legal norms, *Agricultural Product Quality and Safety Law* has elaborate stipulations on quality safety standard, producing areas, production process, packaging and labeling of agricultural products. In some administrative laws and regulations, there are sporadic stipulations concerning the relevant content of market access for agricultural products, such as *Animal Husbandry Act*, *Agriculture Act*, *Fisheries Act*, *Dairy Quality and Safety Supervision and Management Regulations*, *Safety Management Methods of Producing Areas of Agricultural Products*, and *Pesticide Regulations*. At present, there is no need to establish a separate market access law of agricultural products, but we should sort out relevant system in existing laws; establish and perfect relevant system content of market access for agricultural products; form the sound legal frame of market access system of agricultural products, which will be beneficial to producers, managers and consumers of agricultural products and even the development of agricultural industrialization in China.

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$$R = \begin{bmatrix} 0.5 & 0.4 & 0.6 & 0.7 \\ 0.6 & 0.5 & 0.7 & 0.8 \\ 0.4 & 0.3 & 0.5 & 0.6 \\ 0.3 & 0.2 & 0.4 & 0.5 \end{bmatrix}$$

Table 2 reports the evaluation information of the 5 experts.

Table 2 The evaluation information of experts

Expert	Social index	Agricultural economic index	Resources index	Environment index
1	0.9	0.8	0.5	0.6
2	0.7	0.9	0.8	0.4
3	0.5	0.7	0.5	0.5
4	0.9	0.7	0.6	0.7
5	0.6	0.8	0.7	0.5

Firstly of all, based on the complementary judgment matrix, the weight vector of the four evaluation indices is $w = (0.27, 0.31, 0.23, 0.19)$.

The model with the smallest generalized deviation is used to calculate the comprehensive evaluation information of group experts. Parameter $\alpha = 2$ is selected:

$$\min J = \sum_{i=1}^5 [h_i \sum_{j=1}^4 (a_{ij} - b_j)^2]$$

After introducing the weight vector of expert and the evaluation information into this model, the comprehensive information vector of group expert is

$$B = (0.6700, 0.7800, 0.6300, 0.5150)$$

After concentrating the comprehensive information of group experts, the comprehensive evaluation value of regional agricultural sustainable development is obtained:

$$\text{Development} = 0.6700 \times 0.27 + 0.7800 \times 0.31 + 0.6300 \times 0.23 + 0.5150 \times 0.19 = 0.6655$$

The comprehensive evaluation value is introduced into the fuzzy judgment set of "extremely good", "very good", "relatively good", "general", "relatively poor", "poor", "very poor" and "extremely poor" to calculate the membership degree. Thus, the evaluation value belongs to "relatively good" with its membership degree being 0.3345. The membership degree of "good" is 0.655; and the membership degrees of other fuzzy judgment sets are all 0. According to the principle of maximum membership degree, it can be concluded that the comprehensive evaluation result of regional agricultural sustainable development is "good".

According to the expert evaluation on regional agricultural sustainable development, both the social index and agricultural

economic index have relatively high evaluation, but the evaluation result of environment index is not idea. Thus, the overall sustainable development result is only "good", but can not reach the "very good" or "extremely good". During the late period of development, agricultural development of this region should improve the environment index, pay attention to the health status of rural drinking water, pesticide application degree and so on, and make the agricultural sustainable development in this region reach a higher level.

4 Conclusion

The "Three Agricultural Problems" has always been an issue of concern to China. The state has made great efforts to improve the "Three Agricultural Problems", and has paid great attention to the sustainable development of agriculture. Developing the agricultural economy with low consumption, low pollution, high utilization rate, and high circulation rate is the main direction to solve the agricultural problems in China. During the development of agricultural sustainable development, we should strengthen management based on the actual conditions of China, pay attention to the evaluation and feedback of sciences, and promote the coordinated and sustainable development of regional agriculture.

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