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On the Innovation of Marketing Channel Modes of China's Seed Industry

Bican LUO[1*], Yunhai FU[1], Chunxia LUO[2], Ya Zhu[3]

1. Hubei Provincial Seed Group Co., Ltd, Wuhai 430070, China; 2. Supervision, Inspection & Testing Center of Agricultural Products Quality and Security of Jingmen City of Hubei Province, Jingmen 448000, China; 3. Agricultural Bureau of Jingshan County in Hubei Province, Jingshan 431800, China

Abstract In China, the seed industry has fierce competition. The situation of homogeneous management and homogeneous products is serious. A key problem is simple and outmoded marketing channel of seed. It threatens sustainable development of seed enterprises. At present, the two-level distribution channel of seed industry has problems of similarity, low access threshold, and unfair benefit distribution, and thus urgently needs innovation. The innovation of distribution channel is inevitable requirement for promoting reorganization of China's seed industry and building of new order, is necessary weapon for dealing with trans-national seed industry competition, is essential measure for lifting the overall service level of seed industry, and is also essential means for conforming to stage development of China's agriculture. The innovation of seed marketing channel should consider changes of future agricultural development, deep-level demand of industrial market and services, sci-tech development level, fair distribution of industrial profit, and differentiated competition. It is recommended that channel innovation should follow the flat principle, have new and unique conception, give full play connection advantage of marginal industry, realize complementary advantages and mutual promotion, strengthen service awareness, combine with agricultural development trend, and seek sci-tech innovation of channel carrier - variety.

Key words Seed industry, Marketing channel, Mode, Innovation

In China, the seed industry competition is fierce in recent years. Due to factors such as seed industry system, market environment, and industry maturity level, the competition will become further deepened and complex. In the competition, there are many problems, such as too many entities, weak scientific research innovation, low management level, not smooth channel, and not reciprocal risk benefit, *etc.* The marketing channel is too simple, and structural conflict between resource and profit distribution is increasingly prominent, which greatly hinders normal development of the seed industry[1]. The two-level distribution channel mode widely applied in the seed industry (enterprise → county-level agent→ township distributor → farmer household) is experiencing severe test, and it is urgent to make innovation of the channel mode.

1 Major marketing channel modes of China's seed industry

1.1 Historical development path of China's seed industry marketing channel modes From the middle of the 20th century, China's seed industry started to enter commercialized path. In planned seed supply phase, seed was adjusted and supplied by government and there was nearly no commercialized seed supply. After the 1980s, with rise and popularization of crop hybrid technology, especially hybrid rice, the seed industry started to enter semi-commercialized path, and the seed circulation basically followed the channel structure of "provincial level company (station) → prefecture (city and county) level company → township agricultural technical service station (former seed farm) → production team → farmer household", namely, three-level distribution channel mode "production wholesaler → intermediate trader 1 → intermediate trader 2 → retailer → farmer household". This mode laid solid foundation for extension and application of China's hybrid technology. This three-level distribution mode depends largely on administrative function of government and has deep regional characteristic. This mode is based on regional agricultural structure, so it can not be called a seed company (station) in real sense. However, this channel mode has clear drawbacks. With implementation of reform and opening up policy and China's entry to WTO, various industries and sectors have opened their threshold, opening-up of seed industry was also brought into schedule, and incorporating the seed industry into commercialized and completely market-oriented track has becoming an urgent subject of sustainable development of seed industry. At that time, low competition strength, backward industrial service level, and weak industrial innovation ability were major threats of China's seed industry, obstructing survival and development of China's seed industry.

In the middle of the 1990s, the pattern of seed industry was changed again, government administration was separated from enterprise management, and seed industry formally entered commercialized operation stage. Marketing of seed products gradually changed from common varieties to special varieties, and circulation of industrial seed broke original regional limit and stated free regional exchange. To survive, enterprises make effort to seek new path in new variety development, production control and customer network innovation. At this stage, the new channel mode combi-

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* Corresponding author. E-mail: 1315170188@qq.com

ning the original three-level distribution channel mode became popular, namely, "enterprise → provincial wholesaler → prefecture (city and county) level intermediate trader → township retailer → farmer household". This mode produced three positive influences: (i) it broke original regional limit and promoted commercialization process of the seed industry; (ii) it optimized industrial structure through distributing, reorganizing and converting and eliminating some weak entities; (iii) it stimulated technological innovation, service innovation and new variety research and development of enterprises. At the same time, there were also problems: chaotic market order made rights and interests of enterprises fail to be effectively protected and internal consumption due to unordered seed supply reduced profit space of seed product. To reconcile this conflict, the seed industry started implementing a new marketing channel mode from the end of the 1990s, *i. e.* regional agent distribution mode, namely, the existing three-level and two-level agent marketing mode "producer → provincial agent → county (city) level agent → township terminal retailer→ farmer household" and "producer → county (city) level agent → township terminal retailer → farmer household". This mode is a major distribution mode of crops and continues to use at present.

1.2 Characteristics of existing marketing channel mode of the seed industry At present, marketing of the seed industry mainly adopts regional agent and terminal direct selling[2], the former is major mode and the latter is still in trial stage. At the early stage of separating government function from enterprise management, production enterprises started using three-level and two-level agent marketing mode "producer → provincial agent → county (city) level agent → township terminal retailer→ farmer household" to explore new market and overcome drawbacks of old distribution mode. Provincial agents having regional exclusive agency authority have exclusive right in sales of single product at regional market, do not have competitors, and are highly active in making plan, fixing price, propaganda, and market management. With gradual penetration of production enterprises to external market, the controllability of enterprises to inferior marketing network is gradually increasing. To overcome weakness of provincial agent in management, save profit consumed in provincial agent, and strengthen competition vigor, production enterprises gradually abandoned the provincial agent, implemented flat management principle, and adopted the two-level distribution mode "producer → county (city) level agent → township terminal retailer → farmer household". Due to growth of management efficiency and increase of profit margin, the two-level distribution mode is widely applied and becomes the leading channel mode.

This two-level distribution mode features rapid market response, excellent management effect, and high profit space. Firstly, county (city) level agents are engaged in supply and sales at terminal, have sensitive response of terminal market, can identify and screen terminal market information at first time, and feed back to enterprises in time, for enterprises making adjustment of production and work. Secondly, due to self characteristic of agent mechanism, the vertical management system promotes active management of all main bodies of the channel system to the regional market. Rich profit of special variety encourages all parties to improve management quality and the management efficiency gets lifted. Besides, it abandoned two-level mode of provincial agent and realized large profit space of enterprises, agents, and terminal retailers.

1.3 Problems of existing marketing channel modes The existing marketing channel mode also influences survival order of the seed industry pattern. Those enterprises having certain research and development ability, rich variety resource, higher management efficiency and marketing network survive in this mode, while other enterprises have to make reorganization, quit or die. Even so, numerous entities of the seed industry still test the survival endurance of the seed industry, and the conflict between excessive entities and two-level agent distribution channel system is unceasing[3]. Under homogeneous channel management, homogeneous products lead to meager profit of enterprises, and many enterprises even operate with negative profit. This brings great pressure to national seed industry. Apart from encouraging enterprises to make sci-tech innovation, this mode has limited historical function. Secondly, this mode is easy to follow up and it has no specific requirement for size and strength of enterprises, and qualification and type of distributors. Too low threshold leads to market disorder. On the one hand, the channel chain management has fine start but poor finish; on the other hand, the market is full of inferior products. Due to imperfect industry management system, fake and inferior seed problems are serious. The third problem is unreasonable benefit distribution and unequal dialogue between front and back ends in the channel chain. At present, there are 6900 seed enterprises registered in China, 255 enterprises have license issued by the Ministry of Agriculture, while there are only 10-20 township seed distribution stores. To include numerous varieties, the right is naturally controlled by township retailers. As a result, township terminals obtain larger portion of profit, county-level agents obtain certain profit, while enterprises have to obtain meager profit. On the other hand, since the major motivation of terminals selecting products lies in the profit space, many excellent and high quality varieties are neglected and fail to be popularized in production.

2 Necessity for innovation of marketing channel mode of China's seed industry

2.1 Inevitable trend of promoting reorganization of China's seed industry and building of new order Smooth and high-efficient channel can lay excellent foundation for enterprises making business expansion and is direct reflection of enterprises realizing profit. China's national seed industry is still weak and it needs resource reorganization and survival of the fittest in a certain period. Even though there are more than 6900 seed enterprises, and the market value of seed industry rose from 25 billion yuan in 2000 to 100 billion yuan in 2012. However, less than 80 enterprises have

registered capital lower than 30 million yuan, and only 69 enterprises have realized integration of breeding, reproduction and promotion. Market share of all individual enterprises is lower than 5%; top ten seed enterprises have total market share less than 20%; most enterprises have less than 5% of the proportion of research and development input to sales volume, much lower than 10% of the advanced level of developed countries. Reorganization of the seed industry is mainly manifested as resource complementation and integration. Apart from talent, capital, variety, technology and management modes, channel resource also plays a very important role in reform of seed enterprises, because the existing two-level distribution channel mode has become not suitable for deep development of enterprises. In all factors of the reform, enterprises have mature experience or higher feasibility in capital, talent, technology and variety, but they find no way in channel innovation. The channel innovation has become the bottleneck of another reform of the seed industry. In other words, channel innovation will become the key and core of the next reform of the seed industry, and the restriction action of channel in enterprise making profit is obvious and obvious.

2.2 Necessary arm for dealing with competition of large trans-national seed industry In the game with large trans-national seed industry, China's seed industry has large gap in capital accumulation, financing ability, research and development strength, and management concept. The only advantage is local resource, specifically, the existing customer network resource, namely, channel resource. If trans-national seed industry weakens this trend through the local penetration in rent years, China's seed industry will have higher difficulty in survival and development. In 2012, 25 trans-national seed enterprises entered China, including top 10 enterprises, like Monsanto, Pioneer, Syngenta, Bayer, and Limagrain. Only for the corn varieties, the market share of foreign invested companies rose from 0.13% in 2001 to 11% in 2011 with growth up to 84 times. In such fierce competition, China's national seed industry should rapidly lift the variety innovation ability, brand infection ability, and enterprise management ability. Besides, they should consolidate channel innovation, create more persuasive channel value, and prevent invasion of foreign enterprises through building powerful channel barrier.

2.3 Necessary measure for improving agricultural service level of the seed industry Intensive, specialized, mechanized and high sci-tech development of modern agriculture has higher requirement for agricultural services in related fields and level. Grass-roots agricultural technical service station is major entity providing grass-roots agricultural service. With separation of government administration from enterprise management and commercialization of seed industry, the service function of grass-roots agricultural technical service station is weakened. The lower part of the commercialized seed industry channel chain is distribution store of grass-roots means of agricultural production, which gradually become major entities providing leading agricultural services, especially the seed stores. The seed industry is parent industry of agricultural production, and service level of the seed industry decides development process and depth of agricultural industrialization. Seed industry services include market services and technical services, closely connected with downstream interaction quality of the channel chain. Therefore, a criterion for judging innovation effect of channel chain is to check the improvement degree of grass-roots service level. The recognition degree of grass-roots producers to seed products and technical service quality and level determines trust and loyalty of seed consumers in enterprises, brands and products. Within the framework of existing channel system, the commerciality and subjectivity of grass-roots service, but the fairness and obligation are weak. To really win market and obtain loyal customers, it is necessary to improve service level.

2.4 Essential measure for going with the stage development of China's agriculture Flat treatment of channels is the necessity of enterprises, and also the necessity of stage development of agriculture. Urbanization process promotes transfer of rural labor to urban areas. At present, the rural labor structure takes on three characteristics: (i) old age and serious loss of young and middle-aged labor; (ii) shortage of labor, especially farming and management labor; (iii) old labor knowledge. From trend analysis, combining national grain security strategy, government needs energetically supporting intensive, industrialized and simplified development of agriculture, and encouraging centralized management and cooperative operation of agricultural land through stimulating land circulation policy. Seed is essential means of agricultural production. As suppliers of agricultural production, seed enterprises should go with this trend, directly serve large planting households, and establish customer network without restriction of intermediate traders. This needs innovation of seed enterprises in seed marketing channel mode. In the past, enterprises were unable to handle services directly for huge number of families, and an individual farmer household is unable to influence survival and growth of enterprises. However, land intensification will influence performance of enterprise in an area and its brand perception. In this situation, enterprises have to go with such change to realize long-term sustainable development.

3 Factors to be considered in innovation of seed marketing channel

3.1 Structural characteristics of existing rural and agricultural production factors As essential factor of agricultural production, land, labor and equipment structure undergo great changes, so the service methods and depth should have corresponding changes. Centralized circulation of agricultural land to few, specialized and investment planting owners is an overall trend, mainly because of loss of rural labor and low comparative benefit of scattered planting. In addition, with extension and popularization of crop simplification technologies, new agricultural equipment is applied more and more in agricultural production. Many crops have realized sowing, fertilization application, intertillage, pesticide spraying, harvesting, and shelling. This will lay

technological foundation for intensive, specialized and industrialized agricultural development. These new situations of rural areas and agriculture will influence seed industry, and changes of planting households will exert impact to existing distribution channel mode, and accordingly stimulate innovation of seed marketing channel. The innovation of seed marketing channel should not neglect such structural changes of existing agricultural production factors.

3.2 Sci-tech development level of the seed industry The seed industry has made outstanding achievements in recent years. Wide application three-line and two-line hybrid rice makes great contribution to China's grain security; popularization of hybrid insect resistant cotton greatly reduces input in pesticide; popularization of hybrid rape greatly lifts level of national edible oil. China's crop technology has become ranked in the advanced level and some fields even have reached the leading level. Even so, as key industry of converting existing science and technology to production application, the seed industry has low research level, excessive repeated research, chaotic resource utilization, and weak sophisticated technology breakthrough. From the perspective of market, it is manifested too many homogeneous products and technologies. Such situation will not be transformed fundamentally in short term. To seed scientific research breakthrough, enterprises must seek vitality in other fields, especially management. The key point of market management lies in network construction. Therefore, it is necessary to organize innovation of marketing channel and the innovation should not be separated from existing sci-tech development level.

3.3 Deep demand of industrial market and services After experiencing price war, advertisement war, and variety war, the core fields of industrial market competition gradually move to services. With improvement of technological content and increase of quality and yield of seed products, market requirements for enterprise services are higher, wider and deeper. For innovation of enterprises in distribution channel, service is a key judgment element. It is required to change the situation of excessively relying terminal service of intermediate traders in the past and improve service level and efficiency, to really obtain loyal terminal customers, so as to really raise recognition of enterprise brand.

3.4 Reasonable adjustment and distribution of the profit of seed industry At present, the distribution of profit in seed industry is not equal and the management quality is uncoordinated, which is not favorable for healthy development of the whole channel chain. On the one hand, the enthusiasm of producers is dampened, not favorable for innovation and expansion of enterprise. On the other hand, benefit of distributors is greatly enlarged, easily leading to deviation from operating philosophy and concept. New channel mechanism must overcome this conflict and manifest the equal distribution of profit. Only through seeking and starting a proper and fair channel mode, may the added profit of the seed industry be distributed reasonably and may the seed marketing return to rational development way.

3.5 Core fields of differentiated competition To stand out among numerous seed entities, enterprises need implementing differentiated strategy in core competition field. To form differentiated advantage, enterprises should get rid of past methods in price, variety and propaganda, but place hope on channel. It should focus on following points: (i) ensuring new, unique and exclusive channel mode, to bring real channel benefit; (ii) ensuring flat principle of channel building, to increase benefit of channel chain on the basis of high-efficient management, so as to enhance operating strength.

4 Innovation attempts and recommendations for marketing channel of China's seed industry

4.1 Innovation attempts of marketing channel mode of the seed industry At present, the seed industry has fully realized the restriction of distribution channel mode to seed industry development, and many enterprises have started innovation in distribution channel, but most are still at stage of fumbling and successful cases are few. Apart from traditional two-level distribution channel mode, there are several other modes. (i) Direct selling mode: establishing direct selling point in key towns with reference of ecological and administrative division or production scale, the finance is not dependent and subordinate to production enterprise. Such mode has advantages of directly selling products to terminal, swift service and powerful brand building force, but the management cost is high and human resource pressure is heavy[4]. (ii) Supermarket mode: supermarket directly connects with enterprises, and farmers can select brands or varieties on their own. This mode has advantages of directly selling products to terminals and reducing loss of intermediate profit. The disadvantage is poor propaganda effect and difficult to establish brand loyalty. (iii) Order-oriented mode: enterprises cooperate with agricultural product processing factories. Through orders of processing factories, it is expected to promote implementation of various businesses. This mode can significantly increase sales volume of specific varieties. However, it is difficult for enterprises to own tiptop variety resources in a certain field. (iv) Channel binding mode[5]: some seed enterprises cooperate with fertilizer factories or plant hormone factories to popularize their products in binding mode. Through this, it is expected to realize sharing of network resource and reduce promotion cost, but it is difficult to obtain recognition of main products. Apart from the above four modes, some enterprises are undertaking researches of some new channel modes, which is worth attention and reference.

4.2 Recommendations for construction of innovation environment

4.2.1 Establishing fair and just market competition order. For the seed industry, there is still a long way to realize fair and just competition environment, which is closely connected with local protectionism and lack of industrial management concept and ability. Many enterprises need not making effort in innovation, and

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ences among universities, research institutes, and departments directly under the government. According to the analysis of variance, there is no significant difference in scores of "innovative research results" among the different innovators.

4 Recommendations for improving the level of innovation in agricultural science and technology projects

4.1 Gradually forming the enterprise-led innovation mechanism In recent years, China's agricultural enterprises have made great progress, and the enterprises' innovation ability has been constantly enhanced. They gradually become important forces in agricultural production and operation activities. Chinese enterprises should enhance the ability of agricultural science and technology innovation, pay more attention to scientific and technological resources and human resources, and improve new product development capability, in order to gradually become an important innovation force in the agricultural technology field.

4.2 Creating a research atmosphere conducive to innovation Project managers should loose control over the original innovation, without specifying mandatory targets. For the project management, it is urgently needed to continue weakening the "administration" effect on project management and reasonably allocate project resources. It is necessary to simplify the declaration and reporting procedures to avoid spending more energy on something related to research[7], and set up scientific and objective evaluation criteria for fair and impartial review.

4.3 Strengthening the evaluation of innovation in the projects During the establishment of agricultural projects, it is necessary to strengthen the evaluation of project research methods, institution's innovation conditions and level of innovation in the achievements, foster the innovative projects, and better give play to the role of support project and other projects in breaking through the bottleneck constraints and enhancing the agricultural competitiveness.

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they cling to old practices and refuse to accept new things and the internal pressure of development is transferred to local government and competent agricultural authorities. The innovation cost is high, so enterprises are unwilling to make innovation. Accordingly the marketing channel innovation lags behind.

4.2.2 Issuing relevant innovation guiding policy to encourage reform of seed industry marketing channel. As an attempt, innovation needs cost and also risks. The overall strength of China's enterprises is limited and internal strength is weak. To catch up with trans-national seed enterprises, China's enterprises need drawing support of certain external force. Government should issue relevant support policy to promote innovation incentive mechanism for seed industry marketing channel and boost rapid development of seed industry.

4.2.3 Setting foot on industry development trend, invigorating large enterprises while relaxing control over small ones, and shortening the seed industry reorganization process.

From the development trend of seed industry, the present seed industry is realizing capital reorganization and resource integration. Some weak entities or individuals with small contribution to society are gradually exiting from the seed industry market. This is a mark of an industry entering the high end and also the inevitable trend of the seed industry realizing reasonable and sustainable survival and development. China should go with this trend, support powerful and high potential seed enterprises to make channel innovation, widen the gap with those weak entities, but narrow the gap with trans-national seed enterprises. For example, it is feasible to support those seed enterprises with integrated capacity of breeding, reproduction and promotion, and ability of conducting international trade.

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