

Study on Functions of the Agriculture Cooperative in Food Safety

Meizhang xiangyuGuo*

(Economy and management college of Northeast agriculture university,
Harbin, Heilongjiang,150030)

Abstract

The question of food safety has been paid more attention by government and enterprises. The international trend is that the methods have changed from the end control to the procedure control. It make the farmer as the gate of the food production face more pressions. They can not provide the required technology, capital and human cost of controll the agri-food safety , because their operation mode is nonconcentrated. So the farmers must build a organization to undertake the responsibility of controlling the agri-food quality safety, that is the agricultural cooperative. The agricultural cooperative is an effective carrier to undertake the responsibility for controlling the agri-food quality safety, and it can be an effective actor organization in agri-food SCM, and it also can be an important organization form helping government carry out agriculture production quality inspection and management. In China, the agriculture cooperatives achieved large performance in controlling and safeguarding food safety, raising farmers income and promoting market competition power.

Key words: food safety, agricultural cooperative, agriculture product SCM

© 2010 Published by Elsevier B.V.

1. Introduction

Safety cases oriented from food happened frequently, which made consumers and government pay more attention to it. In recent years, the environment such as the utilization of new technique, consumer's demand and the methods of government management has changed a lot, which make the farmers face more market competition pressures, so the farmers must product high quality and safety agriculture production to suite this demand. But farmers can not provide the required technology, capital and human cost controlling of the agri-food safety, because their operation mode is nonconcentrated. So the farmers must build a organization to undertake the responsibility of controlling the agri-food quality safety, that is the agricultural cooperative.

The aim of this paper is to identify the environment pressures that farmers faced in food safety, and explain why the agriculture cooperatives can be a effective organization in SCM, then analyse the cooperatives performances in

* Corresponding Author

controlling and safeguarding agriculture production in practise. Final, in view of the immature development of agriculture cooperative in China, the paper put forward some suggestions to strengthen the construction of cooperatives.

2. The environment analysis of agriculture production faced

(1) Government pay more attention to the quality safety of agriculture production

In recent years, safety cases happened frequently. For example, the toxic milk cases of the Sanlu Group in Hebei province and the toxic vegetables in Guangdong province, these cases had endangered to the health of the consumer, and then led to trust crises to the milk production enterprises in China. So the government deepened the inspection and management of the agriculture production from the angle of legislation and management system. After the issue of *The People's Republic of China Law on Agriculture Product Quality Safety* in 2006 and *the state council on strengthening food and product safety supervision and management of the Special Provisions* in 2007, the Seventh Meeting of the Eleventh National People's Congress passed the *food safety Action* on Jan 28th 2009. It is the amend and perfection to the *Food Hygiene Law of People's Republic of China*. New laws built the uniform food safety standard and adopt more severe punishment, these will promote the enterprise to implement the whole procedure control from the raw material production to the final production. The issue of this law will accelerate the juridification procedures of agriculture production quality safety management, which shows the quality safety will become a key question in agriculture production, and the traditional agriculture production mode should be reformed.

(2) Changing of consumer's purchase and consumption habit

The restrictive condition of agriculture production faced has changed from the resource to the consumption, so the production mode turned from consumption decided by production to the production decided by consumption. With the formation of buyer market, consumer become a leading power to decide the agriculture production. Consumption habit has also been changed, and the consumer are apt to select safe, nutritious, fresh, low fertilizer and Pesticide Residues agriculture production. The purchase habit of consumer has also been changed. Lianzhiwei hao & Shujuan Yu (2004) investigated the question of supermarket as the substitutes of farm production market, and the outcomes showed that most consumer were apt to one-stop-shop, those agriculture production consumed frequently, such as vegetable, fresh meat and consumed not frequently, such as foodstuff and cooking oil were purchased primarily in supermarket, and the key factors which effect consumer to consume in supermarket were quality and credit of the production. The supermarket built the severe standard of quality and even shape of the agriculture production, and it has its own direct purchase staff who make the field testing in agriculture production bases. So only agriculture production built on the base of high quality and standard product mode can meet this consumption demand.

(3) Product and circulation mode of agriculture production has been changed

In the environment of consumer-oriented, the traditional product and circulation mode has been changed. The traditional industrial operation mode is node organization of it, such as farmers, wholesaler, supplier and retail terminal are separate, all curst for their own best profit. This mode is easy to make the industrial chain broken, or might lead to product quality question. The case of sanlu group is an example.

While new mode adapt the SCM integration operation method. In international the SCM mode is used to improve the agriculture production quality so as to realize the lowest cost, at the same time it also as an effective channel to safeguard food safety and test quality management. Under this mode, to make sure the food safety, the safety management is involved in the whole operation procedures, so the farmers were concluded. To supply satisfied production to the consumer, the SCM operation mode focus on cooperation among the node organization in chains. To maxlize the overall profits in SC, the node organization built the cooperation ralitionship by the way of strategic ally or contract and so on. As the core orgazation, such as processing enterprises and retail terminal will put pressure on the downstream farmers. Under the new mode, the steady of agriculture production quality safety is up to the stead cooperation of node organization in SC.

(4) The increasing limit of international agriculture production mareket access

In recent years, the technique standards of some country (for example EU, US and Japan) are more and more strict. As the example of garlic, About 23 countries have risen the quarantine standards to china since 2001. Among them

Korea claimed for additional 50 kinds of Pesticide Residues quarantine, and the quarantine indexes of Japan is up to 52 ,and EU is 45,while French is to 103. Agriculture production that China export to the US,Japan and EU, such as tea,mushroom and meats and so on are often turned back or refused because of the hygiene problems.from Aug 2000 to Jan 2001, there were about 634 kinds of food importing from China were detained by FDA of US, the reason is impurity substance,bad hygiene,pesticide residuals ,food additives,pigmentant,unclear tap,salmonella and Listeria monocytogenes contamination and so on. According to the investigation of department of commerce in China, there are about 90 percent of export agriculture and food enterprises were effected by technique quarantine standards of other countries, and the losses are about 90 billion dollars. The reason that leading to it is that lacking of required attention to the quality safety of agriculture production, and the systemic test and inspection of it has not shaped, and especially short of connection to the international standards. China is a big export country, if we want to promote our international competition power of export production and lower our losses on it ,we have to raise our production`s quality and safety.

3. Farmer cooperatives is an important organization carrier to realize quality safety of agriculture production

Promoting quality safety is required for meeting the consumer`s demand and promoting international competition power. But the separate feature of production and management make farmers can not undertake the responsibility for controlling quality safety of agriculture production individually,while the cooperatives are connected with the government,farmers and enterprises,can be a effective organization carrier to realize the quality safety of agriculture production.

(1)agriculture cooperative is the organization platform to realize quality safety of agriculture production

Now farmers are numerous but small sized in China, they can not realize quality safety.The reason are as follows:First,they are short of agriculture production quality safety consciousness.Agriculture production is homogeny,while the test measures is not perfect,then is will create free-ride questions.From the angle of the farmers,the best and direct choice gaining profit is to reduce production and raise output as far as possible.Second,separate farmers can not access into the market individually.More safe and famous agriculture production can gain more higher price, but the main sale channel of them are supermarket and special shop,farmers can not connect with them alone,so they have not drive to raise quality safety of agriculture production.Third,farmers` lack of required technique.Standardization is an effect channel to realize quality safety of agriculture production,but farmers is short of required technique,and technique diffusion and extension need higher transaction cost.Final,the cost to implement quality safety of agriculture production is very high,it need more input in control,test,management and brand promotion and so on.

In all,there must built a medium organization to realize quality safety of agriculture production.This kind of organization must be of some features,that is ,not only it make the separate farmers united,implementing united management and cooperative operation,but also it must stand for the benefit of farmers,then make sure the benefits of farmers and organization is uniform.That organization is agriculture cooperatives.

In promoting quality safety of agriculture production the cooperatives have its advantages,and it can be showed as follows:First,reducing the implement cost.Farmers who join cooperative is relative homogeny,and by the way of field transfer,centralized test and technique services cooperative can get scale economy advantages in safeguarding quality safety of agriculture production;Second,carrying out inspection effectively.It is farmers owned and managed organization,so it can build effective restrict and inspection mechanism and persuade farmers to implement.Third,making organization and farmers`s benefits and quality safety of their production united.Cooperative is a organization serving for farmers,its management benefits merge with farmers.It has two alternative objections. One is to realize its own profit,and the other is to benefit farmers,while two objections are not contradictive.The cooperative can get more market opportunities through standardized production and sever procedure controls, then get organization profits.Farmers can also gain more price-improved incomes because of cooperation benefits and qualified production.This feature can reduce conflict between other type of organization and farmers because of inconsistent interest and also reduce the opportunism behaviour in implementing contract.

(2) Cooperatives can make sure overall procedure control of quality safety of agriculture production carried out effectively.

To make sure quality safety of agriculture production overall procedure control is needed to be implemented ,so the method of SCM should be used. Hobbs and Young(2001) argued,the transformation underway in agriculture has changed farmers`relationships with the rest of the agricultural and food industry. The major component of this change is an increasing interdependence of the farm production sector with the rest of the supply chain, an interdependence that is reflected in the trend towards closer vertical co-ordination in the agri-food industry.An effective food safety system requires the participation of all parties in the supply chain and may alter relationships between supply chain participants. Vertical industry alliances are becoming important means of assuring food safety and quality. (Hobbs.Sprigs and Fearne,1999)。

Developed countries emphasize on the production,process and salesmen`s action in promoting quality safety of agriculture production.They put forward SCM from seeds to sale overall procedures by the aid of core node organization.Us is one of the country who pay more attention of quality safety of agriculture production and has more perfect test system.They implement all range safety controls from origin to desk to food and process system.By the method of SCM make the food safety and SC integration united,then it help to shape effective food safe incentive to node organization,among them the supermarket and process enterprises are main.Seen from our node organization in agriculture supply chain,the the supermarket and process enterprises has been of advantage to be core enterprise,but there are a lot of small sized farmers in the downstream of SM,and it made the transaction and control cost high.So cooperative help assure reducing transaction cost between enterprises and farmers and also help sustainable steady of SC.In our country,the mode of 'leading enterprise+cooperative+farmers' and 'supermarket+cooperative+farmers' have gained better performances in raising food safety.

(3)Cooperatives can help government implement inspection and management

The agriculture production quality safety system mainly consist of central and local government department. Owing to safeguarding agriculture production quality safety is a public good, the government has advantage in it.but now the construction of our quality safety system is deficient, for example law system is not perfect, the test standard is not uniform,the power of enforcing the law is not strong, the test method is out of date and the government test department is short of communication and so on. At the present, Food quality safety only depending on government is not enough, it also need to depend on other power such as trade association and cooperative and so on.In other countries,most standards of agriculture production is drawn by trade association except some mandatory standards involved with human life safety. There about 400 trade associations have involved in US. Agriculture cooperative have taken great role in formulating test standard and protect the local trade.for example.the Jiangshan bee association in Zhejiang Province built the mode of 'association+cooperative+cooperation ally'.the association drew a series of bee production standards being line with international norms,that is 'seed bee','feed management','decease prevention and cure','high quality bee production','queen bee milk production and quality"and so on.The association also drew two national lever standard ,they are 'national lever non pollution bee production claim'and 'national lever non pollution bee production field environment claim'.They construct a standard technique extension net, and built work tragic being cooperatives as important technique extension department and association taking charge of ordinary work.The association also authorize bee cooperation enforce inspection and test function.

4. Performances of agriculture cooperative in safeguarding food quality safety

In practice,many cooperatives have made large performances in sustaining quality safety of agriculture product,raising farmers`income and promoting market competition power and so on, which are realized through standardized production, production classification,packing,brand sale and quality traceability and so on.

(1)Controlling and Sustaining quality safety of agriculture production effctively

In essence,the benefits of cooperative and farmers is closely interrelated,so cooperative will build restrict and incentive mechanism to assure quality safety of farmers`production.Diary cooperative in Us has its own test staff and instrument,it test milk sample summitted by farmers everyday,if one of sample can not reach the standard,then

the farmers have to compensate others' losses. This kind of losses is very large, so the farmers have to clean cattle pen and milk equipment and test consciously, then the milk's safety can be proved.

Yufahui production and sale special cooperative was built in Aug 2007 in Peking, and it built long term cooperation relationship with WAL-MART. They adopt the method of farmers Archives to safeguard quality safety. When farmers turn in fruits to the cooperative, the cooperative will write farmers information on a note (including quantity and quality of fruits). Once any cases were happen, the responsibility can be traced to some one. Because of the severe management, they had never happened quality safety cases during the time of cooperating with WAL-MART. Guoyuan ren (2008) investigated the performance of rural cooperatives in controlling agriculture production quality safety Jiaying city in Zhejiang province, the outcomes show that the sampling inspection qualification of livestock, Aquatic Products, vegetable and live pigs are 91%, 100%, 97.5%, 99.2% respectively in 2005, but cooperatives' are all 100% qualified. The data are 99.2%, 92.2%, 99% and 95% in 2007, and the cooperatives' are still 100% qualified. This shows that cooperatives' function on controlling agriculture production is effective.

(2) Raising farmers' income

The cooperatives organize the farmers through land and fund cooperation, which can realize scale management to lower the production cost, then farmers can gain more horizontal integrated incomes. The cooperative also raise the quality safety of agriculture production through standardized production, which can make them form a steady confederacy with process enterprises and retail terminal, then the farmers can gain vertical integrated benefits. After implementing mode of 'corporation+farmers', 'corporation+cattle farm+farmers', 'cooperation+standardized cattle farm', Yili group created a mode of 'Corporation+cooperatives+farmers' in 2008, and built dairy cooperative consisted by cattle farmers, government management department and milk station operators. The cooperative supply technique consultation, funds coordination, technique diffuse publicity and disease control to farmers, and it also implement uniform milk collection, test and sale. The cooperative reduce the transaction cost between Yili group and farmers, and the milk quality safety can be proved. The cooperative can get some benefits from cooperation, such as milk sale return and feeds sale return. The cooperative can gain 150 yuan per ton feeds sale return subsidy purchased from Yili group, and gain 150 yuan per ton milk sale return sell to Yili group. If the cooperatives adopt machine squeezing milk, they can enjoy extra 50 yuan subsidy. While farmers can get price perfection incomes and dividend payments, compared with not joining cooperative, every cattle can raise 400 yuan incomes. Then a double win outcomes is shaped.

(3) Promoting market competition power

Agriculture production is food, and have features of experience and credit good. It explain the brand management and sale strategy is very important to market development of agriculture production. Cooperatives can achieve competition advantages in domestic and international market through brand publication and differentiated production. Lanfeng Phaseolus Angularis Cooperatives (located Qitaiheng city in Heilongjiang province) registered 'Lanbaohong' brand in Jun 2000, then got US OCI qualified certificate and green label in 2001. All these strengthen its competition power in market and raise its production sale to Japan and Korea. Tonglin fruit and vegetable cooperatives (located Linhan city in Zhejiang province) adopted sale strategy of 'classification collection and packing sale'. In view of consumers more like small oranges, the cooperative classified the oranges to five big category and 15 small norms according to diameter, shape, color, light and clean degree, sugar content of oranges, and every norm had its own price. If diameter of oranges greater than 8 kilometer, they will be refused by cooperative. Not only cooperative pay attention to uniform standards, but also to the packing quality emphasizing ecological and healthy features. This strategy make their profits raise 30% percent.

5. conclusions and suggestions

The agricultural cooperative is an effective carrier to undertake the responsibility of controlling the agri-food quality safety, and it can be an effective actor organization in agri-food SCM, and it also can be an important organization form helping government carry out agriculture production quality inspection and management. In China, the agriculture cooperatives achieved large performance in controlling and safeguarding food safety, raising

farmers income and promoting market competition power.

But cooperatives' development just began, and it only has more than 20 years history in China. Its organization mechanism construction is not perfect, and its function on promoting quality safety of agriculture production has not developed entirely. So some works should be done to perfect it.

First, strengthening mechanism construction. That is building rational benefits-distribution mechanism, making farmers' cost of production quality safety tightly connect with their incomes, strengthening their consciousness in controlling food safety.

Second, increasing training. That is making farmers know about the importance of market information and consumers to the agriculture production except technique knowledge. Developing various knowledge training about food quality safety and helping farmers built safe production consciousness.

Third, promoting its cooperation with other organizations. the agriculture SCM is an effective method to assure food safety, cooperatives should actively connect with process enterprises and supermarket. To assure the stead and feasibility of cooperation, on one hand, the cooperatives should build management ideas of "quality first, credit best", on the other hand they should strengthen organization construction and management to implement scalization and standardization.

Reference:

- Hobbs, J.E. A transaction cost analysis of quality, traceability and animal welfare issues in UK beef retailing, *British Food Journal*[J], 1996,(6)
- Hobbs, J.E., and L.M. Young. 2001. *Vertical Linkages in Agri-Food Supply Chains in Canada and the United States*. Ottawa: Agriculture and Agri-Food Canada.
- Jille.hobbs&John spriggs. *Institutional Arrangements And Incentive Structures For Food Safety And Quality Assurance In The Food Chain*[J]. Chapter Prepared For: *Interdisciplinary Food Safety Research*. 1999
- Tingyou yang. 'Developing the cooperatives's priciple function on quality safety of agriculture production'[J]. *Rural Management and Administration* .2009(2) : 26-27.
- Yunshong yin, and yuxi gao. 'The investigation on contract's stead and type between cooperation and farmers'[J]. *Chinese Rural Economy*, 2003(8): 63-67
- Ping zhao. 'The features and inspiration of agriculture production quality safety in Holland to us'[J]. *Agriculture quality standardization*. 2005(3) : 46-48
- Jing zhang, Xinhong fu. Focus on SCM to promote industrial mangament[J]. *Chinese Rural Economy* , 2007(2): 77-80
- Jun ji. 'To assure agriculture production quality safety by the way of industrialization.[J]. *Theory frontier*[J]. 2009(8): 16-17
- Guoyuan ren, and Yongyuan ge. Analysis on Function mechanism of rural cooperative in agriculture quality safety'[J]. *Issues in Agricultural Economy* 2008(9):61-64