

# Study on the Impacts of Japanese Positive List System on the Chinese Frozen Vegetable Exportation

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**Abstract:** This paper mainly studies the Japanese policy, especially the Positive List System and Health Quarantine System, on the Chinese agricultural products exports, taking the frozen vegetable for example. The authors carry out studies on the related policies, consider the non-policy factors, making comparative analysis among the three countries: China, the USA and Thailand, utilizing trade gravity model. Finally the authors present suggestions to the breaking of the trade barriers.

**Keywords:** Green trade barrier; Japanese positive list system; Frozen vegetable export; Gravity model; Agricultural product trade

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## 1. Introduction

Because Japan is close to China, it is convenient to fresh transport, and Japan has large demand for agricultural products import. Japan has been the biggest market of Chinese agricultural product export. From 2004-2006, China is exporting more agricultural product, but in 2007 and 2008, the amount of agricultural products exporting declined. The reason behind is, Chinese agricultural product exporting was affected by Japan's positive list system in 2006. After 2009, the exporting amount rose to former level. Frozen vegetables, as a branch of vegetable agricultural product, from 2004 to 2014, took up 7.29% agricultural product import weight of Japan on average, while the inferior weight took up 12.09%. Though the portion of frozen vegetables is not big, the inferior of frozen vegetables ranked the second. These years, Chinese agricultural product and food is affected by a series of quality safety events (example: "poison dumplings", McDonald's used rotted chicken of Shanghai Fuxi), Japan shows less trust in Chinese agricultural product. Thus, Japanese government department and enterprises set up stricter quality control examination criteria. Japan examined 20% of Chinese agricultural product in 2009 and 2010.

## 2. Japanese Examination Policy of Import Food

Japan has strict rules and sophisticated policies for agricultural products and food import. In order to specify the effect of green trade barrier to Chinese agricultural products, we will introduce two strong-related policies to agricultural products export.

Positive List System is a new system in Japan to reinforce management of chemical leftover in foods. The Positive List System's greatest influence on agricultural products export of China is "homogeneous criteria". This "criteria" set an widely-applying amount of maximum leftover under 0.01 ppm in over 700 types of pesticides, animal drugs and feed additives. But international acknowledged measure is on the basis of toxicology evaluation, taking "acceptable daily intake (ADI)" and "Good Agricultural Practices (GAP)" into consideration to make different pesticide leftover criteria. Different pesticides have different ADI; different food has different contributions to ADI with different pesticides exposure amount and safety risks. Japan made homogeneous criteria for various foods is not according with present international acknowledged principle, as well as not conforming to actual application condition. The criteria, whose conduction seriously worsens regular agricultural products, trade be-

tween China and Japan.

Concluded from The Risk Evaluation Report on Chinese agricultural products export to Japan, Chinese export in meat, vegetables, fruits and processed fruits, aquatic product, edible mushrooms, tea and grains are the strongest influenced categories. In 2014, large amount of China-produced food was detained, returned or destroyed by Japan for not according with "Positive List". There were 202 batches; up to 1788 tons China-produced food was detained. The amount of Chinese agricultural products export which was inferior ranked the first among all agricultural products exported to Japan.

### 3. Chinese Frozen Vegetables Export Analysis

Frozen vegetables is a kind of frozen food. (like broccoli, spinach and soybean) After selecting, cutting out inapplicable parts, cleaning and boiling, they are frozen in packages. This processing method makes water in vegetables quickly crystallize in tiny and systematic water drops but it does not destruct vegetables tissue. Because of frozen process, germs cannot survive. Comparing with fresh vegetables, frozen vegetables can be stored for long time and keep good quality.

#### 3.1 Regulations on Frozen Vegetables

The reason for frozen vegetables pesticide leftover examination, reported by Renmin Net.com, that Japan decided to list exporting frozen vegetables to pesticide leftover examination scale on March 20th, 2002. Ministry of Health, Labor and Welfare pointed out that frozen food belongs to processing food, it does not have a pesticide leftover criteria like fresh vegetables, so frozen vegetables are listed out of the examination list previously. Besides, many of frozen vegetables get packed only after boiling; it is not sure whether these products can meet sanitation criteria, nonetheless, Japan decided to make examinations on them in quarantine office. The examination targets at spinach, taro and green soy bean that manufacturers boils them once and then pack them, including 18 types of products. Ministry of Health, Labor and Welfare also claimed that if they are only boiled once, products above can be qualified to pass fresh vegetables pesticide leftover criteria, according to food hygiene law, frozen vegetables should be examined as fresh vegetables.

Concern about frozen vegetables storage temperature, out of long-term storage safety, food hygiene law rules that frozen vegetables should be kept under -15 °C. To reserve good quality, AS law ruled that frozen vegetables should be kept under -18 °C. Codex Alimentarius (CAC) issued 'Fast frozen food chemical process and production

international applicable criteria' in 1976 mentioned that frozen vegetables should be stored under -18 °C. Most frozen vegetables have an expiration date in 1 year to 2 years.

Seeing from selective content, mainly including pesticide leftover, transgenosis, colibacillus and germ quantity. Referring to statistics of April -December, 2015 and November-March, 2016, coli bacillus exceeding shows the most probability, it was 12 times. Pesticide leftover ranks the second, and the most serious one is difenoconazole leftover, for 5 times. Germ exceeding occurred 3 times and transgenosis papaya utilization for once. Judging from reasons collection, colibacillus exceeding mostly contributes to bad sanitation condition, severe pollution and non-periodical cleaning of equipment or production staff that have bad sanitation standard. Contamination in packaging process is one of the reasons of colibacillus and germs infection. Pesticide leftover is for pesticide floating pollution of the nearby farmland, which indicates that farmland is near to other farmland and nonstandard pesticide application in nearby farmlands.

**Table 1.** Inferior Reason of Frozen Vegetables in April, 2015-March, 2016

Inferior reason	Inferior events
Bad sanitation management	6
Packing process pollution	3
Nearby environment contamination	8

Source: Inferior Events Monthly Summary of Japanese Ministry of Health, Labor and Welfare

**Table 2.** Pesticide Leftover of Frozen vegetables in April, 2015-March, 2016

Examination content		Inferior event
Pesticide leftover	Difenoconazole	5
	Thiamethoxam	2
	Haloxypop	1
	Triazophos	1
Colibacillus	Colibacillus	12
Transgenosis	Transgenosis	1
Germ quantity	Germ quantity	3

Source: Inferior Events Monthly Summary of Japanese Ministry of Health, Labor and Welfare

Non-Policy Factors of Chinese Frozen Vegetables Export:

Shandong Province keeps the largest exporter title to Japan in all export areas, totally exporting frozen vegetables to Japan for 27,992 tons, which created 29,85 million dollars export volume, showed an increase of 2%. Zhejiang and Fujian ranked the second.

Analyzing by export types, in reference for study results published by agriculture and stock farming boosting organization, China mainly export frozen soybean, frozen spinach, frozen taro and frozen broccoli. Because of the integration of frozen vegetables export provinces, if Shandong Province, as a big exporter, encounters with very bad weather or get severe contamination of water and soil, will make fatal collapse of the total export of China.

Frozen vegetables declined after frozen spinach pesticide leftover, luckily, with a series of negotiation and field work, the situation is much better. Ample harvest and inexpensive price have effect on export in some way, export exhibit a trend of rising. Under the influence of positive list system and planting base record and supervision system changes made by State general administration of quality supervision, inspection and quarantine(CIQ), domestic frozen vegetables has better quality.

Affected by a great many of negative events of quality, China and Japan reach a agreement. China-produced and export raw materials of frozen potherb to Japan should come from authorized farms of CIQ or contracted farms. On the other hand, depreciation of Yens and Increasing cost of Chinese manufacturing industry, and export price climbing also effect export in recent years. Some enterprises produced with higher cost but did not raise selling price, while some enterprises cut down their cost by cooperating with Japanese demanders, they improve the degree of mechanization in factories to gain better efficiency. Concluded from collected data and the study of Li Xiaozhong, the economy crisis in 2008 impacted frozen vegetables export as well.

### 3.2 Frozen Vegetables Export Analysis

Having a glance at export volume pie chart, China is the main frozen vegetables import source of Japan. The export volume from China to Japan took up half of the world export to Japan. The followers are the USA (13.08%), Thailand (8.33%), New Zealand (4.64%).Product trade database of the UN analyzed that other countries hold their export volume at 1% or under, which manifests that Japan widely import frozen vegetables from all parts of the world. Not only promotes vegetables abundance, but also reduces negative factors risk like national policy and environment contamination of frozen vegetables import, they had given us a nice example. However, if Japan changes frozen vegetables import policy, there will be a universal effect on international frozen vegetables industry, such as positive list system policy will increase export cost of other countries when they export frozen vegetables.

### 3.3 Problems in Chinese Frozen Vegetables Export

#### 3.3.1 Chinese Exporters are Insensitive to Japanese Policy Changes

After analysis above, every change in Japanese frozen vegetables policy made great impact on Chinese export, and the negative effect has longer duration of other countries (always above 2 years) , however , policy change has slight effect on other countries. China got little preparation of policy change and response to these changes slowly.

#### 3.3.2 China is under Political Suppress of Japanese Government Policy

From the line chart of export volume, frozen vegetable export volume has reached a top and then a big dive. It is very likely that Japanese government change policy on purpose of suppressing Chinese frozen vegetables export increasing. According to examination condition of China , the USA and Thailand, Japan set very unfair examination proportion of China. Besides, Japan is very sensitive to Chinese inferior agriculture products news, in 2008, China occurred poison dumplings events, Japan raised China-produced frozen vegetables examination rate greatly increased (from 26% to 40%). World Journal of Thailand reported that the European Union banned to import vegetables from Thailand on 1st, February, 2011, because of Thailand vegetables has pests. At the same time, Japanese government did not intensify examination on Thailand produced frozen vegetables. Under this condition, He Xiurong and Chen Yongfu thought that the direct blasting fuse of trade disputes between China and Japan is lack of competitiveness. Their study mentioned that the cost differentiation gap, Japanese agriculture policy and internal factors and exploding Chinese vegetables export and Chinese marketization are the long-term factors of vegetables trade dispute between Japan and China.

## 4. Advice for China

### 4.1 China Should Reinforce Publication of All Alarming Information

Concluded from Analysis above, China has low ability to face Japanese policies and regulations, with weak acceptance of Positive List System. Japan quickly updates policies and regulations on pesticide leftover and food additive, and China should collect and summarize relevant messages on time and inform of relative departments. China could learn from examples of Japanese agriculture and stock farming promotion organization (AUC) and Japanese frozen food association (JFFA), utilizing industry association as messages conduction center, to

diffuse alarming information to each industry association. Industry associations would remind involved food export enterprises, which have better communication to foreign demander, dealing with changes as early as possible.

Associations in China are China Chamber of Commerce for Import & Export of Foodstuffs mainly. Looking through the front page of this chamber we found that, at some extent, they expose export and import policy changes all the time, publicizing export and import quantity and total amount as well as foreign cooperation opportunities each month. However, if you want to glance at market analysis and export and import trend graph, you need to register as a member. Chinese associations pay more attention on commercial information spreading; Comparing with AUC and JFFA, Chinese association lacks district market dynamics, all types of vegetable production location information and direction on domestic agriculture production. In addition, China Chamber of Commerce for Import & Export of Foodstuffs gathers articles on food analysis in universities and hospitals, including health, consumption, category and the newest information in technology, provide academic support.

#### **4.2 Sign up Mutual Trade Agreement, Boost Chinese and Japanese Food Safety**

Japan shows little trust in Chinese vegetables export, examining large portion of Chinese products. Strengthening communication and promoting investigation will increase the acceptance of Chinese exporting vegetables of Japanese government and citizens. On May, 2010, Chinese and Japanese officials signed "Japan's health ministry and the state administration of quality supervision, inspection and quarantine of the People's Republic of China for the food safety promotion action memo". Since June, 2010, China and Japan held Ministry chief level meetings each year to communicate and investigate every aspect of their operation, removed intensifying examination order of some food. On 20th, July in 2006, the ministry of agriculture, the ministry of commerce and the general administration of quality control of China had a special meeting in Beijing to discuss the new trade obstacles that exporting laver met from China to Japan. For over a half year of negotiation, Japanese government abolished autonomous-examination of Chinese exporting laver on 16th, November, 2016, reducing prometryn leftover criteria from 0.01 ppm to 0.14-0.19 ppm, which cleared the block of large amount laver export of China.

Japan has low rate of agriculture self-sufficiency, and China is a giant of agriculture, it is mutual-beneficial to develop agriculture trade relationship between the two countries. China should communicate more with Japan,

giving suggestions on making up agricultural product examination criteria. Advising and negotiating for unreasonable examination portion and quality control criteria had made stable foundation for Chinese agricultural product export.

#### **4.3 Maintain Sanitation Management, Control Food Origin**

Frozen vegetables produced by China was destroyed and returned mostly for sanitation problems. Enterprises should control material resources that they should not utilize inferior or contaminated materials. Also, they should reinforce control of processing, preventing employees infected by colibacillus due to operating errors. Besides, enterprises can avoid hidden danger of management system with many ways, like printing processing staff number on packages, stricter rules for processing sanitation, processing staff health regulation, training processing staff and controlling on food additives and pesticide.

#### **4.4 Enhance Quality Control, Optimize Handle System**

In reference of examination reason given by the Ministry of Health, Labor and Welfare of Japan, pesticide problem of Chinese frozen vegetables should be attributed to floating contamination of farmland in the vicinity. Enterprises can construct some reservation devices that are close to this farmland in order to avoid pollution of nearby farmland. In China, human-operating shoulder sprayers are used to spray pesticides, which attach a hidden flaw that human operation could be inappropriate. Enterprises need to enhance training in pesticide spray to decrease pollution of nearby farmland. Enterprises involved should also intensify the capability of quality control, adding expense for examination as well as making exporting product quality check according to regulation and criteria, and, to guarantee exporting product meeting the requirements of importing country. Further, they can seek information or technology help of third-party examination organization and Entry-exit inspection and quarantine department, consulting and acquiring the latest examination criteria. If so, enterprises may deduce inevitable loss.

#### **4.5 Raise Agricultural Technology Research Fund, Promote Agricultural Technology Progress**

To flourish agriculture technology and to boost agriculture technology progress are the best actions to break up green trade barrier. Chinese agriculture products exporting to Japan keeps a high inferior rate (inferior amount/total inferior amount), which remind China of improving production technique and moderating pesticide application. To accomplish the goal, China must strengthen agriculture study degree. Enterprises which exports frozen vegetables

are mostly in middle-size, but their profitability depends that they cannot develop agriculture technology individually. Therefore, government should establish agriculture technology study team, and applies the results on assisting enterprises in improving agriculture technique, moderating agriculture drug utilization and deduce examination cost. It is not only beneficial to frozen vegetables export, but also does good to export on the whole. At present, Chinese agriculture technology input takes up about 0.49% of agriculture GDP of China. China still has to provide financial support for agriculture technology study when compares to 1% worldwide average and 2% developed countries average.

#### 4.6 Government Makes Assistant Policies, Lift Enterprises Export Rate

Governments could offer agriculture technology support and information support of relative export enterprises. In Fuxin, Liaoning province, the Inspection and Quarantine Bureau successfully helped Jinlilong Food Limited Corporation, Fuxin export frozen pumpkin and bean to Japan. It was the first time export of frozen vegetables produced in Fuxin. Fuxin Bureau voluntarily assists enterprise of knowing examination criteria, guiding enterprise to build up wide-range examination, raw material check, and production control and final-product examination system gradually. Also, the Bureau assisted enterprise did well in food export enterprise record and raw material farming base record, making risk analysis of frozen vegetables exporting to Japan. This is a nice example of government assisting enterprise in export, given valuable experience for other district frozen vegetables export. China plans to improve high-quality farmland construction to boom multiple production ability in the twelfth 5-year blueprint. The national finance invested 1211.51 billion RMB in land governance programs, mainly utilizing in reconstruct farmland and make high-quality farmland. Farmland quality promotion is good to agriculture product quality improvement. Enterprises should actively make use of government policy to have more frozen vegetables export.

Promoted agricultural technology level and optimized regulations cannot be attained in a night. Better communication and comprehension and more reasonable food safety control criteria will be greatly beneficial to trade cooperation and culture and economy exchange between China and Japan.

### 5. Conclusions

Japan has insufficient agriculture supply, they must de-

pend on import. China is the closest big country to Japan with ample agriculture resources and various types, which should be one of the best choices to import agriculture products to Japan. Chinese agriculture products export still has many problems. Chinese agriculture staff has relatively lower ability, lower-level of pesticide application understanding and bad production sanitation, which lack a scientific and efficient management method. China invested relatively less money in agriculture, so it cannot go much further. Chinese agriculture products have difficulty in meeting high-level green quality control criteria, nevertheless, China stays in passive position to deal with green trade barrier.

To breakup Japanese green trade barrier, we need joint effort of government, industry association and enterprises. At present, government has weak ability in spreading policy, though every department publicize alarming information obeying the law, enterprises information still not the newest sometimes. Chinese industry association mostly dedicated in oversea negotiation, but did minor in assistance of technique promotion, industry and market dynamic information of enterprises. Industry association should provide technique messages to help enterprises adjusting to high green criteria, providing technology support and information-spreading service as well. Export enterprises has many problems which made them have difficulty in tackle high-criteria green trade barrier such as bad sanitation, pesticide abuse and low agriculture study degree. Government should enhance mutual trade barrier negotiation to push trade cooperation, helping enterprises standardizing pesticide utilization and intensifying sanitation inspection.

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