Study on Environmental and Health Requirements, Market Access/Entry and Export Competitiveness in the Horticulture Sector in China

ABSRACT

Nowadays the export trade of Chinese horticulture products has a promising future and a large room to increase its share in the international markets due to good natural resources, rich low-valued labor resources and lower producing costs in China. But there is still a long way for China to make it become true. Because there are many difficulties, such as: (1) the environment/health requirements of importing countries and regions are becoming strict and tough, what is more, the requirements usually become stricter and stricter with their increasing import from China due to the trade protectionism, (2) it is very hard for Chinese producers, most of them are small and medium-sized enterprises, to meet the technical barriers to trade from international markets, and finally (3) it is imperfect of the legislation and standard construction and lack of effective national pre-warning message system for the horticulture sector. In order to overcome these difficulties, Chinese government must (1) further improve the domestically standard system and participate in the international standards constitution actively, (2) actively push the standardized production of horticulture products, (3) establish the national emergency meeting system for the foreign trade of horticulture products, (4) promote the technology renovation of the green horticulture products, and finally (5) strengthen the government support for the green horticulture industry.

1 INTRODUCTION

1.1 Background (significance of the study)

The horticulture production of China has rapidly developed since Chinese reform and opening-up policies in 1978, especially since the middle of 1980's. Now, horticulture industry has become one of the key industries in Chinese agriculture economy. In 2000, the cultivated area of fruits, vegetables and flowers saw the first place of the world. The output of fruits is 62 million tons, accounting for 15% of the total output of the world. Among the fruits, apples and pears stand the first place, accounting for 32% and 45% of the total output of the world respectively. The total output value of horticulture industry is 380 billion RMB, accounting for more than 27% of the total output of the agriculture industry. The export value of horticulture product is up to 3.9 billion US$, accounting for quarter of the total export value of the agriculture products. Its trade surplus

is 3.26 billion US$, accounting for 74% of the total trade surplus of the agriculture products (Jiao Hong, 2001)

At present, Chinese horticulture products take remarkable advantages of the price and cost in international market. The prices of Chinese fruits, vegetables and flowers are about equal to 1/8 or 1/5 of the international market prices. The costs of Chinese horticulture products are far lower than foreign countries. For example, the total cost of vegetable producing composes 20% of the Japan, the labor cost 15% that of Japan, the cost of oranges producing making up 1/5 of U.S. or 1/20 of Japan. With the further separate on producing and consumption, the producing of horticulture products will transfer from high cost developed countries to developing countries which have better natural resources, rich labor resources and lower producing cost. In contrast, due to higher labor cost in developed countries like Japan, U.S. and France, the competitiveness of horticulture industry of these countries is weakening. In this case, China will stand-in for a long-term because of rich labor resources and lower labor cost.

Meanwhile, the advantage of location and market potentiality will bring China horticulture industry a new and large room to develop. Japan, Korea, Russia and Southeast Asia will become the key export markets of Chinese horticulture products because of short distance and similar consumptive customs. The trade cooperation with G-10 of ASEON will provide new wider market room to export of Chinese horticulture products also. According to some related data, the world trade quantities of the vegetables and fruits are 38 million tons and 45 million tons respectively in 2000, accounting for total world output 6% and 10% respectively. The Chinese products of vegetables and fruits compose 40% and 15% of the total world quantities respectively, while the export quantities make up only 9% and 2.8% of the total world trade quantities respectively. So there is still a large room to promote the export proportion for Chinese horticulture products.

Obviously, there is a promising future for the export markets of the Chinese horticulture sector. But, the export markets for the sector are still influenced by some other important factors, such as tariffs, and environmental/health requirements in export markets (EHREMs). With China's accession to WTO, the EHREMs are becoming more and more important while the tariffs are becoming less and less. So, to meet EHREMs is a key for the horticulture sector to make the promising future become a truth.

1.2 Scope of the study

The study focuses on 3 industries of horticulture sector: fruits, vegetables and flowers. We mainly analyze 4 key export markets: EU, USA, Japan, and Southeast Asia.

1.3 Objectives of the Study

The general objective of the study is to analyze the EHREMs and to build the institutional capacity to meet EHREMs in Chinese horticulture sector. Specifically, it includes:

1. Identification of environmental/health requirements in 4 key export markets.

The study identifies the environmental and health requirements in 4 key export markets and for each market the environmental and health requirements are analyzed for each horticulture sector.

2. Awareness on the issues and effectiveness of information management.

The study reports on the level of awareness of national producers, in particular of small and medium-sized enterprises (SMEs), on environment and health requirements in key export markets.

Moreover, the study identifies which are the existing mechanisms (such as national enquiry points) for the gathering, processing and dissemination of information on new and forthcoming environmental and health requirements in key export markets and analyzing the level of efficiency effectiveness of such mechanisms. In particular, report if there are any national or sub-regional early warning systems.

3. Current adjustment approach.

The study analyzes the current adjustment approach, describing what action is taken to respond to environmental and health requirements in key export markets.

4. Elements of a pro-active approach and the need for institutional capacity building.

The study underlines which are elements of a pro-active approach in the national adjustment strategies to environmental and health requirements in international markets. In particular analysis the experience with regard to national standard setting, implementation of foreign standards and compliance assessment procedures (including opportunities for harmonization of national standards with standards in export markets) and the possibilities of regional co-operation in this regard.

The analysis also reviews active participation in (□) pre-standard-setting consultations in export markets and (□) international standard setting for the sector in exam.

Furthermore, the study reports on (□) whether the potential effect of environmental measures taken by developed countries is assessed and how; and on (□) adjustment strategies aimed at reducing adjustment costs and harnessing developmental benefits of higher environmental requirements (e.g. improved economic efficiency and export competitiveness).

The study also identifies which are the areas where institutional capacity building is needed in order to design and implement pro-active adjustment policies to environmental requirements in key export markets.

1.4 Methodology of the Study

The study uses the methodologies of documentation and case-study with field survey.

1. Documentation

We collect and analyze the laws and regulations on agricultural products trade, standards of environmental and health requirements, and other relevant data through publications and internet. All data of the 4 key export markets and domestic markets will be collected.

2. Case-study with field survey

The field survey is done through the use of in-depth, in-person interviews. The people interviewed, both in local study cases and at the national level, include 7 producers, 8 officials of various levels of governments. An interview guide is developed and used to ensure that the interviews are systematic and focused enough to cover relevant and comparable information. The questions are open-ended. Through analyzing the data from the survey, we could analyze (1) the responses of producers and the needs on services and supports from governments; (2) the information management and services provided by the governments and the governments' responses to the standards of the export markets.

1.5 Organization of the Paper

The following sector is a general description of the export trade of Chinese horticulture products, mainly including vegetables, fruits, and flowers, with special emphasis on the 4 export markets of EU, US, Japan and Southeast Asia. Sector 3 analyzes the environment/health requirements for horticulture products in the 4 key export markets. Sector 4 presents the cognition and counter-measures of Chinese producers to the environment/health requirements underlying case studies with field survey. Sector 5 presents and assesses the current counter-measures of Chinese

government. Sector 6 gives the recommendations for pro-active approach establishing and institutional capacity building in Chinese horticulture sector.

2. THE GENERAL SITUATION OF CHINESE HORTICULTURE PRODUCTS EXPORT TRADE

2.1 The export trade situation of three main horticulture products

The vegetables product is one of the most important horticulture products and China is the country with large-scale quantity on producing, consumption and trade of vegetables. According to the data from authority department, the countries and regions which import the Chinese vegetables over 0.1 million tons are 7 countries in Asia, including Japan, Hong Kong, Indonesia, Malaysia, Korea, Singapore, Vietnam; 4 countries in Europe (Russia, Italy, Holland and Germany); 1 country in America (U.S.A) (Zhang Zhenhe, 2004). In 2002, total export quantity to these markets is 3.6275 million tons, the total trade value is 2.131 billion US$, an increase of 12.17% year-on-year (Y-O-Y).

The fruits product has the best perspective among the Chinese export products. Generally speaking, Chinese export fruits, including freezing fresh fruits, fruit juice, canned fruit and other kind of processed fruits, have preferably export trend; from the view of objective market, the development of export trade to U.S., Russia and Southeast increased rapidly. Table 1 shows the export situation of fruits in the first half of the year 2003.

Table 1 The statistics of fruits export in the first half of the year 2003

Market	Export (10^4 tons)	Increasing Y-O-Y (%)	Ratio to the total output of China (%)	Export value (10^9, $)	Ratio to the total export value of China (%)
U.S.	15 .47	75.33%	15.1%	1.05	8.49%
Japan	11.97	8.93%	11.7%	1.07	8.31%
Russia	10.7	36. 35%	10%	0.42	6.37%
Hong Kong	10.7	54.46%	10%	0.25	3.9%

At present, the fruits trade between China and ASEON is going fast and both quantity and value of fruits export show a steadily increasing trend. The quantity of export fruits to ASEON is up to 279,100 tons, accounting for 27.23% of total export quantity of China, an increase of 29.29% Y-O-Y; the value of export fruits is 920 million US$, accounting for 18.1% of total export value of China , an increase of 32.13%Y-O-Y. Among the member countries of ASEON, the largest export value is Malaysia or Vietnam, then Singapore, Indonesia, Philippines, Thailand, Burma and

so on. As for the species of export fruits are mainly Chinese traditional staple one, but the quantity of processed fruit products is going rapidly. The top three places of export fruits are fresh apples, apple juice and canned citrus fruits.

The cultivated area of Chinese flowers composes 1/3 of total cultivated area of the world, but the quantity of the flowers export is extremely small and a slowing increase. Since 1996, the total export value is holding about 80 million US$, under 1‰ of the total world trade value (about 100 billion US$) of flowers. Furthermore, the export trade of some kinds of Chinese traditional flowers is decreasing. The export value of bonsai flowers of Guangdong province declined from more than 6 million US$ in 1994 to 3.9 million US$ in 1998. The export bonsai flowers quantity of Jiangsu province declined from 150,000 basins of bonsai in 1994 to 60,000 basins of bonsai in 1998. Up to 2002, Chinese flowers export began to increase slightly and the export value reached over 100 million US$, an increase of over 20% Y-O-Y. Chinese export flower products mainly include original Chinese famous flowers, like peony, orchid, asphodel, lotus, and some bonsai flowers and dooryard afforesting species, such as red maple and bamboo. In recent years some fresh flowers, shoots, leaves, dry followers and seedling are added. Among them, homemade bonsai are mainly exported to Europe and fresh flowers mainly exported to Japan or Southeast Asia countries and regions. Although the export quantity of Chinese flowers is small and increase slowly, Chinese flower industry meet highly speed development period and the industry have large development potential with China entering the WTO.

2.2 Analysis on main export markets

Among the trade of horticulture products, every market is different due to countries and regions with different habits and customs. Following, 4 main Chinese horticulture export markets will be analyzed.

(1) EU market

EU is an important market to produce and sale world agriculture products and the quantity of producing and selling horticulture products is always on the top list of the world. According to the data of the import quantity and trade value of EU horticulture products (see table 2), in recent years, the trade quantity of export vegetables between China and member countries of EU is larger scale, accounting for 7% of total import value of EU, while both the import quantity and species of fruits and flowers account for very small scale. EU trade partners of fruits are Lome Convention countries. About the trade of flowers, 90% of flowers are produced in Holland, a EU member, and EU main partners of flowers trade include Israel, Colombia, Ecuador, Kenya, Zimbabwe and Thailand. The trend of import flowers from countries out of EU is decreasing.

Table 2 The import quantity and trade value of EU horticulture products (1999)

Products	Total import quantity （10^4tons）	Total import value（10^9, €）	Main species of import	Total import value from China (10^4, €)	% of total import value from China to total EU import value	Main import species from China
Vegetables	689.97	24.52	Cauliflower, tomato, cucumber	18000	7	Freezing & drying vegetables, like canned asparagus, drying pod, garlic, ketchup etc.
fruits	891.4	78.21	Apples, oranges, bananas etc.	4944.4	0.6	Dried fruit, nuts
flowers		5.40	Rose, carnation, tropical flowers	1300	2.4	Potted plant, viewing plant

(2) US market

US is a main country which produces or consumes and import the horticultural products of the world. In recent years, with lasting economic growth, consumption demand in US is very high, so the quantity of import of horticultural products has extremely increased. But at present, only several of Chinese horticultural products, such as canned oranges, freezing strawberry, jujube and celery, have gained a certain market share in US.

According to the data from Overseas Produce Serving Bureau of Agriculture Department, USA, in 2001, the canned orange export from China to US accounted for 63% of total quantity of import of US, an increase of 8% Y-O-Y, on the first place in canned orange export to US. Chinese jujube export to US is at the second place among the sourcing countries of import, next to Pakistan, and got an increase of 51% Y-O-Y, up to 407 tons, 560,000 US$. The Chinese freezing strawberry exported to US ranked in the third place. In 2001, US import freezing strawberry from China up to

343 tons, total value 246,000 US$, slightly less than that in 2000. For vegetables, US only imports few Chinese celery. In 2000, the quantity of Chinese celery export to US is 203 tons, worth 62,000 US$, but no import in 2001.

US is a large consumer of parterre flowers, gardening flowers and pot flowers, but they are mainly self-support. The self-produce of fresh of US is small, but has great number to export and main supply country is Colombia.

(3) Japan market

In 1999, Japanese total import value of agricultural, forest, aquatic products from China is 6.5197 billion US$, among them, the total value of agricultural products is 3.58 billion US dollar. Among the agricultural products, the main horticultural products which Japan import is vegetables that accounted for large percentage of Japan market. According to the statistics of 1999, the total quantity of Chinese vegetables export to Japan is 318,000 tons, accounting for 34.62％ and 30.81 ％ of the quantity and value of Japan imported fresh vegetables respectively. China has no fruits export to the Japan market except litchi and Hami melon from Xin Jiang.

Japan is the largest consumer of flowers in Asia and self-producing mainly. Before the year of 2000, the flower import quantity of Japan was always below 10% accounting for quantity of self-producing. In 21st century, the flowers import began to increase rapidly. In 2001, the import quantity of fresh flowers is up to branches of 1.17 billion, composing 22.5% of the self-producing; the import quantity of bonsai flowers is basins of 50 million, composing 16.1% of the self-producing.

(4) Southeast Asia market

The agriculture industry of Singapore has very small proportion of GDP, so the large number of agricultural products that Singapore needs, including vegetable and fruits etc., depend on supplying from foreign countries. In 1994, Singapore imported vegetable about 410,000 tons, accounting for 89% demand of market (local farm supplying for 11%), worth 60 million US$; imported fruits of 445,000 tons.

Since 1998, China has become the second large import sourcing country of Singapore, next to Malaysia. Chinese vegetables and fruits products compose 20% of Singapore market. The import quantity is growing annually; the source region of import is mainly from South China and North China in recent years. The species of import fruits include apple (red Fuji), orange, pear(duck and fragment pear), litchi, Hami melon, peach, cherry, grape, kiwi and plum; The species of import vegetables include Chinese cabbage, garlic, potato, cabbage, ginger, lotus root, chufa, Chinese

watermelon, bean seedling and greenery vegetable, mainly from South China like Guangdong province. In recent years, Singapore imports from Shandong province too.

According to Malaysia import statistics of horticultural products, Chinese products accounts for a certain share on Malaysia market. The import vegetables from China compose 23% of total import of Malaysia and flowers compose 34%, on the first place comparing with other main import countries.

3 ENVIRONMENTAL/HEALTH REQUIREMENTS IN 4 KEY EXPORT MARKETS

3.1 Environmental/health requirements

（1） EU

In order to guarantee healthy foods, EU committee has issued a series of health rules and requirements with a mandatory nature in the process of production, import and distribution into market. European countries have their own strict standards, while EU has a uniform technical standard. Owing to their prosperous economy and high technical capacity, these countries' technical standards are high and strict. After the development of ten years, EU instructions and technical standards with dual-tier structure have gradually formed. The upper tier is EU instructions with legal validity, and the lower tier includes household techniques and technical standards which manufacturers can choose as they will. Even though the system has effectively eliminated trade obstacles inside EU market, it will frequently cause trade barriers to non-EU countries.

Except garlic and mushroom cans, EU can import other horticulture products from China without license and limitations on amounts. In the aspect of quarantine, a part of SPS, EU pays more attention to performing quarantine on plant products. The main targets are pests and pesticide residues. Therefore, EU has continuously been issuing new rules and regulations to improve precaution levels. Even though the original intention of EU is to protect environment and maintain consumers' health, the policy with high requirements is unavoidably suspected of trade protection. The strictly prohibited organic viruses were enumerated in the annex of EU council instructions on May 8, 2000. As long as one product is confirmed to be infected with any listed virus, it is prohibited from import.

In China, the biggest difficulty in exporting horticulture products to EU market is pesticide residues.

（2） The United States

In the United States, the laws related to horticulture products' health quarantine include *Plant Quarantine Act* and *Federal Plant Insect Pests Act.* Functional departments performing health quarantine include APHIS, FSIS, FDA. Different departments have different focuses. In order to protect domestic animals and plants from attacks by foreign pests in the United States, APHIS takes over the main tasks of animal and plant quarantine, which establishes inspection stations at airports, piers and border sites. According to pertinent federal laws, APHIS has enacted some documents such as *Foreign Plant Quarantine Announce*, as well as rules guiding interrelated horticulture products' import. According to the rules, the import of fruits, vegetables, flowers and trees infected with pests and harmful insects is prohibited in the United States. If imported into America, the products infected with pests should be transported out of the country or be destroyed as soon as possible. For these products that can not be disposed at once, necessary measures should be taken to prevent pests from spread under the approval of APHIS, or else people claiming responsibility for the event will be punished by law. APHIS had a strict requirement upon preventing fruit flies from entering America. *Foreign Plant Quarantine Announce* orders that all fruits and vegetable with the possibility of being infected with fruit flies, from Europe, Asia, Africa, and Latin America, must be well packed, and bear such supplementary documents as production country certificate, or else their imports are prohibited.

If China exports horticulture products into American markets, it should pay more attention to the following American rules of quarantine: (1) rules of chemical residues: highest chemical residues content index of imported products, kinds of chemical residues, usage of additives, admission on wax and so on. (2) rules of technical barriers: rules of product labels, sale seasons, import license and quotas, as well as package materials. FDA, which has strict requirements on plant products, stipulates that for food done with heat treatment and chemical treatment, the labels can not appear the word' fresh' , or else will be prohibited from sale or be confiscated. Since the end of 1998, America requires that the woody package materials of imported goods from China must be attached with china's official quarantine certificate, confirming the materials have been treated with heat, fumigation or preventives. If exporting products without woody package materials, exporters should state no woody package materials in the export form. Goods breaching of rules will be prohibited from entering America in batches, or under the permit of America, the woody package materials should be destroyed on the spot or be sent back to China. (3) rules of quarantine standards and methods, especially Sino-America Horticulture Products Import & Export Quarantine Agreement. (4) rules about plant pests, for example, what pests America strictly prevents from entering the country, how to deal with the horticulture products confirmed infected with pests.

（3） Japan

In Japan, main laws related to importing horticulture products are Plant Quarantine Act, Food Health Act, Drugs Act as well.

□Plant Quarantine

The guideline of Japanese plant quarantine is Plant Quarantine Act. Plant Quarantine Institute, affiliated to Japanese Ministry of Agriculture, Fisheries and Forestry, takes over the task. The institute established 5 headquarters at Yokohama，Moji，Kobe，Naha，Nagoya，respectively. In addition, it also established branches in 14 cities, and designation organizations in 68 cities.
In accordance with related reports of international organizations and academia, Japan makes cognition of plant pests' distribution throughout the world. Then it set down plant quarantine implementation detailed rules, namely the category of names and production places of plants prohibited from import. Host plants and soils for the pests which are not in Japan, from the occurrence country or passing the occurrence country are strictly prohibited from import. Plants and products made of them out of the prohibitory category can enter the country after quarantine. Goods which do not pass quarantine should be disinfected. After two times of quarantine, unqualified goods should be locally destroyed or sent back by the same ships.

□Food Health Quarantine

For most of imported plants are used as food or food materials, in accordance with Food Health Act, after performed quarantine, these goods should be inspected by health quarantine department led by the Ministry of Health, Labor and Welfare. Some materials should be provided to the inspections such as ingredient table and manufacture procedure and so on. The inspection emphases include pesticide residues, preservatives, coloring agents, sweeteners and so forth. Health quarantine is carried from the perspective of human health, while the target of plant quarantine is pests harmful to plants.

Japanese imported food health quarantines include three kinds: mandatory inspection, monitoring inspection and exemption from inspection. Mandatory inspection, namely forcible inspection, refers to inspecting the food susceptible to harmful residues or harmful creature one by one. Monitoring inspection refers to that according to its own plans, in certain period and scope, health quarantine department daily inspects imported foods which need not to be forcibly inspected. The quarantine belongs to survey, which is done at its own expanse. If through monitoring inspection, some prohibited materials are found in some food from one country, the foods of this kind from

the country have to be forcibly inspected afterwards.

□Japanese Agricultural Specifications (JAS)

In July, 1999, Japan revised JAS. The revised JAS required that products' names and original production places should be recorded for imported fresh fruits and vegetables. Processed products should be attached with its name, raw materials, content, manufacturer, quality period, and preservation method.

JAS is an appraisal mark, indicating the product according with Japanese agricultural specifications. Foreign manufacturer or Japanese importer can apply for stamping JAS mark, which is not forcibly stamped. If applying for the mark, foreign manufacturer should apply from their own country's Inspection organization accredited by Japanese Minister of Agriculture, Fisheries and Forestry and must meet the technical demands.

（4） Malaysia

For most of imported horticulture products are those that can not be produced in Malaysia or whose outputs are insufficient, Malaysia adopt zero-tariff or low-tariff policy. It does not levy tariff upon vegetables except some processed prickles or dried vegetables levied 10% tariff. Most of fruits should be levied 5% to 10% tariff or a little import tax except for dry fruits and nutlets exempted from tax. Additionally, flower plants are tax-free.

Except administering quotas of imported cabbage, Malaysia hardly limits numbers of imported horticulture products in any way. Like most countries throughout the world, in order to prevent pests as to ensure domestic consumers' health, Malaysian Government stipulated that in accordance with related rules, mainly Plan Quarantine Act 1976 and Plant Quarantine Regulation 1981, the import of horticulture products must apply for plant quarantine license from plant quarantine department affiliated to Malaysian agricultural ministry. The department set offices at border ports, providing all-day service. Generally speaking, every batch of goods should apply for import quarantine license which will expire after 3 months. The application meeting all demands will be approved in one week. Entry Quarantine requirements will be recorded in the license, providing import countries with reference to performing quarantine. Because there are few pesticide residues in China's products, exported goods from china can easily enter Malaysia with plant quarantine lists by Inspection and Quarantine Bureau of People's Republic of China. Compared with developed countries such as America, Japan, and Europe, Malaysia set less strict requirements on products. Therefore, China should appropriately speed up efforts to export products into Malaysia.

3.2 Analysis of the export environmental/health requirements to 3 industries of horticulture sector

3.2.1 Vegetables

The main environment/health requirements of the vegetables are residue limits of pesticides. Taking some vegetables for example such as garlic, Dutch beans, mushroom, spinach, potato, shallot, etc. and the residue limits of 342 kinds of poisonous and harmful substances, we compare the residue limits of Japan, U.S.A., EU and CAC (Codex Alimentarlus Commission) with that of China. The results are:

(1) There are more items in the standards of such developed countries & regions as EU, Japan, etc. For example of garlic, there are 111 items in EU, 61 items in Japan, but only 37 items in China; of mushroom, there are 111 items in EU, 47 items in Japan, but only 36 items in China.

(2) The limits of such developed countries & regions as EU, Japan, etc. are relatively stricter. For example, in the various residues limits of pesticides of Dutch beans, EU standards have 57 items that the limit is lower than 0. 05mg/kg, in Japan standards there are 7 items that the limit is lower than 0. 05mg/kg and 8 items that should be undetectable, but China standards only have 3 items that the limit is lower than 0. 05mg/kg and 3 items should be undetectable. The limit of cypermethrin in the Dutch beans is 0.1mg/kg in EU, 0.2mg/kg in Japan, while 1 mg/kg in China, differing by 10 times and 5 times respectively; the limit of cypermethrin in scallion is 0.1mg/kg in Japan, 0.2mg/kg in EU, while it is 0.5mg/kg in China, differing by 5 times and 2.5 times separately. The limit of Chlorpyrifor in the spinach is 0.01mg/kg in Japan and 1 mg/kg in China, differing by 100 times.

(3) The standards varied quickly, for example, in Japan, there are no pesticide residue limits of quick-frozen vegetables in the past, only residue limits of fresh vegetables. After large amount of quick-frozen vegetables of our country are transported to Japan, Japan adopts the limits immediately, taking the 47 items residue limits of fresh vegetables as the residue limits of pesticides of quick-frozen vegetables. In recent years, Japan has expanded checked quick-frozen vegetables from 18 kinds to all that China import range frozen vegetables products.

(4) The inspection of the safe hygiene items are tight and there are a lot of spot-check. The quality inspection to the agricultural product in EU is being upgraded constantly: from checking only the products expanding to checking whether the workshop accords with the sanitary condition, and then expanding to checking whether there are residue of medicines in the products and demand to

provide various kinds of inspection and testing certificate. Relevant reports point out, recently tomato ketchup exported to Germany is asked to test residues of such pesticides as Chlorothalonil, Gongfu Polyester etc. and provide the certificate that prove the residues of pesticides complying with the residues limits of EU, dry vegetables exported to Germany is asked to provide certificates of non-GMO, low chemistry residues and free of radioactivity, etc.. Vegetables transported to the American is demanded to test such residues of pesticides as BHC, DDT, Methamidophos, dimethoate, dimethoate, moncrotophos, malation、methylparathion, thiodicarb, etc. .

(5) The inspection and testing of vegetables exported to Japan is stricter day by day. Since 2001, Japan exercises restraint in importing scallion, rush and fresh mushroom of our country; in July, Japan carries on the severe mandatory entering inspection to such vegetables as rape, perilla leaf, asparagus, cauliflower, pea, etc., especially testing the residues of cypermethrin, Chlorpyrifor, DDVP, Methamidophos in every batch of vegetables; then testing strictly 47 residues of pesticides in 18 kinds of quick-frozen vegetables. It is said that now Japan carries on constantly spot-checking of 47 residues of pesticides to indefinite varieties in all quick-frozen vegetables strictly. Once examined out, and then taking the restriction immediately. For example, in July 2002, Japanese Ministry of Health, Labor and Welfare send out the guidance notice to control the import spinach from China. It is reported , there are more than 150 items of residues of pesticides in Japan to various kinds of plant products at present, so they can spot-check and test strictly the vegetables imported from China at any time, put a limit, then obstruct seriously China vegetables exported to Japan. (Li Zhengming, 2003)

3.2.2 Fruits

In order to protect domestic agriculture development, the developed country has implemented TBT (Technical barriers to trade), which has limited the export of the Chinese fruits greatly, too. For example, the new issue of “Code of practice of the Plant Quarantine Act” in Japan made most products of vegetables and fruits of our country restrained strictly. At present, only cantaloupe and litchi of China can enter Japanese market.

In most countries of America and Europe, all fruits which enter the market must be tested, had quality certification. Only after the appearance, quality and the sugar content, etc. meet certain standards; the fruits are allowed to enter the market. Take litchi as an example: the residue limits of medicines in litchi vary in the different countries of the world. For example, original fresh keeping method in Australia is to dip the litchi into hot benomyl solution. In some other countries, the method is to smoke and steam the litchi with sulphur (sulfur dioxide). In this way, also can achieve the goal of fresh keeping and keep the color of the peel. But now a lot of countries restrain these fresh keeping methods to some extent. There are three barriers for Litchi entering U.S.A.

market, the first barrier is quarantining, having to pass the FDA inspection. The second is the federal medicine administration bureau; the last one is the customs. The standards of U.S.A. to the residues of some other medicines are very clear too. While France allow to import litchi dealt with the sulphur, but have very strict residue limits: the residue in the fruit is forbid to over 10 μg/ml, that in peel is forbid to over 250μg/ml. France has strengthened controlling of the litchi dealt with the sulphur smoking and steaming, and require there are must print such relevant words and expressions as "dealt with SO_2" or "keeping fresh with SO_2" etc. on the packing box.

Because the edible part, the thickness of the peel and surface color of different fruits are different, the security demands for the fruits of various countries are different too. But the quality standards to fruit mainly concentrate on the residues of pesticides, fresh-keeping methods, dyeing, worm eggs and pests, packing labels, etc.. Besides fruits, processed such fruit products as juice, jam, tinned fruit, etc. are all restriction targets too. For example, U.S.A. carried on the anti-dumping probe to the Chinese apple juice in 1999 and 2000. When this measure is difficult to exercise restraint in importing effectively, U.S.A. have proposed again at present the residues limits of 108 kinds of pesticides.

3.2.3 Flowers

At present, the development trend of the world flowers industry is the rapid expanding of the flowers production and positively export in the developing countries, which bring certain impact to the developed country flowers production and export. As to this, in order to consolidate the international flowers trade pattern which is favorable to their own development, the developed countries startup the market competitive strategy with "three protect" being its core, raise the threshold of developing country flowers entering into the international market. That is to improve product quality and protect consumer's interests; to recommend producing and dealing in the environmental protection flowers products and protect people's living environment; to respect the intellectual property right and protect the variety patent.

Consumers pay more and more attention to the environmental problems. In order to meet this demand, in the middle of 1990s, and some developed countries set standards for production and management of the environmental protection flowers products. In 10 years, Holland, the world largest flowers exporter, has basically finished the research and development of production techniques according with the environment protection requirements and have awarded the environmental protection ornamental plant production certification (MPS certification) to more than 3600 enterprises. There are 3300 Dutch enterprises among them, 154 Belgium, 90 Israel, even some of African. For example, Kenya reached the cooperation agreement with Holland to popularize MPS certification, and this made Kenya environmental protection flowers is approved

by international market. U.S.A. has made the environmental protection flowers production standards, too, and the “organic flowers” has begun to introduce to the market. (Jiang Weixian, 2003)

4. COGNITION AND COUNTER-MEASURES OF DOMESTIC PRODUCERS TO THE PRODUCTS ENVIRONMENTAL/HEALTH REQUIREMENTS

4.1 Producers of vegetables

The main case of investigation is Long Da Food Group Co., Ltd . Long Da Group is a production and totally independent export enterprise that relies mainly on the agriculture products processing and export, belonging to the key enterprise group of Shandong and national-level leading enterprise. The main business item involves processing and export of various kinds of fresh vegetables, quick-frozen vegetables and the vegetables base plants (the enterprise base spreads all over 10 provinces and more than 70 counties).

4.1.1 Limited situation of enterprise vegetables products export and cognition

The vegetables that Long Da group exports have 80% concentrated in Japanese market, 10% exported to U.S.A. market, even some exported to such other markets as EU, S. Korea and Southeast Asia where in less quantity. Just because of this, export vegetables meet the most large trade barriers in Japan market TBTs(technical barriers to trade) of Japan market mainly lies on the improvement of standards, the increase of inspection items.

China frozen spinach export to Japan goes through ups and downs. Japanese Ministry of Health, Labour and Welfare implement “import self-check” policy to China frozen spinach (in fact equal to forbid importing). After one year, Japan unfreeze the policy on June 17 2001 at last. This was the second time for China to break the export barrier of the frozen spinach to Japan. Japan found residue of “Chlorpyrifor” (which is recommended insecticide extensively used in the environment-friendly crops in China) in China frozen spinach exceeding the limit in March of 2002for the first time, so in July the same year Japanese Ministry of Health, Labour and Welfare forbad importing China frozen spinach. Through repeated negotiation between the two countries, the policy was once unfreezed in Feb. 2003. But when the found residue of “Chlorpyrifor” exceeded the limit once again, the forbidden policy was implemented in May the same year.

Facing the frequent exceeding of residues of pesticides in the export vegetables, persons investigated think that the reason lies in Japan has obvious unfairness to the imported vegetables

from China while making the residues limits of pesticides. For example, there were actually not residues limits to frozen spinach Japan, but Japan applied the residues limits of the fresh spinach on the frozen spinach directly. Because frozen spinach is made from fresh spinach through heating, rinsing, scalding and freezing, usually 4kg fresh spinach could only output 1kg frozen spinach, so this kind of mechanical application is unreasonable and unscientific. The survey persons thought the vegetables are restricted in exporting, the so-called exceeding of residues of pesticides is not the main reason but a tool and excuse used for setting up the trade barrier.

4.1.2 Counter-measures of the Enterprises

In order to break the technological barrier of the Japanese government, since last year, China implemented strict “verifying method” in enterprises which exported the frozen spinach, including 59 items such as "operating records must be kept at least two years”, “pesticides application record must be kept over three years”, “must keep soil and irrigation water quality test report of every quarter”, etc.. A few days ago, 27 processing enterprises which had set a series of severe control measures in their enterprises were selected out from nearly 300 enterprises in the whole country and their products are sanctioned to export to Japan again. In March, 2004, Long Da group, as the largest quick-frozen food process and export base of China, meet the comprehensive inspection by Japanese Ministry of Health, Labor and Welfare Japan and China Imported and Exported Commodity Inspection and Quarantine Bureau. The Japanese official is very satisfied with the vegetables base, processing, inspection system, stocking management, trace system, etc. of Long Da group.

(1). Implement standardization plant

Facing the raising “green barriers” of foreign countries, Long Da Group standardizes the base construction fundamentally. Long Da places the quality of raw materials on the essential position. They have set up a new industrialization modes of “company + the farm + agriculture laborer” since last year and started the process of reducing the pesticides residues. The company established self-owned experimental garden to provide feasible planting technique parameters for base development, strengthened the cooperation with agricultural universities and colleges, retained the plant protection experts came to give lectures to technicians and planters on how to reduce the residues of pesticides, strengthen the awareness of vegetable grower to reducing of residues of pesticides. So far, Long Da Group have already developed residues reduced base about 1333.333 hectares in 6 counties and cities around and 6 provinces of Hebei, Anhui, Xinjiang, Inner Mongolia, Heilongjiang, etc.. The company supplies the growers with seeds in unison, and asks growers to use the appointed pesticides, trains the growers in planting methods, using of pesticides, management skills and gathering techniques, sends managerial and technical staff

resident in the base to supervise, establishes base plant crop track system, record documents, adopts the contract management mode, constructs the chain of planting and processing between enterprises and growers. Long Da Group also develops the organic vegetables base actively to promote the transform of traditional agriculture into scientific and technological agriculture. From 1998 to the present, Long Da Group has already built up organic vegetables planting bases of more than 7000 mu in Shandong. And both planting and processing of the organic vegetables have passed such certifications as JAS, EU, etc. .

Meanwhile, Long Da Group made great efforts to accelerate the development of the organic food and expanded production and export quantum of the organic food. At present, Long Da Group has already built up organic vegetables planting base of 466.667 hectares in Jiaodong, Feicheng, Tai'an and other places. The planting and processing of the organic vegetables has passed such certification as JAS, EU, etc.. And there are already many kinds of organic food developed to put into market. In the future, Long Da Group will strengthen the further development of the organic food and realize the serial food of Long Da make the transition to the organic food gradually. In the following several years, Long Da will invest more than 2 hundred million fixed assets annually to promote the specialization of food processing and the pluralism of the business items to keep the expanding of the enterprise.

(2) Establish the test center equipped with the advanced equipments

The test center of Long Da Food Enterprises Group established in 2001 is the combination former laboratory of Yantai Long Da Co., Ltd. and laboratory of Shandong Long Da Frozen Food Co., Ltd.. The accumulative total invest into the center has exceeded 10 million Chinese dollars and the key instrument and equipment are all introduced from U.S.A., Japan, France, etc. The test center has reached the international leading level and come out top in that of the food processing enterprises of the whole country at present. The test center mainly functions in testing microorganism, Physics and chemistry nature, residues of pesticides, antibiotic residue and food additive in the frozen vegetables, aquatic products, prepared food, meat products, grain and oil products, condiments and fresh-keeping fruits and vegetables produced by the companies of the group. The monitoring system controls omni-directionally through tracking from the raw materials to finished products.

(3) Establish specific Quality Assurance Organization system

Taking ISO2000 international standard as the thread, Long Dagroup have established a special Quality Assurance Organization system. This system can control timely from base, processing to delivering in the whole process controls Long Da, if products go wrong, no matter in which link

can chase and get, the control measure of quality has got better guarantee.

(4) Apply for quality and environmental protection certification actively

At present, the subordinate leading enterprises have already obtained such international and domestic certification as ISO9000, ISO14000, HACCP, etc., and obtained AIB certification of U.S.A.. Long Dafrozen vegetables have get the "pass" to the American market. In the future, Long Dagroup will further perfect product quality track system, practice various kinds of certification activities of internationalized management and national-level laboratory register certification actively, promote the market competitiveness of Long Dafood in an all-round way.

4.2 Producers of Fruits

Shandong Longkou FHTK Refrigeration Co.,Ltd. is one of the companies that we have surveyed. This company is the largest in Asia and a flagship enterprise in Chinese fruit industry and has devoted itself to the plantation, storage, package and making every effort to explore the word market. It explored fruits to international market completely by itself.

4.2.1 Trade barriers FHTK encountered during exporting and the reasons

The losses of Shandong Longkou FHTK Refrigeration Co.,Ltd. focus on USA and Canada that have enacted rigorous access/entry requirements, accounting for 90% of total losses. The direct losses include withdrawing, destroying goods and additional costs brought by quarantine fee and port detention fee. Among direct losses, additional costs are relatively lower and the losses are less. The losses of withdrawing goods mainly come from high transportation fee. For example, twelve containers of FHTK were withdrawn because blackheart of juicy pears in northern America and the total losses reached 0.2 millions dollars.

Except for direct losses, indirect losses brought by trade barriers have great impact on FHTK, especially destroying the reputation of this enterprise. The interviewee said sadly that one export problem may result in the decrease of market share, even losing the market that the enterprise explored with great costs. For example, USA closed the whole import market of juicy pears because of black heart. It induced great losses of FHTK and the losses of fruit growers indirectly.

The main causes that FHTK encountered trade barriers are the following. (1) Plant quarantine. USA used the founded new species of black heart as an excuse to stop the import of Chinese juicy pears in Dec. 19th, 2003, not only including Hebei pears but also Shandong ones. In addition, all juicy pears that have entered to USA were destroyed. The losses are great. (2) Pesticide residue.

Goods of FHTK have ever been withdrawn because of pesticide residue when FHTK exported Shandong pears to UK. Pesticide residue problem is caused by dispersed farming management model. Under this model, it is difficult for enterprises to control pesticide and fertilizer and it is difficult to do instructor and criterion. (3) Fruit export is lack of uniform regulations and necessary cooperation. International market enacts district requirements and standards about food safety, annual steady supply and quality stability etc.. However, the status quo of fruit export is complex as follows. On the one hand, inspection and quarantine departments and fruit flagship enterprises do their endeavors. On the other hand, some peddlers and small fruit enterprises export their fruits with lower input, lower quality and lowest price. It results in demanding a low price by ourselves, "good ones couldn't win and bad ones couldn't be eliminated" and "less known and inferior enterprises beat regular and perfect ones" etc. this is the reasons that our fruit enterprises encounter trade barriers, and it will destroy large scale enterprises such as FHTK more greatly.

4.2.2 Current adjustment approaches of FHTK

(1) Improve diathesis and meet district export requirements actively. Shandong Longkou FHTK Co.,Ltd. exported apples and pears to Canada at the end of 2002. It is the first time that Chinese fruit opened northern America market that is famous as "check is most strict". In the farms of FHTK, fruits grow with bags; soil is deeply ploughed and disinfected; production is carried out according to international standard. So these measures overcome trade barriers. Interviewer saw strict processing process to get rid of the red spiders adhering to apples.

(2) Sale fruit on the reverse seasons to avoid the man-made barriers that import countries set to protect their farmers. This enterprise used its good storage condition to sale fruits to EU on the reverse seasons in order to avoid trade problems coming from bulk export.

(3) Cooperate with national inspection and quarantine departments to assure the quality of export fruits. So problems are controlled in China and big losses are avoided.

(4) Strengthen information management. FHTK can gain information by many ways. The main information channels are international trade partners, newspapers and magazines, industry association and national commodity inspection departments etc. Although the information is lack of high efficiency, they are useful since pro-active adjustment system still doesn't been set up.

4.2.3 Cognition and suggestion

According to upwards, FHTK takes many measures such as carrying out technology improvement, applying standards and requirements of international or import counties and negotiating with

import countries by China government etc.. But there are many problems. FHTK doesn't know trade barriers clearly. Although this enterprise has outstanding export achievements, interviewer found that current adjustment approaches were blindness. In addition, the attitude to trade barriers is negative.

On the basis of upwards, FHTK suggests as follows. (1)Access/entry system about Chinese fruit export should be set up in order to advance the ordering and benign development of fruit export; (2) National inspection and quarantine regulations should be improved. By it, quality problem can be found in domestic market to avoid the influences to the whole export brought by small and inferior enterprises; (3) Relative departments of government should know and inform the information about import countries in time and set up operable craftwork criterions and technology standards. So enterprises can have common regulations to comply with and efficiency will be improved.

4.3 Producers of Flowers

The case is China National Tree Seed Corporation (CNTSC). It is a foreign trade company with imports and exports right. CNTSC, directly under the ministry of forestry of the People's Republic of China, is the exclusive nation-wide firm in china engaged fully in the business of import and export regarding the tree and shrub breeding materials, grass seeds, flowers and other products related. The total export amount is 20 million RMB, the markets focus on Japan, USA and EU.

4.3.1 Trade barriers CNTSC encountered during exporting

CNTSC has encountered trade barriers. Especially in Japan market, almost every time, there are little commodity to be destroyed because of plant quarantine etc. Except for the losses of destroying directly, CNTSC also suffered many indirect losses, such as losing trade opportunity, damaging credit standing, decreasing market share etc.. In a word, the biggest loss of CNTSC is the decrease of market share.

The barriers and characteristic that CNTSC encountered during trade include the followings. (1) USA, Japan and EU have improved standards with different degree; (2) Inspection and quarantine items increased in USA market; (3) EU has ever delayed the date of inspection and quarantine deliberately.

Interviewee thought that the reasons that CNTSC encountered trade barriers are the following. (1) Import countries protect domestic industry; (2) Different law, regulations, standards and

production methods; (3) Import countries protect domestic human health and environment etc.

4.3.2 Current adjustment approaches of CNTSC

CNTSC took many measures to solve the trade barrier problems, including: (1) introducing into new varieties, paying using fee and getting passport of international market as soon as possible to take commodity into high level market and get higher profits. At the same time, domestic researchers should quicken the study of new varieties and try to meet international level. (2) Cognition the regulations and standards of international markets, producing and processing according to international and enterprise standards. (3) Enterprises should quicken technology rebuilding according to international regulations. (4) The main information channels are international trade partners and internet. But there are some losses coming from information block. Interviewee thought that the feedback information after problems happened is very useful. So enterprise will export small quantity of commodity as pioneer to gain feedback information before a large amount of commodity are exported.

4.3.3 Difficulties of adjustment approaches and suggestions

The biggest difficulties CNTSC encountered when it responded to trade barriers are the followings.

(1) Information is ineffective and enterprises don't know whether the regulations have changed. There are not consultation service and projects aiming to solve these problems. Special office is not set up to take charge of standard and quality control because flowers export amount of this enterprise is little and CNTSC think it is not necessary to set up special office.

(2) At present, the biggest export barrier is variety protection. Japan enacted "variety law" to protect variety right. If other countries want to use this variety, they must purchase with price, accounting for 2-3% of sale amounts. Additionally, China has no competitive ability in breeding, so a lot of cut flowers can't enter but low level market.

(3) National regulations and standards are imperfect and there are not flower production standards. So it is more difficult to meet international regulations. The standards of different export markets are not uniform. It is a big trouble for production enterprises. There are also few problems in plant quarantine. For example, cut flowers will be suffocated or destroyed immediately if forbidden worms are detected during exporting.

(4) Except for trade barriers set up by import markets, it is not enough for government to support

flower enterprises. A lot of flowers are exported as resources, but not commodity. For example, the biggest barriers of chrysanthemum export are not in foreign market, but in domestic market. Among the costs, about 60% are used to pay transportation fee of national aviation company and 40% are the basic costs. So the profit of flower industry is low. But in other countries, the transportation fee is the half in China. In addition, flower enterprises can get transportation subsidy from government in some other countries. In China, flower markets exist, but it is difficult to transport out. There are not subsidies from Chinese government because flower industry is small and make few profits in foreign currency.

(5) Infrastructure is bad and cost is high. In many enterprises, equipments and technology couldn't meet the export requirements. Although there are many order forms of other countries, no enterprises can reach necessary quantity and season requirements.

Enterprises are passive during export. It is difficult for them to take pro-active measures. So it is suggested as follows. (1) Government should publicize and induct flower industry to solidify every flower enterprises to solve export problems. (2) China should set up national standard so soon as possible according to international standards to neaten confused market. (3) We should change minds, strengthen self-confidence and take active attitude. Especially all levels local government should improve the knowledge of trade barriers, treat barriers with correct attitude and take active measures to help enterprises. (4) Government should support enterprises and help them expand size, decrease costs and improve the competitive ability, especially solve the bottle-neck of the domestic export.

5 THE CURRENT COUNRTER-MEASURES OF CHINESE GOVERNMENT

5.1 legislation and standard construction

In order to promote the production level and quality of Chinese horticulture products and increase the export of horticulture sector, Chinese government strengthened the legislation and standard construction of horticulture products especially on the aspects of environment and health requirements.

In 1994, referring to the *hygienic law of food*, *hygienic criterion of food* conferred by FAO and WHO, incorporating present situation in china, The ministry of hygienic has drawn up *currency hygienic precept of food corporation. GB 14881-1994 national standard,* ruling raw material, transportation hygiene demanding, factory facility, hygiene demanding, hygienic administer, product course, storage hygiene, personal hygiene, health demanding and hygiene quality checking up. Form 1988 to 1994, Chinese Hygienic Ministry has already conferred 19 hygienic

precepts of production enterprise such as rules and precepts of tins, beer, whiteness, soy, vinegar, plant oil, honey, cakes, milk, meat etc..

Meanwhile, China drew up a series of exportation and food production hygienic precept as well, for example *the lowest hygienic demanding of exportation food factory* drew up by National Commodity Inspection Bureau, calling for bringing hygiene register of the corporation of exportation food into effect, and the level must meet the lowest hygienic demand of the exportation food factory. The prescript has been emended, named the *register demanding of exportational food factory* in 1994, and make the criterion for the enterprise register of fast frozen vegetable, meat, tins, water products, drink, tea, sugar, fast food and intestine coat food etc.
In April of 2002, *the register enrol administer of exportation food product* was issued, and the *register demanding of exportation food factory* was changed into *hygienic demand of exportation food corporation* by Chinese Quality Inspection Bureau, and taken into effect from 2002-5-20. There are some amendments below: the policy and target of hygiene quality, organization and responsibility, the demand of administer persons, the hygiene demand of environment, workplace, installation, raw material, subsidiary material, product, processing, packaging, store, transportation, the control of poison substance, the demand of verification and bringing the system revolve effectively, meanwhile, six kinds of food which were tins, water product, meat, fast frozen vegetable, juice and fast food must meat the demand of *HACCP* conferred by national supervise department in 2003-3-20, setting and operating HACCP system.

Our country tried to lean to the CAC, OIE prescript and standard, according to the demand of SPS and TBT, the food security was controlled by assaying the risk of exportation food, building up pro-warning message and the management with HACCP. Now some regulations about exportation and inlet are fixed in the world's acting, and they are: *the administer methods of no pollution products; the register administers prescript of abroad corporation; the administer matter of vegetable for Hongkong and Macau; the administer methods of label of inlet and exportation; the administer methods of vegetable* and so on.

In order to reinforce the scientific administration, lately National Quality Inspection Bureau has decided to enforce the plan of food security of inlet and exportation. This plan is made up of five part, that is enforcing the inlet system, impelling the building of the all processes system, impelling the food corporation self control, reinforcing the govern system. The target of this plan is to realize the point of food checking and realize the administer regime in all processes in the system. By now, we have already set up the frame of food hygienic safety and quality security.

5.2 Setting up the information administration system

At present, china has not built up systemic, national systems of message administration. For instance, we are lack of effective national pre-warning message system, only have some local system. In January 2004, ShenZhen world trade organization service centre has set up technology and trade pre-warning message system. This system include technology trade fort, the register of plant verification, we can pick up the information which we care about and scan the exhaustive datum; at the same time, the database can automatically transmit the information by E-mail or fax. This way can decrease the trouble when the corporation search for information in international web.

Under the situation that the national Pre-warning message system has not been set up, at present the pre-warning is mainly depending on trade association. The main method to be used by the trade association is getting information from abroad embassies, trade machinery, media and so on, gleaning the trade standard, quality standard, quarantine standard and environment protection standard of main exportation countries, and arrange the datum setting up green fort information centre and database, meanwhile enforce the information management and technology intercourse, predict and hold the development tendency and provide the information to the corporation. Due to the credibility of information source and there are no specialty people sifting the information, the pre-warning message system from trade association can only have basic impact, and can not study the tendency deeply, can not guidance the decision of corporation correctly.

Consequently, setting up specialty national pro-warning message system is immediacy. At present, many specialty persons have already announced their own viewpoint, and some cities like Shanhai and Shenzhen have carried out the experiment units.

6 、 RECOMMENDATIONS FOR PRO-ACTIVE APPROACH ESTABLISHING AND INSTITUTIONAL CAPACITY BUILDING IN CHENISE HORTICULTURE SECTOR

6.1 Further improving the domestically standard system, participating the international standards constitution actively

According to the statistics, by the end of 2001, China has set up 19744 standards, only 43.7% of which are transformed from the international or foreign countries. While the standard set up by China and adopted by international are only 12 standards. This data implied that we can only conform to the game rules made by other countries, in order to change this situation; we can adopt the counter-measures as following:

Firstly, China should improve and consummate the domestically standard system as soon as possible. At present, China has considered “the research on the technology standards” as the key

scientific programme of China 10th Five year key projects. Series of important technology standards could be worked out including the test techniqueS, methodology, measure standards etc and these standards could be recognized by international organization. By then, the protective ability of TBTs will by strongly strengthened.

Secondly, Chinese government should try to participate in the constitution of the international standards directly. There are two important agreements in the multiple rules of WTO, e.g. TBT and SPS. According to the agreements, the signed countries could make their own technique standards under the condition of no objection and obstacle of free trade. If the countries have the international rules, they should not adopte other rules. If the countries are constituting the international standards, the agreements encourage other countries to lean to this standards and participate in the new standard constitution. By this way, the new standards will be accepted by more signed countries. From this point of view, the international standards play more and more important role in the global trade.

China as the largest developing country can try to constitute some international standards which benefit for developing countries based on specific favours of the international agreements and prevent the trenchant technology standards and test tools for discrimination of the trade barrier.

6.2 Actively push the standardized production of horticulture products

The standardized production of the horticulture industry can increase the scientific transforming rate, promote the production increase style and improve the quality of horticulture products, enhance the international competition ability as well. Therefore, the research of international standards of horticulture industries should be strengthened. The agricultural standards and related rules should be updated to form the quality standard system of horticulture products which meet the international standards. The management styles should be changed into specification enterprises and group, the cooperation mode of company +base + farmers can realize the system management from production, processing to exportation to improve the products quality, reduce the running cost of horticulture, increase the economy and widen the international markets. At the mean time, the export cooperation should enhance the internal management especially on the aspects of environment protection, cleaning production and green horticulture production. The quality certification system such as ISO9000、ISO14000、TMS HACCP etc. should be implemented in the enterprise management to ensure the products quality.

6.3 Establishing the national emergency meeting system for the foreign trade of horticulture products

It is very urgency to accomplish the pro –warning system, information distributing system and emergency meeting system for export trade of horticulture products. National departments such as customs, quality and quarantine inspection bureau as well as import/export business association, consumers group and researchers on foreign trade should play important roles to counter the TBTs, establish the TBTs database and information distribution centre and network and provide the new trend of TBTs to the export enterprise timely, so that the enterprise could counter the TBTs successfully.

6.4 Promoting the technology renovation of the green horticulture products

The green barrier and new requirements of environment and health are the key competition factors of international horticulture products, the renovation of production techniques play the most important rules in international horticulture trade. China should make full use of the specific rules for the developing countries in the international environment protection act and introduce the advanced technology for environment protection, organic food production, ecology, information, IPM etc, as well as the technology for storing, processing, transportation, package etc. to promote the quality and competition of horticulture production of our country.

6.5 Strengthening the government support for the green horticulture industry

The benefit inspiring system should be accomplished for the horticulture industry. The government could use the "green box" articles pf WTO Agriculture ACT to strengthen the support of finance, loan, agriculture protection and industry insurance and reduce the tax and give the subsidy to the green horticulture industry. The research institute and universities should be encouraged to renovate the techniques with high scientific technology. More fund should be given to the research of green horticulture products to promote the competition in the international markets.

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