



**FRUIT AND VEGETABLE
PROCESSING IN CHINA:
TECHNOLOGY, QUALITY
ASSURENCE, AND LABELLING**

**CHINA NATIONAL FOOD INDUSTRY (GROUP)
CORPORATION**

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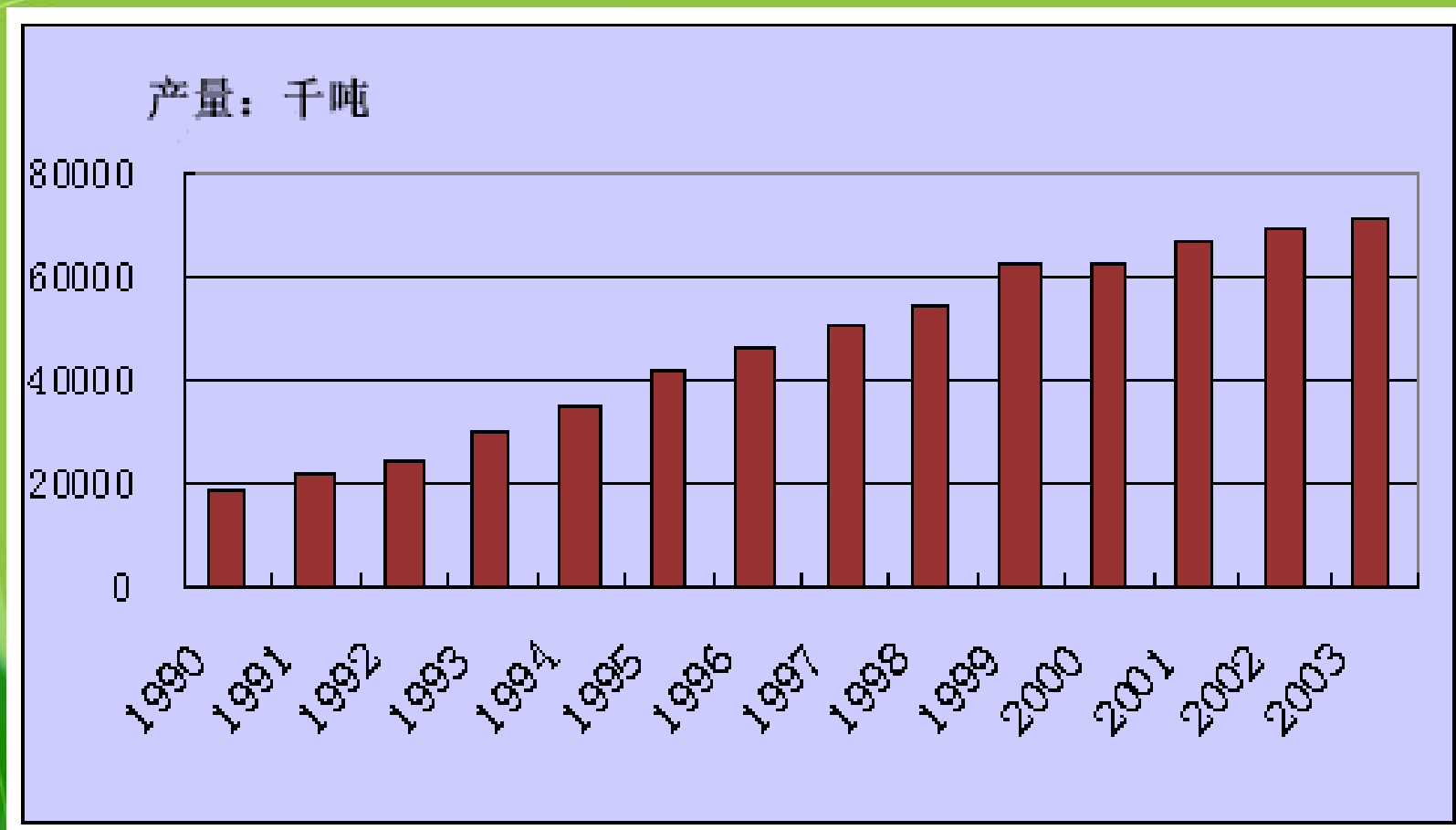


The development history of fruit planting and processing in China

The industrialized fruit planting and processing in China is divided into 3 stages:

- 1949-1979, only some canned fruit and sugar preserved fruit, no fruit juice;
- 1980-1989, the implement of reforming and opening up policy made the farmers can plant fruit tree freely, and the fruit output increased quickly, the fruit processing, esp. fruit juice industry started developing, till 1989, the output of fruit juice is 100 thousand tons;
- After 1990, the fruit and vegetable planting and juice industry got rapid development. In 2003, The output of fruit is more than **70 million** tons, vegetable **450 million** tons, and fruit and vegetable juice **3.1million** tons.

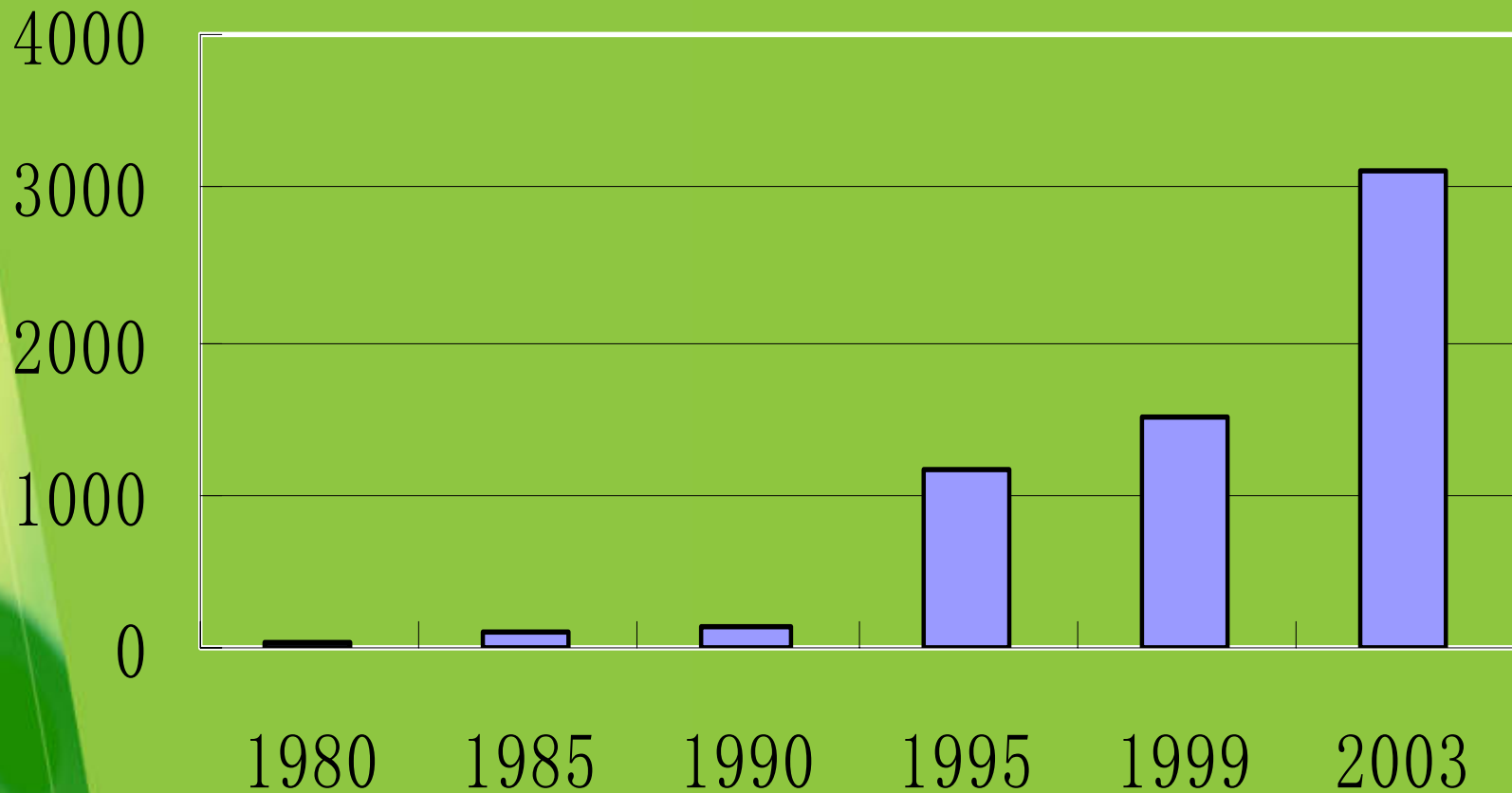
Fruit output in China from 1990 to 2003 /thousand tons

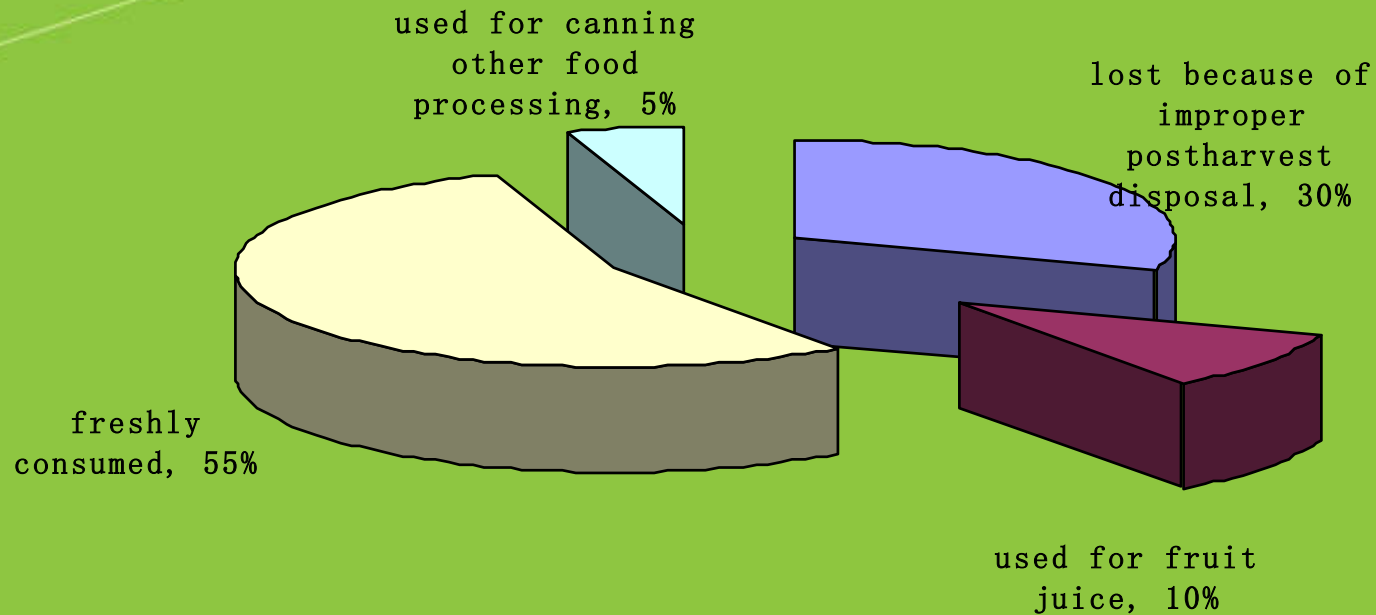


Vegetable planting area and output from 1996 to 2003/ thousand ha. and 10 thousand tons



the increasing of fruit juice output
from 1980 to 2003 /thousand tons





Fruit juice (including fruit and vegetable mixed juice) is the most important fruit and vegetable processing industry

The Fruit and Vegetable Juice Processing Technology in China

- Fruit and vegetable juice industry is one of the industries with few food safety problem . Because the juice industry to a great extent relies on the processing equipments, and
- Presently, most Chinese fruit manufacturer developed from 1990's, more than 60% of them equiped with 1990's internationally advanced facilities and adopt new technology, including enzyme application, ultrafiltration, activated carbon absorption , recovery of natural fruit aromas etc..

The main equipment brands Chinese manufacturers use are as follow:

Press facilities:

Bucher, (Swiss);

Westfalia, (Germany);

Flottweg(Germany);

阿姆斯 (Germany)

贝尔杜齐 (Italy)

Clarifying , filtration and concentrating facilities:

Unipaktin (Swiss);

Alfalaval (Switzerland)

Bucher, (Swiss);

APV (England)

PCI (England);

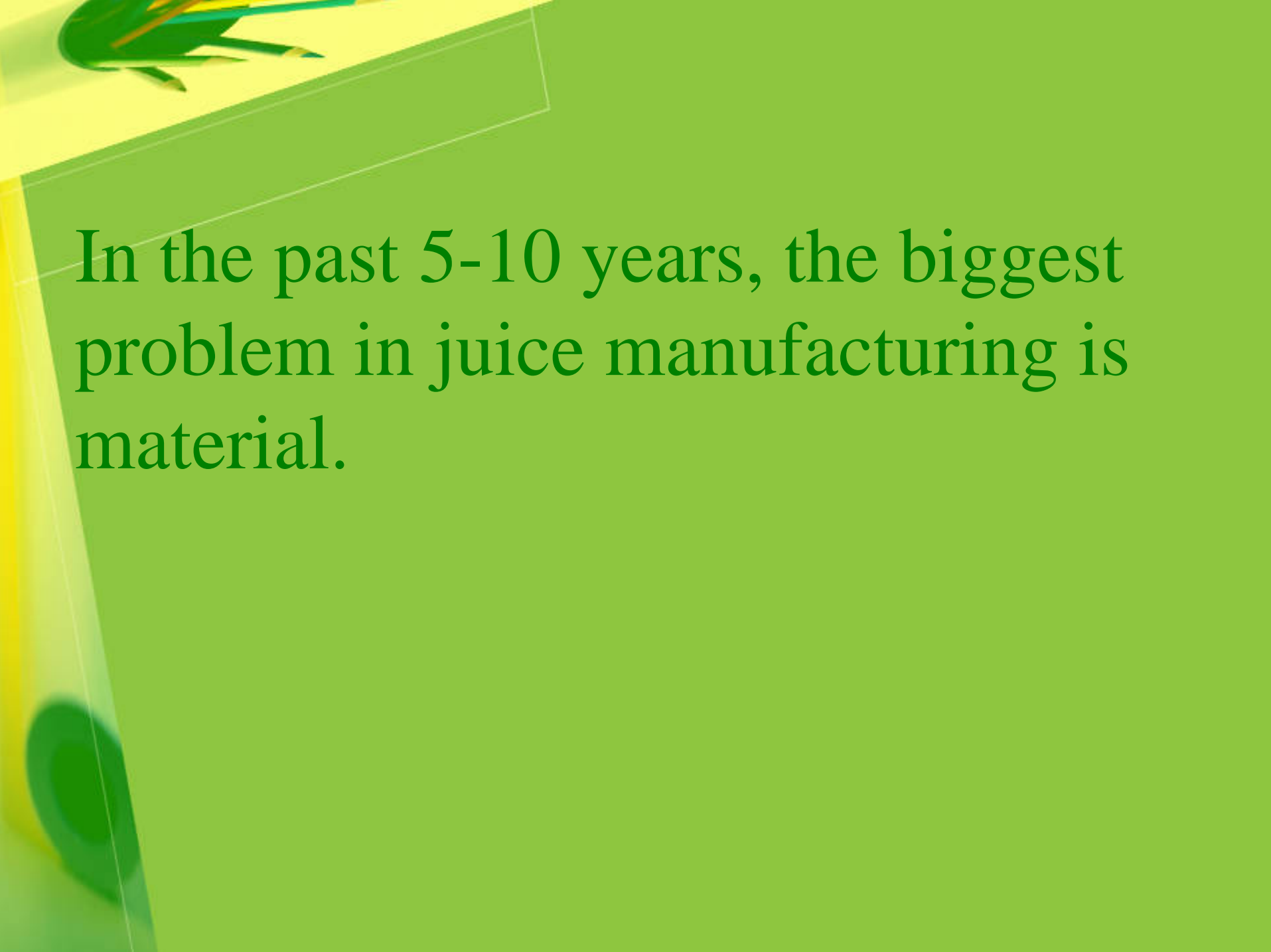
Tetra Pak (Switzerland)

The main filling lines the juice manufacturers use in China

- Afalaval (Switzerland)
- Tetra Pak (Switzerland)
- International Paper (America)
- Sasib (Italy)
- Sipa (Italy)
- Sacmi (Italy)
- Procomac (Italy)



60% fruit juice plants possess internationally updated facilities , at least in 1990's. Profiting from the advanced technology and management introduced together with these facilities, the quality of Chinese juice, including concentrates and beverages, is presently satisfactory both in China and in the world.



In the past 5-10 years, the biggest problem in juice manufacturing is material.

The Raw Materials

In the past several years, the materials used for juice processing were not satisfactory, with mainly the following problems:

The problems in the raw materials of juice industry(1.1)

➤ **Lack of special fruit variety used for juice processing.**

Because the initial fruit plantation developed mainly for the purpose of freshly consuming in China, and after 1994-1995, when the juice industry developed very rapidly, the juice manufacturers found that in one hand they could not buy enough suitable raw materials for processing and in the other hand, the fresh fruit, esp. apple was so cheap that many farmers cut their trees.

The problems in the raw materials of juice industry(1.2)

In the “ninth five year’s plan”, the government begin to adopt measures to adjust the structure of fruit production. The juice manufacturers who possessed own material base/orchard were encouraged, such as being erected as flagship enterprise, giving financial convenience and something like that.

The problems in the raw materials of juice industry(1.3)

Now many fruit juice plants have developed their own material orchards, such as Huiyuan, Andely (The biggest apple concentrate exporter, which located in Longkou, Shandong Province), some plants even have organic material base, such as Huabang Co., Ltd. The material problem is being resolved step by step.

The problems in the raw materials of juice industry(2.1)

- Another problem connected with the raw material is pesticidal chemicals residue . With the accession of China into WTO, this problem is more and more important.

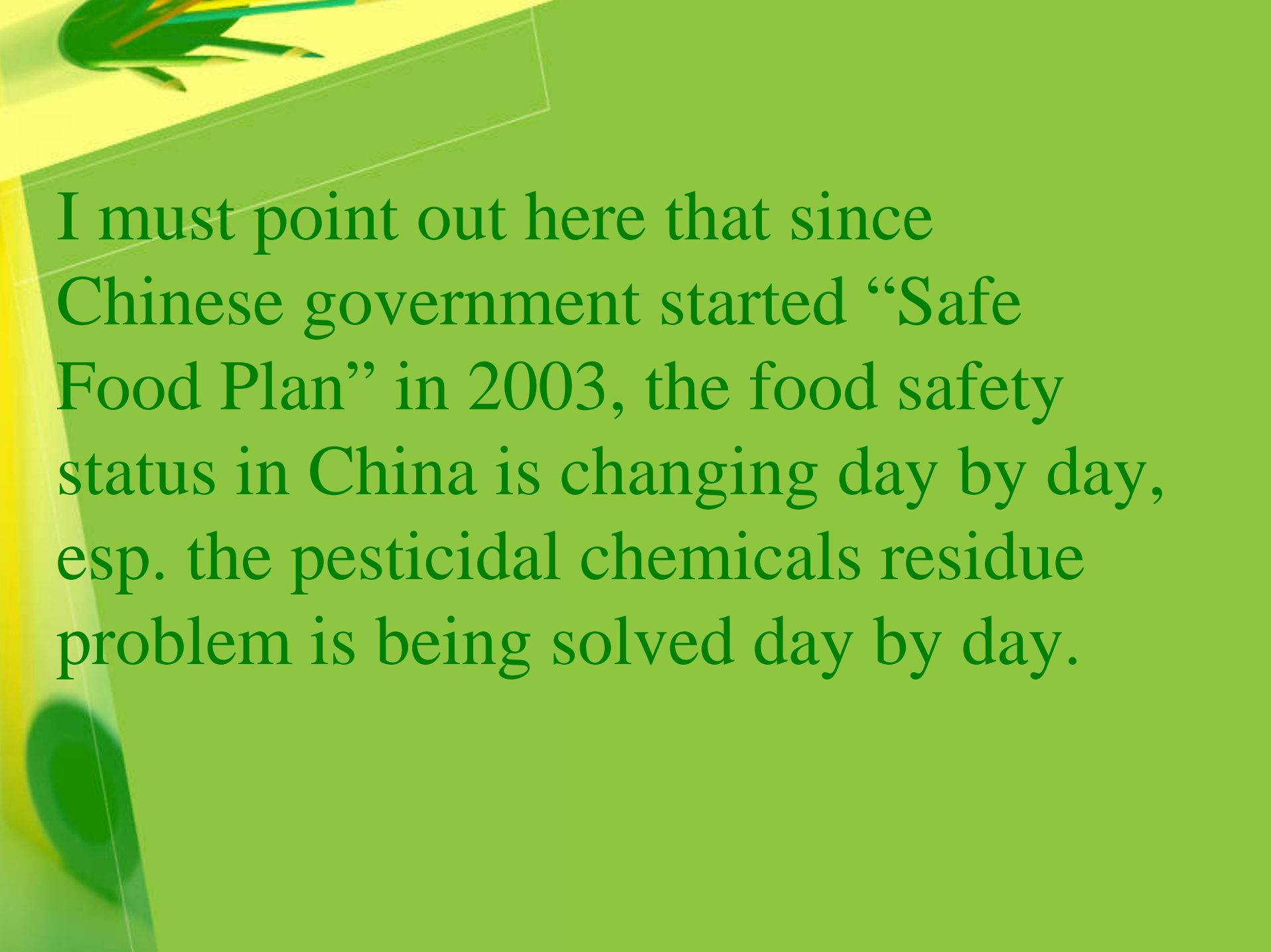
Before the juice manufacturers established their own special fruit orchards, they can only buy fruits from the farmers, and they don't have the ability to test the fruit for pesticides generally. Since they cannot control the pesticidal residues in the materials, they have no way to control that in the juice.

The problems in the raw materials of juice industry(2.2)

- Some juice exporters resolve this problem through activated carbon absorption so as to satisfy the standard of the importer. But as we know, although activated carbon absorption is a good way to lighten the color, decrease the post disturbance, and reduce the pesticidal chemicals residue, but it also absorbs nutrients and affects the nutritional value of the juice.

The problems in the raw materials of juice industry(3)

- The establishment of their own special material orchards by fruit juice manufacturers gives them assurance both in quantity and quality of the raw materials.
- We believe, with more and more fruit juice manufactures have their own material orchards, the quality of Chinese juice will be better and better.



I must point out here that since Chinese government started “Safe Food Plan” in 2003, the food safety status in China is changing day by day, esp. the pesticidal chemicals residue problem is being solved day by day.

About the Labelling

GB7718-1994

*the general standard for the
labelling of foods*

The mandatory provision in the GB7718

- The name of the juice (must accord with the GB 10789 — 1996 *Classification of soft drinks*)
- The composition of the fruit drink (in a degressive sequence of every ingredient);
- The shelf life and storage condition;
- The name and address of the manufacturing plant;
- Accurate statement of the quantity of the content;
- Date of manufacturing
- The standard adopted;

The Principle of labelling

- words which is mistake, or can induce miscomprehension, or suggest exaggerated function or cheating are forbidden.



GB 10789 — 1996

Classification of soft drinks

- The definitions of 9 kinds of soft drinks are made in this standard. This name in this standard is mandatory provision to All the soft drinks manufactured in China .



the definitions of 2 kinds of juice drind most sold in Chinese market in GB 10789 —1996

- Pure juice: directly obtained from pressing of fresh fruit or through diluting concentrate to a soluble solid content equal to that from fresh ;
- Juice drink: adding pure water and food additives including sugar, flavors, sweeteners and so on, to the fruit juice or concentrates, the pure juice content in the final drink can not be lower than 10%.

Regulations about food hygiene

➤ Food hygiene act

come to enforcement in Oct. 30, 1995

the first law relating to food sanitation, food additive, food packaging, food hygiene standard, food hygiene supervision, and jural obligation of those disobey the act.

Regulations about food hygiene

➤ The hygienic regulations of drink plant

General requirements for drink plant in accordance with the standard of the GMP food workshop.

It is an important basis of drink plant designing.

Regulations about environment affection of manufacturing plant(1)

➤ The Environment Affection Assessment Act , P.R.C. ,

come to enforcement in Sept. 1, 2003.

a law about the assessment to the affection of all projects that may affect the environment, including juice plant.

Regulations about environment affection of manufacturing plant(2)

➤ The regulation of restricted usage of pesticide chemicals .

Come to enforcement on Aug. 1, 2002, issued by China agricultural admistration.

To protect the earth and water, ensure the safety of agricultural products, the regulation restricts the usage of some pesticide chemicals .

GB2760-1996 The Hygiene Standard for the food additives

- listing the name and using methods of all the food additives presently lawfully used in China.
- A unique and most authoritative standard for Chinese food additives.
- Any additive not in the list or not used according the using method is not permitted to add to food.

GB14880-1994 the hygiene standard for the nutrients enforcement agent

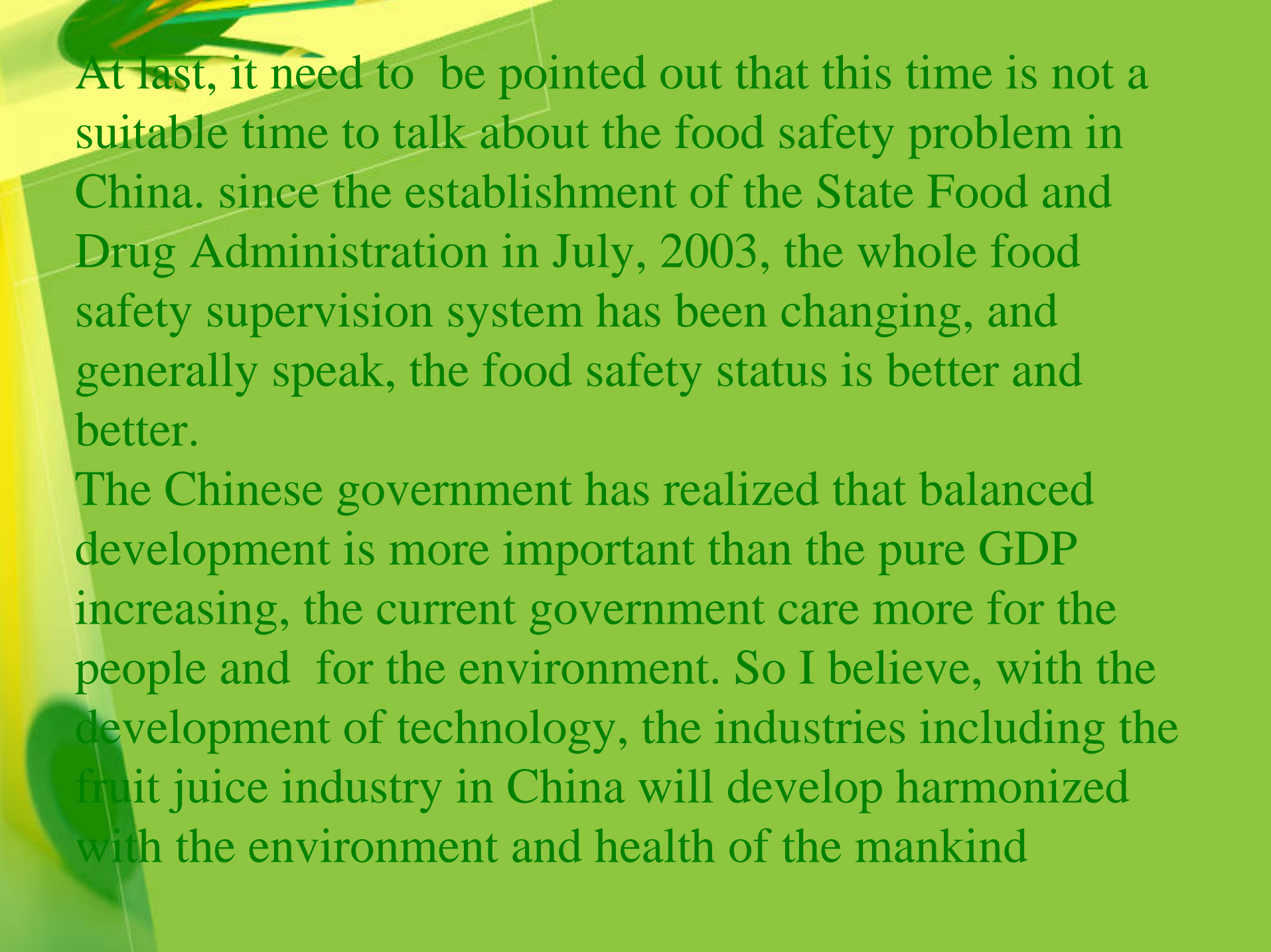
- The standard is not for food additive but for nutrient enforcing agent. Other regulations are basically the same as the food additive standard.



About the food quality regulations
the market permission system


- To prevent severe alimentary toxicosis, which appears very frequently in the past a few years, the General Administration of Quality Supervision , inspection and quarantine of P.R.C. (AQSIQ) started out the market permission system from 2003.
- The AQSIQ in every county is responsible to the food plants in its county, and check them for the workshop, the storage facilities, the test equipment and personnel, the product standard, the quality assurance system and certification, and other things relating to the quality of the final product, if everything is ok, then the AQSIQ give the plant a “manufacture permission certificate”, and a symbol of “QS” can be labelled on the package of the food , and the food is permitted to be sold in the market .

- If any item doesn't reach the requirement, the plant will be asked to improve, it is not permitted to manufacture until all is OK.
- Till now, the “Market permission system” has been implemented in 10 food industries, including the meat ,the dairy , the beverage, the wheat flour, the rice processing, the vinegar, the sauce, the vegetable oil, the freezing food , the biscuit, the sugar processing , the canned food.

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At last, it need to be pointed out that this time is not a suitable time to talk about the food safety problem in China. since the establishment of the State Food and Drug Administration in July, 2003, the whole food safety supervision system has been changing, and generally speak, the food safety status is better and better.

The Chinese government has realized that balanced development is more important than the pure GDP increasing, the current government care more for the people and for the environment. So I believe, with the development of technology, the industries including the fruit juice industry in China will develop harmonized with the environment and health of the mankind



Welcome you experts in SPI
to China and sincerely thank
you!