

FRUIT MARKETING IN CHINA

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Abstract. Chinese fruit industry has undergone dramatic changes since the economic reform. Production of fruit in China grew obviously; in 1998 fruit production reached 54.5 million tons, making China the largest fruit-producing country in the world. Fruit distribution channels have also been improved considerably and the establishment of fruit wholesale markets has significantly facilitated fruit distribution. Consumption patterns have also changed; as family income increases, consumers demand more fruit with high quality, including imported fruit. Also, in recent years, there has been a remarkable increase in China's fruit trade, including both domestic inter-regional trade and foreign trade. This paper analyzes the tendency of consumption and marketing of fruits mainly from 1989–2002 in China, and made comparisons between China and the other countries (such as Poland) for the above items. Main problems of the marketing of fruits in China were discussed, and the developing strategies were suggested.

Key words: China fruit marketing, fruit wholesale & retail, fruit consumption, import & export

INTRODUCTION

Chinese fruit industry has undergone dramatic changes since the economic reform. Production of fruit in China grew dramatically at an average annual growth rate of 11.3 percent between 1978 and 1997. Between 1985 and 1997 the annual growth rate actually reached 13.1 percent, when areas under orchards expanded by 10 percent annually from 2.8 million hectares in 1985 to 8.6 million hectares in 1997 [Intergovernmental group on bananas and on tropical fruits 1999]. In 1998 fruit production reached 54.5 million tons (44.8 kg per capita) [Zhu & Hao 2000], making China the largest fruit-producing country in the world.

Fruit distribution channels have also been improved considerably and the establishment of fruit wholesale markets has significantly facilitated fruit distribution. The street-stand style of fruit retailing also has substantially improved the fruit retail system.

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Fruit consumption patterns have also changed. As family income increases, consumers have demanded new varieties and higher quality fruits, which have included imported fruit. Therefore, in recent years, there has been a remarkable increase in China's fruit trade, including both domestic inter-regional trade and foreign trade.

The objectives of this study were to evaluate the above present situation of marketing within China, to find some problems and to provide proposals for both policy and support measures that can be used to improve fruit marketing and exploit export opportunities.

METHODOLOGY

The main studying methodology used in the study was to gather fruit information in China, Poland and the whole world, then to analyze this information by statistical methods. The data used in the present paper mainly came from FAO database and the national and provincial statistical yearbooks of China. Information from other web pages, working reports, newsletters, articles and newspapers were also used in this thesis. For obtaining first hand information, some activities were done in Poland during the course of the study, such as field work, visiting farms and orchards, wholesale and retail markets.

FRUIT DISTRIBUTION AND MARKETING CHANNELS

Before 1984, fruit distribution was basically under the centrally planned economic system and was handled primarily by state-owned fruit buying-selling agencies. After 1984, the dominant role of the state-owned agencies in fruit distribution has gradually decreased. By 1989, state-owned fruit agencies handled only about one third of total apple distribution in China. This share further decreased to 10 percent by 1993. Private middlemen now play a dominant role in China's fruit distribution [Shi and Wahl 1996].

According to Shi and Wahl (1996), there are currently four fruit distribution channels in China. At the wholesale level, there are several different types of markets. These large-scale wholesale markets are usually located in suburban areas and have relatively modern facilities including computer networks, cold storage, and market information publications.

The second type of fruit distribution channel is the wet market. These markets usually have both wholesale and retail functions. Many sellers in wet markets are fruit producers and a majority of buyers are final consumers.

The third fruit distribution channel is run by fruit corporations. Most fruit corporations in China were previously publicly-owned enterprises that are now fully or partially privatized. These fruit corporations directly purchase fruit products from producers and sell to consumers.

The last fruit distribution channel is the street-stand. In China, fruit retailing is primarily by private individuals who set up small fruit shops or fruit street stands. This type of fruit retail establishment exists everywhere, but especially in large metropolitan areas, making it very convenient for consumers to buy fresh fruit.

MARKET ANALYSIS

Fruit consumption

According to O'Rourke (1994), food is consumed firstly to satisfy the minimal physiological needs in order to survive. At a second level, food is consumed to satisfy the energy and nutritional requirements of normal physical activities (work and play). At a third level, food is consumed for the taste and pleasure. He further pointed out that a population in a subsistence mode would devote their scarce resources to grain. It is only as they pass this subsistence level that fruit will appear on their dinner table. China is a country which has experienced a transition from a lower-level physiological need of food consumption to a higher-level need (i.e., taste and pleasure) of food consumption. Hence, fruit has become a more important food item.

This new fruit consumption behavior is reflected in the following five aspects [Shi and Wahl 1996]: "NEW" means that consumers have a desire for trying new things and want to taste fruit products they never had before or exotic fruit. "EARLY" means that consumers would like to consume fruit products in the early season or off-season period to satisfy their early-season consumption appeal. "RARE" means that there is a limited quantity available in the market. Consuming these rarely available products can show off wealth to other people and satisfy consumers' need for esteem. "QUALITY" means that products have good quality attributes. "APPEARANCE" means that consumers would like to purchase nicely packaged fruit products, especially for gift purposes.

According to the report "Market for tropical fruits in China" [Intergovernmental group on bananas and on tropical fruits 1999], there is a positive relationship between income and fruit consumption. In the last twenty years, the Chinese economy has developed rapidly with real annual GDP (Gross Domestic Product) growth rates averaging 9.8 percent. Chinese foreign trade has also grown rapidly and the country now ranks among the top 10 trading countries in the world. Per capita income has also grown rapidly over the last decade-4.1 percent for rural and 5.7 percent for urban households yearly between 1985 and 1997. During the same period average annual total consumption of fruit increased from 11 kg per head to 41 kg, of which tropical and subtropical fruit accounted for 14 kg.

In fact, fruit consumption per capita in China has increased dramatically since the early 1980s as a result of the substantial increase in family income and the dramatic increase in market availability of fruit. The rapid increase in fruit consumption is also associated with the increasing knowledge of food nutrition and diet-related health problems. Government educational programs and the medical profession have advocated fruit as a type of "healthy" food. However, per capita fruit consumption in China is lower than in other countries. For instance, the apple consumption level per capita in China was much lower than in Poland. The same was true before 1994, if compared with the world (Fig. 1).

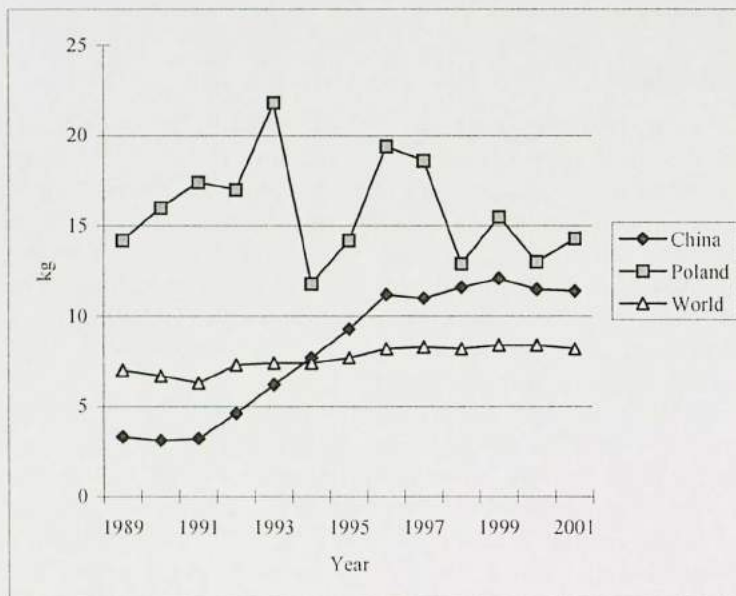


Fig. 1. Apples consumption per capita in 1989–2001

Rys. 1. Konsumpcja jabłek na osobę w latach 1989–2001

Source: Based on the data from FAOSTAT Database.

Źródło: Opracowanie własne na podstawie danych z bazy FAOSTAT.

Demand elasticity

Demand and supply relationships are difficult to determine with confidence [How 1991]. Economists have spent considerable effort estimating such relationships. Knowledge of price flexibility can be useful in improving price forecasts and in making or analyzing policy decision such as marketing order provisions.

Huang (1985) used data on civilian food disappearance and retail prices for the year 1953–1983 to estimate a complete system of price and expenditure elasticity for 40 food commodity categories and one nonfood category (Table 1). The direct-price elasticity are estimated of the change in utilization that might accompany a 1 percent change in price, while the expenditure elasticity estimate the change in utilization that might accompany a 1 percent change in expenditures. Results of this study indicated that the demand was price elastic for grapes, was about unit elasticity for oranges, and was price inelastic for the other fruits. The expenditure elasticity was positive for all except two of these commodities, indicating that utilization would increase with increased consumer expenditures. According to these estimates the utilization of apples and bananas would decline with increased consumer expenditure.

Shi and Wahl (1996) estimated demand elasticity for fresh fruit products (primarily domestically produced) by using cross-sectional (by city) data from China's 1992–1994 Urban Household Expenditure Surveys. Eight fresh fruit groups were considered in the study including apples, citrus, peaches, pears, bananas, grapes, watermelons, and other fresh fruit. The linearized version of the Almost Ideal Demand System was used to

estimate the demand elasticity. In order to gain insight into the fruit purchasing responses to consumer income, the conditional expenditure elasticity for the selected fruit groups were converted to their corresponding income elasticity by utilizing the previous estimate (1.226) of total fruit income elasticity based on urban household survey data [Chern and Wang 1994].

Table 1. Estimated direct-price and expenditure elasticity for selected fruits
Tabela 1. Oszacowane elastyczność cen bezpośrednich oraz wydatków dla wybranych owoców

Commodities	Direct-price elasticity	Expenditure elasticity
Apples	-0.2015	-0.3514
Oranges	-0.9996	0.4866
Bananas	-0.4002	-0.0429
Grapes	-1.3780	0.4407
Grapefruit	-0.2191	0.4588

Source: Huang 1985.

Źródło: Huang 1995.

According to Shi and Wahl (1996), if the income elasticity for imported fruit is assumed to be 1.50 and annual income growth in real terms is 8 percent, then by the year 2000, China's demand for imported fruit would increase by 70 percent compared to the demand in 1995. By the year 2005, the demand for imported fruit could triple. Furthermore, when the rapid increase in the number of newly wealthy Chinese consumers is accounted for, the potential market for imported fruit could be even larger.

Table 2 shows the income elasticity of fruit consumption. The income elasticity of fruit demand for the highest income group was found to be 0.3202 compared to 0.8985 for the lowest income group. Therefore, the greatest potential for significant expansion in consumption would rest with the lower income groups, while substitution effects could lead to some increase in consumption of tropical fruits among the higher income groups.

Table 2. Income elasticity of fruit consumption
Tabela 2. Elastyczność dochodowa a spożycie owoców

Income households group	Average income elasticity
Lowest 10 percent	0.8985
Low (second 10 percent)	0.7688
Lower middle (second quintile)	0.6094
Middle (third quintile)	0.4846
Up middle (fourth quintile)	0.4639
High (highest quintile)	0.3202

Source: China Statistical Yearbook 1998.

Źródło: Rocznik Statystyczny Chin 1998.

Fruit trading

Fruit trade, including domestic inter-regional trade and foreign trade, has increased remarkably during the last 10 years due to the liberalization of the Chinese fruit sector and the rapid increase in family income.

According to the report "Market for tropical fruits in China" [Intergovernmental group on bananas and on tropical fruits 1999], China is a net fruit exporting country. In 1997, it imported about 691 thousands tons of fruit worth USD 210 million and exported about 910 thousands tons valued at USD 542 million (Table 3). Both exports and imports have increased rapidly in recent years.

Generally, China exports temperate fruits and imports tropical fruits. However, a significant quantity of tropical fruit (38 percent of the total fruit shipped) is also exported. Mandarins, apples, pears and apricots were the dominant exports, while bananas, longans and longan pulp, mangoes and mangosteens were the major imports.

Table 3. Fruit trade of China 1995–1997 (in tones)

Tabela 3. Handel owocami w Chinach w latach 1995–1997 (w tonach)

	Export			Import		
	1995	1996	1997	1995	1996	1997
Fruit (total)	636 320	716 002	910 356	224 486	624 871	691 421
Fresh and dried	435 613	506 321	649 433	216 798	611 126	676 590
Processed	200 707	209 681	260 923	7 688	13 745	14 831
Million USD						
Fruit (total)	471.56	473.52	542.06	74.59	187.72	210.64
Fresh and dried	270.51	253.20	294.25	67.46	179.05	200.46
Processed	201.05	220.32	247.81	7.13	8.67	10.18

Source: Agricultural Information Analysis.

Źródło: Agricultural Information Analysis.

According to Table 3, Chinese fruit trade with foreign countries has also increased considerably. The substantial increase in fruit production and strong desire to earn foreign currency to finance the dramatic increase in imports has put pressure on increasing fruit exports. According to Shi and Wahl (1996), in 1993, total fruit exports reached 320 thousands metric tons, a 41% increase over 1990 levels. In 1994, China's exports for apples and oranges, respectively, reached 107 and 127 thousands metric tons, which are, respectively, 71.7% and 94.2% increases over the corresponding exports in 1990. In 1995, China's fruit exports for apples and oranges, respectively, reached 109 and 132 thousands metric tons (Table 4). The major destination of Chinese fresh fruit exports is countries of the Former Soviet Union (due to the low quality and prices). In 1993, China's apple exports to Russia accounted for 81.3% of the total apple exports.

Table 4. Apples export quantity (1000 Mt) and its percentage of total production in 1989–2002

Tabela 4. Wielkość eksportu jabłek (1000 Mt) oraz jego udział procentowy w całkowitej produkcji w latach 1989–2002

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Poland	25.4	38.6	70.5	112.3	176.1	115.1	139.0	95.9	191.5	169.3	148.5	211.6	245.9	327.8
%	1.9	4.8	6.2	7.2	9.6	8.0	10.8	4.9	9.1	10.0	9.3	14.6	10.1	15.1
China	70.5	62.4	24.3	38.5	119.4	107.2	108.9	165.0	188.5	170.3	219.2	297.7	303.6	438.9
%	1.6	1.4	0.5	0.6	1.3	1.0	0.8	1.0	1.1	0.9	1.0	1.4	1.5	2.3

Source: FAOSTAT Database.

Źródło: Baza danych FAOSTAT.

As China's fruit production increases and quality improves, China's fruit exports may increase in the future. However, at present, the export quantity of fruit is still low. For example, apples export quantity in China is closer to that in Poland (Fig. 2), but the export quantity accounted as the percentage of total production is much lower than that in Poland (Fig. 3).

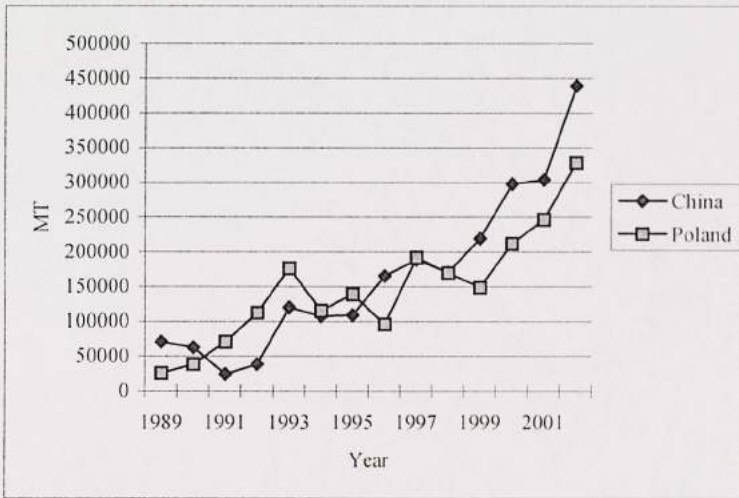


Fig. 2. Apples export quantity in 1989–2002
 Rys. 2. Wielkość eksportu jabłek w latach 1989–2002
 Source: Based on the data in Table 4.
 Źródło: Obliczenia w tabeli 4.

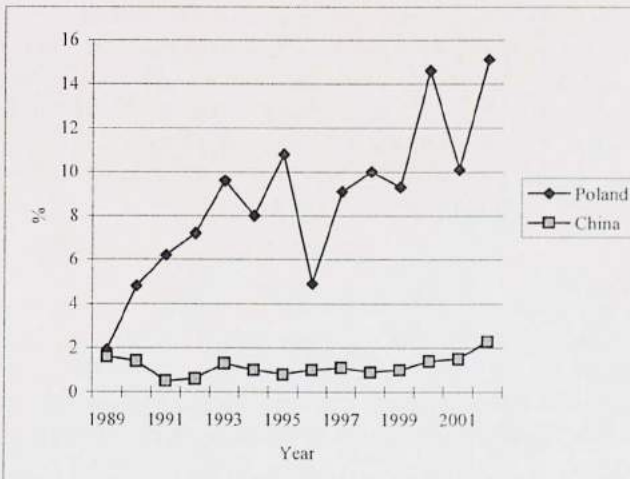


Fig. 3. Apples export quantity accounted as percentage of total production in 1989–2002
 Rys. 3. Udział procentowy eksportu jabłek w całkowitej produkcji w latach 1989–2002
 Source: Based on the data in Table 4.
 Źródło: Obliczenia w tabeli 4.

Although China is a surplus producer, it still imports some fruits to meet demand for variety and higher quality fruits. As for apples, Fig. 4 shows the comparison of import quantity between China and Poland from 1989 to 2002.

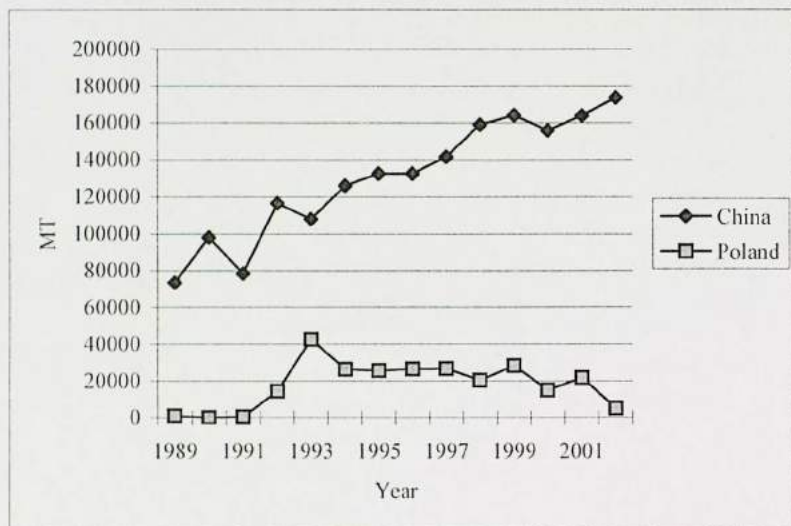


Fig. 4. Comparison of apples import quantity between China and Poland in 1989–2002

Rys. 4. Porównanie wielkości importu jabłek pomiędzy Chinami i Polską w latach 1989–2002

Source: Based on the data of FAOSTAT Database Collections.

Źródło: Obliczenia oparte na danych FAOSTAT.

In addition to fresh markets, processed fruit products such as raisins, fruit juice or fruit drinks may also find a large market in China, especially in Southern and coastal regions. According to Shi and Wahl (1996), approximately 1988 metric tons of California golden raisins were exported to China via Hong Kong in 1992. Fruit juice is popular among newly rich Chinese consumers, however, China's current processing technology and processing capacity for fruit juice or drinks is quite limited, which may create marketing opportunities for imported products.

CONCLUSIONS

Comparing apple industry between China and New Zealand, Cranwell (1999) pointed out "if we don't get it right in the next two years, we will lose out to others, like the South Americans and the Chinese". It is apparent that Chinese fruit industry has got great achievements. However, despite the great achievement, main problems still exist as below:

- Low export quantity. As China's fruit production increases and quality improves, China's fruit exports may increase in the future. However, at present, the export quantity of fruit is still low (1–2% of total production). For example, apples export quantity in China is closer to that in Poland (Fig. 2), but the export quantity

accounted as the percentage of total production is much lower than that in Poland (Fig. 3). The reason for low exports was low fruit quality caused by inappropriate use of chemical fertilizers and pesticides to leave harmful residue on fruits and inappropriate harvesting, packaging, and transportation of fruit products. So, it is important to improve fruit quality and economic performance.

- Proportion of fresh and processing fruits was not rational. In general, the proportion of fresh and processing fruits is about 65:35 for citrus, and 70:30 for apples in the world. But in China the processing fruits only accounted for 5–10% of total production [Zhu & Hao 2000]. The levels of processing in the major fruit producing countries in the world are, Brazil: 70%, USA: 60–70%, Malaysia: 83% and Israel: 50%. However, in China only about 10% of citrus production are for processing.
- The lack of cold-chain transportation and storage facilities: According to the estimation from Zhu & Hao (2000), the fruit storage capacity was 20% of total production, only 7% for cold storage.
- The growers were not been properly organized. In many countries, growers' associations provide services such as information to facilitate production, marketing and long-term planning and market assessment. National marketing boards can coordinate marketing and distribution to ensure a reasonable return for producers. In this sense, China's fruit industry was not well structured compared to its western counterparts since there were a few institutions for macro-level controls and coordination in production and marketing of fruit products.

In order to solve the above problems, the developing strategies below were suggested:

- To control fruit growing area, and to adjust and optimize the fruit cultivation structure, especially stabilize the apple-growing areas;
- To pay more attention to fruit quality and to implement the change from "quantity" to "quality";
- To accelerate the establishment of fruit processing industry and to implement the change from "eat" to "drink";
- To enlarge exportation. For adapting itself to economic globalization, the fruit industry should fully use international markets and actively take part in international trade, economic cooperation and market competition;
- To adopt plastic tunnel cultivation to get more profit: Some benefits of plastic tunnel cultivation include: earlier crop production; higher yields per acre; cleaner, higher-quality produce; more efficient use of water resources; more efficient use of fertilizer inputs; potential decrease in disease and pests; and fewer weeds.

In general, the fruit production must meet the demand of the market, and the traditional farming concepts which only focus on quantity should be abandoned. The restructure of fruit sector and rural economy are important in keeping up with the global economy and the liberalization of trade.

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MARKETING OWOCÓW W CHINACH

Streszczenie. Chiński przemysł owocowy od czasu reformy gospodarczej przechodzi znaczące zmiany. Produkcja owoców w Chinach wzrosła wyraźnie, sięgając w 1998 roku 54,5 miliona ton, przez co Chiny stały się największym producentem owoców na świecie. Dystrybucja owoców poprawia się znacząco, głównie dzięki powstaniu owocowych rynków hurtowych. Wraz ze wzrostem dochodów gospodarstw domowych zmieniają się wzorce konsumpcji. Konsumenci żądają wysokiej jakości owoców, także importowanych. W ostatnich latach w Chinach rozwija się także handel owocami, zarówno krajowy, jak i zagraniczny. Artykuł przedstawia tendencje konsumpcji i marketingu owoców w Chinach, w latach 1989–2002, również w porównaniu z innymi krajami (m.in. z Polską). Omówiono także główne problemy związane z marketingiem owoców i zasugerowano strategię rozwoju tego sektora.

Słowa kluczowe: marketing owoców w Chinach, sprzedaż hurtowa i detaliczna owoców, spożycie owoców, import i eksport

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