Current Status of Fresh Fruit Export in Korea

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Population: 47.64 m.
Total area: 9.96 m. ha
Cultivated area: 2.02 m. ha
Horticulture: 0.41 m. ha
Import of grain: 14.7 mt/yr
(Self-sufficiency rate: 30%)
Typical temperate climate with four distinct seasons

Average temperature, Seoul
Year ave. = 12.2 °C

Average precipitation, Seoul
(1,344mm/year)

2/3 of total rainfall
Drastic changes happened in Korean rural society

The most serious problem faced in Korean agriculture

Because our farm size is too small

(1.39ha/household, 2002)
The horticulture industry has become increasingly important in Korea.

Production value of Horticultural Crops in Korea, 2004

- Total: $11.5 billion 2004
- Vegetables: $7.7 b. 66%
- Fruits: $2.9 b. 26%
- Ornamentals: $0.9 b. 8%
Kimchi: major usage for vegetables in Korea, More than 200 different kinds of Kimchi available,

No Kimchi, No Korean

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The product value ($ million) and their market shares of ten major vegetables in Korea (These 10 crops formed 80% of the total)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Vegetable</th>
<th>Value</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Red Pepper</td>
<td>$1,130 M. (20%)</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>Watermelon</td>
<td>$478 M. (9%)</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Strawberry</td>
<td>$477 M. (9%)</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>Green Onion</td>
<td>$457 M. (8%)</td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>Napa Cabbage</td>
<td>$455 M. (8%)</td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>Garlic</td>
<td>$438 M. (8%)</td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td>Melon</td>
<td>$343 M. (6%)</td>
<td></td>
</tr>
<tr>
<td>8th</td>
<td>Pineapple</td>
<td>$320 M. (6%)</td>
<td></td>
</tr>
<tr>
<td>9th</td>
<td>Broccoli</td>
<td>$239 M. (4%)</td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>Leek</td>
<td>$237 M. (4%)</td>
<td></td>
</tr>
</tbody>
</table>
Major fruits in Korea (2004)

1st: Oranges
2nd: Pears
3rd: Grapes
4th: Apples
5th: Tomatoes
6th: Peaches

A view of protected vegetables growing area from an airplane

Changes in protected area

[Graph showing changes in protected area from 1970 to 2002]
### Table 1. Fruit production in Korea.  \(10^3\) M/T

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>Citrus</td>
<td>511</td>
<td>563</td>
<td>642</td>
<td>584</td>
</tr>
<tr>
<td>Pear</td>
<td>259</td>
<td>324</td>
<td>386</td>
<td>452</td>
</tr>
<tr>
<td>Grape</td>
<td>397</td>
<td>475</td>
<td>422</td>
<td>368</td>
</tr>
<tr>
<td>Apple</td>
<td>459</td>
<td>488</td>
<td>433</td>
<td>357</td>
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<tr>
<td>Persimmon</td>
<td>260</td>
<td>287</td>
<td>281</td>
<td>299</td>
</tr>
<tr>
<td>Peach</td>
<td>151</td>
<td>170</td>
<td>187</td>
<td>200</td>
</tr>
<tr>
<td>Plum</td>
<td>39</td>
<td>51</td>
<td>57</td>
<td>72</td>
</tr>
<tr>
<td>Etc</td>
<td>73</td>
<td>66</td>
<td>71</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>2,153</td>
<td>2,428</td>
<td>2,500</td>
<td>2,410</td>
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</table>
Fig. 2. Fruit production ($10^3$M/T) in 2004.

Table 2. Export value of horticultural crops from Korea. (M US$)

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
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<tbody>
<tr>
<td>Vegetables</td>
<td>187</td>
<td>190</td>
<td>169</td>
<td>194</td>
<td>230</td>
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<tr>
<td>Fruits</td>
<td>45</td>
<td>56</td>
<td>82</td>
<td>71</td>
<td>86</td>
</tr>
<tr>
<td>Flowers</td>
<td>30</td>
<td>32</td>
<td>32</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>262</td>
<td>278</td>
<td>283</td>
<td>210</td>
<td>355</td>
</tr>
</tbody>
</table>
Table 3. Export value of fruits from Korea. (M US$)

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pear</td>
<td>19.6</td>
<td>34.1</td>
<td>30.1</td>
<td>35.2</td>
<td>56.1</td>
</tr>
<tr>
<td>Apple</td>
<td>3.0</td>
<td>14.2</td>
<td>7.7</td>
<td>5.2</td>
<td>7.8</td>
</tr>
<tr>
<td>Citrus</td>
<td>4.9</td>
<td>5.7</td>
<td>4.3</td>
<td>5.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Persimmon</td>
<td>4.4</td>
<td>4.6</td>
<td>2.3</td>
<td>3.6</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Oriental pears

‘Niitaka’:
79% of oriental pear production
crisp in texture
good to eat as soon as harvested
large and round to slightly flatten
bronze–russet skin
Apples

‘Fuji’:
80% of apple production
late season cultivar
large, high sugar, firm flesh texture
yellow-green with red highlights
excellent for eating fresh
good balance of high sugar and organic acid
very long storage life

Citrus

‘Satsuma Mandarin’:
98% of citrus production
very tolerant to cold weather
sweet, seedless fruit with delicate flavor
Rind is loose and can easily be removed.
Persimmons
sweet persimmon and astringent persimmon

'Fuyu':
82% of sweet persimmon production
Excellent flavor for eating

Postharvest research in Korea

1950’s: no postharvest research

1960’s: common stores with clay bricks (apple, pear)
    MA storage with PVC film (persimmon, vegetables)

1970’s: MA storage
    storage for national security
    pretreatment technology
    some postharvest physiology (respiration)
1980's: low cost storage
   standard fruit store
   packaging and filler
   cold storage
1990's: postharvest technology for globalization
   cold-chain system
   packaging with functional films
   CA storage with nitrogen generator
2000's: well-being era
   nutritional quality
   phytonutrients
   convenient food
Fig. 35. Scanning electron micrographs of the conidial shapes and acervulus of *Gloeodes pomigena* isolated from black stain Niitaka pear fruit skin. A, Colony separated from black stain pear fruit skin (×1k); B, Colony separated from black stain pear fruit skin (×20k); C, Cultured colony separated from black stain pear fruit skin (×1k); D, Cultured colony separated from black stain pear fruit skin (×20k).
Fig. 20. Anatomical structure of skin tissue on Niitaka pear fruit showing initiating and terminating portion of the peeling-off disorder. CC, cork cell; H, hypodermis; P(EC), phellogen (elongated cell).
Agricultural & Fishery Marketing Corporation (AFMC)

in charge of exports and imports of agricultural products in Korea

main duty:
collection of agricultural and fishery trade information
promotion of sales, and public relations development in overseas markets
participate in major international exhibitions
operate Korean food exhibitions and overseas exhibitions
install export public relations in partner trading countries

operate financial assistance programs:
  wholesale market construction loans
  advanced payment loans
  shipping promotion loans

Overseas offices:
  Japan (Tokyo, Osaka), Netherlands (Rotterdam), U.S.A. (New York, LA)
  Russia (Moscow), Singapore, and China (Beijing, Shanghai)
Recommendations:

**Labor-saving technologies** should be developed for improving price competitiveness.

**Restructuring of fruit production and marketing systems** are needed to reduce production cost.

It is essential to develop the **modernized systems for postharvest operations.**

Improving the **brand values** of Korean fruits into the overseas’ markets is also important.

**Systematic export promotion** programs should be implemented.

Development of **new varieties** is needed through new biotechnology technique.

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Welcome to Korea

A view of Korea from satellite

See you in SEOUL,
Thanks