Cassava Production and Commercialization in China

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Introduction

- New replaceable energy will be imperative under the situation that petrochemical energy resources are short of in china.
- cassava is the best energy crop, better cultivated and processing technologies, feasible economy and commercialization in south china tropical area.

Production and Utilization

1 World Cassava Production

- Chinese cassava harvest area and production separately accounting for 2.3% and 3.9% of the world in 2005.

2 Chinese Cassava Production

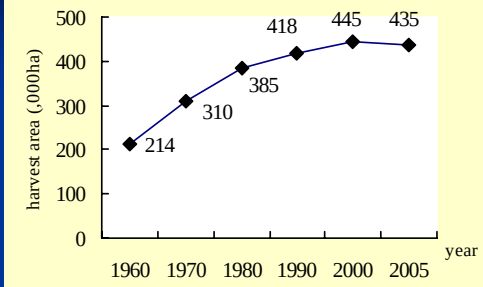


Figure 1 Chinese cassava harvest area in 1960-2005

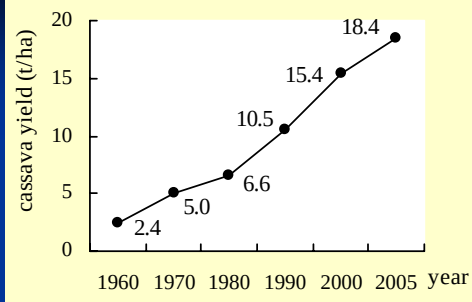


Figure 2 Chinese cassava yield in 1960-2005

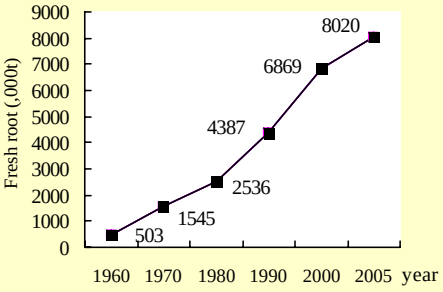


Figure 3 Chinese cassava production in 1960-2005

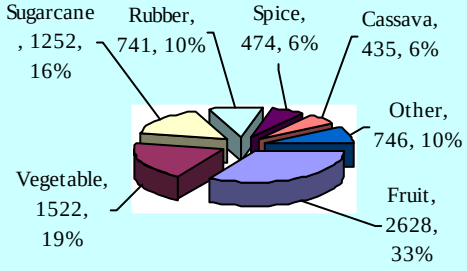


Figure 4 Chinese tropical crops in 2005 (,000ha)

3 Cassava Commercialization

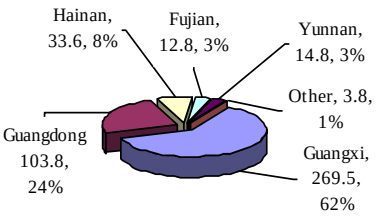


Figure 5 Chinese cassava harvest area in 2005 (,000ha)

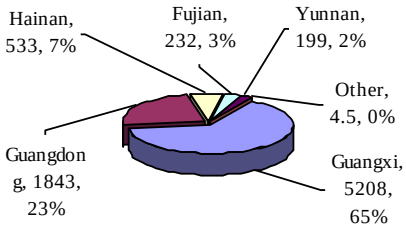
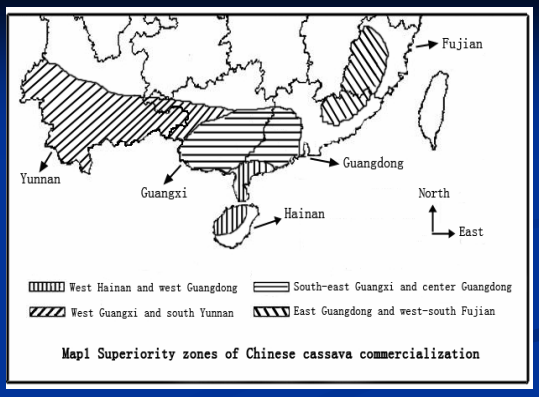


Figure 6 Chinese cassava production in 2005 (,000t)



4 Chinese Cassava Utilization

- 40% cassava for animal feed, 60% industrial material.
- Major: starch, modified starch, alcohol etc.
- 2005: more than 200 cassava factories processing about 500,000 t starch, 200,000 t modified starch and 450,000 t alcohol, it included 300,000 t alcohol were processed by imported dried chip.
- Guangxi in 2005: 120 cassava factories processed total 350,000 t starch and 130,000 t modified starch, 130,000 t alcohol.

Agricultural Research and Extension

Table 2 Improved cassava varieties in China.

Variety	released	Characteristics
SC 205	1982	most popular; high yield in good soil
GR 911	1998	high yield, widely planted in Guangxi
GR 891	1998	high starch, high yield in fertile soil
SC 5	2002	high yield in poor soil
SC 6	2002	high starch content, wind resistant
SC 7	2005	high yield in good soil
SC 8	2005	high yield
SC 9	2006	good eating variety; yellow flesh

- **Extension model:** "Farmer Participatory Research and Extension" , "Government or enterprise + Research or extension unit + Farmer".
- about 10% area: extension new variety also high yield technologies, increasing 20-50% yield and 50% net income.
- Successful technologies:

Domestic Marketing and International Trade

1 Fresh Cassava Root and dried chip price (US$/T)

	2000	2005
fresh root price	27.5	47.5
Dried chip price	97.5	143.8

2 Cassava Dried Chip

Country	Import (,000t)		Import (million $)	
	2000	2004	2000	2004
World	4773.4	6672.2	399.3	735.7
China	256.7	3473.1	22.1	346.8

Source FAOSTAT

3 Cassava Starch

- FAOSTAT: imported cassava starch quantity and value in 2004 respectively increased 73.2% and 97.2% than in 2000.
- China in 2005: processed about 500,000t starch, but imported 460,000t starch.
- GCA: Imported 20,000 t, 90,000t, 150,000t cassava modified starch separately in 1998, 2000 and 2005.

4 Cassava Alcohol

- 2005: gasoline consumption about 50 million tones, need 5 million tones fuel alcohol.
- Processing: total 2.5 million tones ethanol, in which, 1 million tones were used for gasohol.
- 2005: 0.45 million tones cassava ethanol, mainly for drinking now.

Domestic Competition Analysis

Table 4 Accounting cost and benefit per ton starch in 2005

	Fresh root	Dried maize
Material Price (US$/t)	43.8	118.8
Consume material (t)	4.0	1.5
Total material cost (US$/t)	175.2	178.2
Industrial cost (US$/t)	62.5	62.5
Total cost (US$/t)	237.7	240.7
Starch price (US$/t)	275.0	262.5
Net income (US$/t)	37.3	21.8

Table 5 Accounting cost and benefit per ton >99.5% alcohol in 2005

	Fresh root	Dried chip	Dried maize
Material Price (US$/t)	43.8	140.0	118.8
Consume material (t)	7.2	2.9	3.6
Total material cost (US$/t)	315,4	406.0	427.7
Industrial cost (US$/t)	112.5	112.5	112.5
Total cost (US$/t)	427.9	518.5	540.2
Ethanol price (US$/t)	537.5	537.5	537.5
Net income (US$/t)	110.0	19.0	2.7

Important Countermeasure

1 Future Objective

	2005	2010	2015
Harvest area (million ha)	0.43	0.67	1
Yield (t/ha)	18.3	22.5	30.0
Fresh root production (million t)	8	15	30
Fresh Root starch content (%)	28.0	29.0	30.0
Starch production (million t)	0.5	1	1.5
Modified starch (million t)	0.2	0.3	0.5
Alcohol production million t	0.45	1	3
Total value (million US$)	375	1125	3250

- 2 Make commercialization Policy
- 3 Science and Technology Innovations
- 4 Improve Extension System
- 5 Circulation Economy
- 6 International Cooperation
- 7 Emphasize on Quarantine and Pests Prevent

← SC 5

Thank you