

## II Feedstock supply

- ✓ Cassava alcohols

Alcohols are the largest consumption field of cassava. In 2008, cassava alcohols output was about 0.72 million tonnes which needs to consume 5.4 million tonnes cassava.

Cassava is a more appropriate raw material to produce alcohols compared with other raw materials.

Table II-12 Economic benefit comparison of alcohols production using different raw materials in China

Item	Cassava	Sugarcane	Corn	Wheat	Potato	Sweet potato
Price of RM (USD/t)	70.02					
Unit consumption (tonne)		2.8				
Cost of RM (USD/t)						
Process cost (USD/t)				117.13		
Cost of producing alcohol (USD/t)						
Price of alcohol (USD/t)						819.91
Profit (USD/t)						

Source: CCM International

## III-1 First-generation biofuels

### III-1.1 Fuel ethanol

In China, fuel ethanol has the largest output among all biofuels, playing an important role.

Table III-5 Basic information of main fuel ethanol manufacturers in China, 2009

No.	Name	Ownership	Raw materials	Capacity '09 (t/a)	Output '08 (tonne)
1					
2	Jilin Fuel Alcohol Company Limited				
3			Corn		
4				200,000	
5					
6		Private			27,000
7					
<b>Total</b>		-			

Source: CCM International

Table III-6 Potential fuel ethanol manufacturers in China, 2009

No.	Name	Ownership	Raw materials	Capacity being constructed (t/a)	Launch time
1					
2				500,000	
3	Xinjiang Haoqi Biomass New Energy Technology Co., Ltd.				
4		Private			N/A
5			Cassava, sugarcane		
<b>Total</b>		-	-		

Source: CCM International

### III-1.2 Biodiesel

In China, biodiesel output ranked the second in biofuel products. China's biodiesel industry is only in introduction stage at present.

Table III-8 Basic information of biodiesel manufacturers in China, June 2009

No.	Name	Status	Ownership	Raw material	Capacity '09 (t/a)	Output '08 (t)	Price (USD/t)
1	Sichuan Gushan Group						
2					200,000		
3							
4		Active		Soybean oil, palm oil			
5							
6							
7							
8							
9			Private			20,000	
10							776
11							
12							
13							
14	Sichuan Chengdu Yiyu Bio-chemical Co., Ltd.						
15							
16							
Others							
<b>Total</b>		-	-	-			

Source: CCM International

### III-1.3 Biobutanol

#### ➤ Manufacturer

By the end of June 2009, only five manufacturers have been involved in biobutanol production, but all of them are idle due to low profit at present.

Table III-11 Basic information of main biobutanol manufacturers in China, 2009

No.	Name	Ownership	Status	Raw materials	Capacity '09 (t/a)	Price (USD/t)
1	CNCP Huaying Co., Ltd					
2				Corn, cassava		N/A
3		Private				
4			Idle			
5					5,000	
<b>Total</b>		-	-	-		

Source: CCM International

### IV Processing technologies in biofuel industry

The current researches on biofuel production technologies in China mainly cover the following four methods.

Table IV-1 Comparison among four kinds of biofuel technologies in China

Technology	Current situation	Likely progress to 2014	Outcome of progress
Enzymatic hydrolysis		To be used more widely and make progress	
Fermentation			To be key fuel ethanol production technology
Transesterification	Mainly used in biodiesel production		
Pyrolysis & gasification			due to high production cost.

Source: CCM International

### V Governmental regulations on biofuel industry and their influence

There are many factors influencing biofuel industry, and government regulations are one of the most significant ones.

### VI Competitiveness landscape

The advent of biofuels marks a far-more diverse transportation fuels market, characterized by

new products, new players and a different competitive landscape.

Based on *Michael Porter diamond model*, CCM has made a brief analysis on competitiveness of China's biofuel industry.

Table VI-2 Comparison of the 3 state-owned ethanol producers in China, 2009

Company name	subsidiary	Raw material	Capacity '09 (t/a)	Current situation	Strategy for biofuels
COFCO					COFCO plans to take up 60% fuel ethanol capacity in China by 2010, [REDACTED]
		Corn			
			200,000		
	Henan Tianguan Group Co., Ltd.			55% share is held [REDACTED]	[REDACTED] plans to build about 3 million t/a biofuel capacity by 2010, [REDACTED].
		corn	500,000		
		N/A	N/A	Invest some companies with COFCO [REDACTED]	Cooperates with [REDACTED] for second-generation biofuels production. Also plans to establish fuel ethanol production line in Central China, using sweet potato as material.

Source: CCM International