

CJCJ

Biotechnology Business

Nov. 2011



I . What is Bio industry?

II . CJCJ Bio Business – Current

III . CJCJ Bio Business – Future

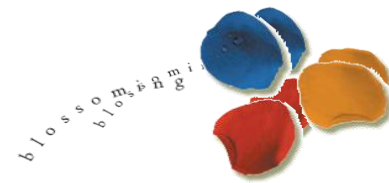
[Appendix]

Chinese Lysine Market

Lysine Capacity Expansion Plan of CJCJ



I -1. What is Biotechnology Industry?



● Biotechnology Industry

- Industrial production of useful materials using organic function and information

● Classification of Biotechnology Industry

Classification

Usage

Products



Green

Food

Agriculture

Environment

**MSG/ Nucleotide/ Fermented Food/ Health Supplements
Lysine/ Threonine/ Bio Pharmaceuticals/ Fertilizer
Microorganism/ Pollution Measurement System**



White

**Biochemistry/
Energy**

Bio-diesel/ Bio-ethanol/ Bio Chemical

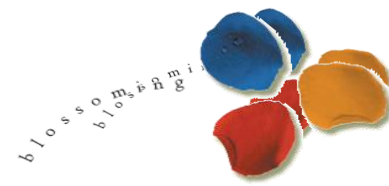


Red

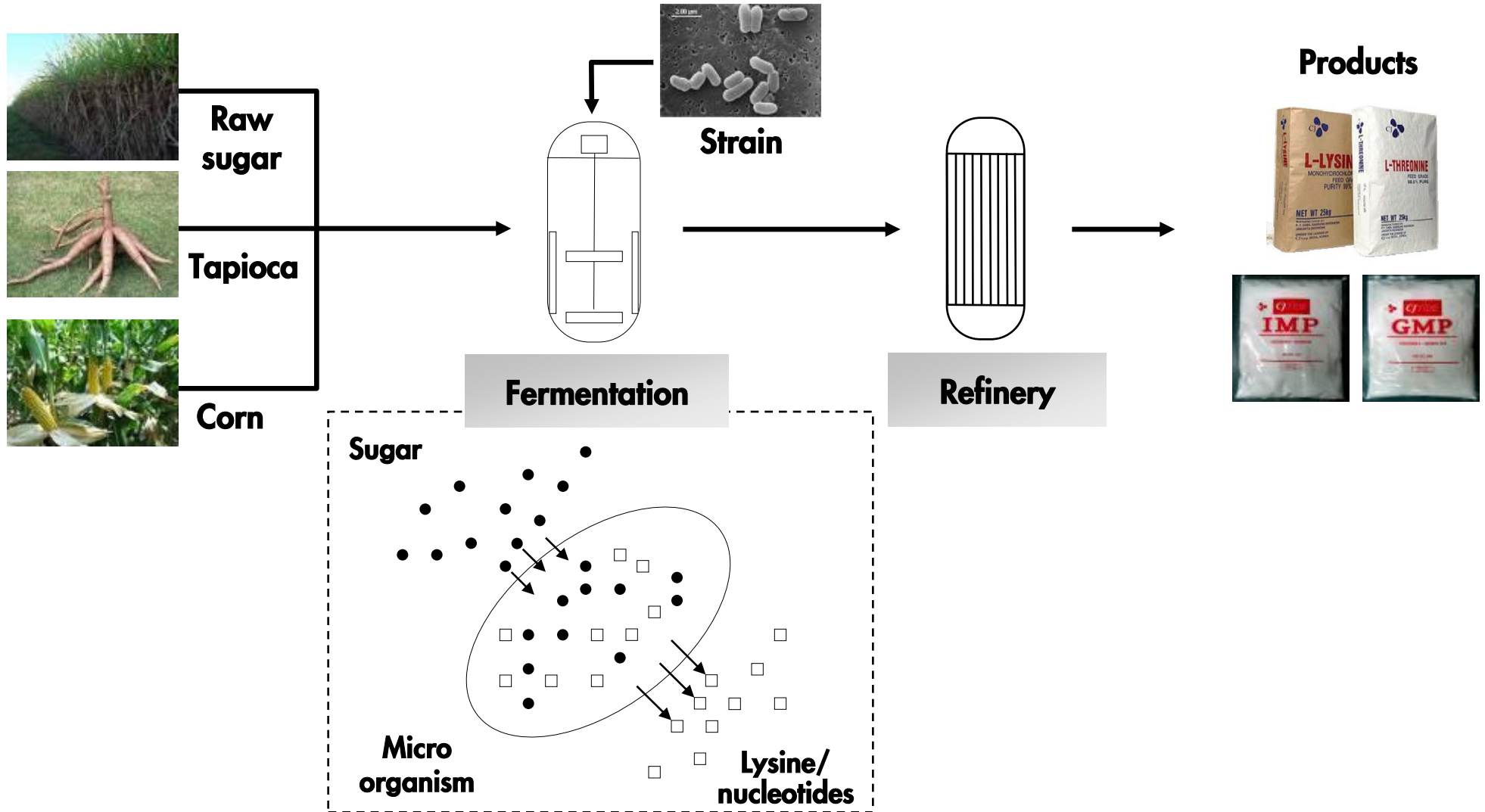
Pharmaceuticals

**Antibiotics/ Vaccine
Anti cancer/ Hormone Drug**

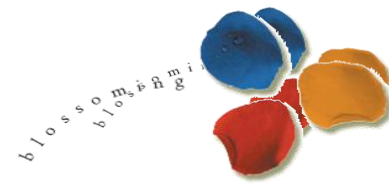
1 -2. Bio(Fermentation) Production Process



- Powder type products are produced through fermentation and refinery process with micro organism using sugar



I -3. Biotech Industry – Core Competency



- The KSF of the Bio business is the sourcing and technical ability

Core competency in Strain Development based on Microorganism Engineering

- Specialized technology in strain development
- Rich experience in managing micro organism production process



Competitive Edge in Lower Cost

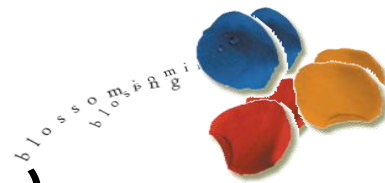
- Stable sourcing of low-cost materials
- Low utility cost / Highly efficient labor



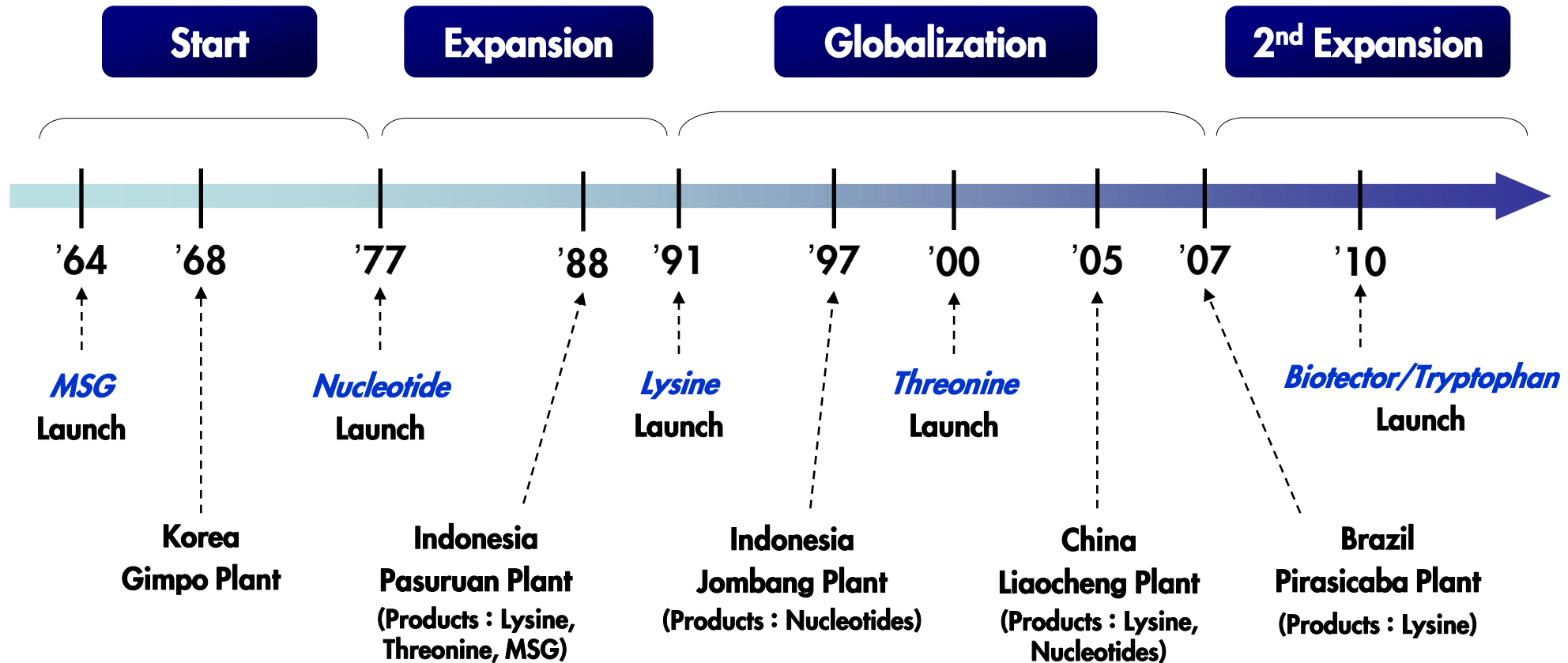
Global Business Network

- Global Sales Network for Bio products
- Systematic launch of new product

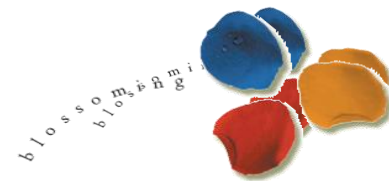
II -1. CJ Bio Business – History



- Started from MSG production to Nucleotides and Amino Acids (feed additives)
- Additional production plants were built in Indonesia, China and Brazil starting from Gimpo plant in Korea
- Planned to continuously grow as a global green bio company



II -2. Business Area_ 1) Feed additive Amino Acid



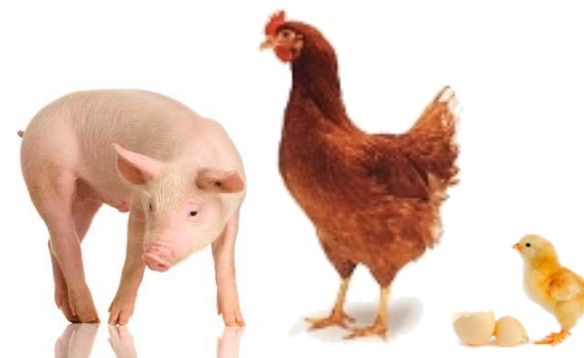
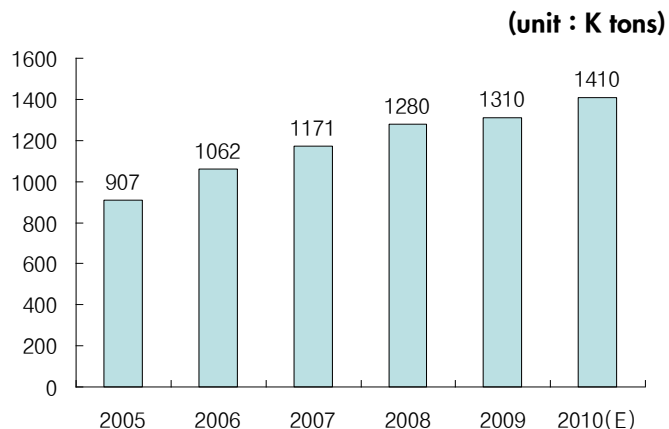
● Amino Acids for Animal Feed

- Lysine, Threonine, Methionine, Tryptophan
- Essential protein source for animal development
- Lysine and Threonine are used for swine and poultry feed for nutritional balance

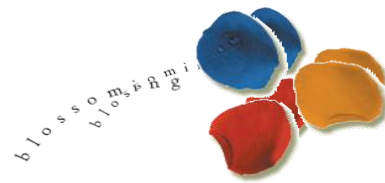
● Future growth potential for Feed additive Amino Acids



[Global Lysine Demand]



11-3. Business Area_ 2) Food additive Nucleotides



● Nucleotides

- IMP, GMP
- Nucleotides in nature which has seasoning effect

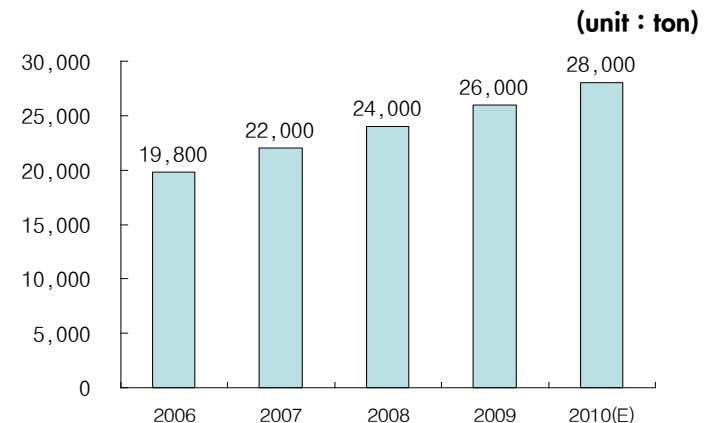


● Future growth potential for Nucleotides

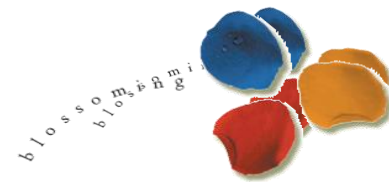
- 8 ~ 9% of global demand increase due to growing demand of processed food especially in China and developing countries



[Global Nucleotides demand]



|| -4. Business Area_ 3)New Product

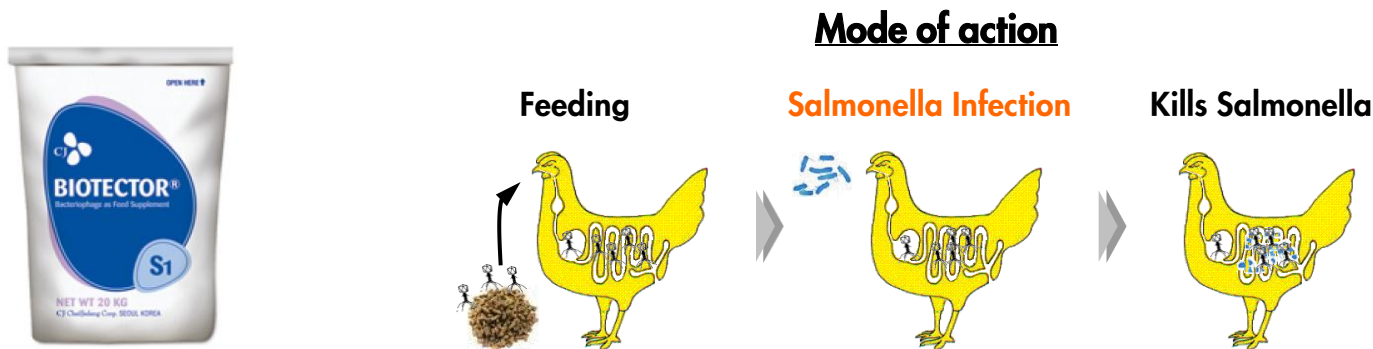


● Feed additive Amino Acids

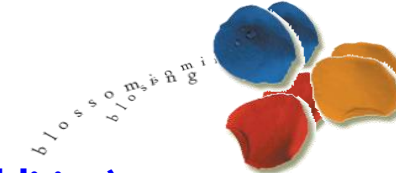
- **Tryptophan** : Launched on July of 2010
 - Market is at the entry stage with the size of less than 10,000 tons
 - Important role in stress relief and immunity building up of livestock
- **Methionine** : To launch in 2014
 - Mostly used in poultry feed with the estimated market size of 750,000 tons
 - Current players are using chemical method but CJCJ will be producing by nature-friendly fermentation method

● Antibiotics Replacement

- Launched Antibiotics replacement '**Biotector®**' using Bacterio-phage
- Current product is targeted for poultry disease Salmonella
- Expected to show high sales growth due to antibiotics restriction

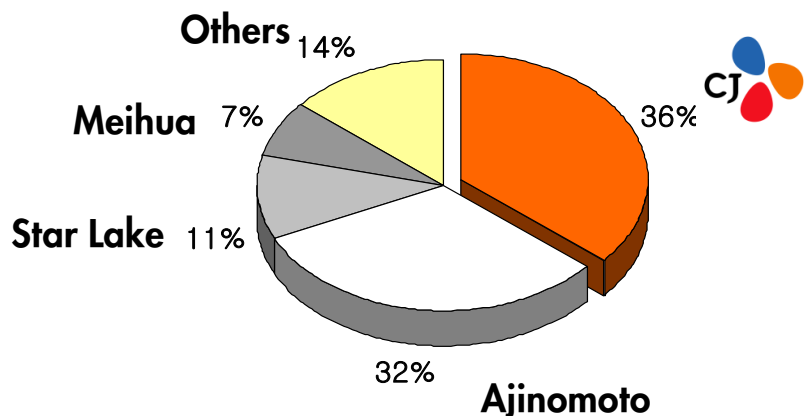


11-5. Market Competition



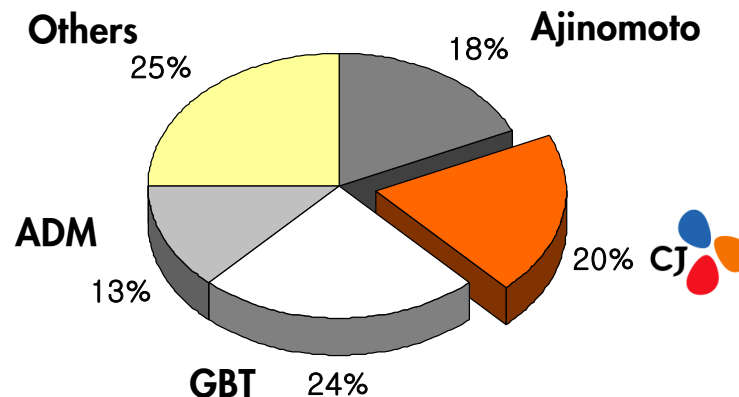
● Nucleotides: Worldwide No.1 (Food Additive)

- Market Size 38,000 tons, 9% growth



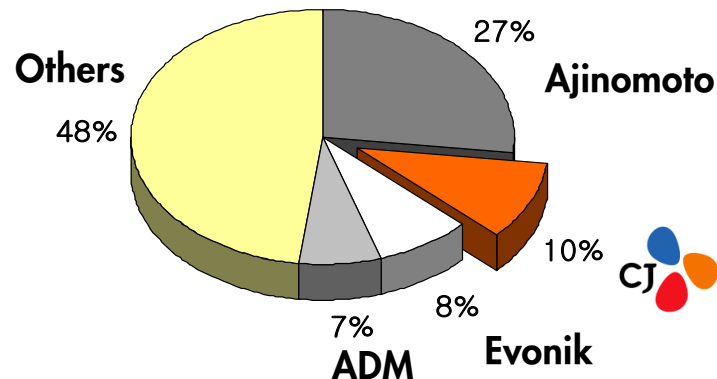
● Lysine: Worldwide No.2 (Feed Additive)

- Market Size 1.7 mil. tons, 8% growth



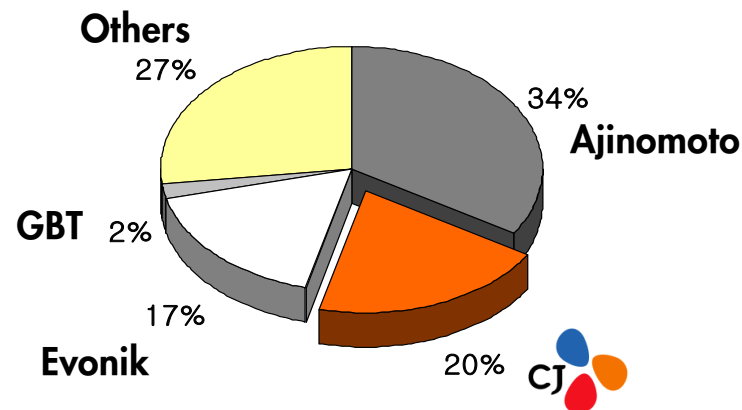
● Threonine: Worldwide No.3 (Feed Additive)

- Market Size 250,000 tons, 12% growth



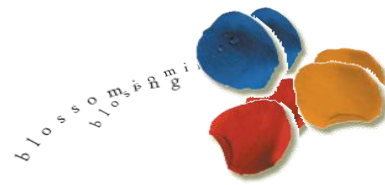
● Tryptophan: Worldwide No.2 (Feed Additive)

- Market Size 5,500 tons, 15% growth



1) Market Size is based on the expected sales at the end of 2011

II -6. Business results



- **29% sales growth annually for last 6 years and constant increase of operating profit due to R&D investment and stabilization of the new plants**

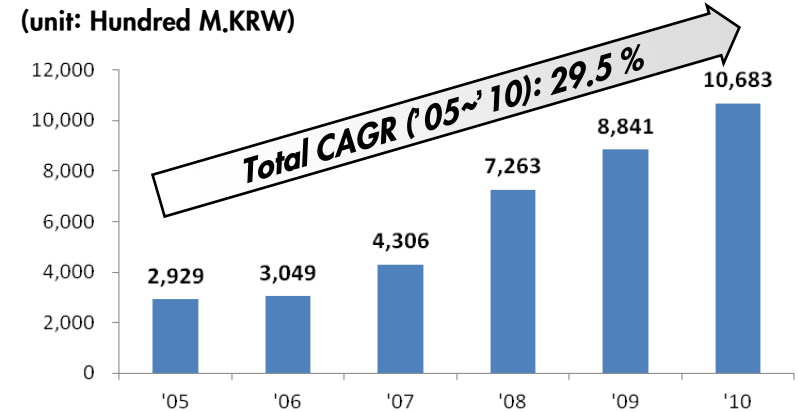
□ Sales

- 29% sales growth annually for last 6 years
- Chinese sales is showing high growth with the stabilization of the new plant
- Constant sales growth forecast with the capacity increase

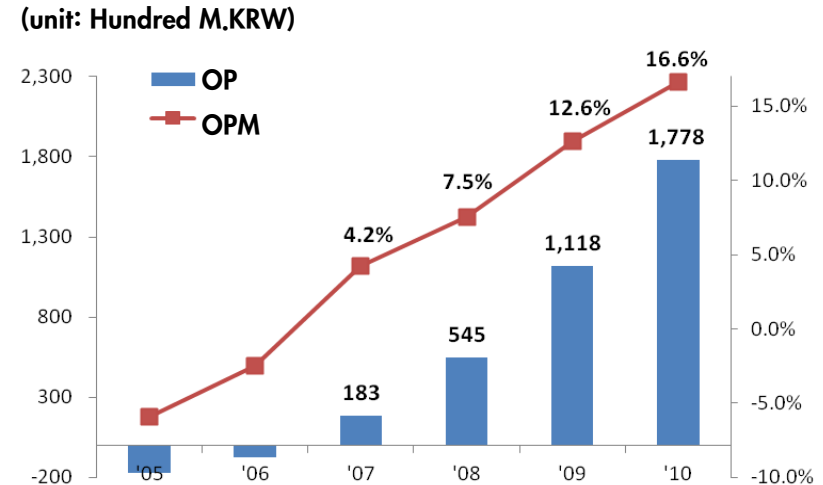
□ Operating Profit

- Constant increase of operating profit based on stabilization of the new plants and cost reduction through R&D investment
- Stable operating profit forecast based on cost competitiveness

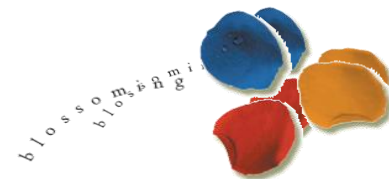
Bio affiliates sales



Bio affiliates operating profit



III. CJ Bio Business _ Strategy



- Reinforcing existing products' market position and launch of new 'Only One' products

Reinforcing Existing Products

☐ Lysine

- Acquire No. 1 Market Position through cost competitiveness

	M/S		Capacity (ton)	
	2011	2013(E)	2011	2013(E)
Lysine	20%	27%	320,000	520,000

☐ Nucleotides

- Strengthen No. 1 position through increasing M/S gap with No. 2 by 10% pt.

	M/S		Capacity (ton)	
	2011	2013(E)	2011	2013(E)
Nucleotides	36%	42%	14,200	23,800

☐ Threonine

- Acquire M/S 27% through cost competitiveness and sales growth

	M/S		Capacity (ton)	
	2011	2013(E)	2011	2013(E)
Threonine	10%	27%	22,000	100,000

Launch of New Products

☐ Feed additive Amino Acids

▪ Tryptophan

- launched on July of 2010
- Market is at the entry stage with the size of 5,500 tons

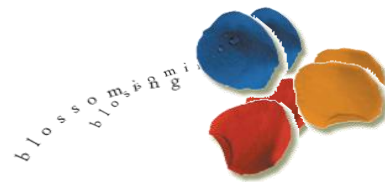
	2011	M/S	Capacity (ton)
Tryptophan		20%	1,500

▪ Methionine

- To launch in 2014
- 50% of feed additive Amino Acids
- Production by nature-friendly fermentation tech. not chemical method

☐ Eco friendly / Natural material

- Health food materials
- Environment restriction related products
- Bacterio-phage(Biotector)



- **Annual growth of 16% due to meat and feed demand increase**

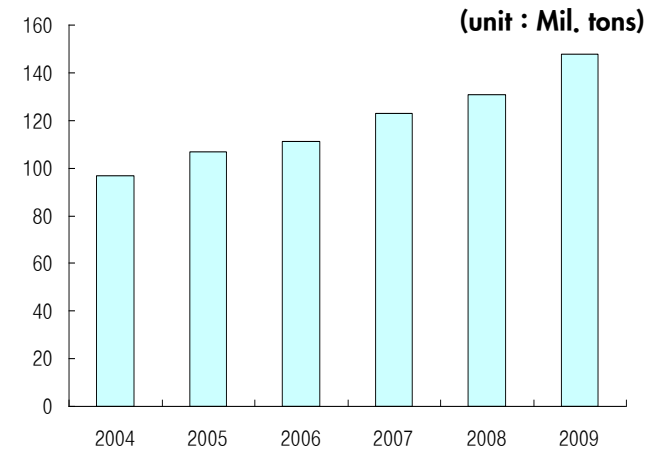
□ Chinese Feed Market

- Among 940mil. pigs of the world, 450 mil. pigs are raised in China and number of pigs will continue to rise due to increase of commercialized pig farms
- Chinese feed market is growing 7~8% annually based on increase of meat demand and commercialized farms while global feed market is showing low growth of 2% annually

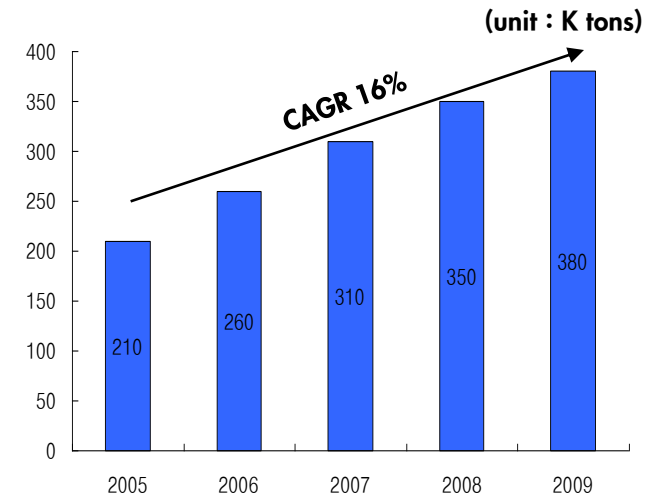
□ Chinese Lysine Market

- Chinese lysine demand is increasing by 16% due to high feed market growth and increasing number of commercialized farms while global market growth is 8%

[Chinese Feed Production]



[Chinese lysine demand]

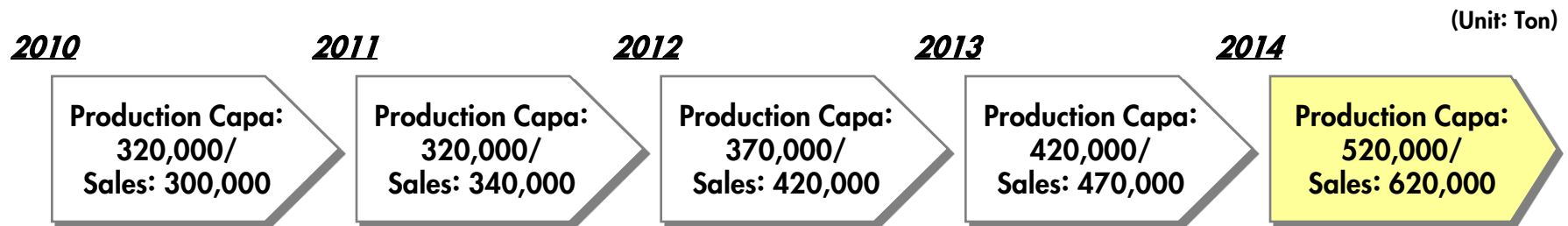


Appendix_Lysine Capacity Expansion Plan



- CJCJ is aiming at becoming global #1 lysine producer by enlarging current 320,000 ton capacity (As of 2011) to 520,000 ton until 2014 and eventually selling 620,000 ton through constant improvement in efficiency

CJCJ lysine Capacity Expansion Plan



A Increase 100,000 Ton Capacity in China

B Increase 100,000 Ton Capacity in China

A **► Strengthening market dominance in the largest market in the world**

Scheduled to acquire 160,000 ton in China until 1st half of 2012 by adding 100,000 ton in Shim Yang on top of current 60,000 ton capa in Liaocheng

B **► Entering Northern American market, global Top 3**

By ① R&D Competence ② Reduction in logistic cost by establishing local facilities ③ Stable sourcing raw materials from Cargill, the largest grain supplier in the world, CJCJ is planning to expand its M/S in U.S to more than 20% from current 8%