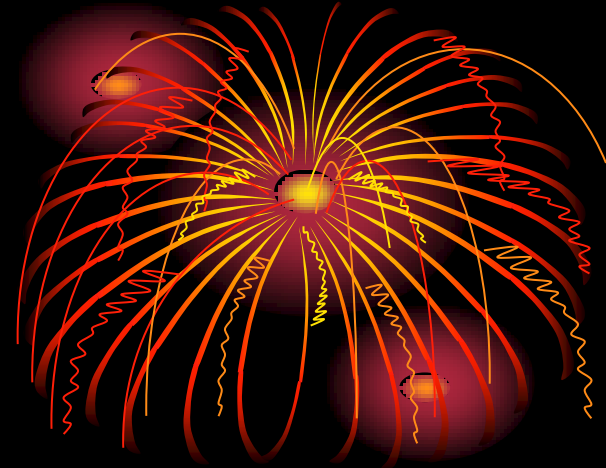


21st ISGA Convention



Current Situation of the Industrialization of Bean Sprouts Production, Processing and Marketing in China

KANG Yufan PHD/Prof.

China Agricultural University

2011-10- Las Vegas. USA

CONTENTS

- ◆ **THE BACKGROUND**
- ◆ **INDUSTRIAL CHAIN OF BEAN SPROUTS IN CHINA**
- ◆ **PROCESSING OF BEANS**
- ◆ **PROCESSING and MARKETING OF BEAN SPROUTS**
- ◆ **ABOUT SPROUTS FOOD SAFETY IN CHINA**



THE BACKGROUND

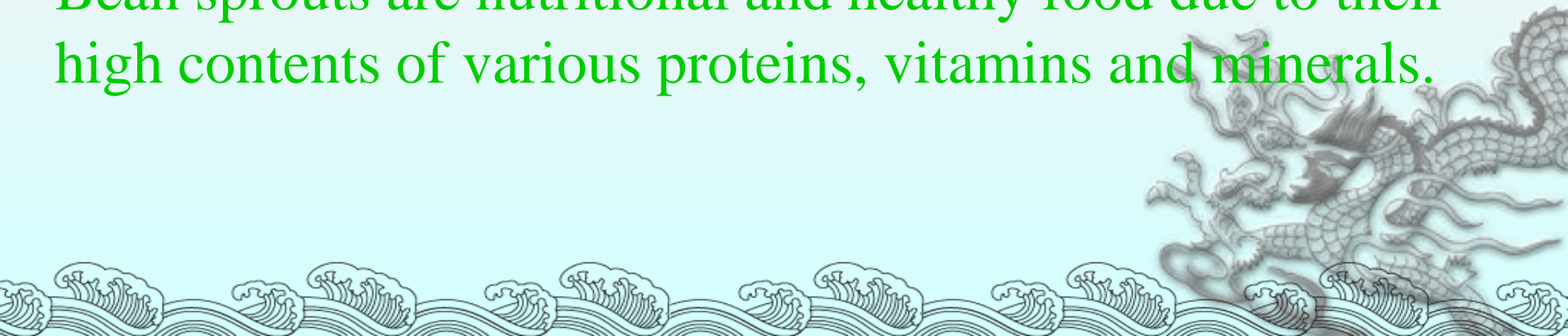
The development of economy

Acceleration of life style

Enhanced working pressure

Easily lead to obesity, diabetes and other diseases

Bean sprouts are nutritional and healthy food due to their high contents of various proteins, vitamins and minerals.



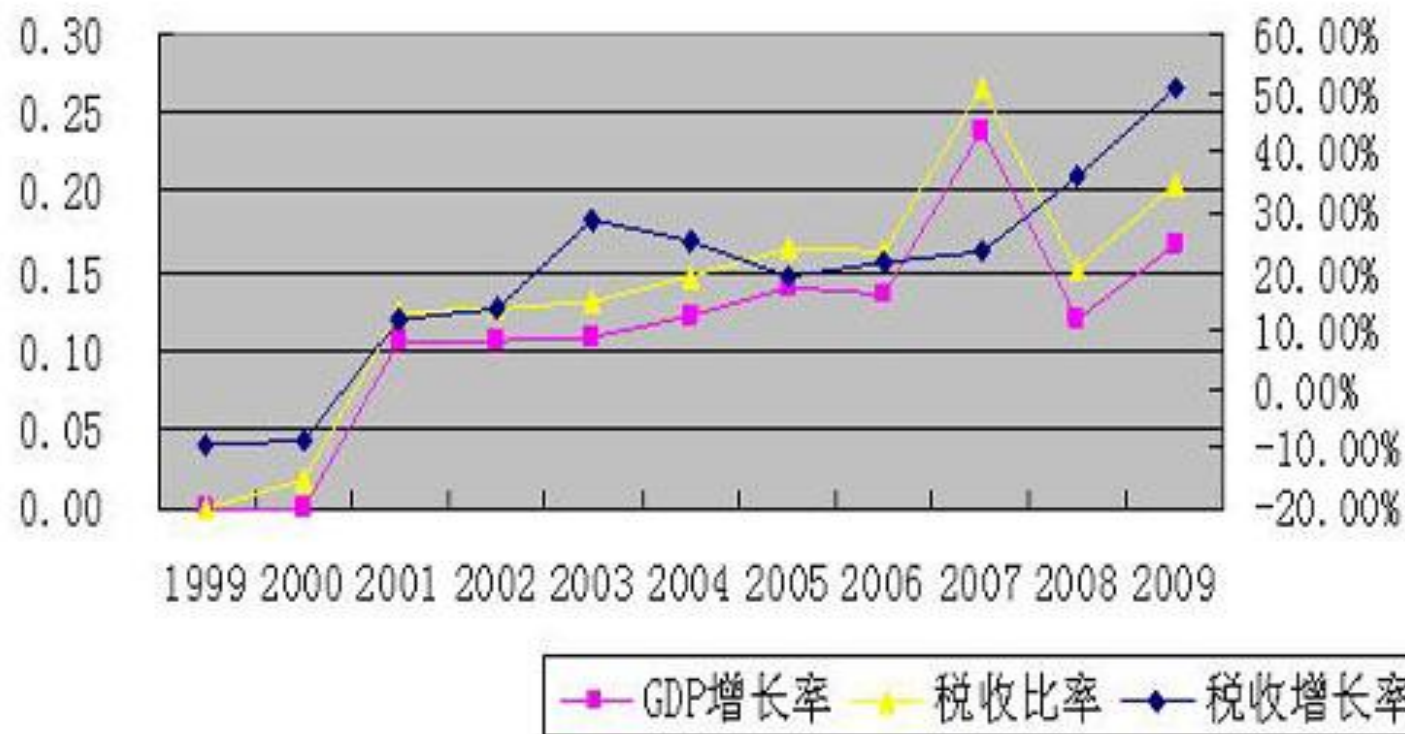


Fig. 1 GDP growth of China in recent 10 years

Demand on healthier and safer food is increasing with the growing GDP

BEAN SPROUTS IN CHINA

The mungbean sprout and soybean sprout are traditional vegetable of supply 200,000t/year in China.

The scale of bean sprouts production have changed from backyard family operation to the production newly styles that were intensive, mechnich,automation and modernization.

The sprouts industrial chain formed.



Typical Bean Sprouts in china

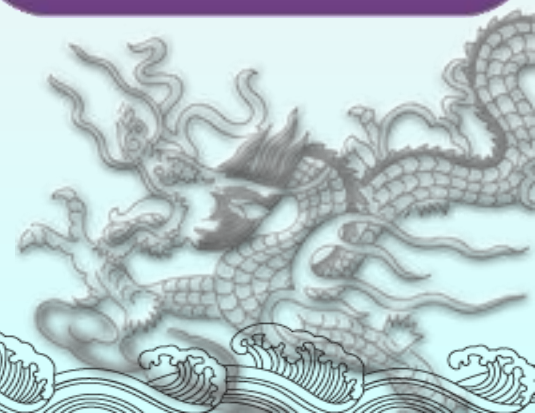
English Name	Latin name of seed	English name of seed
Mungbean sprout	<i>Vigna radiata</i> (L.) Wilczek	Mungbean
Soybean sprout	<i>Glycine max</i> (L.) Merrill	Soybean
Broad bean sprouted seed	<i>Vicia faba</i> L.	Broad bean
Pea seedling	<i>Pisum sativum</i> L.	Pea
Grass peavine seedling	<i>Lathyrus palustris</i> L.Var. <i>Pilosus</i> (champ)	Grass peavine
Peanut sprout	<i>Arachis</i> L.	Peanut
Alfalfa sprout	<i>Medicago sativa</i> L.	Alfalfa
Adzuki bean seedling	<i>Vigana angularis</i> (Willd.) Ohwi et Ohashi	Adzuki bean
Lentil sprout	<i>Lens culinaris</i> Medic.	Lentil

Amino acid contents of mungbean and mungbean sprout (DM base mg/g)

Amino acids	Mung bean	Mung bean sprout
Tyr	3.27	3.28
Phe	5.66	5.70
Aromatic amino acids	8.93	8.98
Thr	3.15	3.20
Cys	0.75	0.77
Met	1.92	1.95
Sulfur-containing amino acid	2.67	2.72
Leu	8.36	8.53
Ile	4.74	4.70
Lys	4.19	4.26
Val	5.20	5.20
Trp	0.97	1.00
Essential amino acids	38.2	38.6
Asp	13.5	13.5
Glu	21.7	21.5
Pro	4.23	4.20
Ser	4.95	4.80
Gly	4.26	4.20
Ala	4.35	4.41
Arg	6.33	6.35
His	2.49	2.42
inessential amino acids	61.8	61.4
Leu/Ile	1.76/1	1.81/1



The amino acid contents of mungbean sprout increased than its seed.



Seedlings nutrition contents of different pea varieties



	Vitamin C ($\mu\text{g/g}$)	Soluble sugar (mg/g)	Soluble protein (mg/g)	Crude fiber (%)	Crude protein (%)
Yellow pea seedling	19.53	15.91	4.96	12.81	52.65
Green pea seedling	18.85	9.67	3.07	12.28	50.85
Tibet pea seedling	19.03	14.89	3.45	11.80	50.82

Market and Potential

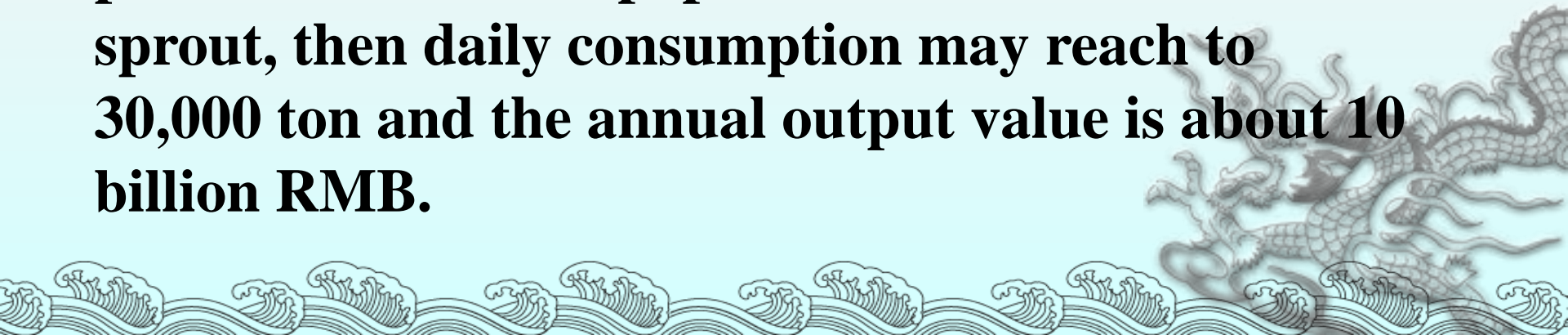
Quantitative consumption

- Yield
- Flavor & Taste





Qualitative consumption

- nutritional components
- Health function
- Green pollution free

In China, the bean sprout market is of great potential. If 50% of population consumes bean sprout, then daily consumption may reach to 30,000 ton and the annual output value is about 10 billion RMB.



Overview of the sprouts production facility in BSIBA-CAED in China

- Eleven established plants 
- Nine plants under establishment 
- Four companies for trading of beans stock 
- One equipment manufacturers 

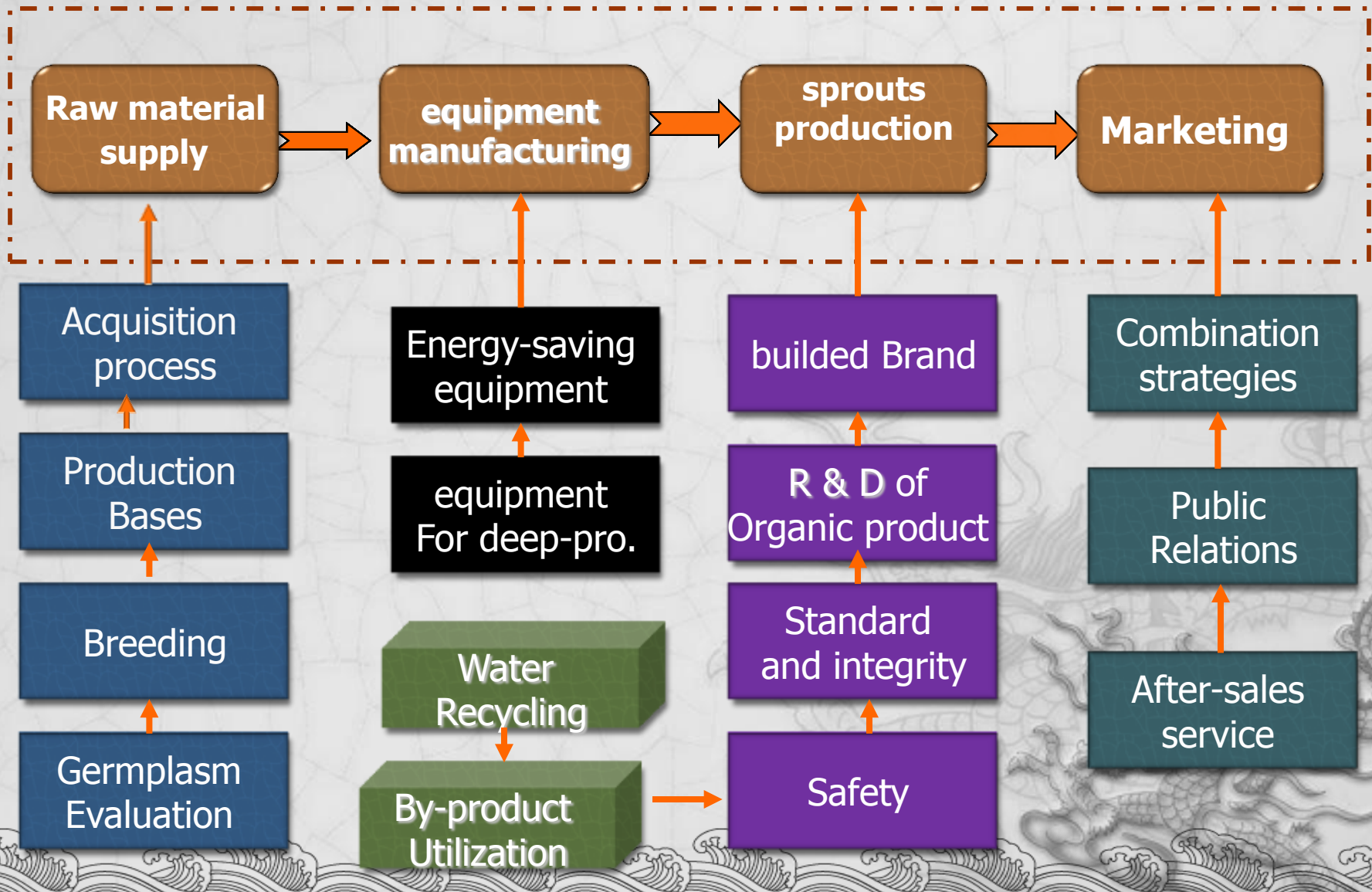


Predicted that 30 to 50 plants of scale of 100 ~ 200 tons sprouts daily in 31 provinces or cities in the next five years in China .

The annual supply sprouts will reach 300 million metric tons.



Industry Chain of Bean Sprouts in China





Bean Production & processing

1. PRODUCTION

Soybeans are mainly produced in the northeast of China. This area can provide sufficient beans of high quality, including extra small, small and moderate sizes of beans.



MUNG BEAN

- Production bases of the mungbean are mainly in few areas such as **Yulin** in Shanxi province, **Zhangjiakou** in Hebei province, **Zhalute and Tongliao** in Inner Mongolia, **Taonan and Baicheng** in Jilin province.

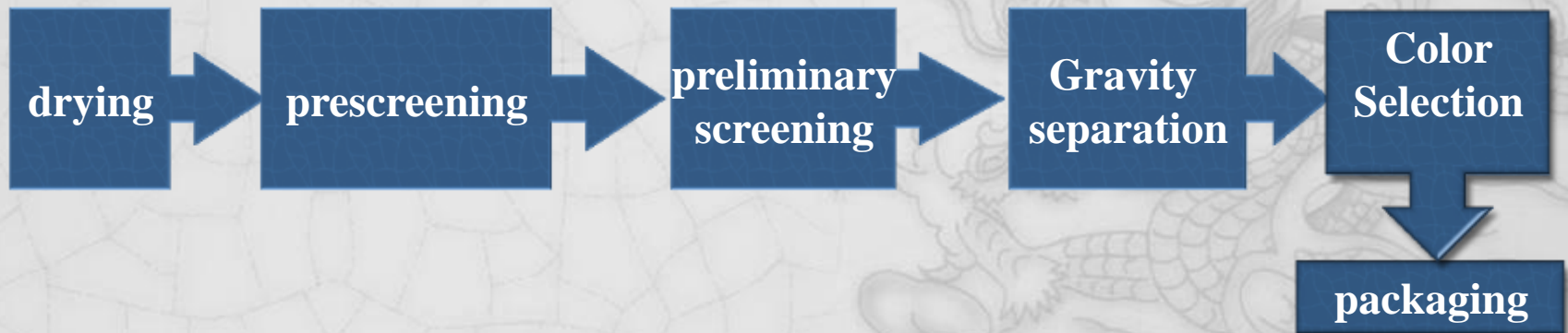


2. BEAN SEED PROCESSING

- **processing methods**
 - screening——seed size
 - Air separation——Aerodynamics
 - Gravity separation——seed density

- **processing facility**——air separation、gravity separation、hand and auto sorting/color separation/、weighing/ packaging

- **processing procedure**





Transportation and preliminary screening of mungbean in Taonan RUIDA



Combined procedure for Auto-processing of mungbean in Zalute ZHENGDA

3. Mungbean Price in Beijing

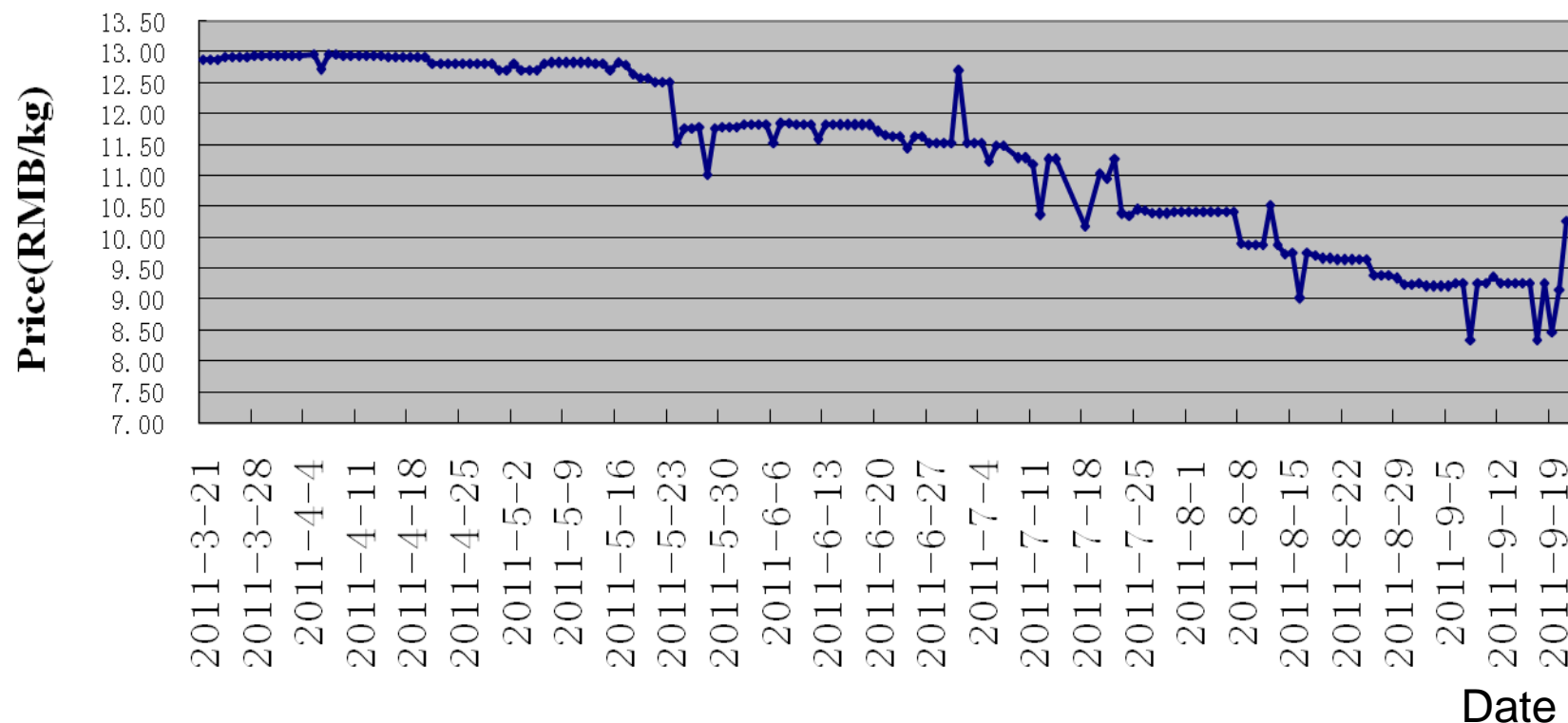


Fig.2 Recent price trends of mungbean in wholesale market

This year, price of mungbean declined from spring to autumn. The price remained 13 yuanRMB per kilograms during March to April, while decreased markedly after mid May. It may caused by the policies implemented by relative bureaus, and by media and consensus. Since mungbean is not easy to be stored in summer, which may also influence the price as well.



Production & processing of Bean Sprouts

➤ Production facilities

Type of bean sprouts production facilities vary in scale and level of automation.

Example: Ningbo WuLongTan mechanical equipment development Co., LTD. .





A. rinsing and disinfection of raw beans



B. monitoring system for incubation temperature control



C. spraying system



D. hatching tub



E. Automatic bean sprouts cleaning system



F. Automatic cooling system for mungbean sprouts

Fig.3 production facilities



Production of sprouts



A. Seed cleaning



B. Seed soaking



C. Incubation/Cultivating workshop



D. harvest



E. Cleaning and dehusked



F. cooling

Fig. 4 procedure of production of sprouts



PACKAGING

- **Bulk**

The sprouts products are mainly marketed after simple packaging about 10kg/unit in whole sale market.

- **Small unit package**

Range from 350~450g by auto-packing equipment
Mainly for supermarket in big cities





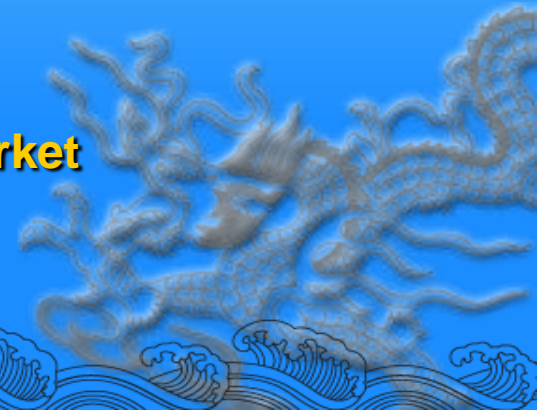
MARKETING

Marketing is the
The company all
management to
field



Cooling vehicles

Small unit package in supermarket





**Beijing DongSheng the
agriculture technique to
develop (group) Co., LTD**



**Ningbo WuLongTan
vegetable food Co., LTD**



**Jiangsu Sue Ya
food Co., LTD**

Brands



**Hangzhou QingShanHu
vegetable food Co., LT**



**Chengdu AnDer
vegetable food Co., LTD**



**Zhengzhou new rural
vegetable food Co., LTD**



**Suzhou ZhongShiDa
vegetable food Co., LTD**



**Hubei YuRuYi green
food Co., LTD**



**Qingdao FuHong
vegetable food Co., LTD**



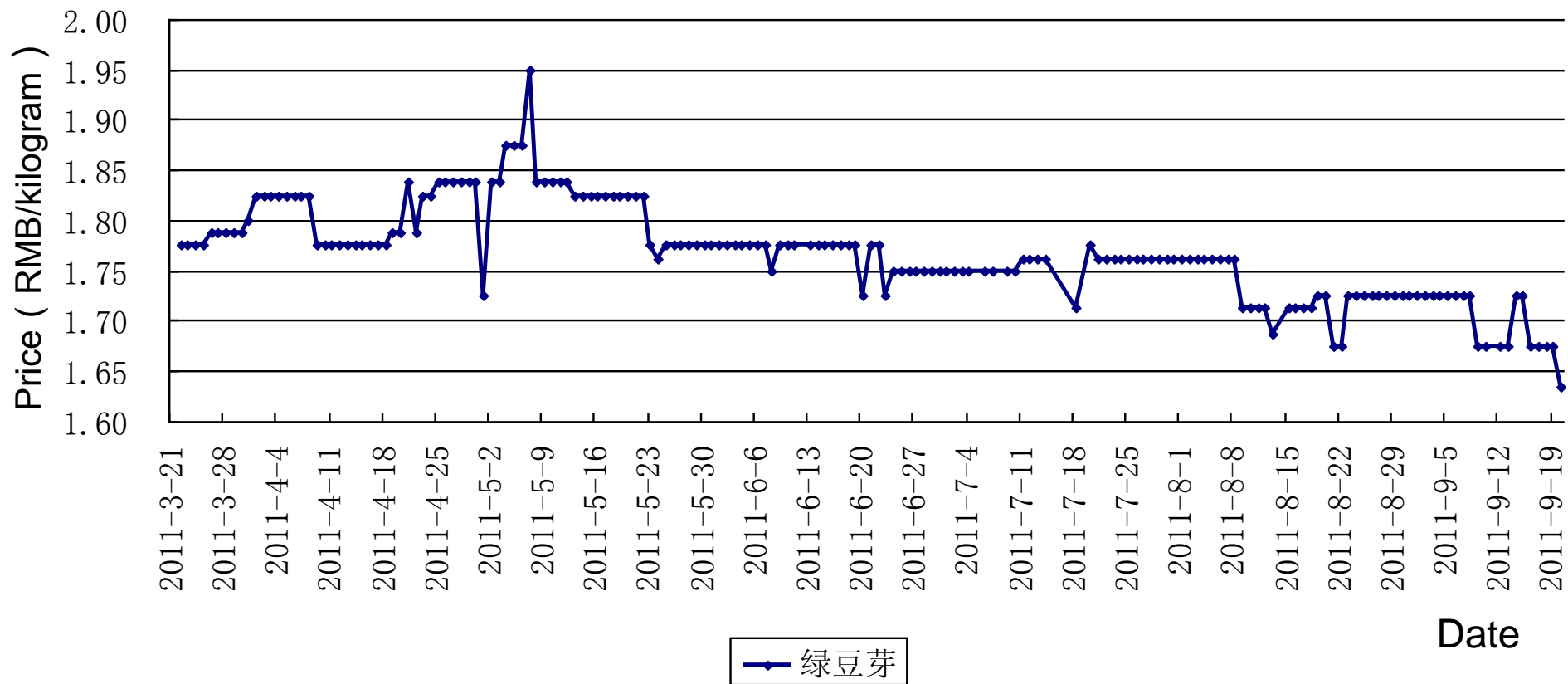


Fig.5 Recent price trends of mung bean sprouts in wholesales market

Price of mungbean fluctuated among seasons. Price decreased slightly after August, and it may be related to sufficient supply of beans.

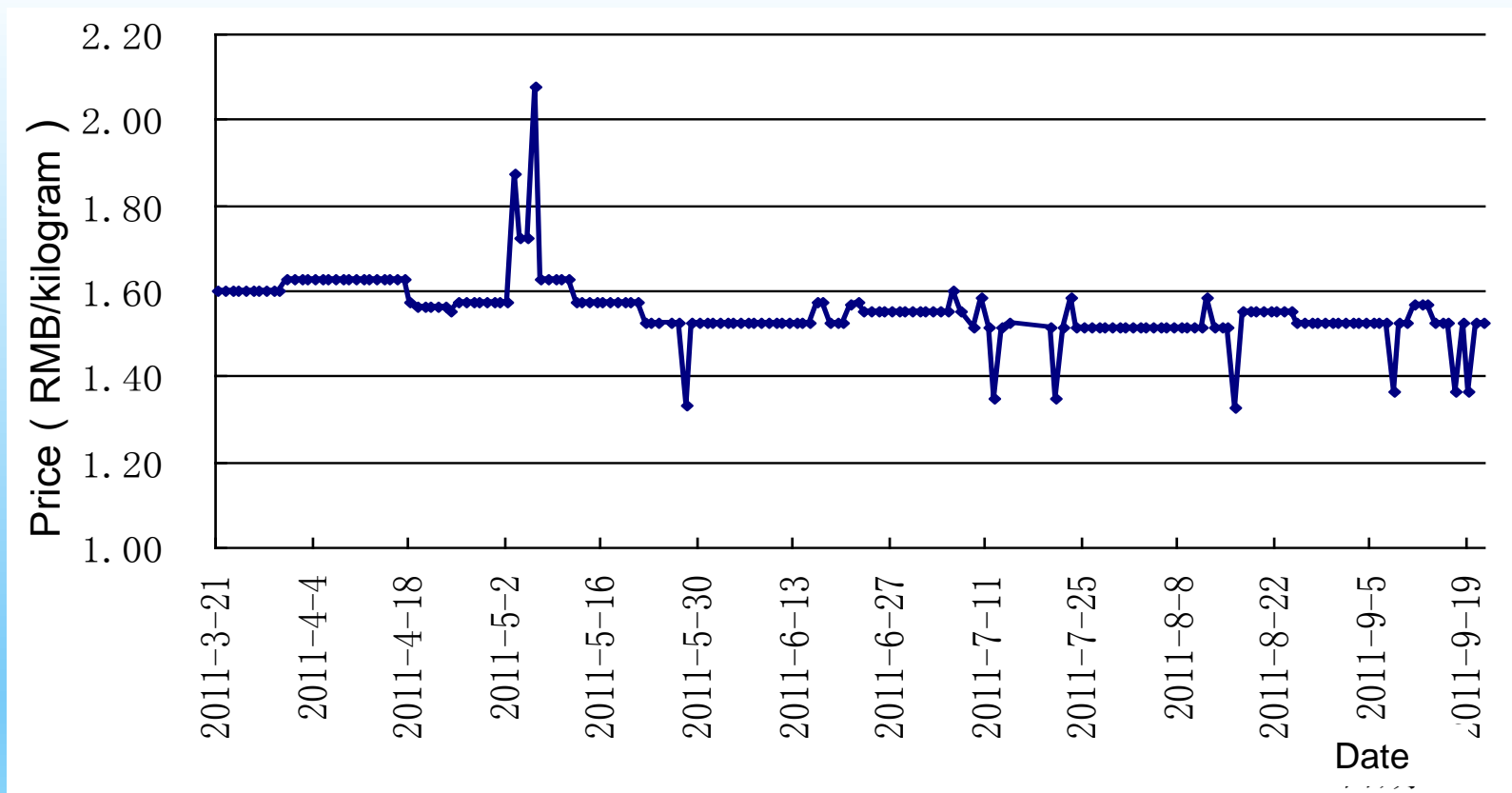
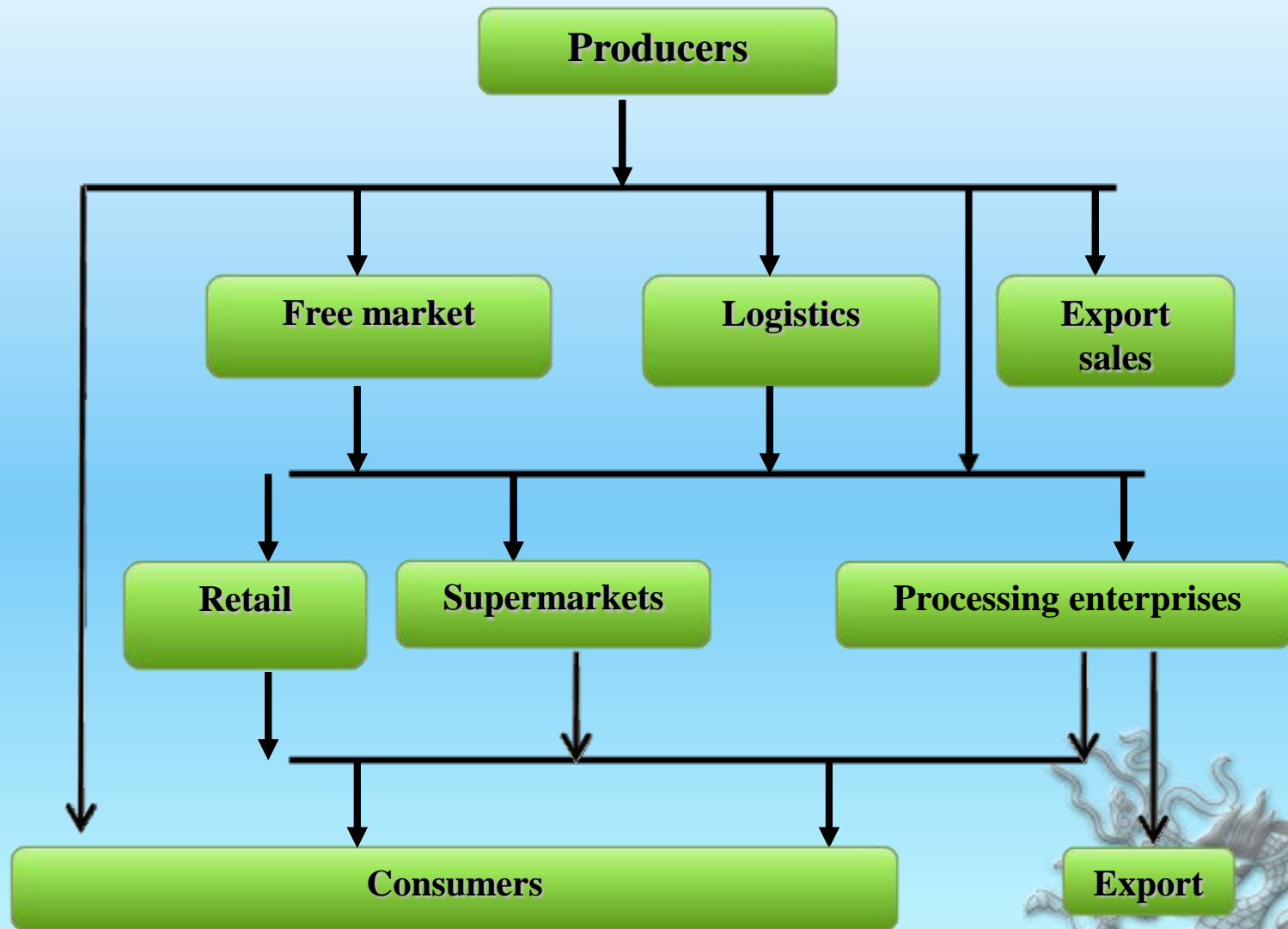


Fig.6 Recent price trends of soybean sprouts in wholesale market

Price of soybean fluctuated and remained about 1.6 RMB per kilograms among seasons.

➤ **Distribution channel**





SPROUTS FOOD SAFETY IN CHINA

- ◆ With rapid development of sprouts industry, food safety issues are of high concern to relevant government agencies. To guarantee food safety and standardized production , “HACCP” production practice is recommended in sprouts industry.





Industry Self-discipline

BSIBA-CAED in China offered us a platform of communication and cooperation. It promotes the development of sprouts industry.

中国农业产业经济发展协会豆类芽菜产业分会成立大会

2009.7.8 北京



新城市摄影社摄制



Our aims

- ◆ Establish industry standard to ensure food safety
- ◆ Be honest and respond to the changing market
- ◆ Enhance science and technology innovation, to improve the sprouts quality





“Newsletter of Science and Technology For Bean Sprouts Industry”, Bimonthly

The textbook 《Legume Sprouts and Seedlings》 will be published by the Higher Education Press in December 2011. The editors in chief are KANG Yufan and CHENG Xuzhen.



“Legume Sprouts and Seedlings”

- ◆ “Legume Sprouts and Seedlings”, It covers botany, plant breeding, seed biology, culture, architecture, food processing, marketing, enterprise management, agricultural economics, and information technology associated with sprouts and seedlings production and market.

Need your help

- ◆ There is one chapter about historic events on sprouts and seedlings globally.
- ◆ We would like to include ISGA as part of the international development of sprouts and seedling: if possible please provide us information of each annual convention such as numbers of attendees, date, theme and location of conventions.

Technologies for sprouts production remains to be improved in China. We sincerely welcome all of you come to China and visit production bases and facilities for closer communication and cooperation among the global sprout society!



Wish to be the host of 2013/14 ISGA Annual Convention

Proposed cities: Beijing, Ningbo or Hangzhou

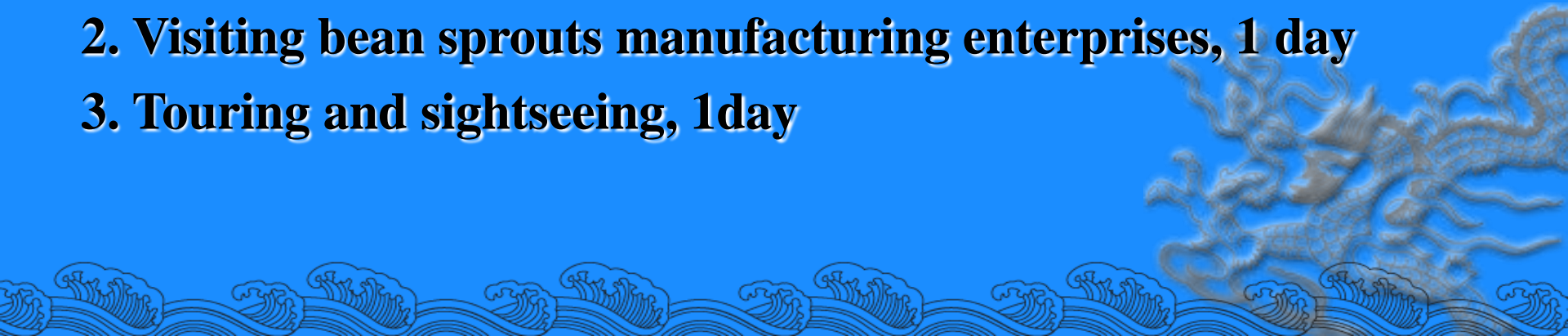
Date: Beijing (mid October) or Ningbo, Hangzhou (mid April)

Theme:

- 1. The Safety and Health of Bean Sprouts Production**
- 2. The Production and Supply of Raw Materials for Bean Sprouts**

Agenda:

- 1. Holding ISGA conference, 2 days**
- 2. Visiting bean sprouts manufacturing enterprises, 1 day**
- 3. Touring and sightseeing, 1 day**



Welcome to BeiJing!



Ning Bo, Are you ready?

The Ningbo River and Bridge



Ningbo Catholic Church



Hangzhou Bay Bridge



wu Longtan Nature Reserve



Hang Zhou, Do you love it?

The West Lake



The West Lake



Qiantang river tide



Longjing tea



A close-up photograph of a small, green, seedling-like plant growing out of a dense, bright green mossy surface. The plant has a thin stem and several small, rounded leaves. A single, clear water droplet is captured mid-fall, suspended in the air just below the plant's stem. The background is a soft, out-of-focus green. Overlaid on the image is the text "Thank you for your attention!" in a stylized, pink, cursive font, which is slightly tilted and has a faint reflection below it.

Thank you for your attention!