



Sugarcane Research & Development In Guangxi

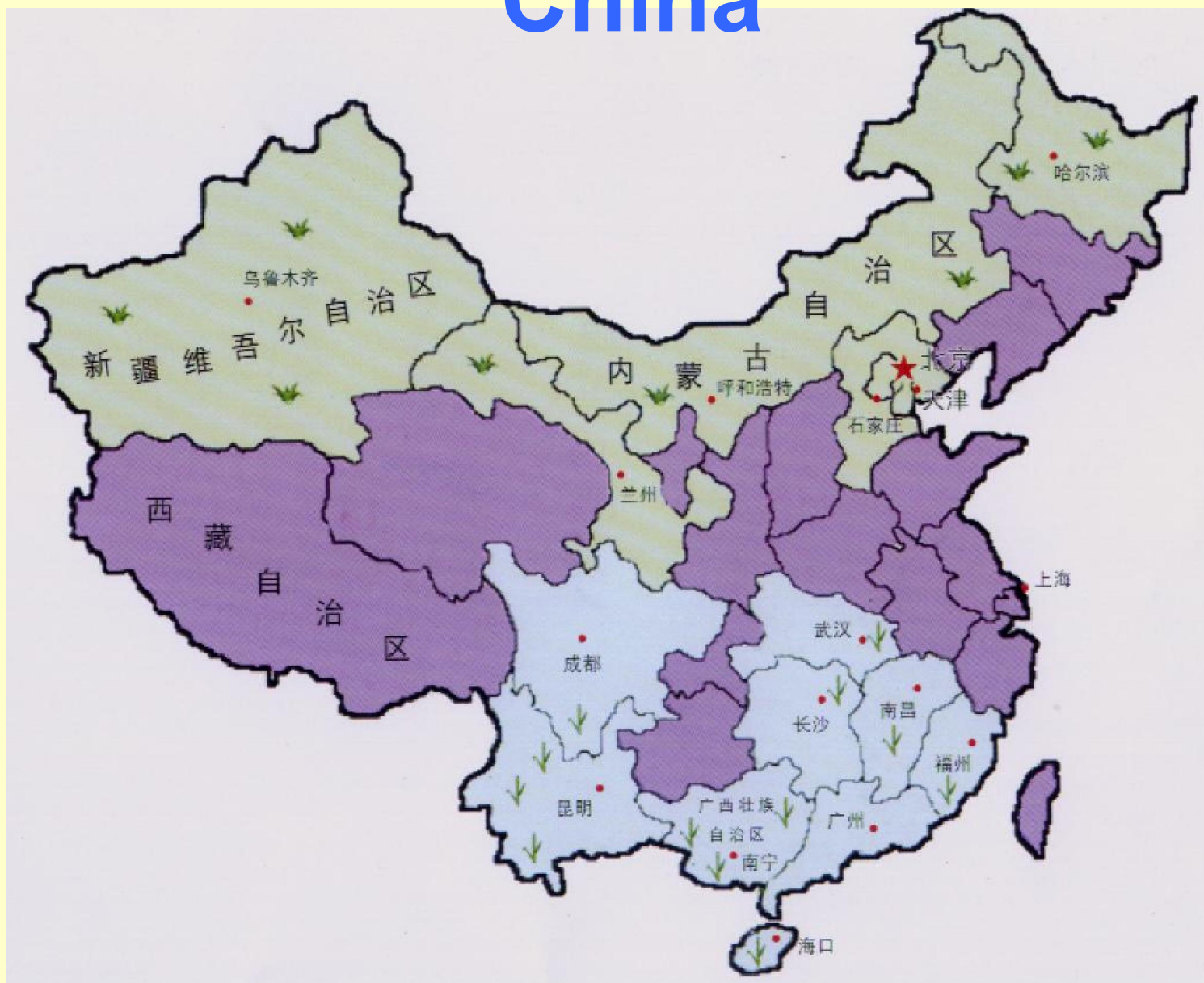
**Sugarcane Research Center
Chinese Academy of Agricultural Sciences
Nov, 2009**

A close-up photograph of sugarcane stalks, showing the green leaves and the thick, segmented stems. The image is positioned on the left side of the slide, partially overlapping the green header bar.

Profile of Chinese sugar industry

- ◆ In China, the major sugar crops are sugarcane and sugar beet. Sugarcane is grown in the South and sugar beet in the North. Cane sugar occupies about 90% of the total sugar production and beet sugar 10%.

Distribution of sugar crops in China



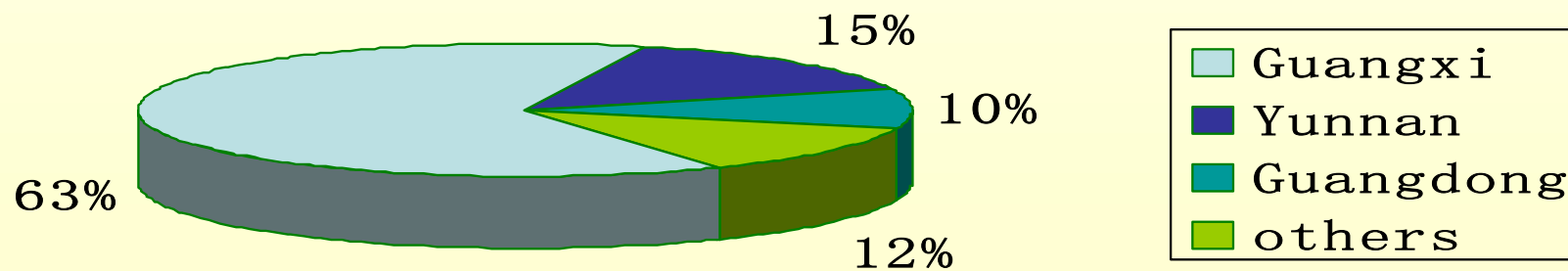
Sugar industry information for 2007/2008

- Sugar production is 1484 tons among which cane and beet sugar are 1367 and 117 tons respectively.
- There are 279 sugar mills in operation with 45 mills for beet and 251 mills for cane.
- The area under sugar crops are 1.77 million ha. With 1.53 million ha under cane and 0.24 million ha under beet.

Sugar industry information for 2007/2008

- The average yield of cane and beet are 66.75 tons/ha and 37.5tons/ha respectively.
- The average sugar content of cane and beet are 13.96% and 14.61%.
- The average sugar recovery of cane and beet are 12.7% and 13%.
- The total sugar consumption 13 million tons with a capita of 10kg.

Guangxi has been the biggest sugarcane and sugar producer in China since 1993/1994 milling season. In 2007/2008, it produced 9.41 million tons of sugar, which occupies 63.4% of the total cane sugar production.





- **In 2007/2008 milling season, Guangxi grew 980,000 ha of sugarcane, and produced 75.36 million tons of millable cane and 9.41 million tons of white sugar. The average cane yield is 76.90tons/ha.**


Distribution of cane area in Guangxi



Sugar mills in Guangxi



There are 101 sugar mills, which are owned by 35 sugar companies, in operation in Guangxi in 2008/2009 milling season. The total crushing capability is 6,000 ,000 tons /day and the average crushing capacity of sugar mill is 5375 tons/day. The average sugar content and sugar recovery are 14.59% and 12.69% respectively.



GXSCRI, established in 1956, is the key sugarcane R&D organization in Guangxi. It possesses 255 staff, among which 140 are active ones. It has 75 professionals, of which 11 are doctors, 28 are masters, 26 possess senior professional technical titles. There are 8 labs which are named as department of breeding, agronomy, biotechnology, molecular improvement, plant protection, variety propagation with the total area of 45 ha..



Key laboratory for R&D



Three national R&D labs based in GXSCRI are named as Nanning Sugarcane Variety Sub-center of Sugar Crops Improvement Center, Sugarcane Research Center of CAAS and Nanning Quality inspection and Test Center for Sugarcane and Its Products.

Advanced Instruments



Gene Gun



PCR



Soil Nutrient Test Kits



**Content Tester for
Nucleic Acid & protein**



**Atomic Absorption
Spectroscopy**



**High Performance Liquid
Chromatography**

Facilities of GXSCRI

Photoperiod house



Experimental Farm



Seedcane Propagation Base



Germplasm bank

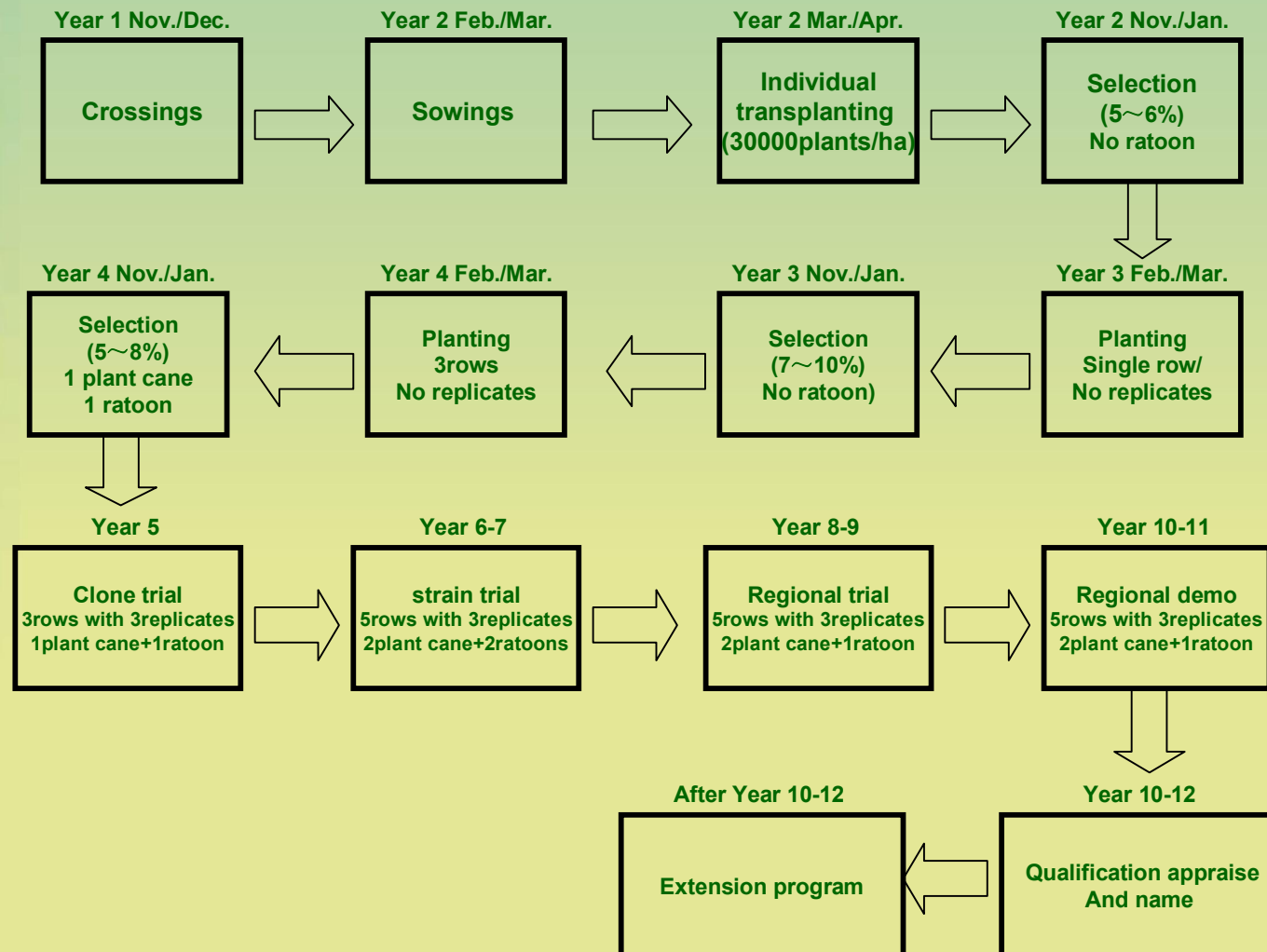





Achivement

- ◆ **SRC-CAAS has completed 300 items of R&D project and selected and developed 37 improved varieties in the past 50 years since its establishment. 70 items of achivement have been awarded at national or provincial level. Many elite clones of high cane yield and sugar content have been developed in the recent years.**

Breeding program(flow chart)





GT21—early maturity, high sugar content and high cane yield. Its cane yield, total fermentable sugar and sugar yield increase by 12.7%, 9.0% and 7.5% over the control ROC22 respectively to 180 tons/ha, 8.7tons/ha and 29.5tons/ha.





The most excellent variety—GT11. the accumulative area under this variety in China is over 3.4 million hectares.

Most promising new clones



GT 02-467

- ◆ **High sugar content, the average sugar content between November and February is 16.49%.**
- ◆ **High cane yield**
- ◆ **Resistance to disease and drought**
- ◆ **Entered the Regional trial in 2007**

Most promising new clones



GT 02-901

- ◆ **Strong germination and tillering ability**
- ◆ **Easily trashing**
- ◆ **More millable stalks**
- ◆ **Resistant to smut**
- ◆ **High sugar content, The average sugar content between November and January is 17.28%.**

Most promising new clones

GT 02-351

- ◆ High sugar content with average sugar content of 16.11% from November to next February.
- ◆ High cane yield with yield of 102tons/ha.
- ◆ Strong ratooning capability
- ◆ High stress Resistance
- ◆ Entered the Regional trial in 2007



Most promising new clones

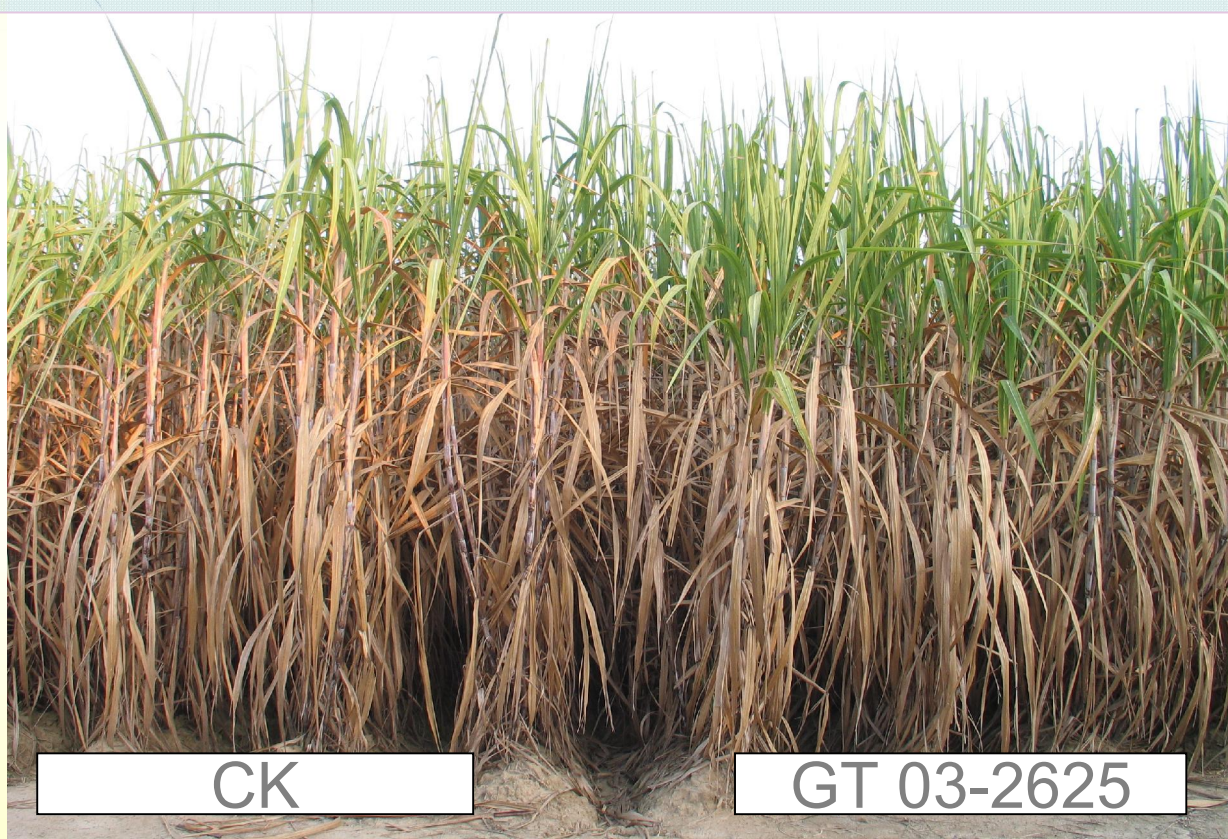
GT 02-761

- ◆ Early maturity
- ◆ High sugar content with average sugar content of 15.81% between November and February.
- ◆ High cane yield with average yield of 89tons/ha.
- ◆ Good Ratoon capability
- ◆ Entered regional trial In 2007



GT 03-2625:

It showed strong ratooning capability and easily detrashing, its sugar content and cane yield was similar to that of ROC22.



Sugarcane Cultivation

Deep plough



Ripener spraying



**Returning trash
to the field**



Drip irrigation





Vinasse application



Practice of plastic film covering



Technical Training



Prof. Yang-Rui Li gave on-side training of sugarcane technologies to farmers in the field.

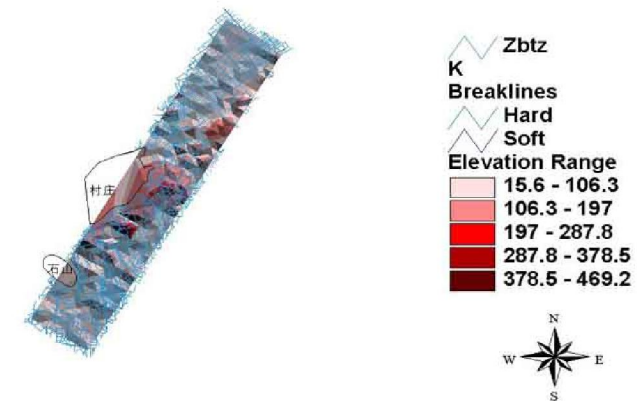
Mechanized harvesting



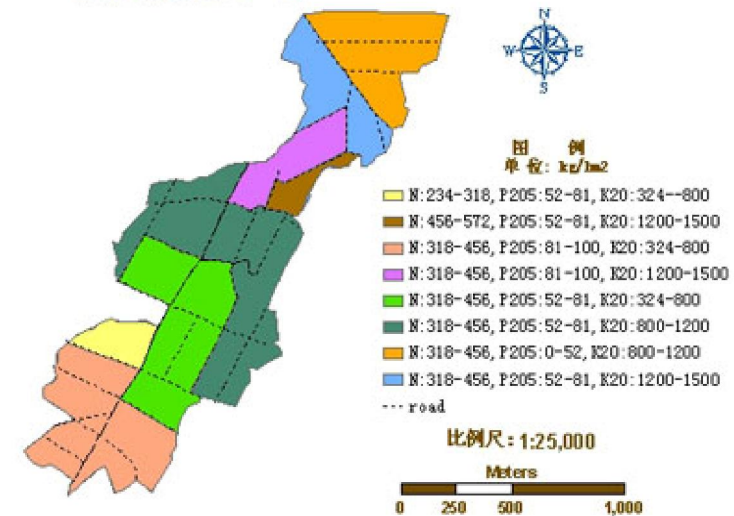
GPS/GIS-aided fertilizing based on soil tests



来宾桥巩监测村土壤有效钾分布图



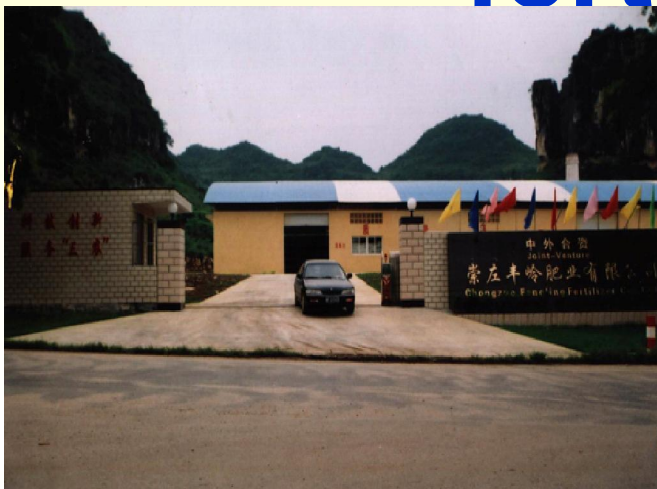
推荐施肥处方图



Healthy seedling Production



Development of sugarcane fertilizer

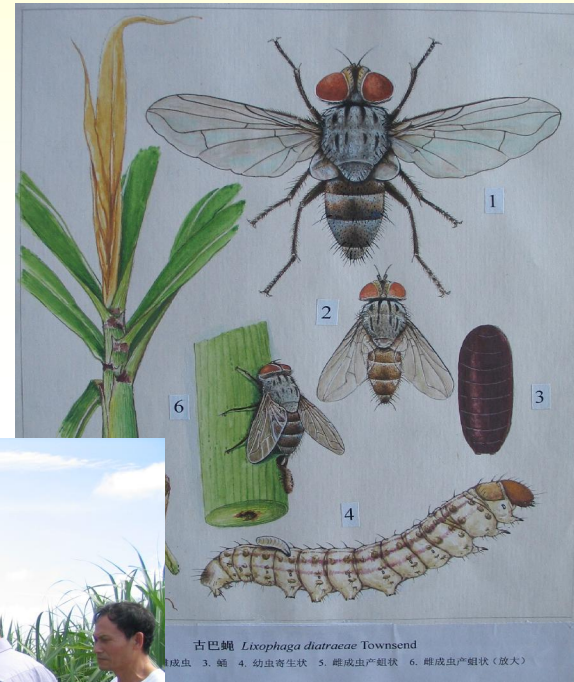
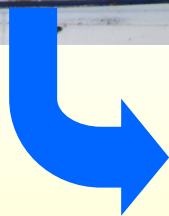


Sugarcane protection



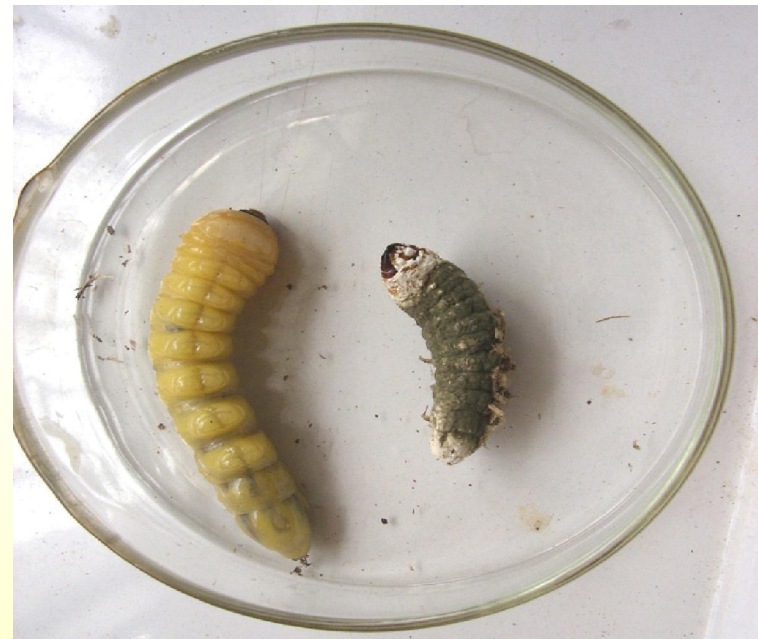
Pheromone used to control cane borer

Cuban fly used to control cane borer





Fungi used to control *Chrysanthus*



International cooperation



International symposium on technologies to improve sugar productivity in developing countries (IS-2006) was held in Guilin in 2006.



IAPSIT councilor meeting held in Beihai in 2007.

International workshop on drip irrigation in Nanning in 2007



发展中国家甘蔗生产与加工技术培训班结业典礼

The Closing Ceremony of the Technology Training Course
on Sugar Cane Production and Processing for Developing Countries



Dr. S. Solomon, secretary of the IAPSIT, was conferred “Jinxiuqiu Award” by Guangxi Government and “Friendship Award by the Chinese Government.





**Prof. Lee Tseng Sheng Gerald
from Federal University of
Sao Carlos was conferred
“Jinxiuqiu Award” by
Guangxi Government and
“Friendship Award by the
Chinese Government.**

Foreign students in GXAAS



Visiting foreign countries



BEAUTIFUL SCENARY

IN GUANGXI

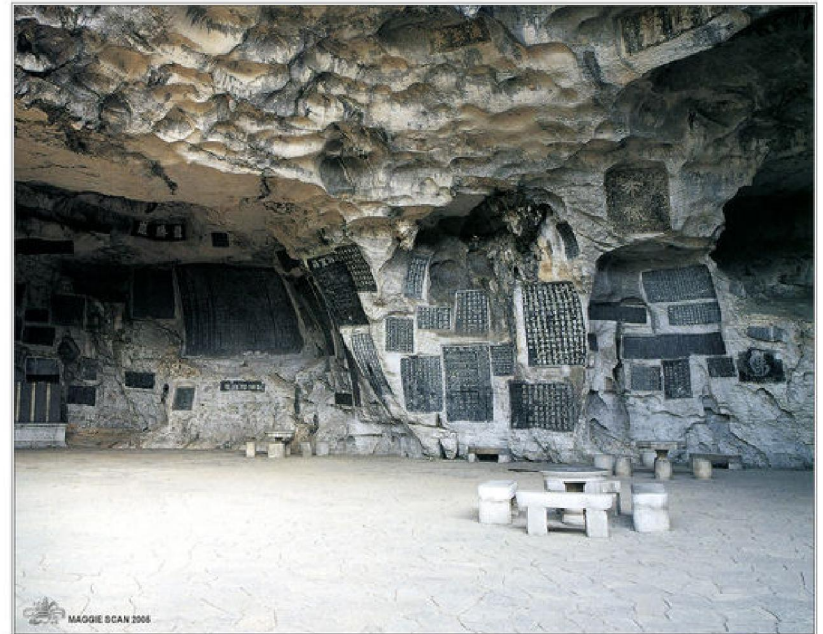
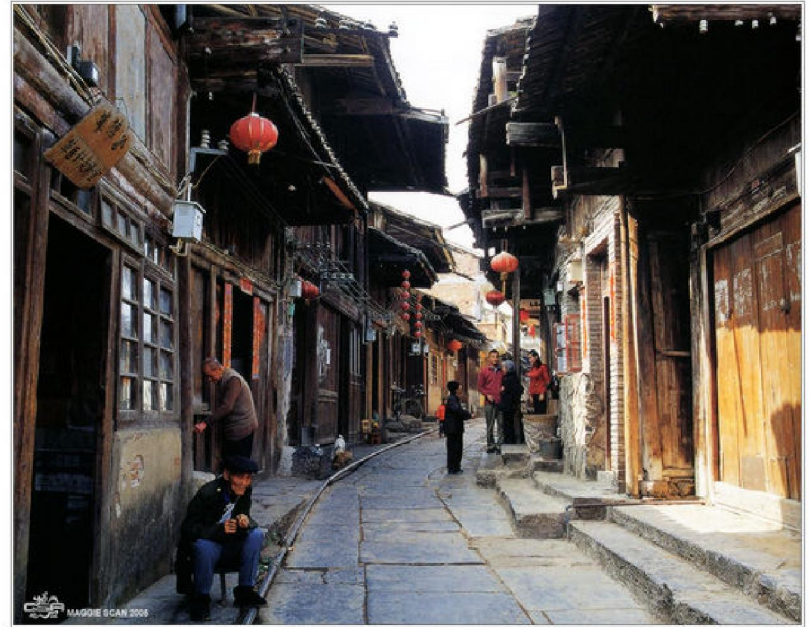
Nanning City





Tourism
City
Guilin







Thank you for kind attention!

Guilin