China’s Higher Education in Agricultural Science

- *Taking NAU as an example*

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Contents

• Introduction
• Recent Development
• Challenges
• GCHERA WAP & World dialogue
Introduction

- China’s higher education in agricultural sciences was initiated over 100 years ago.

- Most of the agricultural universities (colleges) in China were founded in 1950s during the major reforms of higher education system.

- Some agricultural universities moved out of the city to rural areas during 1960s-1970s.

- Since 1990s, China’s higher education system was reconstructed again by modification.
Taking NAU as an example

Faculties of Agriculture from three comprehensive universities merged into Agricultural college

Sanjiang Teachers College (1902)

Agriculture Realm Sanjiang Teachers College (1904)

Faculty of Agriculture National Central Univ. (1928)

Agriculture Realm University of Nanking (1914)

Faculty of Agriculture University of Nanking (1930)

Nanjing Agricultural College (1952)

Some Depts., In Faculty of Agri. Zhejiang University

Nanjing Agricultural College (1979)

Jiangsu Agricultural College In Yangzhou (1972-1979)

Nanjing Agricultural University (1984)

NAU
Enrollment

Total enrollment 32,000
◊ Undergraduates 17,000
◊ Postgraduates 8,000
◊ Others 7,000
International students 600

Programs

◊ Bachelor 60
◊ Master 157
◊ Ph.D. 77

Taking NAU as an example
2014年实际收入构成图
Proportion of Actual Annual Income for 2014

Ⅰ Central Government funding 教育部拨经费 (国拨经费), 51.8%

Ⅱ Local Government funding 地方教育经费拨款, 4.23%

Ⅲ Tuition 教育事业收入 (教育收费), 11.26%

Ⅳ Research fund 科研经费 (纵向和横向), 28.84%

Ⅴ Other Income 其他收入 (捐赠和利息等), 2.75%

Total income: RMB 1.635 billion
≈ USD 267 million
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Structure of agro-higher education

Enrollment（招生数量）

Students’ enrollment of China’s agro-universities from 1992 to 2013
在校生与专任教师情况 (1996-2013)
Diagram for Students Enrollment and Faculty (1996-2013)

扩招，学生快速增长
Rapid Growth of Student Number due to Increase-Enrollment

师资队伍相对滞后
Relative Lag of Faculty Increase

图例:
- 本科生数 (Undergraduates)
- 研究生数 (Postgraduates)
- 专任教师数 (Faculty)
当量生师比
Equivalence Ratio for Student to Faculty

学生当量：本科生=1.0，硕士生=1.5，博士生=2.0，留学生=3.0
Equivalence Ratio for Student to Faculty：Undergraduate=1.0, Master student=1.5, Ph. Doctor student=2.0, International student=3.0
Ratio for Undergraduates to Postgraduates

研究型大学
Research-oriented University
到位科研经费情况 (1996-2014)
Diagram for Research Funding (1996-2014)

(单位：百万元) Unit: million Yuan
学校SCI论文发表情况 (1996-2014)

Diagram for SCI Papers (1996-2014)

科研投入持续增强
Sustainable Increase for Research Funding

实施科技后补助
Implementing Bonus Fund for SCI Papers

科研投入持续增强
Sustainable Increase for Research Funding

提高科技后补助力度
Increasing Bonus Fund for SCI Papers

职称晋升博士毕业要求
Requirements for Faculty Promotion and Awarding Degree for Ph. D

年份 (Years)


7 13 21 15 26 36 48 84 93 144 215 275 339 510 509 560 669 786 1130
Eight university’s SCI papers in agro-science subject (1994-2013)
Achievements of China’s Agro-universities in ESI Ranking

Top 1% 2015
2 subjects China Agricultural University
1 subject Nanjing Agricultural University

Top 1% 2015
7 subjects China Agricultural University
4 subjects Nanjing Agricultural University
4 Subjects Huazhong Agricultural University
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Comprehensive development is a fundamental requirement for higher education as a whole, while agro-related disciplines represent the distinctiveness and basis of higher education in agricultural sciences.
The university’s academic units

**Colleges**

- Agriculture
- Horticulture
- Plant Protection
- Prataculture
- Animal Sci. & Tech.
- Veterinary Medicine
- Engineering
- Food Sci. and Tech.
- Information Sci. and Tech.

**Characteristics**

- Life Sciences
- Resource & Envi. Sci. Sciences
- Economics & Management
- Finance
- Foreign Studies
- Humanities and Social Sci.
- Public Administration
- Rural Development
- International Education

- Plant Science
- Animal Science
- Biology & Environment
- Food and Engineering
- Social Science (Agri.)
博士生学科专业分布
Pie Chart for Ph. Doctor's Degree Programs

农学 Agriculture 44.4%
理学 Science 24.1%
经济学 Economics 7.4%
管理学 Management 14.8%
工学 Engineering 9.3%

农学类近一半，研究型，农业大学
Research-oriented University with 44.4% of graduates in Agricultural Sciences
硕士生专业分布
Pie Chart for Master's Degree Programs

农学 Agriculture 29.3%
理学 Science 20.0%
经济学 Economics 5.3%
管理学 Management 16.0%
工学 Engineering 18.7%
文学 Literature 1.3%
法学 Law 5.3%
医学 Medicine 1.3%
历史学 History 1.3%
哲学 Philosophy 1.3%

农学类30%，以农学为特色优势的多科性大学
Multiple-disciplines university with Agriculture as its dominant field, 30%.
Taking NAU as an example

Pie Chart for Bachelor's Degree Programs

<table>
<thead>
<tr>
<th>Field</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>31.8%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>20.0%</td>
</tr>
<tr>
<td>Science</td>
<td>13.3%</td>
</tr>
<tr>
<td>Literature</td>
<td>3.3%</td>
</tr>
<tr>
<td>Law</td>
<td>3.3%</td>
</tr>
<tr>
<td>Arts</td>
<td>1.7%</td>
</tr>
<tr>
<td>Economics</td>
<td>3.3%</td>
</tr>
<tr>
<td>Management</td>
<td>23.3%</td>
</tr>
</tbody>
</table>

Comprehensive university
Actions undertaken:

strategy “1235”

1 Vision: a world-class agro-university
2 Tasks: high-level faculty team and new campus
3 Links: World-class standard, China’s characteristics, NAU qualities
5 Prospects: Development, Transformation, Distinction, Harmony and Endeavor
NAU

• 2020: Top 50 Agri. universities in the world

• 2030: Top 500 Universities in the world
The internationalization of Chinese agricultural higher education started relatively late. It is compulsory to push forward our internationalization process with great passion and dedication.
NAU started its international cooperation with Cornell University as early as 1920s.

Two universities shared textbooks and admitting learning credits mutually.

John Lossing Buck: The founder of China’s Agro-economics.

Ms. Pearl Buck: Won the Noble’s Prize in 1938 for her novel *The Good Earth*.
List of Facts and figures for 2014

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>International visitors</td>
<td>650</td>
</tr>
<tr>
<td>International faculty and staff</td>
<td>33</td>
</tr>
<tr>
<td>Visiting scholars and experts visiting NAU for academic purposes</td>
<td>360</td>
</tr>
<tr>
<td>Funding to support visiting scholars and international faculty</td>
<td>RMB 7.6 million</td>
</tr>
<tr>
<td>NAU faculty and staff going abroad for academic purposes</td>
<td>306</td>
</tr>
<tr>
<td>NAU students going abroad for academic purposes</td>
<td>620</td>
</tr>
<tr>
<td>International students</td>
<td>706</td>
</tr>
<tr>
<td>International Degree Students</td>
<td>288</td>
</tr>
</tbody>
</table>
International Student Ratio

- UCDavis: 10%
- WUR: 22.60%
- NAU: 2.20%

Number of students studying abroad annually

- UCDavis: 2000
- WUR: 323
- NAU: 620
Challenge 3
Meet the social needs given rise to modern agriculture

Higher education institutions in agricultural sciences are expected to redefine their missions to contribute to the further development of modern agriculture.

Chinese agricultural universities are expected to devote more effort to the following global issues:

Food security
Resource and environment
Sustainable development

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Setting up the GCHERA WAP & World dialogue

GCHERA World Agriculture Prize (WAP) was proposed by NAU on October 20, 2012 on the occasion of NAU’s 110th anniversary, and has been passed in the GCHERA steering committee meeting in Uruguay on Oct.29, 2012. The Prize aims to encourage the global development of the mission of higher education institutions in education, research and innovation in the agricultural and life sciences by recognizing the distinguished contribution of an individual to this mission.
2013 GCHERA WAP Laureate
Prof. Ronnie COFFMAN,
Cornell University, U.S.A.

Wheat scientist
2014 GCHERA WAP Laureate
Prof. Paul VLEK,
University of Bonn, Germany

Soil scientist
Partial attendees of 2014 GCHERA WAP
Thank you!

See you in Nanjing!