I. Research strengths - Overview of research landscape in Taiwan agriculture
II. Introduction to National Taiwan University
I. Taiwan’s Agriculture
(Total production value 17 billions USD)
Taiwan’s agriculture

Where we are? Subtropical to Tropical

Here Taiwan is!

- **Area**: 36,000 km²
  - N→S: 394 km
  - E→W: 144 km
- **Climate**
  - North: subtropical monsoon
  - South: tropical monsoon
- **Population**
  - 23 millions
Agricultural Environment/Challenges

Only about 8,300km² (23%) of land are suitable for agriculture
- The average farm covers 1.1 ha
- The agricultural sector is largely composed of **small family farms**
  ** Farmer’s age 62**

Located in the subtropics and tropics
- With abundant rainfall, high temperature and moisture, typhoon...
  - Harsh climate

Multifaceted terrain with mountains and rugged hills covering two-thirds of the island
- Complex and diverse ecology

Effective Productivity + High Adding Value!

23.436° N, Tropic of Cancer
The Core Thinking in Taiwan’s Agriculture-
Creating New Value Chain

The value chain in agriculture

Information ➔ innovation ➔ industrialization/marketing
(Market, big data, clouds…)

Interdisciplinary Cooperation

VALUE
Strength: Agricultural Science has higher impacts than that of the Other Sciences in Taiwan

(Source: Compiled by Science & Technology Policy Research and Information Center, National Applied Research Laboratories)
Agricultural R & D budget in 2017 at is about 160 million USD, and 3.1% of the total budget in Agriculture.

Ministry affiliated 16 research institutes execute 63% of the R & D budget, and the other research institutes execute the remaining 37% (15% to NTU).
Budget allocation (in 2015)

- Agricultural Policy: 3.2%
- Agricultural Environment: 4.4%
- Resource conservation: 0.2%
- Forestry & Biodiversity: 8.8%
- Agricultural Crops: 23.0%
- International Cooperation: 1.1%
- Biotechnology Industrialization: 7.7%
- Animal & Plant Health Inspection and Quarantine: 18.7%
- Animal Industry: 7.9%
- Fishery: 9.1%
- ICT: 5.4%
Current Focus: Accelerating Industrialization of Agricultural Science and Technology

Globalization Enhancement

- Animal Vaccines
- Feed Additives
- Bio-Pesticides
- Diagnosis and Testing

- New Plant Varieties and Seedlings
- Mushroom Cultivation
- Aqua-Culture System
- “Smart” Agricultural Upgrading

Promoting Food Safety

- Ornamental Fishes and Accessories
- Pet Foods and Products

Upgrading Traditional Industries

Incubating Innovative Industries

Internationalization
Agricultural biotechnology park

- To promote research development of agricultural technology products
- To cultivate talents of agricultural technology
- To expedite the transformation of agricultural industry
- To enhance marketing functions

➔ One-stop service to industry
New Agriculture Policy: 2016 –2020

Three Theme Strategic Plans:

I. Bioeconomy
II. Smart Agriculture (Taiwan Agriculture 4.0)
III. Circulation Agriculture

Investing 33 Million US$/year (2016 – 2020)

35 – 45 % allocated to University
Agricultural Bioeconomy
(new varieties, new vaccine, new detection technologies, etc.)

Core innovative technologies

Increasing production efficiency
(smart production, digital service)

Agricultural Productivity 4.0

Lead to additive benefits of innovative technologies and production efficiency

collaborative & complementary

- Technology Innovation
- High Production efficiency
- Industry Upgrade
- International competitiveness
Issues to be Strengthened in Key/Pillar Industries (Bioeconomy)

Key Industries

- New varieties and seedlings of plants & animals
- Genomics applications on agricultural industries
- Health management of plants & animals
- Applications on recycling materials
- Agricultural functional products
- Smart agriculture

Bottlenecks

- Marker-assisted selection technique
- Nutritional adjustment for seedling growth
- Genomics database for domestic economic plants & animals
- Application of next generation technologies
- New techniques, production processes and products for vaccines
- Applications of bio-chemicals to reduce pesticides use
- Improve rapid testing of chemical residues and plant diseases
- Technologies to recycling agricultural by-products
- Research on functional components and their extraction techniques
- Increase production quality and efficiency

Environmental issues

- Increase the use of research results in agricultural industries
- Enlarge farm size to enhance global competitiveness
- Breakthrough legislation constraints on industrial development
- Strengthen collection of global agricultural information and intellectual property rights
- Expand capacity and services on industrialization
- Foster human resources in cross-domain industries for domestic and international markets
- Expand agribusiness to international markets
- New models of industrial market to enhance globalization

Sci. & Tech. issues

- SWOT
- Key issues
- Strategies 1
- Strategies 2-4
Strategy I: Improve the ability to stably supply of quality products by innovating the agricultural management model with Smart Farmers Union (SFU)

New partnership between contractor and agribusiness

Farmers Struggling singly

Smart Farmers Union + Farming by Techs

Smart Farmers Unions

Union of special production districts

Small union of products

Big union of industries
Strategy II: Build an application model integrating convenient and cost effective agricultural digital services with value chains via ICTs

Strategy III: Create a new communication model between growers and consumers via friendly interactive technologies
Cooperation Between Taiwan and New Zealand!

• 2013, Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation [ANZTEC]

• Agriculture: Zespri model?
• Complementary in between?
II. Introduction to National Taiwan University
NTU’s Motto

Integrity Diligence
Fidelity Compassion

www.ntu.edu.tw
NTU’s Missions

Research
create new knowledge

Teaching
cultivate talents

Service
contribute to society

Entrepreneurship
combine theory & practice
1895  Taiwan Hospital
1897  Taipei Hospital Medical Training Institute (NTUCM)
1928  Taihoku Imperial University
1945  National Taiwan University

2018 is NTU’s 90th Anniversary!
11 Colleges

- Liberal Arts
- Science
- Medicine
- Law
- Bioresources & Agriculture
- Engineering
- Electrical Engineering & Computer Science
- Management
- Public Health
- Social Sciences
- Life Science

NTU at a Glance

- 3 Professional Schools
- 54 Departments
- 109 Graduate Institutes
- 100+ Research Centers
20 Subjects in TOP 50!

- Sports: 15
- Nursing: 20
- Engin: Electrical: 27
- Social Policy & Administr: 31
- Modern Languages: 31
- Engin: Civil, Structural: 33
- Chemistry: 33
- Pharmacy & Pharmacology: 36
- Physics & Astronomy: 37
- Law: 38
- Linguistics: 40
- Computer S & Info Systems: 41
- Environmental S: 41
- Materials S: 41
- Engin: Mechanical, Aeronautical & Manufacturing: 43
- Earth and Marine S: 43
- Engin: Chemical: 45
- Medicine: 46
- Politics & Intl Studies: 49
- Dentistry: 50
32,500 students in 2016/2017
undergraduate/graduate ratio = 1:1

Student Enrollment

- Bachelor: 16,500
- Master: 11,000
- Doctor: 5,000
NTU Island-wide Campuses

1% of Taiwan

- The biggest,
- The best !?

Total NTU land size
35,000 ha (86,000 ac)
= 1% of Taiwan
(3,500,000 hectares)
International NTU

- International Faculty: 233 (7%) (25)
- Student Exchange Programs: 577
- Study Abroad Students: 1,357
- Partner Institutions: 576 (62)
- Dual Degree Programs: 82
- International Students: 4,686 (77)
- English Taught Courses: 800

International NTU
Strategic Partnership: New Zealand?
謝謝！Thank you!
歡迎！Welcome!
Strategic Partnership
## Agricultural biotechnology park

<table>
<thead>
<tr>
<th></th>
<th>Pingtung Agricultural Biotechnology Park (PABP)</th>
<th>Taiwan Orchid Plantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operated (year)</td>
<td>2005</td>
<td>2006</td>
</tr>
<tr>
<td>Area of Park (hectares)</td>
<td>233</td>
<td>175</td>
</tr>
<tr>
<td>Budget of capital construction (million USD)</td>
<td>280</td>
<td>62</td>
</tr>
<tr>
<td>Park residents (Companies)</td>
<td>73</td>
<td>51</td>
</tr>
<tr>
<td>Investment of enterprises (million USD)</td>
<td>192</td>
<td>209</td>
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Photos
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