

# 15<sup>th</sup> Asian Association of Veterinary Schools Congress

## Pre-Congress Presentation III

October 20, 2016

at National Taiwan University

# Veterinary Education in Japan

Takeshi HAGA, Hiroyuki NAKAYAMA

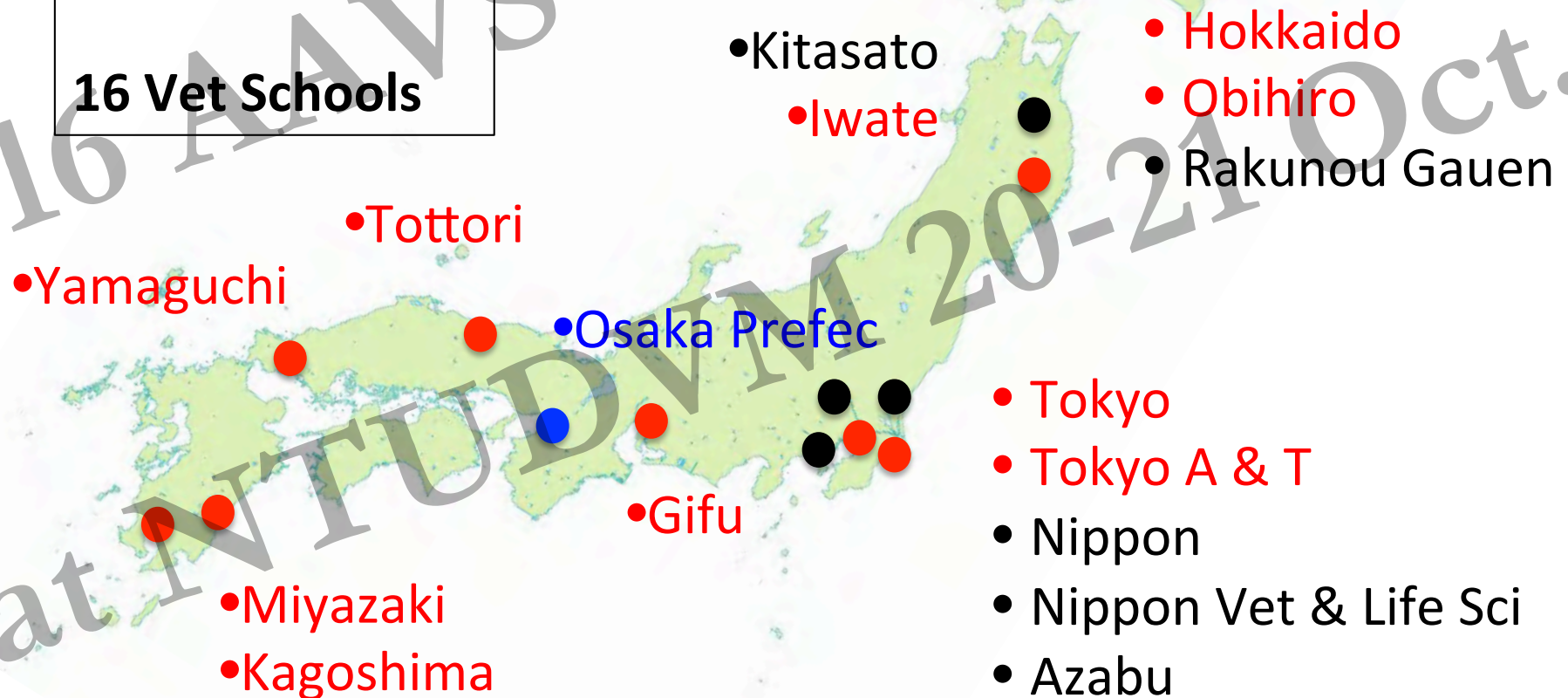
Department of Veterinary Medical Science,  
The University of Tokyo, Japan



Graduate School of Agricultural and Life Sciences /  
Faculty of Agriculture , The University of Tokyo

# Veterinary Schools in Japan

- National (10)
  - Prefecture (1)
  - Private (5)
- 16 Vet Schools**

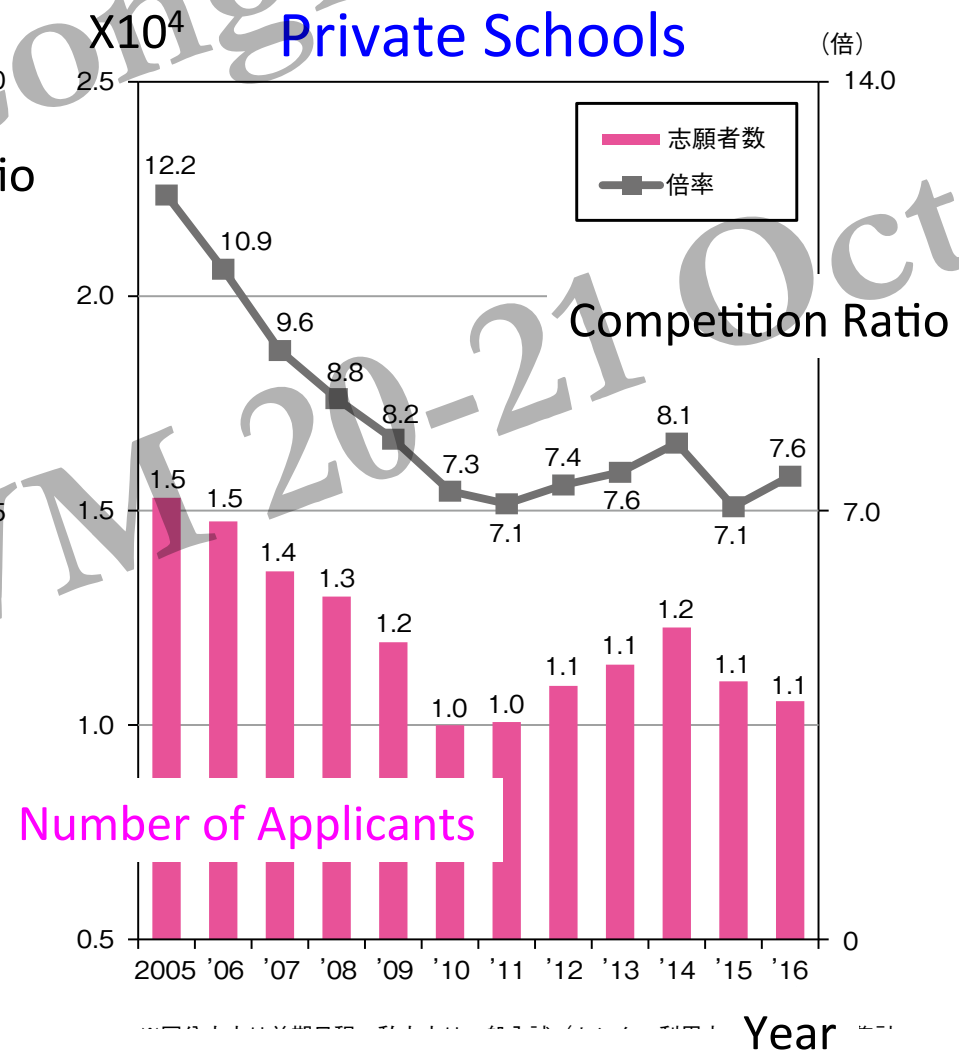
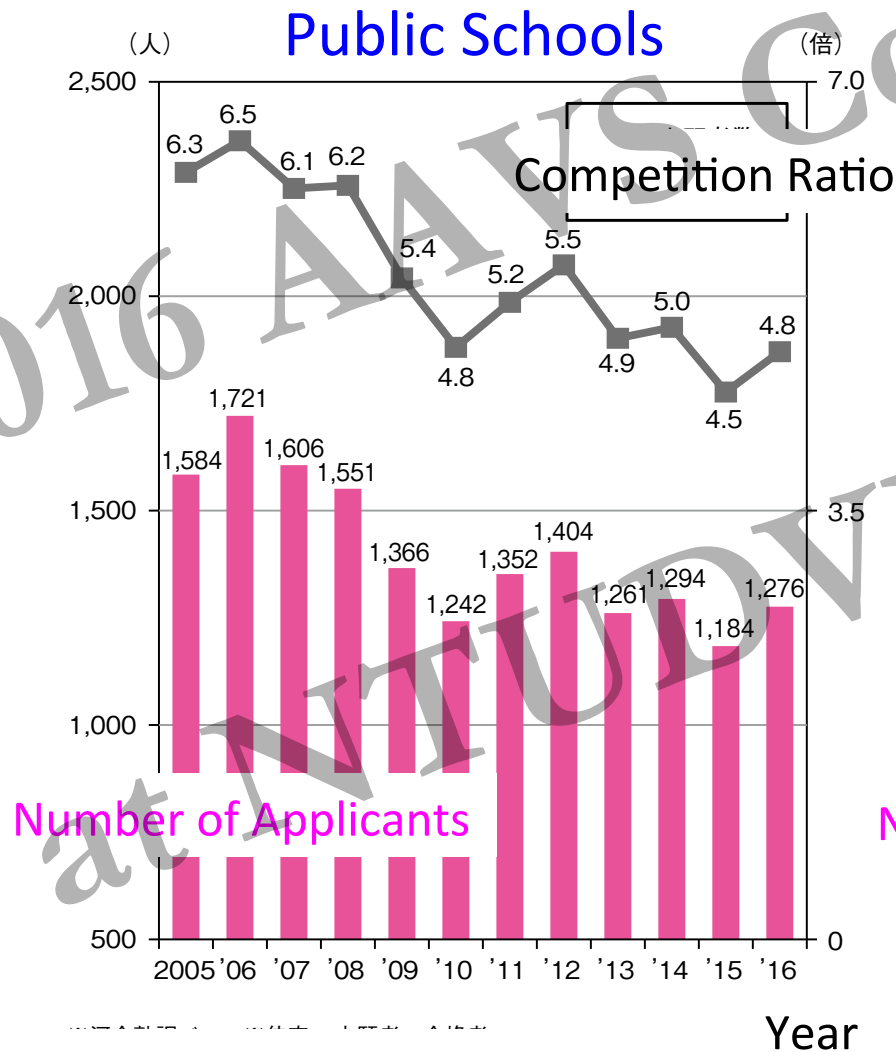


# Veterinary Schools in Japan

| University                     | Faculty and Department               | # of Students | # of Faculties | Remarks                           |
|--------------------------------|--------------------------------------|---------------|----------------|-----------------------------------|
| Hokkaido                       | Fac Vet Med                          | 40            | 46             | Cooperative Educational Program   |
| Obihiro                        | Dept Vet Med, Fac Agriculture        | 40            | 40             | Cooperative                       |
| Iwate                          | Dept Vet Med, Fac Agriculture        | 30            | 31             | Cooperative Department of Vet Med |
| Tokyo                          | Dept Vet Med Sci, Fac Agriculture    | 30            | 40             |                                   |
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| Rakuno Gakuen                  | Dept Vet Med, School Vet Med         | 120           | 54             |                                   |
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| Nippon Veterinary & Life Sci.  | School Vet Med, Fac Vet Sci          | 80            | 60             |                                   |
| Azabu                          | Dept Vet Med, School Vet Med         | 120           | 54             |                                   |
| Nippon                         | Dept Vet Med, College Biores Sci     | 120           | 41             |                                   |

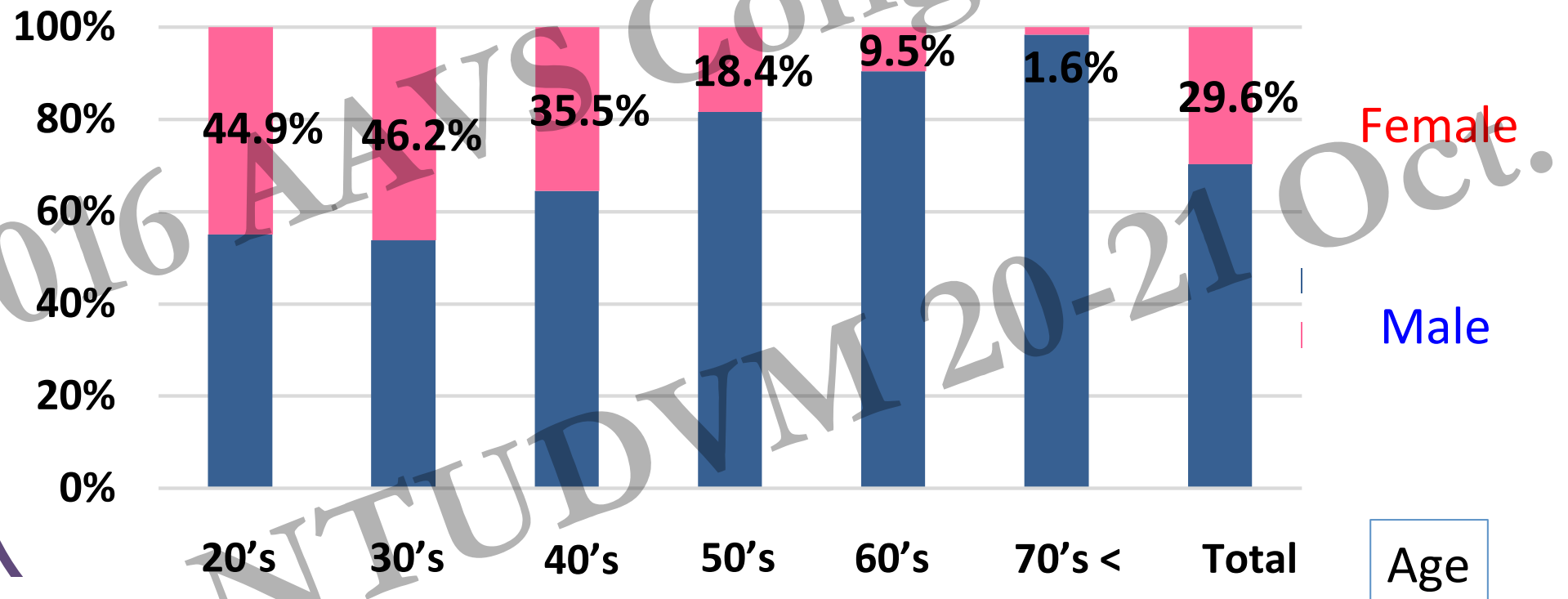
# Number of Applicants and the Competition Ratio At Veterinary Schools in Japan

Veterinary School is very popular to high-school students



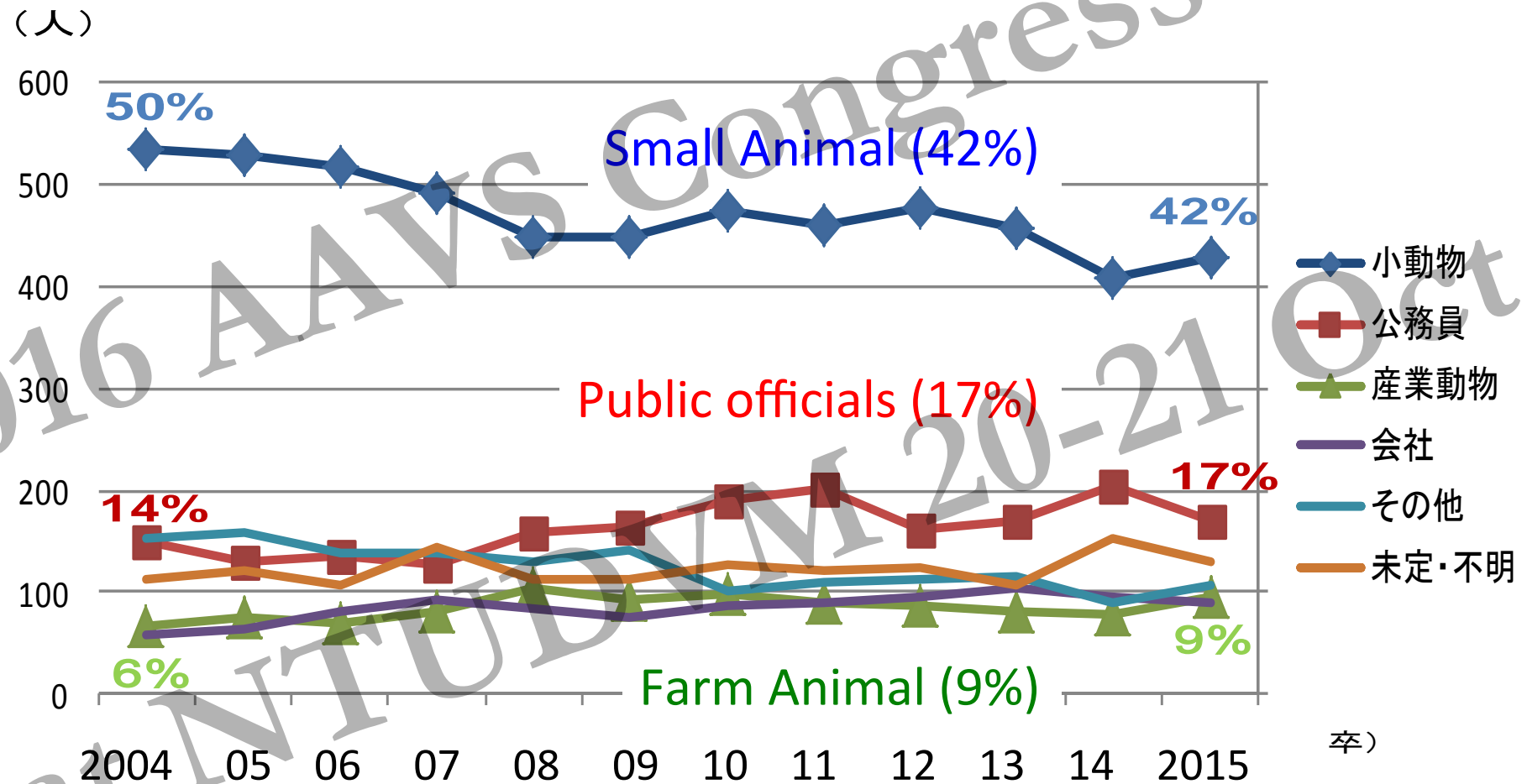
Data from KAWAI-JUKU

# Increase of Female Ratio of Veterinarian in Japan



Nearly 50% vet students are female

# Ratio of new graduates working in each field of veterinary profession



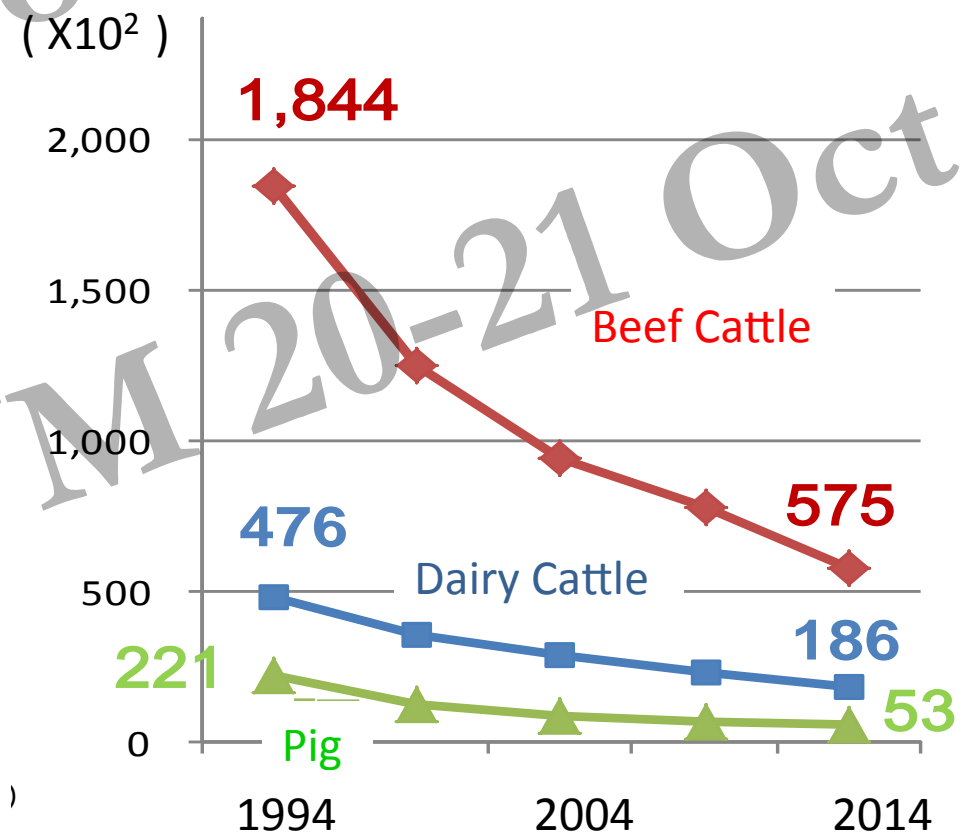
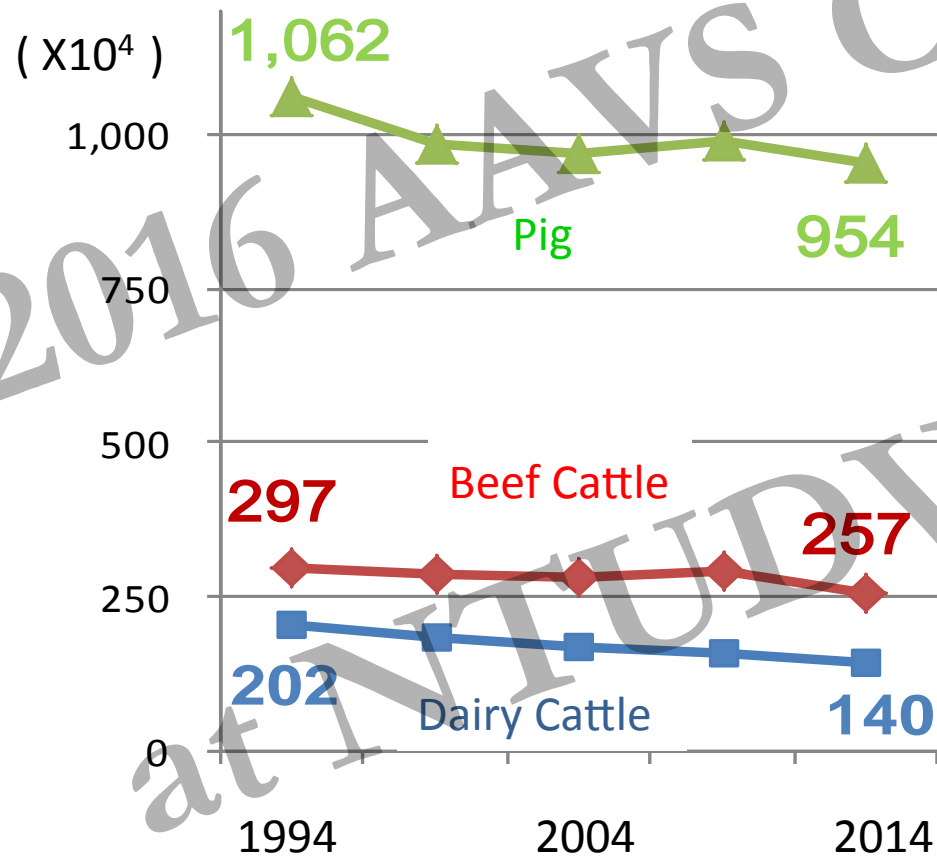
National Exam in 2015  
Rate of successful applicant: 78.8%  
[1024/ 1299 examinees]

Data from MAFF  
(Ministry of Agriculture,  
Forestry and Fisheries)

# Changes of Farm Animals and Livestock Farms in Japan (1994-2014)

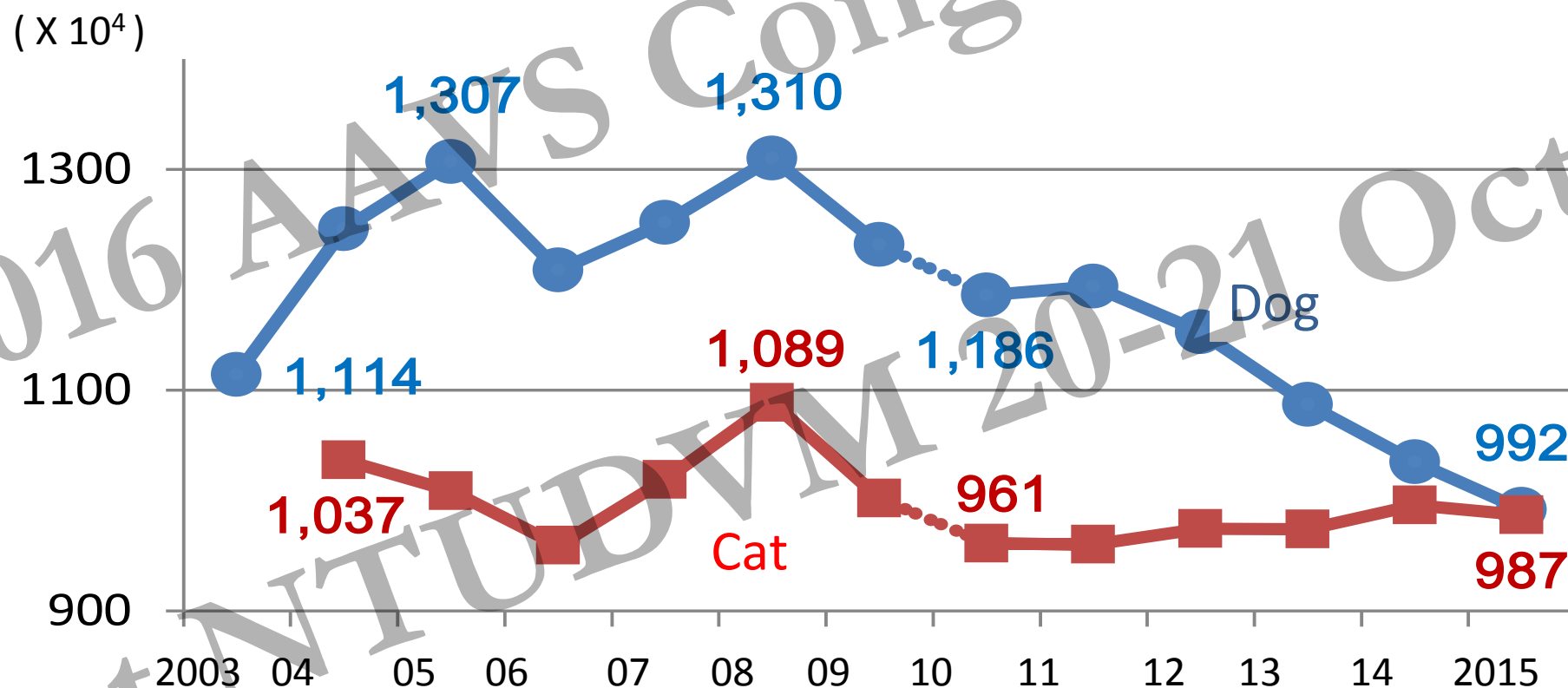
Number of Farm Animals (Million)

Number of Farms (Hundred)



Data from MAFF (Ministry of Agriculture, Forestry and Fisheries)

## Changes of Companion Animals in Japan (2003-2015)



Data from Japan Pet Food Association



# Vet Education in Japan

- Background
  - Threat of transboundary diseases
  - Importance of food safety
  - Demand for advanced veterinary medicine etc
- Certification for veterinary education
- Reform of veterinary education

# Reform of Veterinary Education in Japan

- 1) The core curriculum (CC)
- 2) Achievement test
- 3) The external evaluation system
- 4) Collaborative education systems
- 5) Activities to enrich the veterinary curricula

# Veterinary Education System in Japan



Achievement test  
(CBT+OSCE) FY2016-

National Exam

General  
arts

Vet School  
Core curriculum (2011-)  
Advanced curriculum

Graduate school

DVM

Quality assurance

PhD

Participative practices  
(Clinical Rotation)

4 years for PhD

6 years for Veterinary School

External evaluation by JUAA (2017-)

# Reform of Veterinary Education in Japan

1) The core curriculum (CC)

2) Achievement test

3) The external evaluation system

4) Collaborative education systems

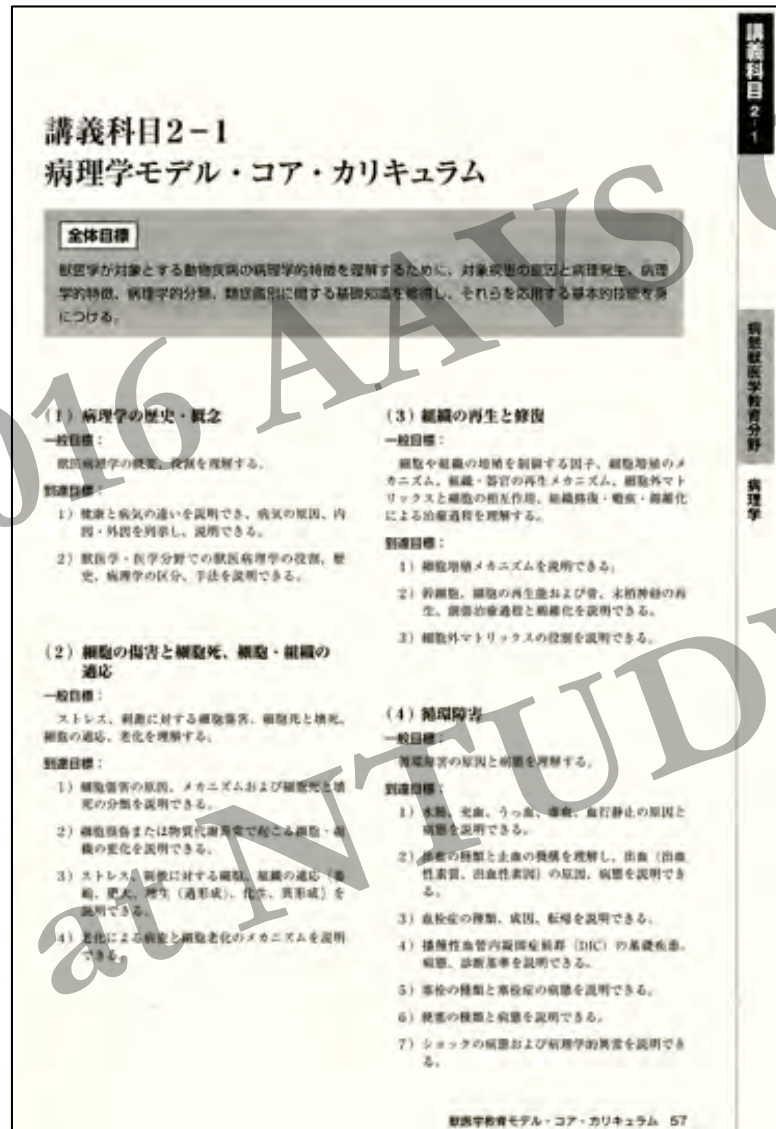
5) Activities to enrich the veterinary curricula

# 1. Model Core Curriculum



- ❖ 51 subjects
- ❖ Established in 2011
- ❖ Completed in 2012
- ❖ Started in 2013 at UT first, and sequentially in other vet schools

# The Model Core Curriculum Consists of “Total aims”, “General aims”, and “Attainment aims”



## 2-1 Pathology : Model core curriculum

**Total aim:** \*\*\*\*\*

- (1) Concept and history of pathology
- (2) Cell injury, cell death and cell adaptation
- (3) Regeneration and repair

**General aim:** To understand factors which \*\*\*\*\*

**Attainment aims:**

Students can explain

- 1) Cell proliferation mechanism
- 2) Roles of extracellular matrices
- 3) \*\*\*\*\*



# Model Core Curriculum from OIE (2013)

**Oie** WORLD ORGANISATION FOR ANIMAL HEALTH  
Protecting animals, preserving our future

September 2013

**PVS**  
Pathway

Veterinary Education  
Core Curriculum  
OIE Guidelines



Biochemistry  
Genetics  
Anatomy  
Physiology  
Immunology

---  
Biomathematics  
Animal welfare and ethology  
Parasitology  
Pharmacology/ toxicology  
Pathology

---  
Transmissible diseases  
Microbiology  
Epidemiology  
Rural economics, business management, and animal production  
Clinical and diagnostic sciences

---  
National and international veterinary legislation  
Herd health management and nutrition  
Public health  
Food safety/ hygiene  
Professional jurisprudence and ethics  
---  
Communication

Model Core Veterinary Curriculum

| Course or course content | Sequence in VET Curriculum | Day 1 Competencies addressed |          |          | Description   |
|--------------------------|----------------------------|------------------------------|----------|----------|---|
|                          |                            | General                      | Specific | Advanced |   |
| Biochemistry             | Early                      | ✓                            |          |          | Biochemistry provides the linkage between the inanimate world of chemistry and the living world of biology. Course content should provide the veterinary student with a broad understanding of the structure and function of essential biological molecules (e.g. proteins, lipids, carbohydrates, DNA, RNA) and metabolic and regulatory pathways. Comparative features among animal species of particular relevance to the Member Country should be highlighted.  |
| Genetics                 | Early                      | ✓                            |          |          | Genetics is the branch of biology that deals with heredity, especially the mechanisms of hereditary transmission and variation of inheritable characteristics among similar or related organisms. Course content should provide the veterinary student with a broad understanding and use of basic concepts of general and molecular genetics (e.g. molecular constitution of genes and chromosomes, manner in which genes move through generations in a population, genetic abnormalities, genetic testing). Focus should be on animal species of particular relevance to the Member Country.  |
| Anatomy                  | Early                      | ✓                            |          |          | Anatomy is the study of the structure of domestic animals, and includes relevant histology (study of the microscopic anatomy of cells and tissues) and embryology (study of embryos and their development). Course content should provide the veterinary student with a broad understanding of the development, structure and function, both at the gross and microscopic levels, of the major systems (e.g. musculoskeletal, nervous, cardiovascular, respiratory, digestive, reproductive and urinary). Course content should be supplemented with laboratory instruction in dissection methods and investigative use. Comparative anatomical features should be highlighted.   |
| Physiology               | Early                      | ✓                            |          |          | Physiology is the study of the normal functions of living organisms and their parts, including how organisms, organs, systems, organs, cells, and molecules use energy and chemical and physical functions that exist in a living system. Course content should provide the veterinary student with a broad understanding of basic physiological principles and techniques (laboratory focusing on animal systems) within animal species of particular relevance to the Member Country. Comparative physiologic features should be highlighted. Central themes to be addressed should include the relationship of structure (anatomy) to function, processes of adaptation, and homeostasis and feedback control systems. |



5



# 1. Model Core Curriculum



- ❖ 51 subjects
- ❖ Established in 2011
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- ❖ Started in 2013 at UT first, and sequentially in other vet schools
- ❖ Review is ongoing (2016-) to ensure “Day 1 competencies” etc

# Reform of Veterinary Education in Japan

1) The core curriculum (CC)

2) Achievement test

3) The external evaluation system

4) Collaborative education systems

5) Activities to enrich the veterinary curricula

## 2. Achievement Test and Participative Practices

### ❖ Achievement test (FY 2016 ~)

#### ➤ Computer-based Testing (CBT)

To evaluate the minimum **veterinary knowledge** of a student

#### ➤ Objective Structured Clinical Examination (OSCE)

To evaluate the ability of a student for veterinary **clinical and communication techniques**

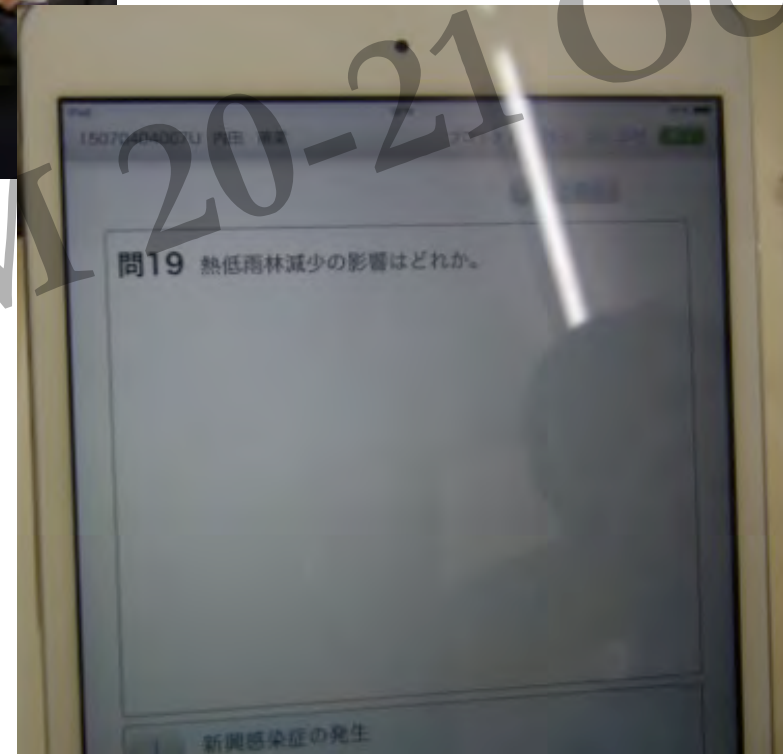
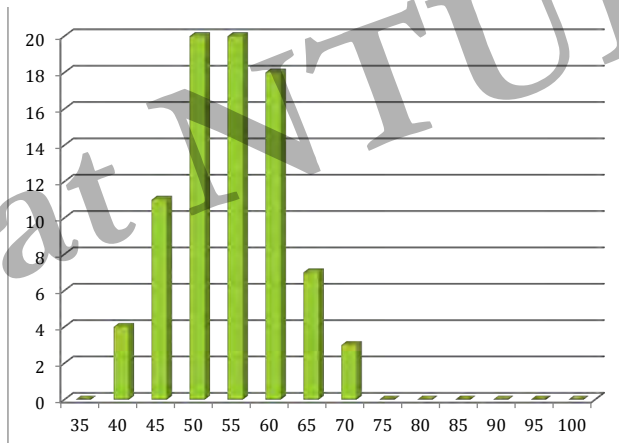
### ❖ Participative practices after the evaluation (FY 2016 ~)

#### ➤ Clinical practices actually using animals presented to a hospital

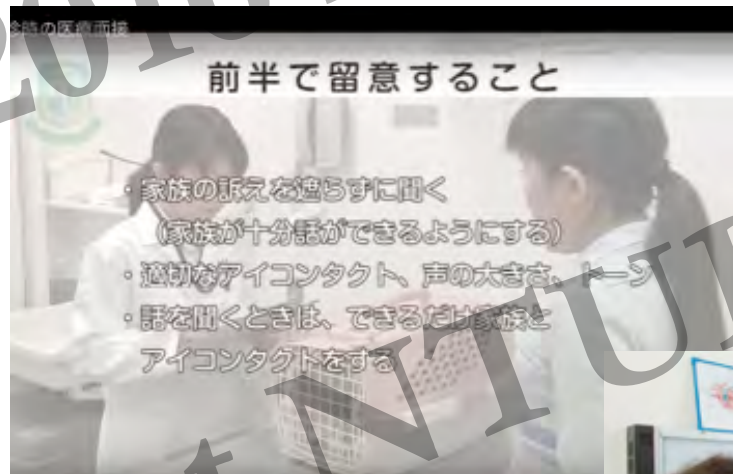
# Computer Based Test (CBT) to assure the knowledge



Distribution of the score (example)



# Educational Material for Objective Structured Clinical Examination (OSCE)

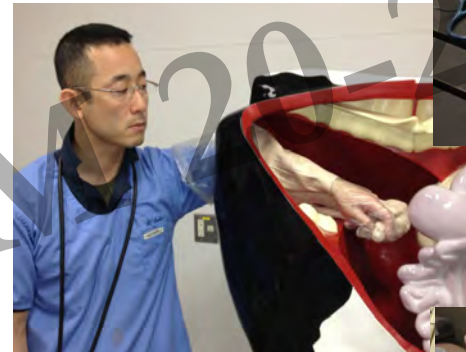


Educational Video  
Medical Interview  
(Nippon Veterinary and  
Life Science University)



Simulator

Nippon Veterinary and  
Life Science University



[Azabu University]





# vet OSCE Trial

OSCE: Objective Structured Clinical Examination



試験ブース



課題 注射薬の薬液量計算

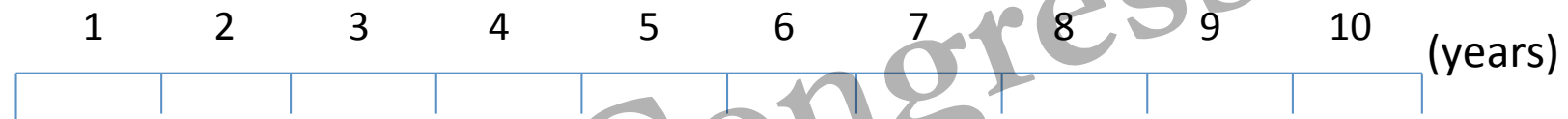


課題 犬の身体検査



課題 手袋装着と皮膚縫合

# Veterinary Education System in Japan



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### 3. External Evaluation of the Education System

- ❖ The evaluation system is now being constructed by the **Japan University Accreditation Association (JUAA)**
- ❖ The system will start in 2017

The Japan University Accreditation Association (JUAA) is a voluntary organization of higher education institutions. Taking several U.S. accreditation agencies as a model, it was established in 1947 under the sponsorship of 46 national, local public and private universities.

The mission of the JUAA is to promote the qualitative improvement of higher education institutions in Japan. The JUAA started accrediting activities in 1951 for universities applying for full membership in the JUAA. In 1996, the JUAA revised its university accreditation system based on “self-study” by each university.

On August 31, 2004, the JUAA was certified by the Minister of Education, Culture, Sports, Science and Technology (MEXT) as the first Certified Evaluation and Accreditation Agency for universities. The JUAA currently performs Certified Evaluation and Accreditation in 7 fields.



Certified Evaluation and Accreditation, a national mandatory evaluation and accreditation scheme for higher education in Japan, was first introduced in 2004 to assure and enhance the quality of academic activities.

In this evaluation and accreditation scheme, all higher education institutions must undergo external evaluation once every 7 years, and all graduate schools conferring professional degrees, once every 5 years. The agency conducting such an external evaluation must be certified by the Minister of Education, Culture, Sports, Science and Technology.

JUAA became the first certified agency to perform the Certified Evaluation and Accreditation for universities in 2004. It was later certified to perform evaluation and accreditation activities in several other fields. The JUAA currently performs Certified Evaluation and Accreditation in 7 fields (universities, junior colleges, law schools, professional graduate business schools, professional graduate schools of public policy, professional graduate schools of public health, and professional graduate school of intellectual property studies).

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# Veterinary Schools in Japan

|                      | Number of schools | Number of students<br>(each year) |
|----------------------|-------------------|-----------------------------------|
| National (public)    | 10 (64%)          | 330 (36%)                         |
| Prefectural (public) | 1 (6%)            | 40 (4%)                           |
| Public total         | 11(70%)           | 370 (40%)                         |
| Private              | 5 (30%)           | 560 (60%)                         |
| Total                | 16 (100%)         | 930 (100%)                        |

*The biggest problems of vet schools in Japan are:*

- Size of national vet schools is small
- Majority of the vet schools belongs to the faculty of agriculture

Collaborative Education at national vet schools

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## 4. Collaborative Education Has Already Started

- ❖ Collaborative faculty of Yamaguchi University and Kagoshima University (2012)
- ❖ Collaborative education curriculum (Collaborative Veterinary Department)
  - Hokkaido University and Obihiro University of Agriculture and Veterinary Medicine (2012)
  - Iwate University and Tokyo Agriculture and Technology University (2012)
  - Gifu University and Tottori University (2013)
- ❖ UT, Miyazaki University and Osaka Prefecture University are still alone

# Veterinary Schools in Japan

- Collaborative or joint educational system
- Alone



Hokkaido-Obihiro, Yamaguchi-Kagoshima:  
Effort to meet EAVE standard  
(European Association for Veterinary Education)

# Reform of Veterinary Education in Japan

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## 5) Activities to enrich the veterinary curricula

- ❖ Project of Internship Program  
for Veterinary Public Health Profession  
for Farm Animal Practices

- ❖ International Student Exchange Programme  
AIMS programme with credit transfer

# Project of Internship Program

Started after FMD outbreak in 2010

[Japan is FMD free country]

Open to **all vet students in Japan**

Supported by MEXT (Ministry of Education)

**Time-limited project** (2010-12, 2013-16, 2017-?)

1) for Veterinary Public Health Profession

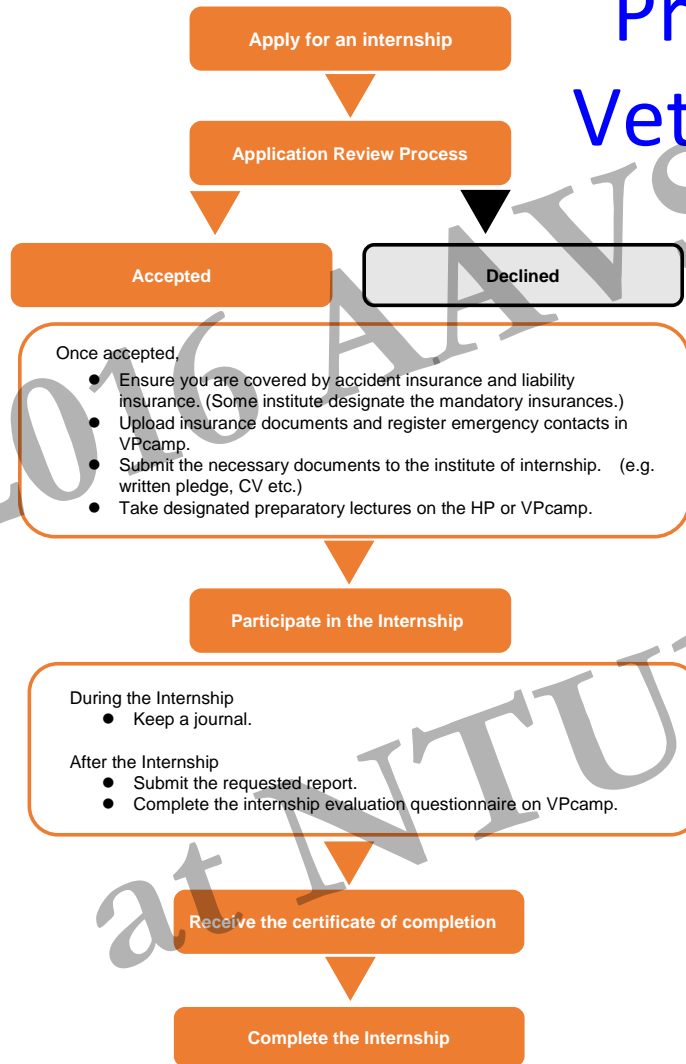
[Operated by U Tokyo] with local government public officials etc.

2) for Farm Animal Practices

[Operated by Gifu U] with Farm Animal Practitioners



#### Process Overview



# Project of Internship Program for Veterinary Public Health Profession

Announcement of the international conference workshop /Mon.,October 12,2015 Deadline

Open to All vet students in Japan  
Students interested in the program  
can apply on the website

support countries to reduce health threats under the One Health concept at the ecosystem interfaces. Through participation in the annual n Asia-Pacific, you will be able to learn the roles of organisations in rk on One Health, lessons learned to progress multi-sectoral onosis prevention and control at country and regional levels, and toral collaboration can be used to address other relevant public



牛・豚・鳥について、と畜から精密検査まで学びました



週末に行われる譲渡会を体験するため、土日を含むプログラムでした

Local government  
Public officials

OIE



Supported by MEXT (Ministry of Education)

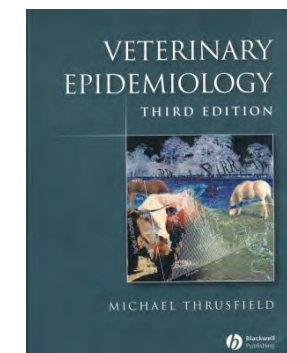
# Internship Program at Veterinary Research Institutions



OIE asia-pacific office, NOSAI, NIAH, NIID, JRA, NVAL, FAMIC, AQS  
Local Livestock hygiene service center etc

Lecture series on website

Example



Professor of Veterinary Epidemiology, University of Edinburgh



**Veterinary epidemiology in disease-control policy-making:  
the 2001 UK foot-and-mouth disease outbreak**

**Establishment and development of education on  
veterinary epidemiology in the UK**

## 5) Activities to enrich the veterinary curricula

- ❖ Project of Internship Program  
for Veterinary Public Health Profession  
for Farm Animal Practices

- ❖ International Student Exchange Programme  
AIMS programme with credit transfer



# Student Exchange under ASEAN International Mobility for Students (AIMS) Programme

A government supported multilateral educational program to promote a vibrant student mobility in Southeast Asian nations: expanding throughout Asian countries, and Japan became a member in 2012

**Student mobility**: one of the key strategic elements of cooperation leading to the development of a **harmonised higher education environment** among countries.



The 9th Review Meeting of  
AIMS Programme  
Tsukuba, JAPAN  
(November, 2015)



Between VEEs in Thailand and Japan  
**Credit transfer** started in 2014

# Collaboration of Veterinary Education (CVE) between Japan and Thailand for Sound Evolution of Asia

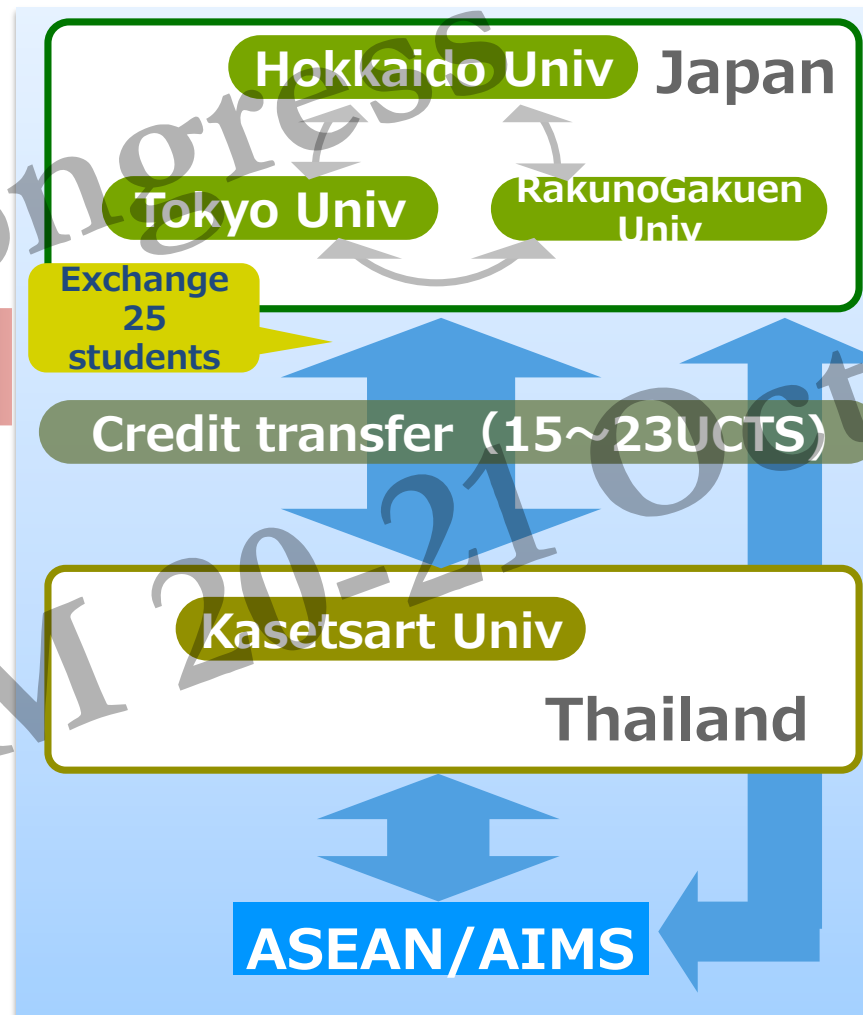


## OUTPUT

- Veterinary leaders in Thailand
- Global perspective of Japanese students

## OUTCOME

- Intensification in Veterinary Field
  - Level up of veterinarians
  - Improvement of veterinary education
  - Leadership of Japan in Veterinary field
  - ...One Health



First collaboration in the field of veterinary education under the AIMS Programme

Supported by Re-Investing Japan Project



## Practical class in Thailand FY2014



Wildlife



Hospital



Japanese students join the clinical rotation class for Thailand students, to learn veterinary medicine of companion animals, wildlife, large animals, etc...

Large animal



Large animal







# Credit exchange in FY2014



|                    | Japanese students in Thailand |                |      |                 |      | Thailand student in Japan |                 |      |
|--------------------|-------------------------------|----------------|------|-----------------|------|---------------------------|-----------------|------|
|                    | Time (hours)                  | Credit in Thai | UCTS | Credit in Japan | UCTS | Time (hours)              | Credit in Japan | UCTS |
| Hokkaido Univ      | 540                           | 12             | 17.8 | 9               | 16.2 | 210                       | 6               | 10.8 |
| Rakuno Gakuen Univ | 420                           | 14             | 20.7 | 7               | 13.9 | 315                       | 7               | 13.9 |
| Univ of Tokyo      | 630                           | 14             | 20.7 | 11              | 17.6 | 585                       | 13              | 25.5 |

Credit Exchange in the field of veterinary education under the AIMS Programme

UCTS: UMAP Credit Transfer Scheme  
 UMAP: University Mobility in Asia and the Pacific

# Various types of Internship Program for Veterinary Students (Tokyo-Taiwan-Seoul)

Educational exposure of veterinary students with different cultural backgrounds to be promoted



Univ Tokyo

Students from Seoul



Taipei Campus



Diagnostic Lab work in Tokyo



八駿馬圖已掛在金井副教授的研究室



Animal Hospital In Taiwan



郭宗南教授與日本大學退休的潘英仁名譽教授

# Problems of the Educational Innovation

- ❖ Time for education increases, but time for research decreases
- ❖ Administrative work is markedly increased
- ❖ Cost for achievement test, participative practices and external evaluation
- ❖ No or few supporting staffs, and faculties need to do everything



# International Conference on Veterinary Eligibility and Education

jointly convened with 17<sup>th</sup> AAVS meeting

**Date:** November 21 (Wed)~22 (Thu), 2018

**Venue:** Ito International Research Center,  
The University of Tokyo,  
Tokyo, Japan.

**A conference fee: Free**

## **Contents:**

### **Part 1: Keynote presentations**

- ✓ *What is necessary for the training of international veterinarians.*
- ✓ *Statutory bodies of veterinary professions*

### **Part 2: Panel discussion**

- ✓ *Current status, problems and future plans of veterinary profession and education in each country*

### **Part 3: Open symposium**

- ✓ *Japanese veterinarians actively working in the world*

### **Part 4: Asian Association of Veterinary Schools (AAVS) annual meeting**

**Host:** The Japanese Society of Veterinary Science

**Co-host:** OIE Regional Representation for Asian and the Pacific

**Symposium Office:** Prof. Hiroyuki NAKAYAMA

(President of the Japanese Society of Veterinary Science, the University of Tokyo)

## Meeting in 2018

Nov. 21-22

Tokyo



The University of Tokyo

