

# **A Study Visit on Livestock's Production Medicine**



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# Outline

- **Motivation and Objectives**
- **Visiting Countries and Organizations**
- **Expected Outcomes**
- **Current Situation of Livestock Production in Taiwan**
- **Discussion Topics**

# Motivation and Objectives

- **Problems faced by the livestock industry in Taiwan:**
  - Increasing production costs due to soaring prices of international feed ingredients
  - Low survival rate due to difficulties in diseases control, various production systems and poor biosecurity
  - Improving productivity and reducing production costs to make sustainable primary industry
- **In order to improve the ability of disease prevention and the survival rates in livestock and poultry, a study visit to developed countries in Europe and the USA was organized to learn the following subjects:**
  - Vet service systems, policies of livestock and poultry industry, production and marketing channels, marketing supply chain, promotion model and outcomes of implementation in production medicine
  - Providing references for the planning and promoting of policies and measures in animal disease prevention and control

# Pig Production Efficiency

Countries	Survival Heads of new born	Piglet Mortality rate (%)	Grower Mortality rate (%)	Finisher Mortality rate (%)	Pigs to markets /sow/year
Netherlands	12.6	12.3	1.9	2.5	24.7
Denmark	13.8	14.3	3.1	4.3	24.5
France	12.8	14.0	2.2	4.0	23.0
United States	11.0	11.0	3.0	3.1	21.0
Taiwan	9.86	11.5	12.3	6.0	14.7
<b>Taiwan (2012)</b>	-	-	<b>13.5</b>		<b>15.8</b>

# Visiting Countries and Organizations

- **United Kingdom**

- Defra
- World Reference Laboratory for Foot and Mouth Disease (The Pirbright Institute)
- Merial Co.
- St. Davis Poultry Team

- **United States of America**

- APHIS
- University of Minnesota
- Iowa State University
- Pipestone Veterinary Clinic

# Expected Outcomes

## Introduce Production Medicine Concepts

To promote livestock production efficiency and decrease the costs

To reduce the risks of transmission of animal infectious diseases through trade

To eradicate important animal infectious diseases (e.g. FMD)

# Current Situation of Livestock Production in Taiwan

- **Value of Farm Products in 2012**

- Value of Farm Products: NTD 477.9 billion
- Value of Livestock Production: NTD 148.5 billion (USD 5 billion), 31% of Farm Products; the top 3 of Livestock Production are:
  - Hog : NTD 66.8 billion, 45% of Livestock Production
  - Chicken : NTD 37.5 billion, 25% of Livestock Production
  - Egg : NTD 19.4 billion, 13% of Livestock Production

- **Livestock Production in 2013**

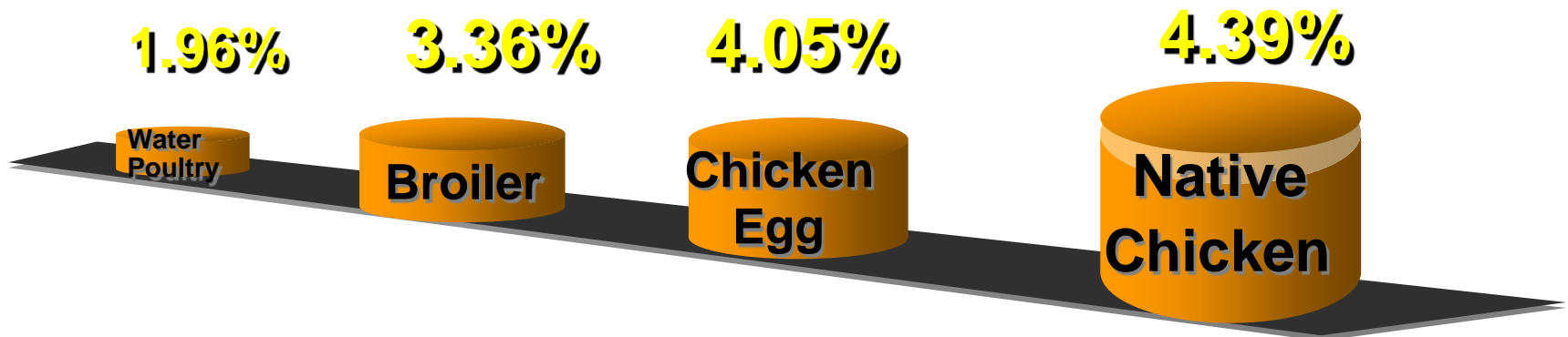
Species	Farms	Head on Farms	Slaughtered
Hog	8,557	5,806,237	8,575,341
Chicken	5,633	89,670,211	247,563,870
Layer	1,716	36,752,138	-
Broiler	3,917	52,918,073	-

# Current Situation of Poultry production in Taiwan

- The Value of Poultry Production was about NTD 66,570 million in 2012

✓ Broiler	16,060 million	✓ Native Chicken	20,970 million
✓ Duck	5,240 million	✓ Goose	2,280 million
✓ Chicken Egg	19,780 million	✓ Duck Egg	1,730 million
✓ Turkey	440 million		

- The Ratio of each Poultry Product in the Total Value of Agricultural Production





# Current Situation of Pig production in Taiwan

- Since 1986, pork production value was the number one agriculture product, higher than rice.
- FMD in 1997 was a major blow to Taiwan's pig industry which had caused the losses up to NTD 150 billion in related industries including farming, feed, pharmaceutical, processing plant and transportation. Thereafter, the pork produced mainly supplies for the need of domestic market.
- In 2005 domestic pork market was fully accessed by imported pork and pig offal with the import tariffs of 12.5% and 15% respectively.

# Current Situation of Pig Production in Taiwan (cont. 1)

- Taiwan's Inventory of Pigs and Pig Farms in 2013

Farm Level (Head)	Farms		Head on Farms		Average Heads /Farm
	Farms	%	Heads	%	
1~99	3,137	36.66	89,721	1.55	29
100~499	2,292	26.79	577,517	9.95	252
500~999	1,549	18.10	1,164,952	20.06	752
1,000~4,999	1,456	17.02	2,626,425	45.23	1,804
≥5,000	123	1.44	1,347,622	23.21	10,956
Total	8,557	100.00	5,806,237	100.00	679

# Prevention and Surveillance Policy of Avian Influenza

- Strengthen monitoring on wild birds and susceptible of infection animals for early warning and response
  - Following the epidemiological method and surveillance guild-line of OIE, at least 25,000 samples have been screened and tested annually since 1998.
  - The Result of Active Surveillance from 2013 to May. 3, 2014:

Chicken	Duck	Goose	Pet Bird	Wild Bird	Migratory Bird	Pig	Live Poultry Vender	Live Poultry Market
1,440 farms (28,800 cases)	586 farms (11,720 cases)	163 farms (3,260 cases)	2,405 cases	603 cases	9,374 cases	113 farms (1,695 cases)	76 places (380 cases)	114 places (570 cases)

- We have detected the H7N9 LPAI virus from the feces of migratory birds in I-Lan and Tai-Nan only in 2009 and 2011.

# Prevention, Control and Surveillance Policy of FMD

- **Active Surveillance**

- Farms

- Random sampling : 600 pig farms/year, 300 cattle and goat farms/year.
    - Target sampling : 800 pig farms/year, 160 cattle and goat farms/year.
    - Tested FMD non-structure protein (NSP) Antibody (Ab) and serum neutralization (SN) Ab.

- 23 Auction markets

- 40,000 pigs/year, 1-2 pigs/farm
    - Tested FMD NSP Ab.

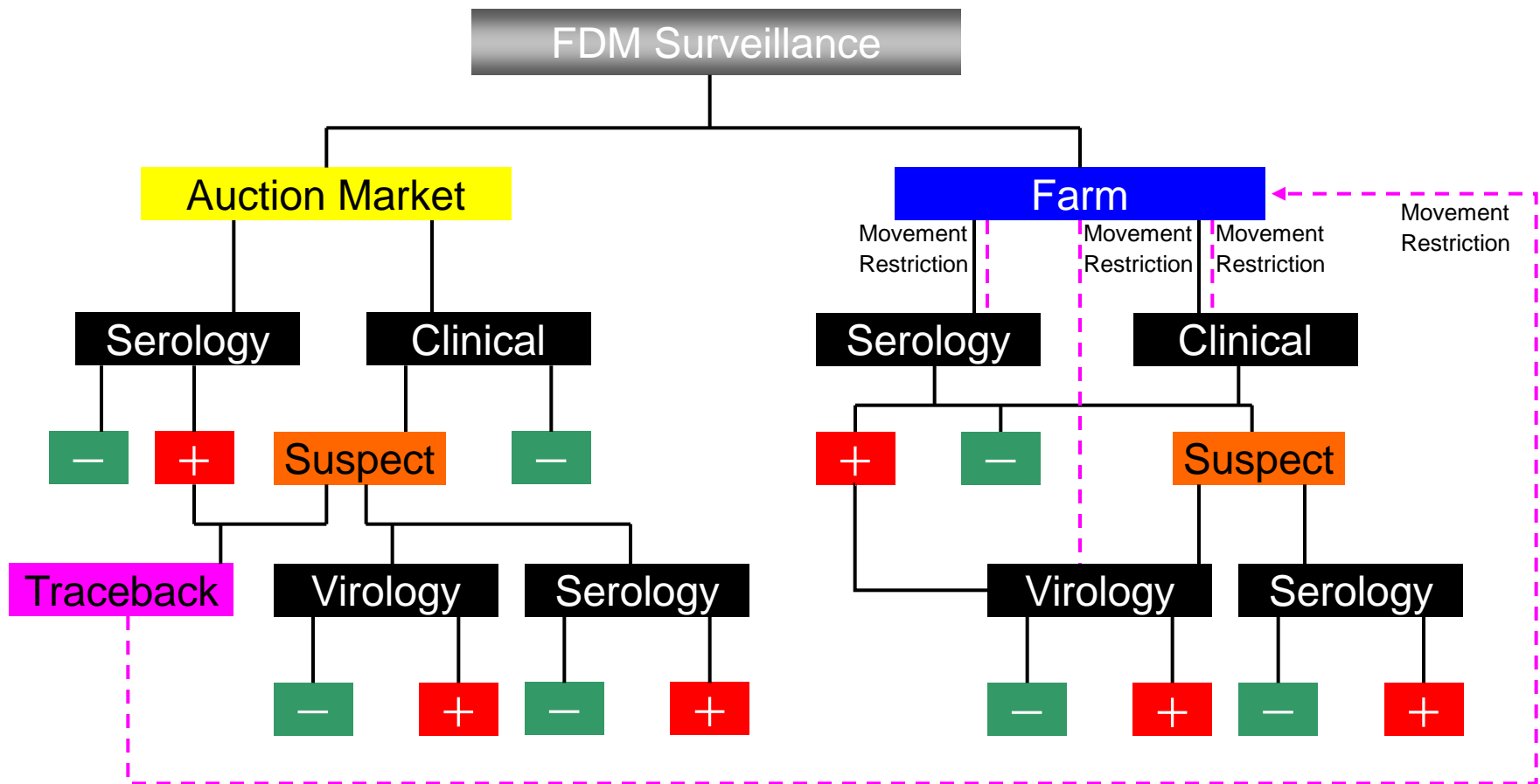
- Slaughter houses

- pre-slaughter and post-slaughter inspection by veterinarians

- **Passive Surveillance**

- Suspected cases or reported cases
  - Implement clinical inspection and sampling by LDCCs

# Prevention, Control and Surveillance Policy of FMD (cont. 1)



**Virology: virus isolation, RT-PCR**

**Serology: NSP ELISA**

# Prevention, Control and Surveillance Policy of FMD (cont. 2)

- **Emergency Response and Control Measures of FMD**

- Movement restriction on the infected farm.
- Clinically infected animals and their pen mates (exposed animals) shall be depopulated.
- Disposal of carcasses.
- Clinically healthy animals within the index farm shall be vaccinated.
- Surveillance of surrounding cloven-hoofed animal farms within 3 km radius area around the infected farm.

# Prevention, Control and Surveillance Policy of FMD (cont. 3)

- **On-farm biosecurity**

- Entry and out control
- Personnel and vehicle biosecurity
- Routine cleaning and disinfection
- Self monitoring

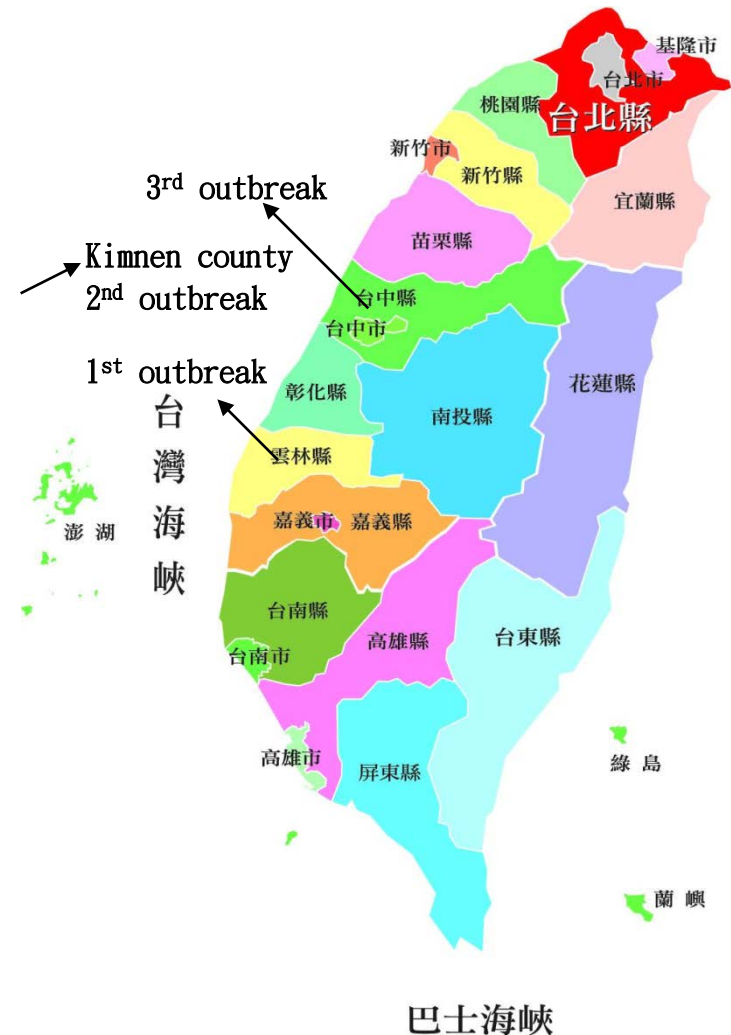
- **Disinfection in meat markets and slaughterhouses**

- Vehicles control with thoroughly washing and disinfection
- Routine cleaning and disinfection of establishment and facilities
- Supervised by LDCCs and veterinary meat inspectors



# Prevention, Control and Surveillance Policy of FMD (cont. 4)

- Vaccination rate: above 90%
- Farms protective immunity rate: above 80%
- 3 outbreaks during Jan., 2013- May, 2014
  - Clinical cases : none
  - NSP Ab positive cases : 3 cases
    - 2 cases were detected from auction markets surveillance
    - 1 case was detected from pig farm surveillance
  - There is no FMD case detected or found since June 2013





# Discussion Topics

- **Defra**
  - The service program and framework of animal health and veterinarian organization.
  - The prevent and control measures in important animals disease (e.g. FMD, AI and, Rabies)
- **The Pirbright Institute**
  - The method and application of FMD vaccine matching test.
  - The global situation of FMD.
- **Merial Co.**
  - The procedures of vaccine production and vaccine bank.
  - The possibility of producing vaccine of O Taiwan strain.
- **St. Davis Poultry Team**
  - The structure of organization, service items, and veterinarian's role in St. Davis Co.
  - Visit layer chicken farm and broiler chicken farm to understand the procedure of biosecurity.

# Discussion Topics (cont. 1)

- **APHIS**

- PED status in the U.S & vaccine development
- Rabies control practices in the U.S.
- Surveillance program, prevention and control measure for Avian Influenza.

- **Iowa State University**

- The service items and organization's role on animal diagnosis in the US.
- Reporting system of animal in the US.
- Visit the instrument and diagnosis procedure.

- **University of Minnesota**

- The organization service item ◦
- The education program of veterinarian.
- The situation, and prevent and control measure of PED.

# Discussion Topics (cont. 2)

- **Pipestone Veterinary Clinic**
  - Organization structure, service item, and the role of veterinarian in PVC.
  - PED situation, and prevention and control measure in Pipestone system.
  - Visit pig farm to learn biosecurity procedure.
  - Cleaning and disinfection procedures of animal transportation vehicles.



**Thank you  
for your  
attention!**

