



AVIAN

INFLUENZA H5N6

Field Update

Sept 12, 2017

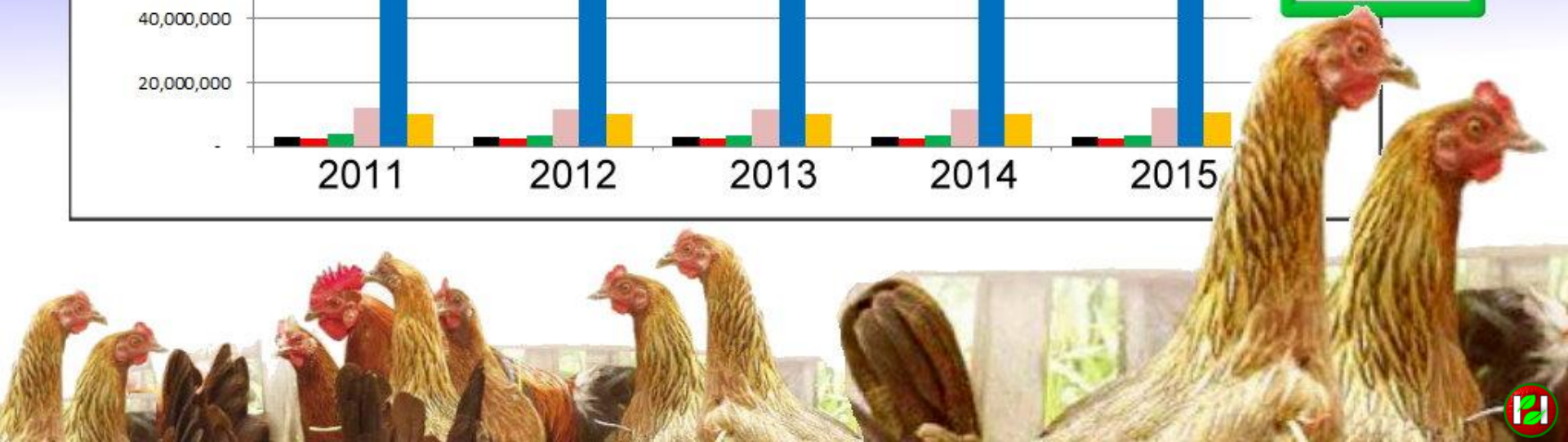
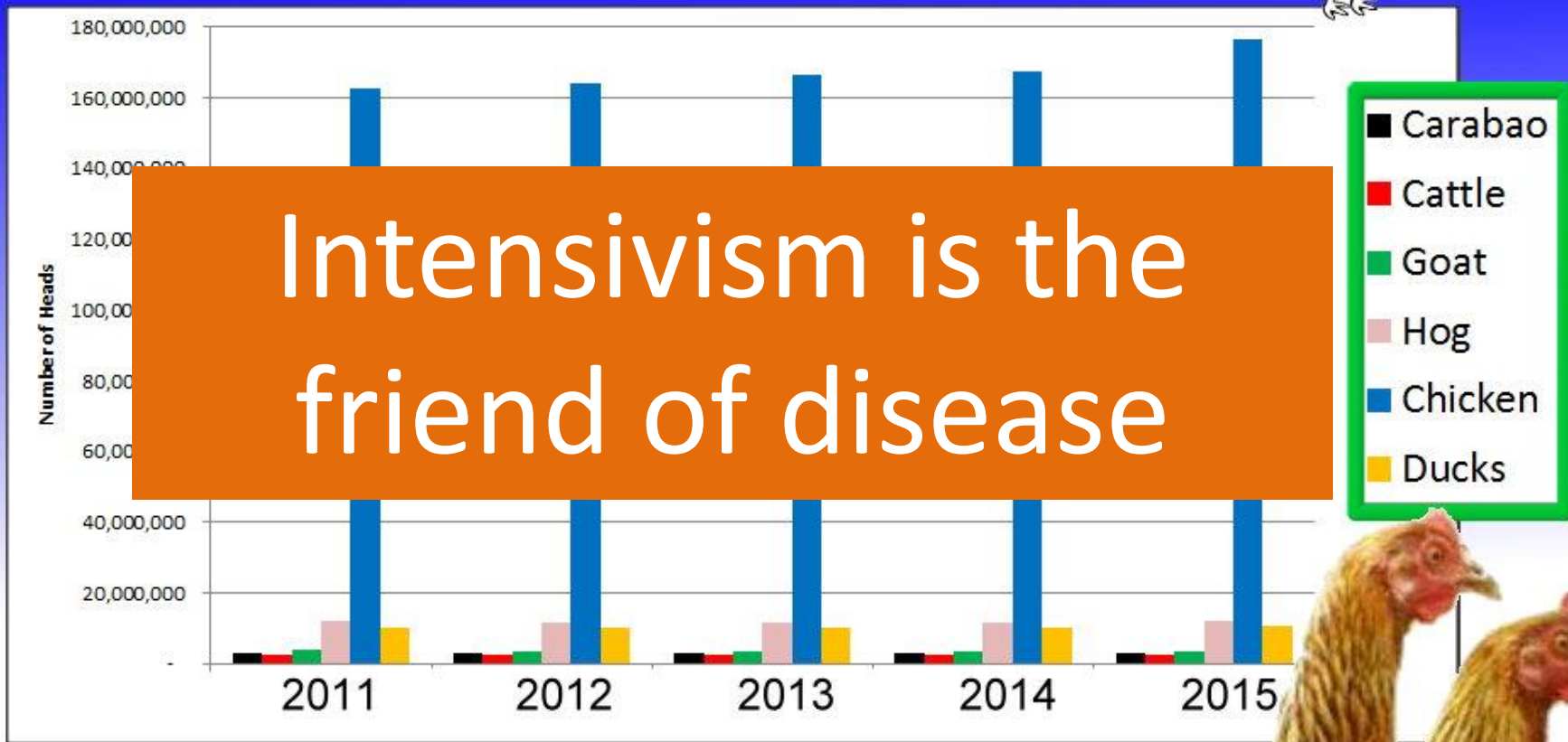
Prepared by

Animal Health and Welfare Division

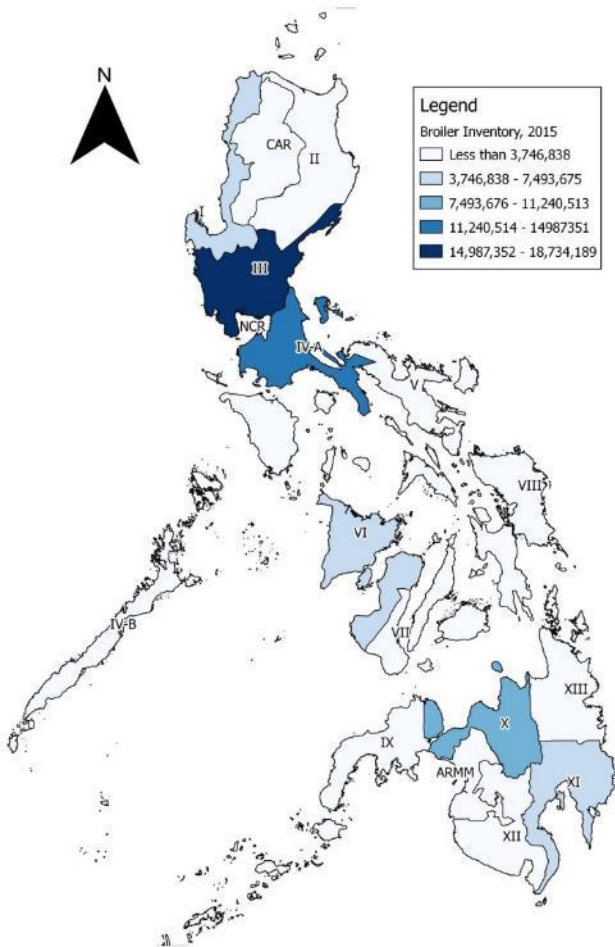
Bureau of Animal Industry

Philippines

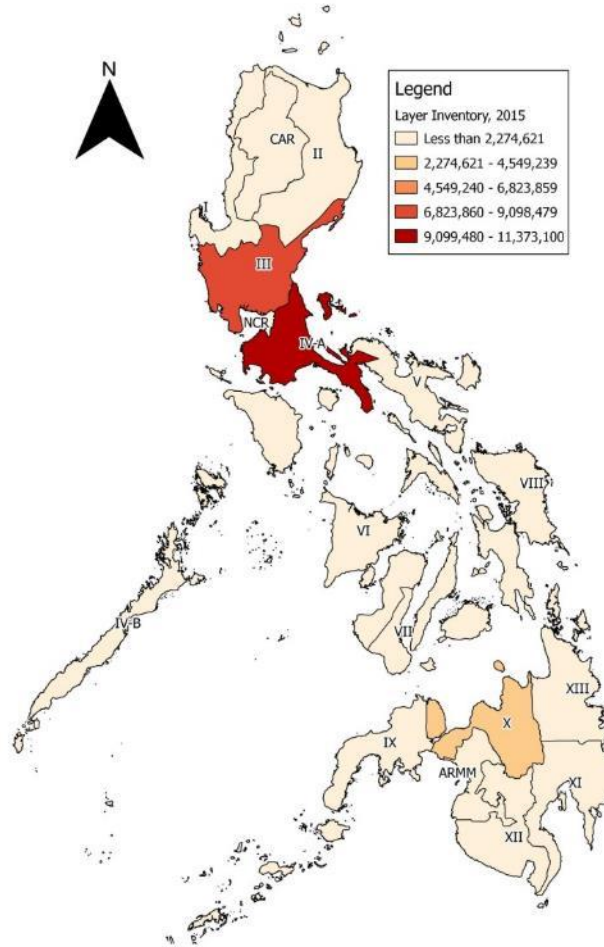
The Philippine LIVESTOCK INDUSTRY



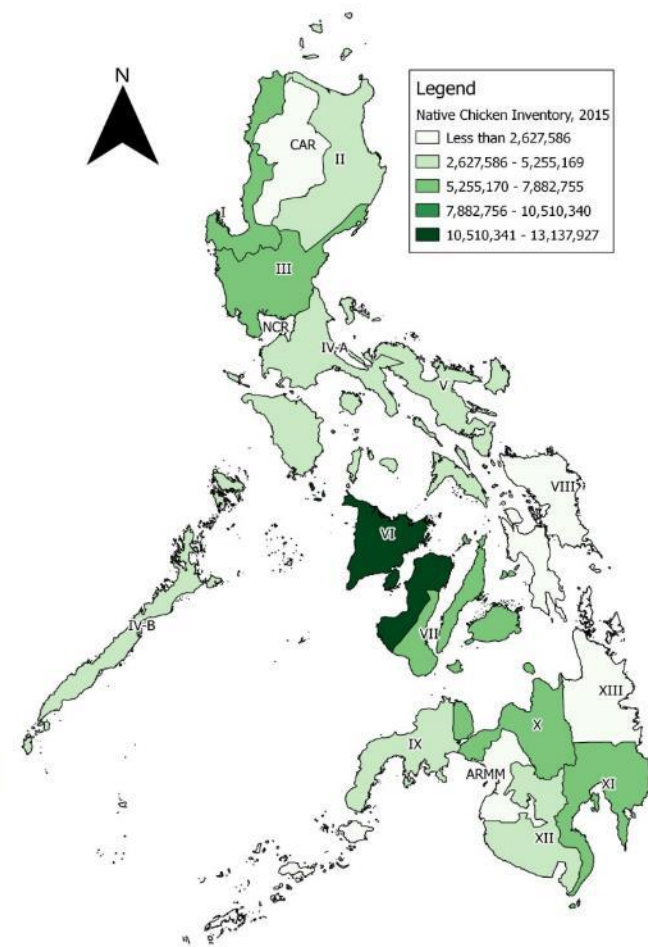
Poultry distribution



BROILERS



LAYERS



NATIVE





Entry points for TADs

85 airports
(10 international gateways)



429 fishing ports and 821
commercial ports.



Pampanga AI Background



Source: BAI Event Based Surveillance

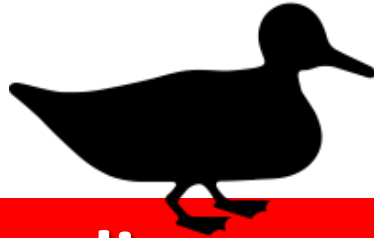
Report of high poultry mortalities in San Luis



BAI immediate response:
Disease Investigation



100 % Mortality rate



71 % Mortality rate

Clinical Signs

Lethargy

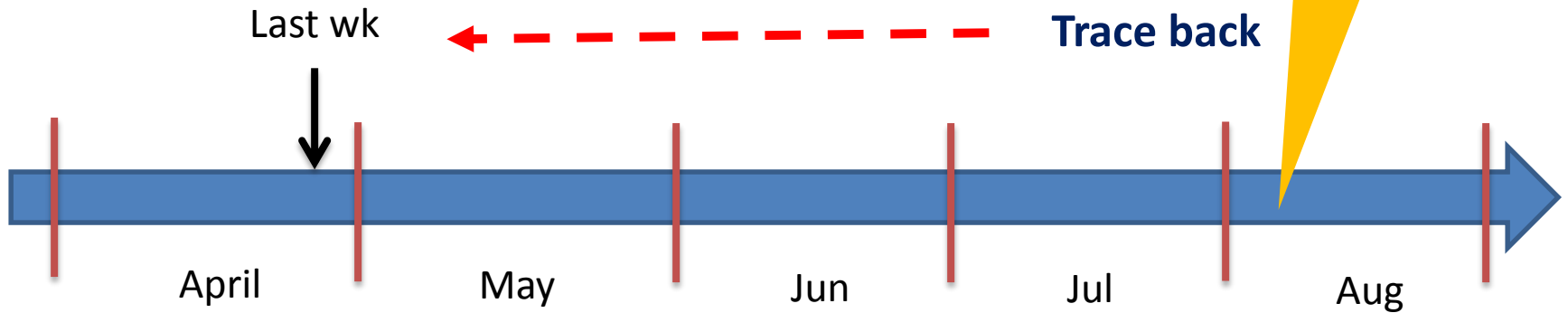
Inappetence


Nasal and oral discharge

Seizures

death

Alert for BAI





Problem of Non-reporting

- The AI problem started as early as April 2017
- No reports made to the government.
- Results: Outbreak spread to other farms and places; thousands of mortalities

Animal farming is a
public health
responsibility



VETERINARY MEDICINE ACT



- REPUBLIC ACT NO. 9268
- AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE IN THE PHILIPPINES, REPEALING FOR THE PURPOSE REPUBLIC ACT NO. 382 AND FOR OTHER PURPOSES SEC.
- Approved: MAR 19, 2004



22. Revocation of Certificate of Registration and Suspension from the Practice of Veterinary Medicine and Cancellation of Special Permit.

- ...any of the following grounds:
- ...***(i) Knowingly and deliberately concealing or failing of report as required by law, or making false reports regarding the spread of contagious or infectious diseases;***



REPUBLIC ACT NO. 10611
“Food Safety Act of 2013”.

- ARTICLE I: DECLARATION OF POLICY AND OBJECTIVES
- SEC. 2. Declaration of Policy. ..
- Furthermore... *the State shall protect consumers from trade malpractices and from substandard or hazardous products. Toward these ends, the State shall maintain a farm to fork food safety regulatory system that ensures a high level of food safety....,*



SEC. 3. Objectives.

- – To strengthen the food safety regulatory system in the country, the State shall adopt the following specific objectives:
- *(a) Protect the public from food-borne and water-borne illnesses and unsanitary, unwholesome, misbranded or adulterated foods;*

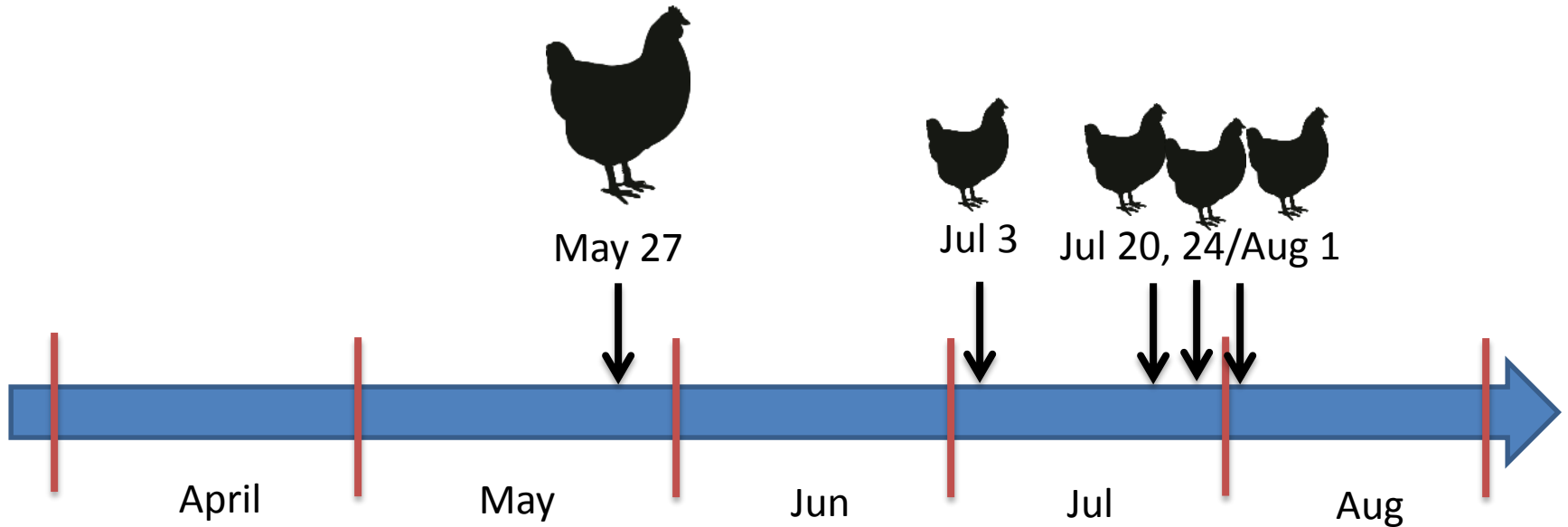
Dates observed in other farms

Clinical Signs

Lethargy

Inappetence

Death within 24 hrs



10-100 % Mortality rate

Field investigation and sample collection



Necropsy



Discolored comb



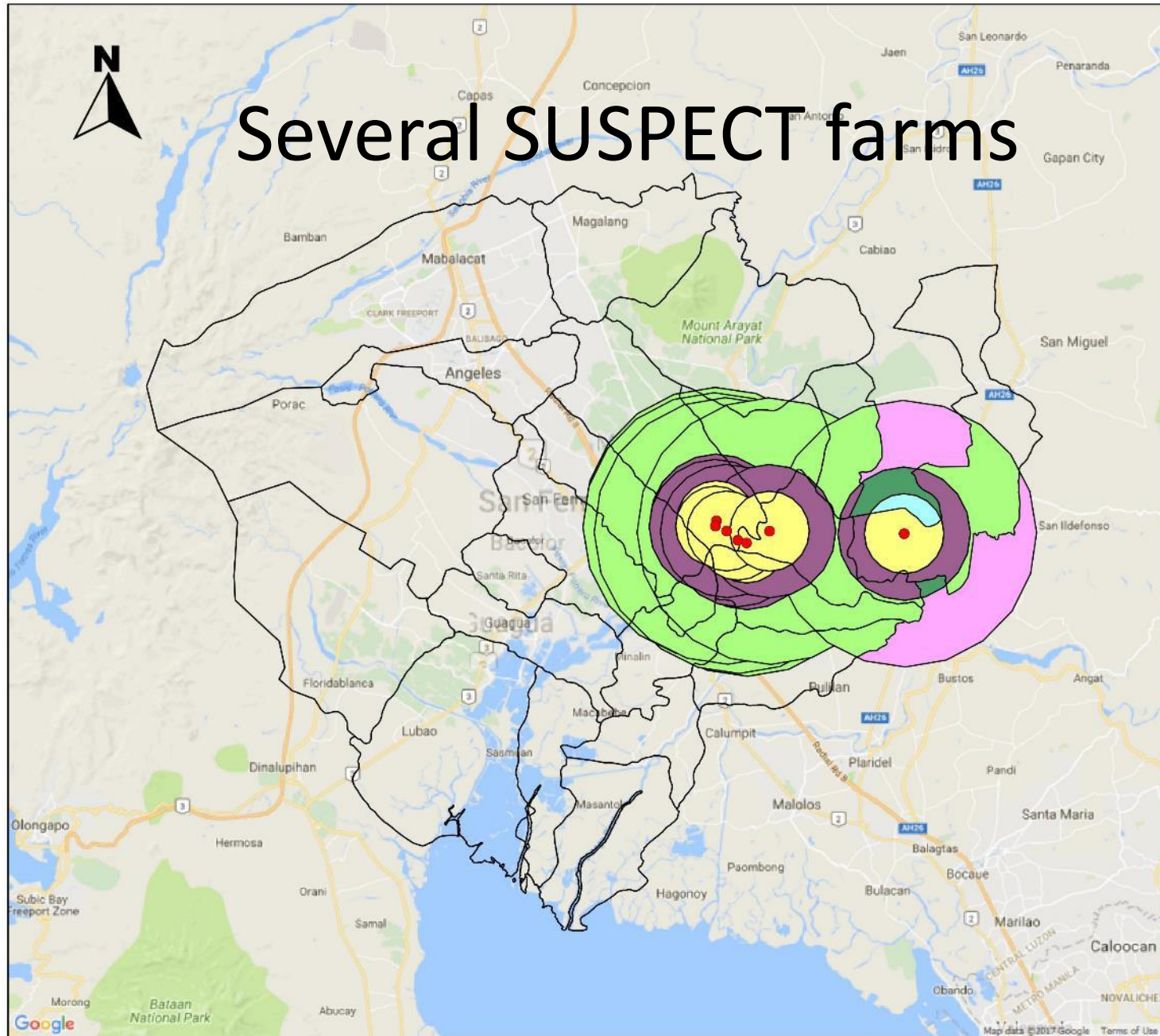
Exudates



Hemorrhages



Several SUSPECT farms



Legend

utm 51N Pampanga Outbreak



3km Buffer Intersect



3km Buffer Zone



5km Buffer Intersect



5km Buffer Zone



10km Buffer Intersect



10km Buffer Zone



utm_51N_mun



utm_51N_prov





Initial description of the disease

- **Commercial layer chickens and quails**
- **Several places in Pampanga and Nueva Ecija**
- **Lethargy, inappetence, oronasal exudates**
- **Death**
- **High mortalities**
- **Lowered egg production**



Laboratory Tests

- Screening: RADDL Region 3: **AI Positive**
- Confirmatory: BAI Laboratory
 - First test: **Type A positive**
 - Second Test: **H5 positive**
 - Third Test: H7 negative
 - Fourth test: N1 negative

Diagnosis: Avian Influenza Type A subtype H5

Same results obtained by a big poultry company and by a university virologist

Summary

More detailed PCR and sequencing results are attached in Appendix A.

BLAST analysis of the HA sequences revealed highest (99%) Genbank sequence similarities to clade 2.3.4.4 group C H5N6 HPAI viruses.

Although the closest BLAST matches were to A(H5N6) viruses detected in wild birds, AAHL recommends that this should be interpreted with caution based on the present analysis, since this may be biased by the virus sequences that are currently available in Genbank. It should be noted that although there have been multiple notifications of outbreaks due to (H5N6) virus in the region from 2016-2017, there is an absence of poultry-derived H5N6 viruses from South Korea from this period currently in Genbank. As a result, comparison with these r

H5N6

Tests to Follow

High Throughput Sequencing













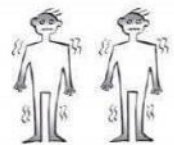




Influenza Haemagglutination Inhibition Test

Yours Faithfully



Mark Ford - Veterinary Diagnostician

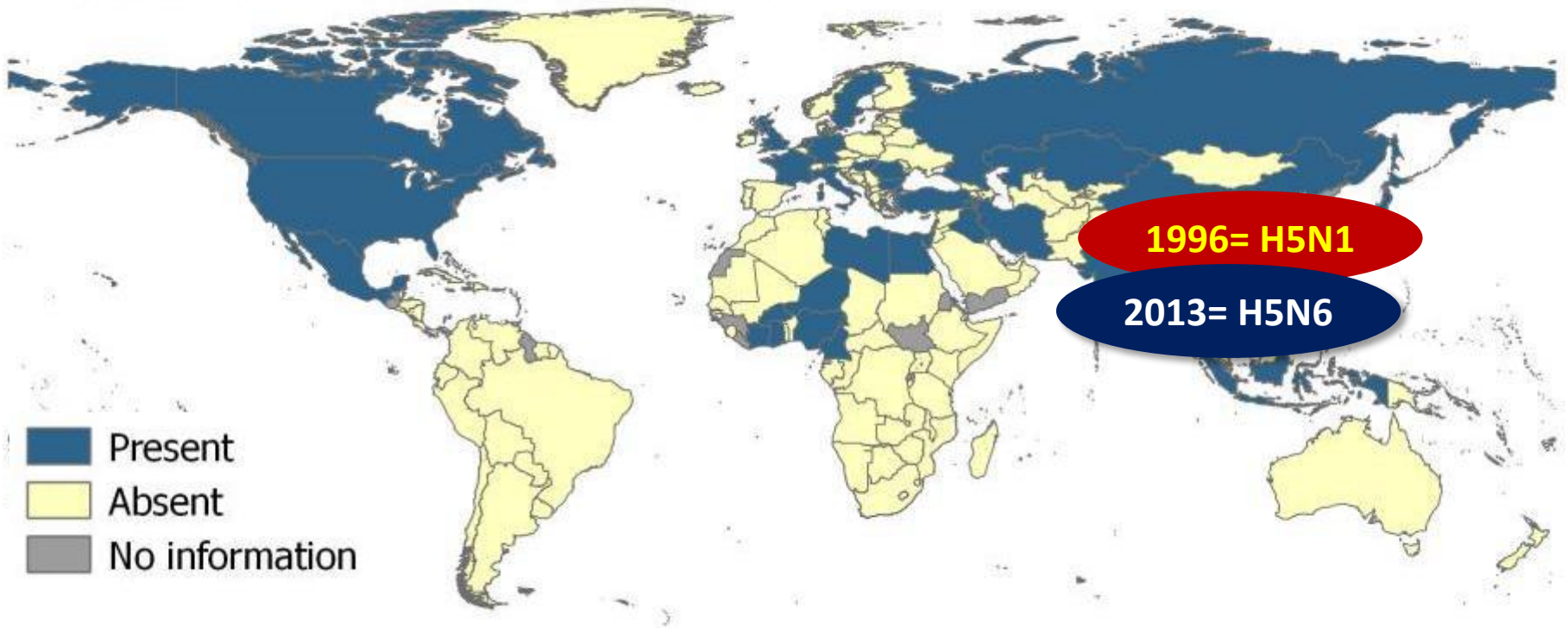
Quezon City
Examination Requested: AI Com
Sample Information provided: 4 x Tubes and 7 x Swab

Sub-type	Species	Comments
H5N1 (2003) « Classic bird flu »	The 'classic bird flu', a highly pathogenic AI virus that can occasionally infect humans	
	   58% 	<ul style="list-style-type: none"> -Spread rapidly over long distances in 2005/2006 -Endemic in: Egypt, Indonesia, Viet Nam, Bangladesh, Cambodia, China
H5N8 (2014)	A newly emerged highly pathogenic AI virus, behaving similar to H5N1, a competitor to H5N1	
	  	<ul style="list-style-type: none"> -Recently spread from the Far East to Western Europe
H5N6 (2014)	Another newly emerged highly pathogenic AI virus in Southeast Asia	
	  	<ul style="list-style-type: none"> -Mix of H5N1 and H9N2 with domestic duck viruses -Spread from China to Lao PDR and Viet Nam
H7N9 (2013)	A low pathogenic AI virus in China that causes disease and mortalities in humans	
	   38% 	<ul style="list-style-type: none"> -Only in China -Several human cases expected during 3rd wave
H9N2	A widespread low pathogenic AI virus that sporadically infects humans	
	  	<ul style="list-style-type: none"> -Immunosuppressive in poultry -Acts as an internal gene donor for other viruses (H7N9, H5N1, H5N8...)

Highly Pathogenic Avian Influenza

Global Distribution

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H= 18 and N=11 or 18x11
or **198** possible combinations

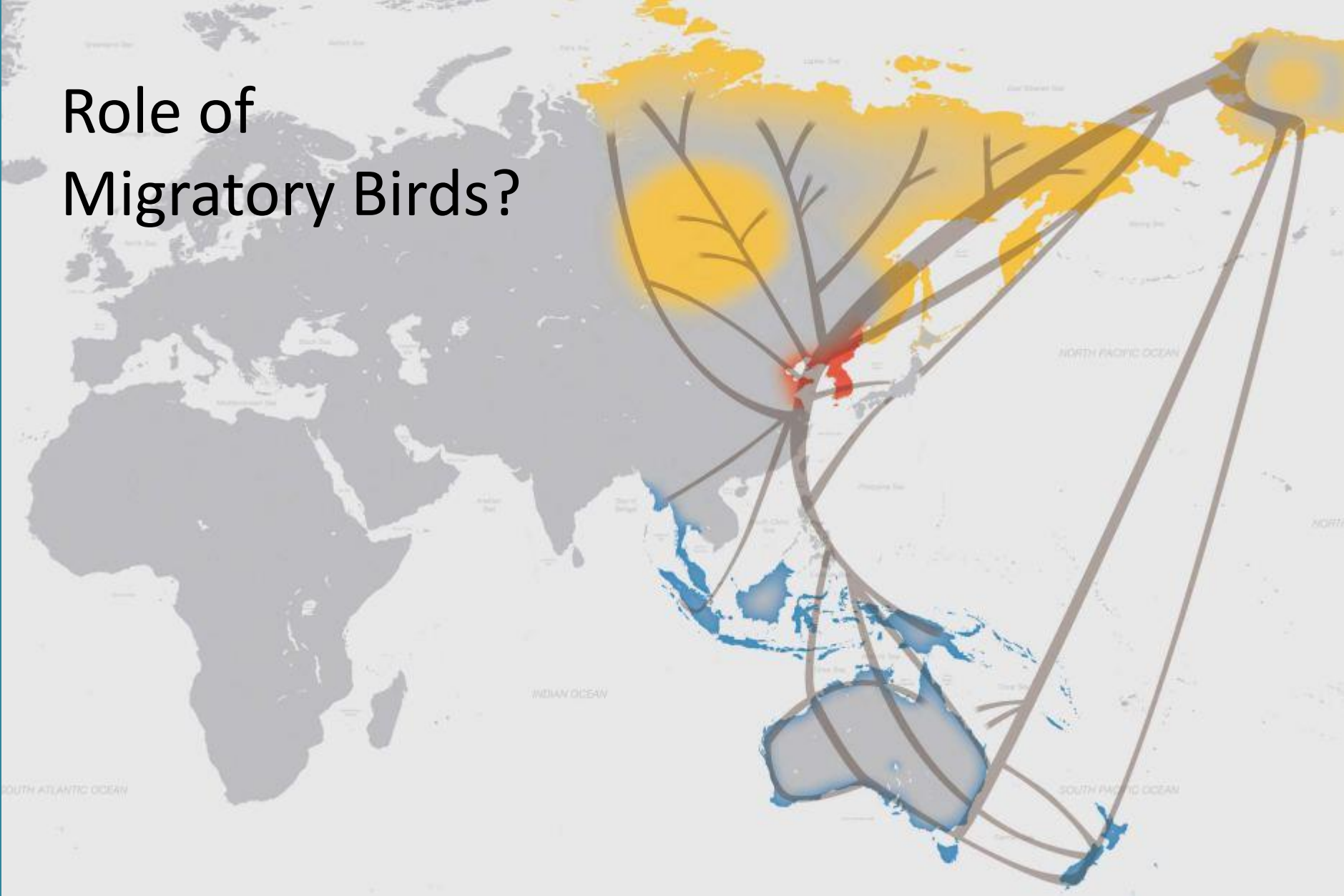
China



China Live poultry markets (LPM)



Role of Migratory Birds?



East Asian Australasian Flyway

Taiwan AI outbreak: Wild birds in duck and chicken farms



Some claim there are no migratory birds during these months



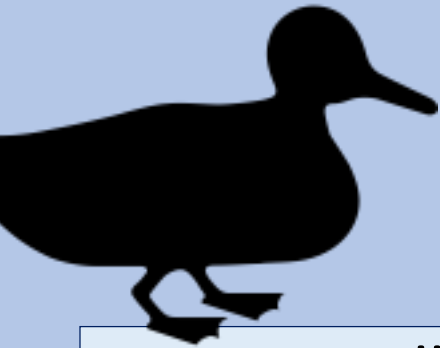
Photo taken in Jaen, Nueva Ecija, August 21, 2017 by Dr. Ronnie D. Domingo



Japanese Conclusion

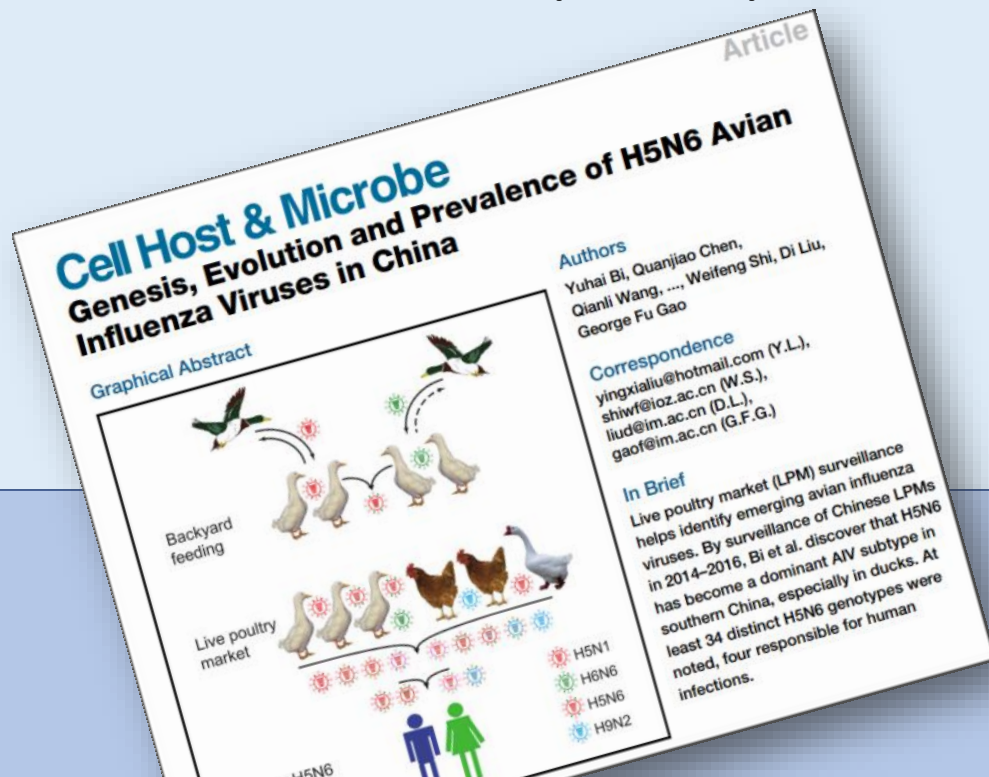
“We isolated 6 H5N6 HPAIVs from dead birds, fecal samples of migratory birds, and environmental water sample in 3 distant regions of Japan in November 2016. A genetic analysis showed that these isolates were genetically closely related to H5N6 HPAIVs recently isolated in China...”

The screenshot shows the CDC Emerging Infectious Diseases (EID) journal website. At the top left is the CDC logo with the text "Centers for Disease Control and Prevention" and "CDC 24/7: Saving Lives. Protecting People™". To the right is a search bar with a magnifying glass icon and a "SEARCH" button. Below the search bar is a "CDC A-Z INDEX" dropdown menu. The main header features the journal title "EMERGING INFECTIOUS DISEASES®" in large blue letters. Below the header is a navigation breadcrumb: "CDC > EID Journal > Past Issues > April 2017". A social media sharing bar includes icons for Facebook, Twitter, and a plus sign. The article title is "Characterization of Highly Pathogenic Avian Influenza Virus A(H5N6), Japan, 2016". Below the title is the volume information: "Volume 23, Number 4—April 2017". The authors listed are Masatoshi Okamatsu¹, Makoto Ozawa¹, Kosuke Soda¹, Hiroki Takakuwa¹, Atsushi Haga, Takahiro Hiono, Aya Ichida, Ritsuko Iwata, Keita Matsuno, Masakazu Kuwahara, Toshiyo Yabuta, Tatsufumi Usui, Yoshihiro Sakoda², Takehiko Saito, Koichi Otsuki, Toshihiro Ito, and Hiroshi Kida. The affiliations include Sapporo University, University of Yamaguchi, Kyoto Sangyo University, and National Institute for Science, Koganei, Tokyo, Japan.



Ducks vs chickens

- By surveillance of Chinese LPMs in 2014–2016, Bi et al. discover that H5N6 has become a dominant AIV subtype in southern China, especially in ducks.





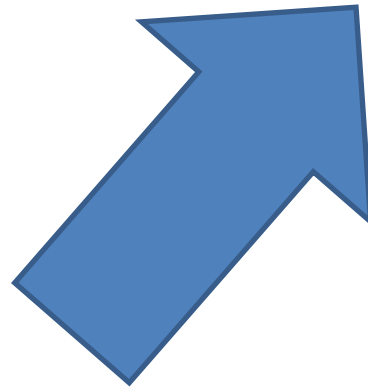
H5N6- Nov 2016

H5N6
2014

H5N6- Feb 2017

**What do we
do according
to the AIPP
manual?**

STAGE 2: CONTROL



**Stage 1:
Prevention**

CONTROL: BIRDIE

- **B** Biosecurity and Disinfection
- **I** Isolation and Quarantine
- **R** Reporting and Surveillance
- **D** Depopulation and Proper Disposal
- **IE** Information and Education



Organize



- Establish your Incident Command Post
- Identify your hotline and spokesperson

Synchronization meeting, daily at 1 pm



Reporting and Surveillance

AI Hotline 0928 736 4454



Bureau of Animal Industry
SMART – 0920 854 3119
GLOBE - 0995 132 9339

DA Regional Field Office
Provincial Veterinary Office
Municipal Veterinary/Agriculture
Office

<http://www.ahwd.ph/FarmReg>

An accurate map is essential and very useful!



SURVEILLANCE

DEPOPULATION



Activities



Logistics Center





Control Area
7 km

Q area
1 km



Quarantine Area **(One-kilometer area)**

- Strict animal movement control
- Poultry Depopulation



Depop Figures (Quarantine Area)

- **San Luis, Pampanga:** completed
- **Total kill: 260,910 birds**
- **Jaen and San Isidro, Nueva Ecija:** completed
- **Total kill: 246,792 birds**
- **Grand Total: 507,702**



Problems with mass culling

- Quick implementation requires a military-like organization
- Some culled farms may not be infected.
- Unwanted destruction of zoological collections and valuable breeding birds
- Depopulation frightens both the farmers and consumers
- Disruption of socio-economic transactions

RESIDENT RODRIGO ROA DUTERT

Welcome

Republic of the Philippines

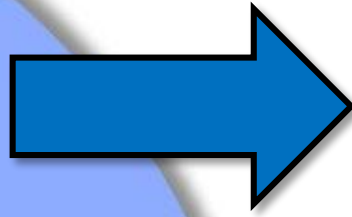
"SAMA-SAMA, TULUNG-TULONG SA
PAGSULONG AT PAGSULONG"

CITY OF SAN FERNANDO, PAMPANGA



August 28, 2017

Control Area
7 km



Seven-kilometer (Control Area)

- Strict animal movement control
- Surveillance

Q area
1 km





Observations

Based on field reports and initial lab results,

- Most of the diseased birds are “old” layers only; broilers were not affected.
- The disease problem has crossed provincial border (esp. between Pampanga and Nueva Ecija).

Calibrated
response?

Other Activities

A person wearing a full white protective suit, including a hood, goggles, and a respirator mask, is using a high-pressure spray wand to clean a long metal pole. The scene is outdoors with green foliage in the background. A large, semi-transparent green oval is overlaid on the right side of the image, containing text and bullet points.

Almost
complete

- Cleaning

For this week

- Disinfection

Activities

- Supervised Cleaning and Disinfection
- Strict animal movement control
- Sample collection in 7 km Control Area



“Rested” Quail Cages



The three calendars

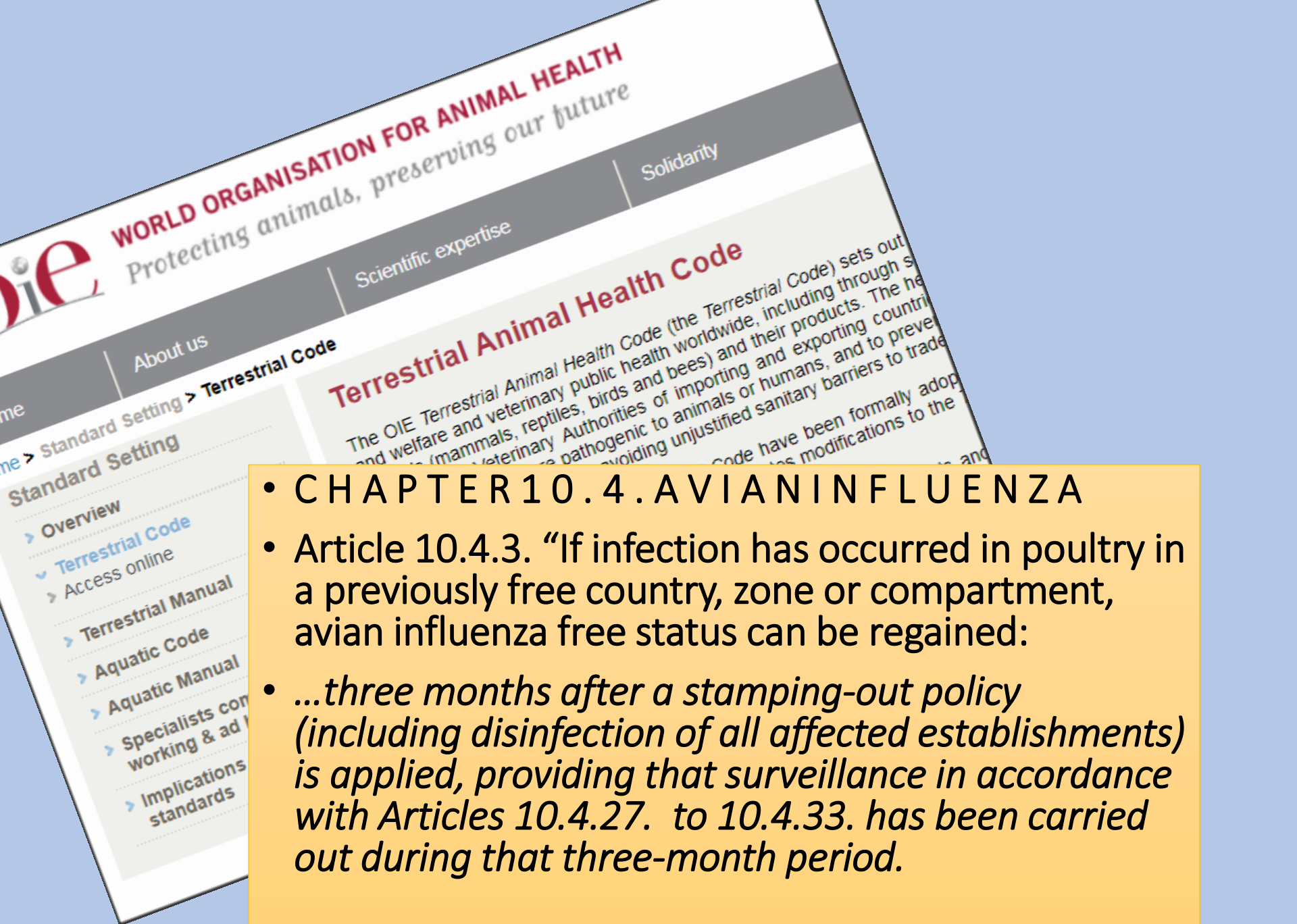


Philippines

- Biological calendar: 21 days
- AIPP calendar: 21 + 35 sentinel= 56 days

International

- OIE calendar: 90 days



- CHAPTER 10.4. AVIAN INFLUENZA
- Article 10.4.3. “If infection has occurred in poultry in a previously free country, zone or compartment, avian influenza free status can be regained:
- *...three months after a stamping-out policy (including disinfection of all affected establishments) is applied, providing that surveillance in accordance with Articles 10.4.27. to 10.4.33. has been carried out during that three-month period.*

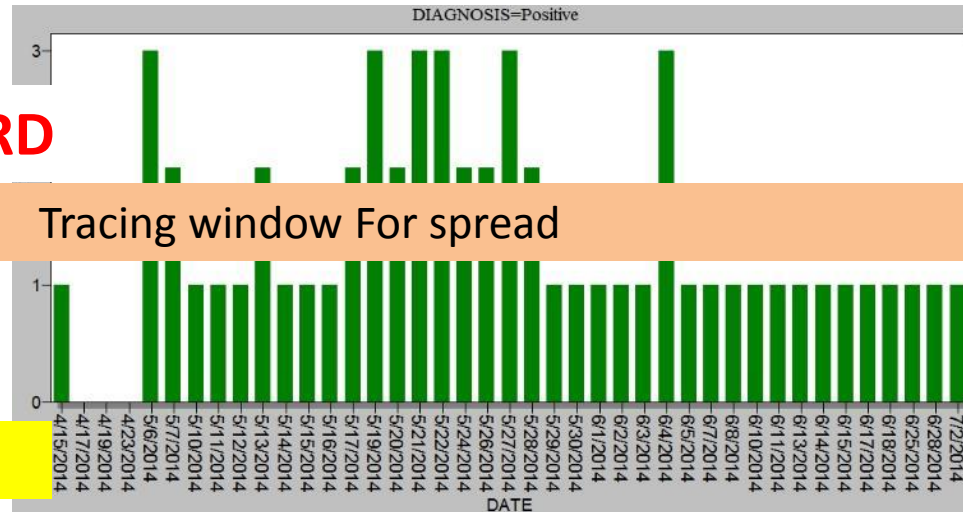
Field Surveillance Team



Lab samples from 7 km area

- Pampanga
 - Collection: completed (700+ samples)
 - Lab testing: almost complete
- Nueva Ecija
 - Collection: within this week

TRACING WINDOW



TRACE FORWARD

Tracing window
For source

Tracing window For spread

21 days



Observe for
21 days

TRACE BACK

2
days?

**Index
case**

No cases;
Outbreak
controlled

Control
Team

Max
Incubn
Period

Min
Incubn
Period

TRACING for Epidemiological links?





Challenges

Suffocating PPE for a very hot environment.

Temporary solutions

- Night operations
- Light clothing (inside)
- Short duration of duty

Challenges

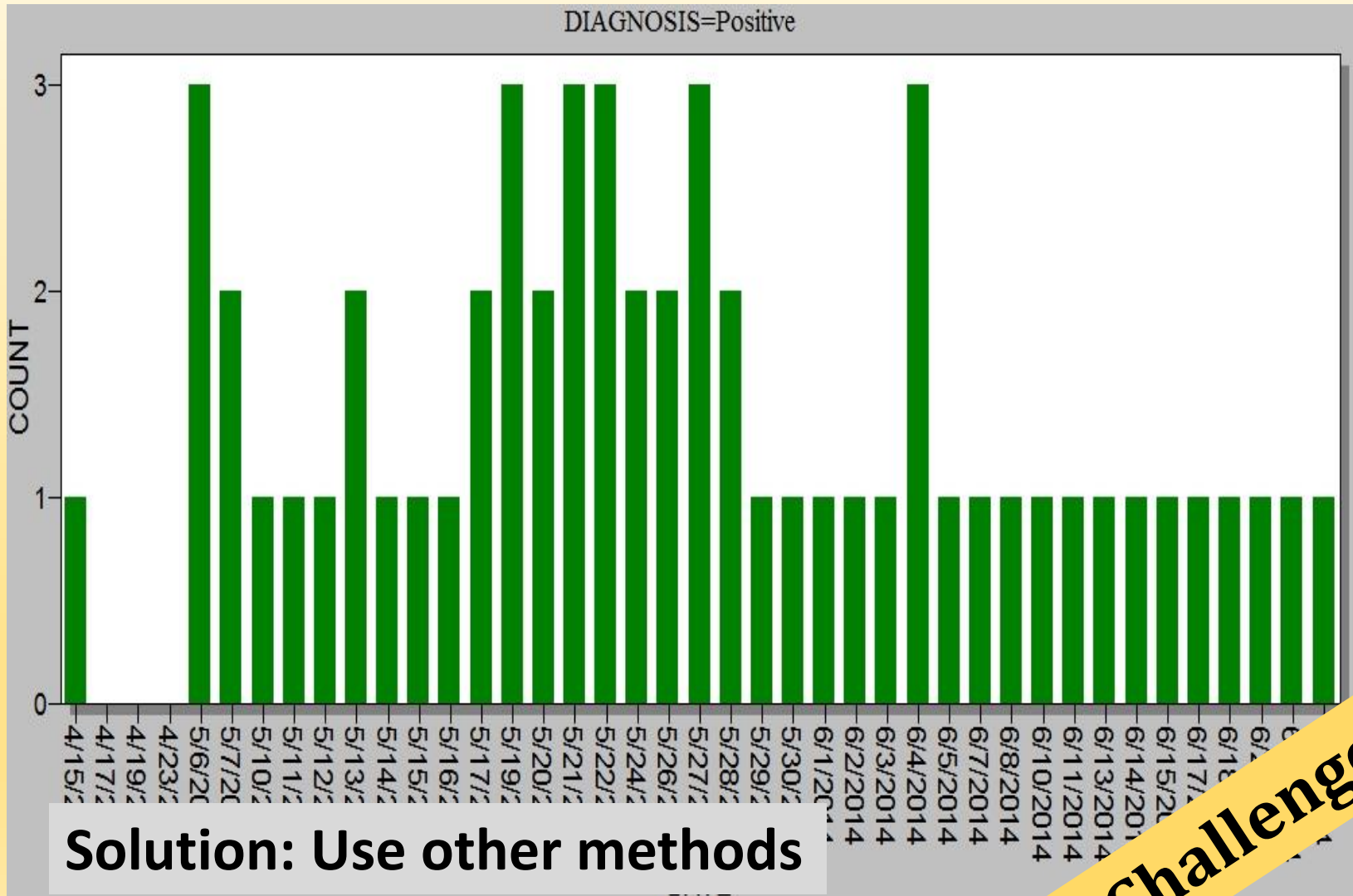


Depopulation is dehydrating and exhausting

Protect your personnel!



Euthanasia by using CO2 gas- very slow process



Challenges

Limited areas for burial



Solution: Sharing of farm burial sites

Challenges

Water problem in low lying areas





Laboratory limitations

Solution: Seek technical support from other laboratories and agencies

Long term: Develop your own regional laboratory

Challenges

Selected pictures from
Pampanga AI
management









China shares its experience



Maraming Salamat po!