



*Better lives through livestock*

# Livestock in ASEAN countries: Animal and human health and value chains

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Hung Nguyen-Viet, Fred Unger and Delia Grace  
International Livestock Research Institute & NRI

The Future of Farming - Opportunities for Irish AgriTech in Southeast Asia webinar  
27 May 2021

# One CGIAR on the ground: 15 research centres | more than 70 countries



Better lives through livestock



## CGIAR on-the-ground

- CGIAR Research Center Headquarters
- Countries with CGIAR Offices and Stations



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**REDUCED  
POVERTY**

**IMPROVED FOOD AND  
NUTRITION SECURITY FOR  
HEALTH**

**IMPROVED NATURAL  
RESOURCE SYSTEMS AND  
ECOSYSTEM SERVICES**

**EQUITY, CAPACITY  
AND ENABLING  
ENVIRONMENT**

# ILRI's livestock research: solutions for food and nutritional security, poverty, environmental and human health

3

## Animal and Human Health



Delivering solutions for livestock, zoonotic and foodborne diseases

## Feed and Forage Development



Better nutrition for improved animal productivity

## Sustainable Livestock Systems



Mitigating climate change, enhancing resilience and increasing livestock productivity

## Policies, Institutions & Livelihoods (including gender)



Efficient livestock production driving inclusive growth and employment

## Livestock Genetics



Improving genetics for better productivity and profitability

## BecA-ILRI hub



Accelerating Africa's agricultural development through biosciences

## Impact at Scale



Taking livestock solutions to scale for inclusive development

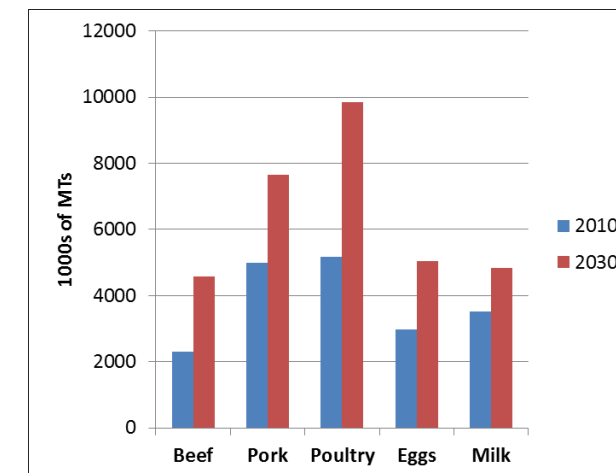
- Food & nutritional security
- Poverty eradication
- Environment & human health

Capacity development; communications; knowledge management

# E&SEA regional context

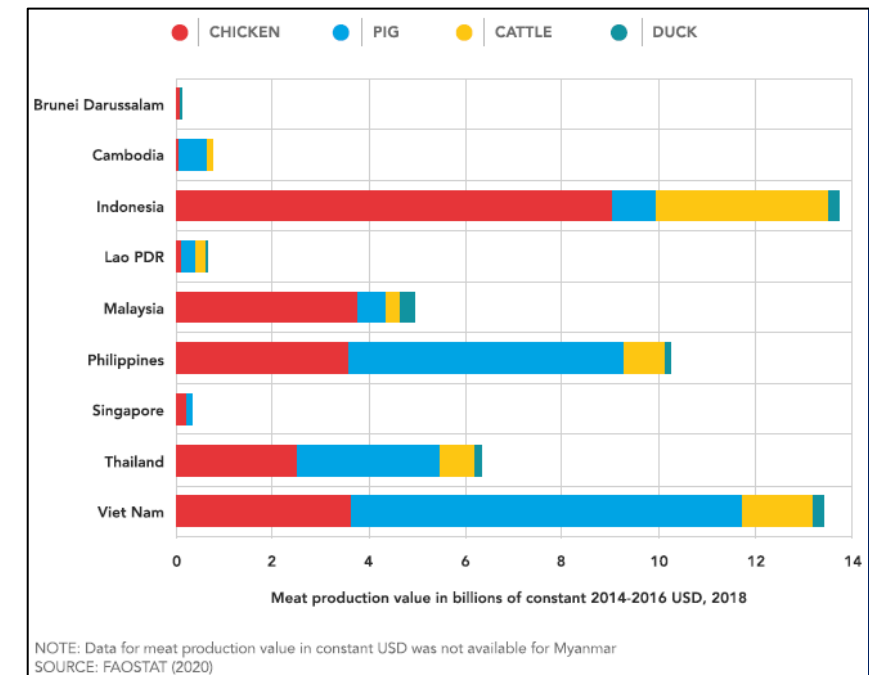
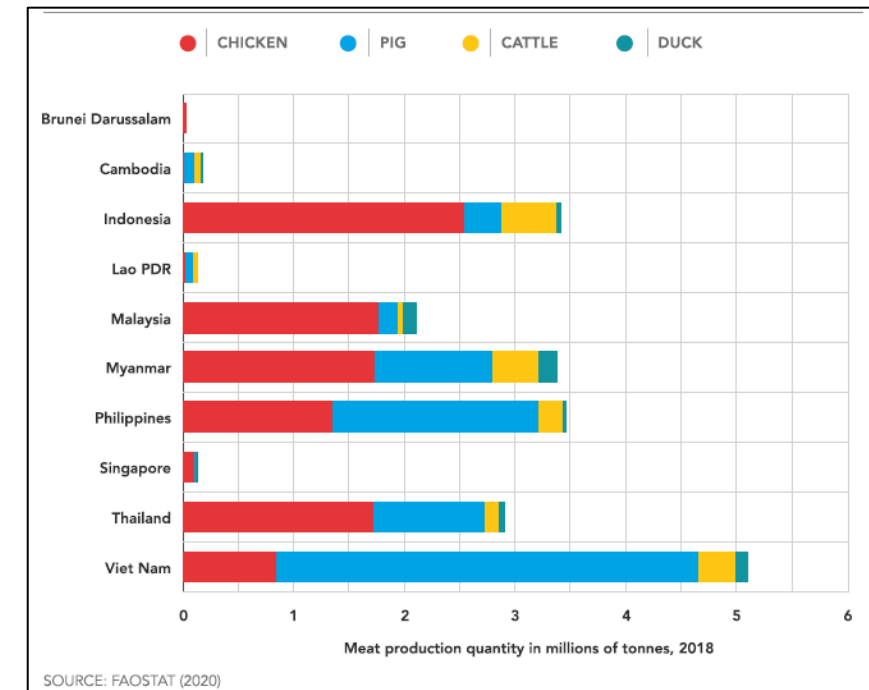
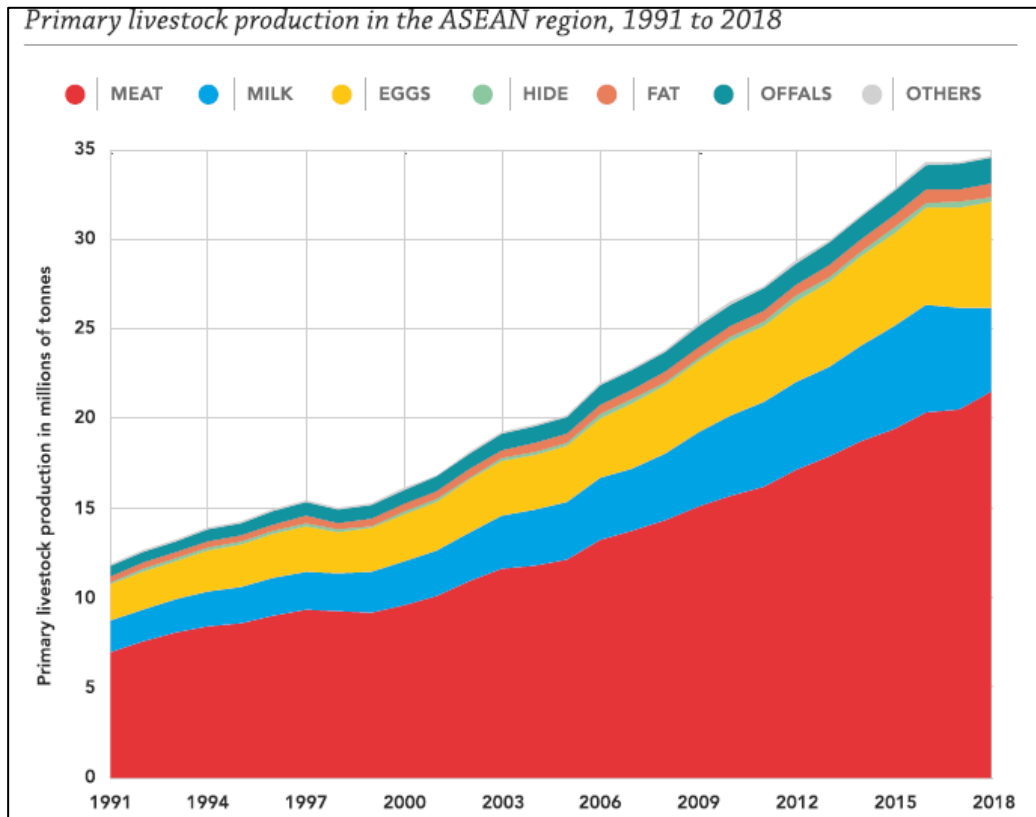
- 2 billion people, 19 billion animals (54 bil worldwide)
- increased demand for livestock products, rapid economic growth
- Agriculture: 16% GDP (18-28% in countries ILRI works), livestock: 20-40% of agricultural GDP.
- Small holders still dominate most livestock sub-sectors
- Large populations of rural poor
- South-South learning opportunities
- ASEAN trades: AEC, free trade agreements

*WB (2016), FAO (2014)*



Projected growth in demand for livestock products in SE Asia to 2030 (IFPRI IMPACT model)

# Livestock in ASEAN countries (10 countries, > 660 mio pop)





# Perspectives for SEA, Hanoi meeting 16 Nov 2017

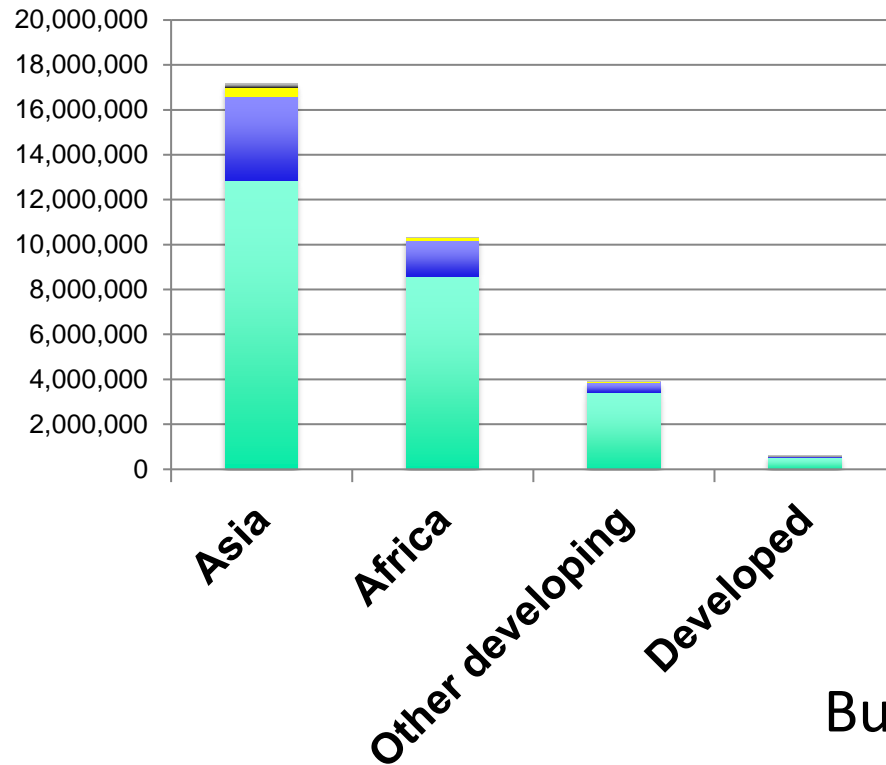


# Key areas of livestock and SDGs in ASEAN countries (2017)

- **Feed and forage management**
- **Animal breeding and genetics**
- **Food safety, One Health and antimicrobial resistance (AMR)**
- **Value chain and market linkages**
- **Improving access to credit and saving mechanism**
- **Technical assistance and capacity building for livestock keepers**
- **Climate change mitigation/adaptation, environmental sustainability and sufficient land use**
- **Promotion of gender equality**
- **Government capacity building**

# FBD- a new priority – most probably from Animal Source Food

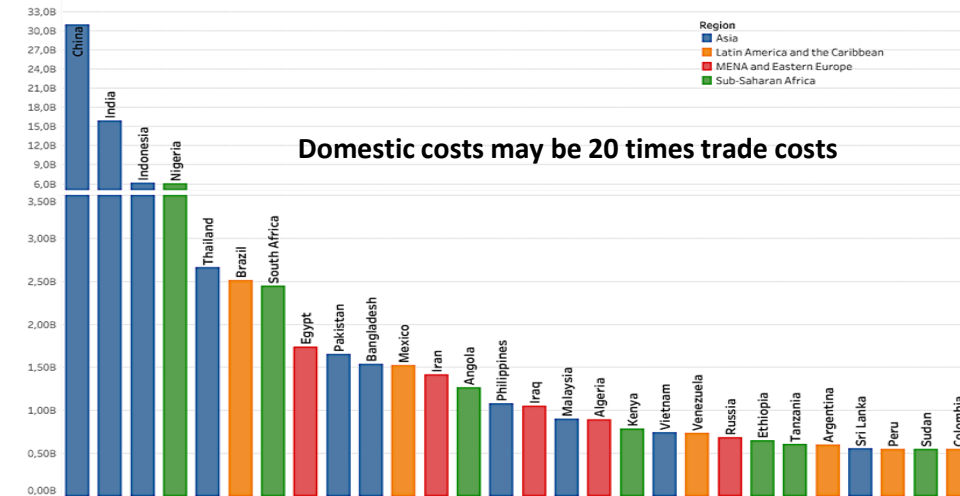
## Millions DALYs lost per year (global)



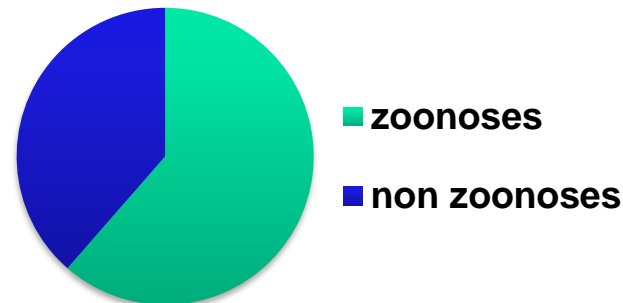
### 31 hazards

- 600 mio illnesses
- 420,000 deaths
- 33 million DALYs

Other toxins  
Aflatoxins  
Helminths  
Microbial



### Burden LMIC



### Cost estimates for 2016 : > US\$ 115 billion

Productivity loss	95
Illness treatment	15
Trade loss or cost	5 to 7



# Research approach: what do we do to understand and improve food safety?

## Approach:

- Situational analyses of **livestock value chain and** food safety
- Capacity building on risk-based approaches
- Proof of concept: participatory risk assessment
- Pilot testing interventions



## Key content\*:

- Grid slaughter
- Frequent washing (and disinfection)
- Training
- Separation clean/dirty
- Branding

## Key content:

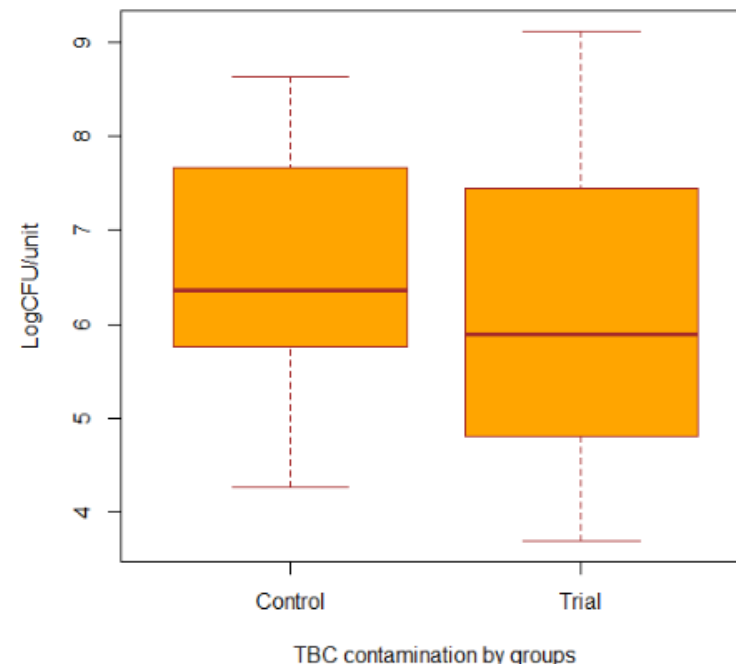
- Easy to clean surface
- Frequent washing (and disinfection)
- Separation (fresh/cooked)
- Training
- Hygienic cutting board
- Branding



# From evidence generation to TCM interventions to improve food safety in wet markets

## Key content:

- Easy to clean surface
- Frequent washing (and disinfection)
- Separation (fresh/cooked)
- Training
- Hygienic cutting board
- Branding



# Pig & pork sector – Vietnam

## Selected characteristics

- Vietnamese consumers have strong preference for fresh-pork
- Vietnamese consumers prefer lean pork compared to other types of pork. Consumption of high fat meat significantly reduce
- Small-scale sector is dominant, competitive (e.g. use of own feed) and meeting requirements for fresh meat markets
- Pork retails retail in North Vietnam and food safety

✓ **Poor food safety outcomes** across all retail types  
(Research brief 2019 and paper 2021)



Traditional/  
wet market  
(dominant)



Street food, Hanoi



Canteens, Hanoi



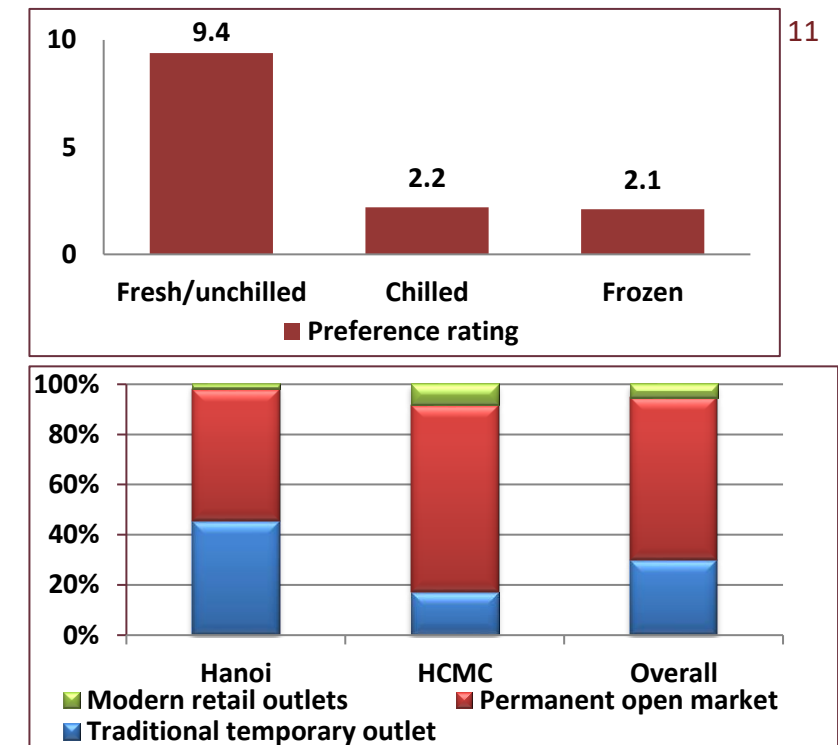
„Boutique“ food chains,  
niche but emerging,



Supermarket/  
convenient stores



Native pigs,  
Hoa Binh, „safe by nature  
(niche)





# Vietnam's pig sector and ASF



3.4 million households

77% smallholders with less than 50 pigs

60% of livestock value

70% of meat consumption

<https://hdl.handle.net/10568/110698>



## Assessment of the economic impacts of African swine fever in Vietnam

*Nguyen Ngoc Que, Pham Thi Ngoc Linh, Tran Cong Thang, Nguyen Thi Thuy, Nguyen Thi Thinh, Karl M. Rich, Hung Nguyen-Viet*

### Summary

The rapid spread of African swine fever (ASF) in Vietnam since the first case was reported in early February 2019 has created considerable uncertainty in the Vietnamese pig sector. On the supply side, how ASF spreads across time and space will influence not only the course of veterinary control but also its economic impact on affected farmers and other value chain actors. These effects will differ if ASF spreads in poorer, more remote areas vis-à-vis more industrial production sites. Moreover, the lack of consumer awareness of ASF could further portend shocks to demand, further reducing the ability of the industry to recover. Understanding the prospective economic effects of ASF will allow the government and other actors to understand the scale of possible impacts and the types of investments needed to offset these negative effects; and on this basis make the response to disease and control efforts more efficient. To address this, a modeling exercise was conducted to assess the economic impacts of ASF under different scenarios.

### Take-home messages

- ASF outbreaks pose adverse impacts on national pork supply and demand, especially in the traditional sector. The impacts are differentiated by region, of which the Red River Delta and Southeast suffer the highest losses.
- The modern sector is less likely to be affected and even benefits from the ASF outbreak, based on its strict biosecurity practices and high technology growth.
- ASF outbreaks tend to accelerate the restructuring process of the pig industry towards the faster expansion of the commercial and modern pig sectors and shrinking of the traditional sector.



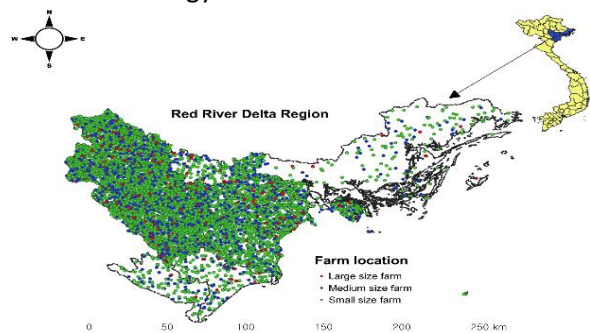


## Background

- In Vietnam, the first African swine fever (ASF) outbreak was reported in February 2019. Since then, the disease has spread quickly across the country.
- Simulation models are a useful tool for decision-makers to evaluate the impact of outbreaks as well as to identify and evaluate cost-effective control strategies.

## Our innovative approach

- Farm movements and modelling parameters were estimated through farm survey.
- We modelled ASF transmission in domestic farms (2,000) in the Mekong Delta Region, Vietnam using different scenarios by adjusting model parameters.
- What-if scenarios estimated the impact of movement control strategy scenarios.

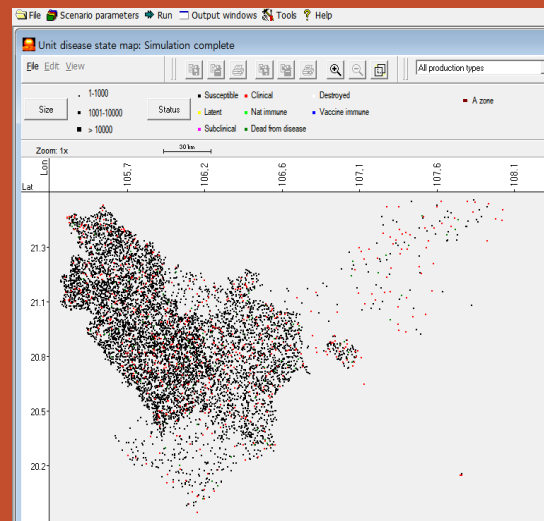


# A simulation model for African swine fever (ASF) in domestic pigs and evaluation of movement control strategies in Vietnam

Hu Suk Lee<sup>1</sup>, Vuong Nghia Bui<sup>2</sup>, Thanh Long Pham<sup>3</sup>

1. International Livestock Research Institute (ILRI), Hanoi, Vietnam
2. National Institute of Veterinary Research, 86 Truong Chinh, Hanoi, Vietnam
3. Epidemiology Division, Department of Animal Health, Hanoi, Vietnam

- This study offers valuable insight into how ASF virus can be transmitted via direct and indirect contact and controlled
- Strict movement control and high standards of biosecurity can contribute to the reduction of disease spread



Screenshot of simulation model



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## Outcomes

- The enforcement of movement restrictions is an effective control measure if implemented as soon as outbreaks are confirmed.
- To be effective, movement restrictions need to reach at least between 50% and 75% of the population, and they need to be applied in a timely manner.

### Summary of movement restriction scenarios

Scenario	Movement control	No. of mean infected farms (5 and 95 percentiles)				% change in the number of median infected farm
		Overall	Small	Medium	Large	
A1	Baseline	7,640 (6,729-7,790)	5,231 (4,433-5,358)	2,084 (2,018-2,102)	324 (276-345)	NA
MC1	25%	6,171 (0-6,950)	3,934 (0-4,615)	2,005 (0-2,075)	231 (0-273)	-19.23%
MC2	50%	1,231 (0-3,071)	639 (0-1,679)	560 (0-1,298)	35 (0-93)	-83.89%
MC3	75%	30 (0-159)	15 (0-79)	14 (0-77)	1 (0-4)	-99.62%
MC4	100%	1 (0-3)	0 (0-2)	0 (0-2)	0 (0-1)	-99.99%

## Future steps

- The findings of this study provide the basis for a cost-benefit analysis of control strategies in Vietnam
- This simulation model can be applied to other regions or countries with modified parameters

## Partners



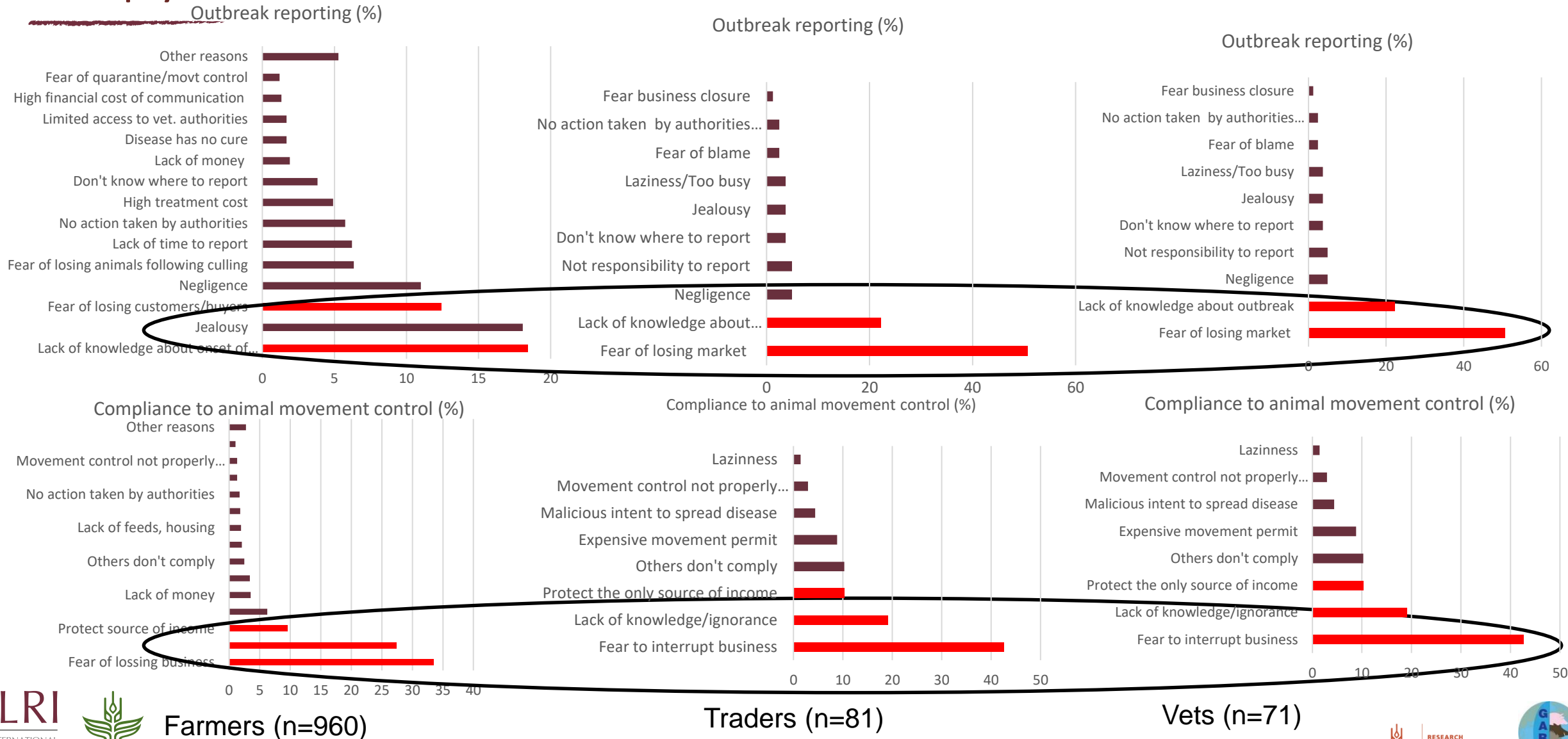
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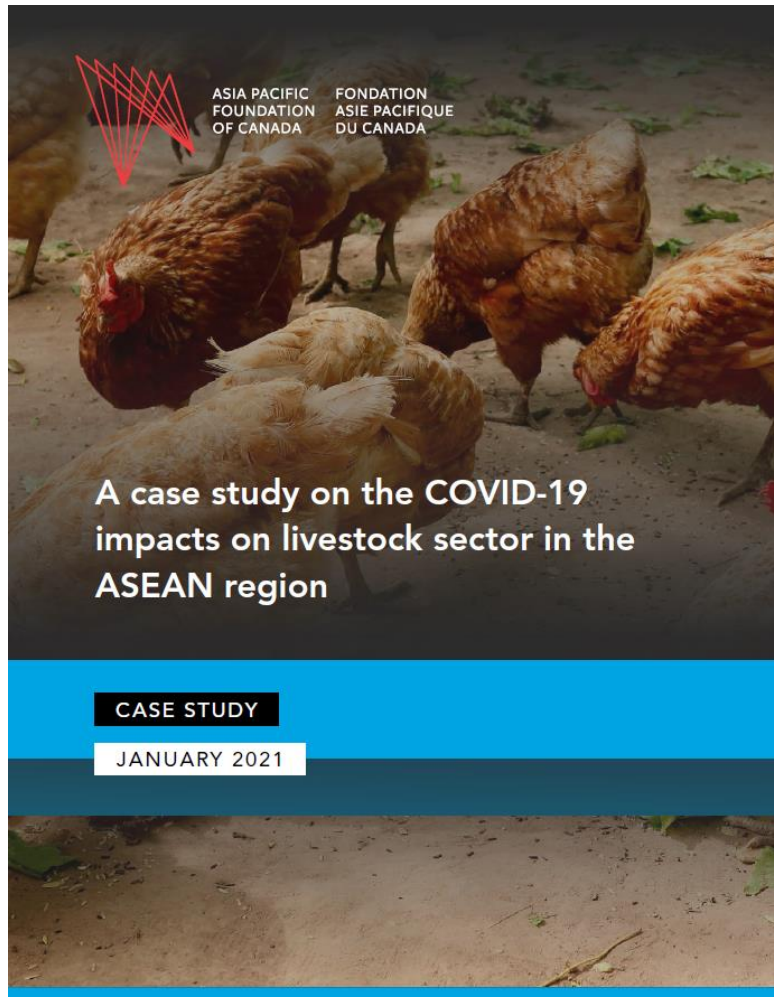
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# Why value chain actors would not be willing to report disease outbreak or comply to animal movement restrictions

14



# Livestock related trade measures among ASEAN member states during Covid-19 time



Country	Type	Affected products	Measure	Effect on trade	Effective date,status <sup>1</sup>
Indonesia	Certification requirements	Live animals	Certification requirement for the import of live animals from countries not free from Covid-19.	Restrictive	2020-04-21 Active
Philippines	Certification requirements	As specified	Extension of validity of Bureau of Animal Industry Issuances (Verification of International Health Certificate (HC) /International Veterinary Health Certificate (IVHC/IVC))	Liberalizing	2020-06-30 Active
	Import ban	Poultry meat	The Philippines has issued a temporary ban on poultry meat imports from Brazil.	Restrictive	2020-08-17 Active
Thailand	Export prohibition	Eggs	March 26: Thailand's Ministry of Commerce has imposed an export ban on chicken eggs. May 1: There was no extension of the ban.	Restrictive	2020-03-26 Terminated
Viet Nam	Import ban	Wild animals and products thereof	July 23: Vietnam bans trade in live wild animals and wildlife products to prevent future pandemics.	Restrictive	2020-07-23 Active

NOTE: <sup>1</sup> Status of the measures are updated as 7 December 2020.  
SOURCE: Data from International Trade Center (2020).

<https://asean.org/storage/COVID-19-Pandemic-Implications-on-Agriculture-and-Food-Consumption-Final.pdf>

## ***Key messages***

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1. Livestock is an important sector for SEA region
2. Foresight work shows that smallholder livestock persist in next decades
3. Key issues of livestock include feeds, diseases, food safety
4. Practical solutions can address health and food safety issues
5. Challenges small holders vs large scale development linked to high tech adoption and markets





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