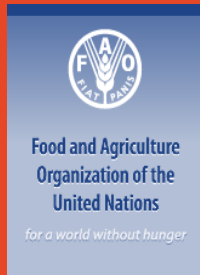


Is FMD Biosecurity more effective than Vaccination of Pigs?

Experience from the Philippines & Current Awareness Deficits



Prof. Emeritus Peter Windsor
Sydney School of Vet Science
peter.windsor@sydney.edu.au



BIOSECURITY

The Terrestrial Code definition for *biosecurity* is:

'*Biosecurity* means a set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections or infestations to, from and within an animal population.'

<http://www.oie.int/index.php?id=169&L=0&htmfile=glossaire.htm>

Chapter on "Biosecurity procedures in poultry production"

[http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_biosecu_poul_producti
on.htm](http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_biosecu_poul_producti
on.htm)

Farm biosecurity

A set of measures designed to protect a property from the entry and spread of pests and diseases.

OIE recently requested a survey of current & planned biosecurity initiatives by Member Countries on TAD control, to share at 30th Conference of OIE Regional Commission for Asia, the Far East and Oceania, Putrajaya, Malaysia, [20-24/11/17](#).

Pilot with 'Commcare' software at SEACFMD meeting August, then OIE Delegates online

FMD STATUS ZONES - PHILIPPINES

Philippines FMD (O, Cathay) eradication project: FAO/ AIDAB, 1997-2004 (1998-'9)



Luzon

Visayas

Mindanao



Bicol

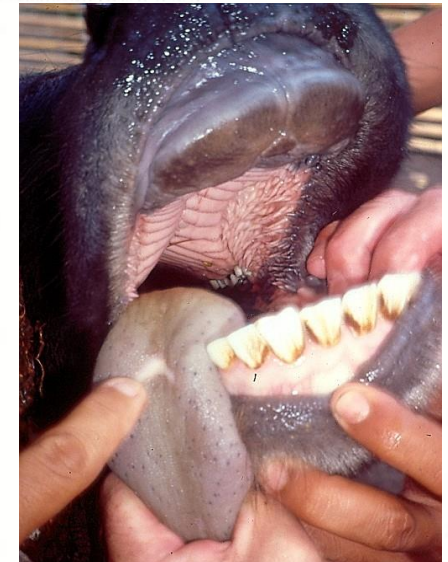


FMD SURVEILLANCE - CONTROL ZONE

FMD SURVEILLANCE - PROTECTED ZONE

FMD SURVEILLANCE - BUFFER ZONE

FMD- FREE ZONE



ORIGINAL ARTICLE

Foot-and-Mouth Disease Control and Eradication in the Bicol Surveillance Buffer Zone of the PhilippinesP. A. Windsor^{1,2}, P.G. Freeman^{1,3}, R. Abila^{4,5}, C. Benigno^{4,6}, B. Verin⁴, V. Nim^{1,7} and A. Cameron⁸

FMD in the Philippines

- 1994 ex Manila airport, south illegal movements **TBED (2011) 58: 421-433**
- Bicol disease surveillance buffer zone, protect Visayas & Mindanao
- Successful, eliminated 2005, declared FMD-free (vaccination) 2011
- Retrospective examination of 4 components of buffer-zone strategy:
 - (1) quarantine and animal movement controls ~ **non-compliance**;
 - (2) strategic vaccination ~ **serological monitoring: ?efficacy**;
 - (3) surveillance: enhanced investigation/response & **'-ve reporting'**;
 - (4) public awareness, esp. **biosecurity & 'school on the air' radio**



Key Lessons from Bicol: risk factors & control interventions

RISK: illegal movement/slaughter/feeding uncooked swill ex infected

RESPONSE: SOA awareness campaign promote cooking of swill for pigs

Vaccination pigs, Nov'97- Mar'98: 230,000 doses trivalent O/A/Asia1

Evaluation: ~65% population presented, <50% re-presented

- LPB-ELISA antibodies 4-8wks post-vaccination in pigs vaccinated twice:
- <50% of pigs sero+ve: **herd immunity ~ < 20%**



Key Lessons from Bicol: Conclusions

Outbreaks declined despite low level immune protection

Suggested diminution/cessation of outbreaks likely involved reduction in:

- FMD-risk behaviors by owners ~ **cooking swill** &
- FMD-risk ex traders ~ **avoid infected pigs**, esp. slaughterhouses

Biosecurity measures may > impact than vaccination in smallholder pigs

Vaccination needs support of Biosecurity Public Awareness campaigns



Current Research on Improving Smallholder Farmer KAP: Knowledge, Attitudes & Practices, esp. biosecurity

Our MLR projects with Laos & Cambodia smallholder farmers:

- improve household incomes by improved production & health practices
- High versus Low intervention villages (HI & LI)

Transboundary and Emerging Diseases

TBED 57:420-429

Transboundary and Emerging Diseases

TBED 59: 117-127

ORIGINAL ARTICLE

Assessment of Farm and Production in Northern Lao PDR

S. Nampanya¹, L. Rast¹, S. Khoun

¹ Faculty of Veterinary Science, The University of
² Department of Livestock and Fisheries, Vientiane

ORIGINAL ARTICLE

Improvement in Smallholder Production, Health and Biosecurity between 2008 and 2010

S. Nampanya¹, S. Suon², L. Rast¹ and P. A. Windsor¹

¹ Faculty of Veterinary Science, The University of Sydney, Sydney, NSW
² Department of Animal Health and Production, Phnom Penh, Cambodia

DOI: 10.1111/tbed.12609

ORIGINAL ARTICLE

WILEY

Investigation of smallholder farmer biosecurity and implications for sustainable foot-and-mouth disease control in Cambodia

J. R. Young¹ | S. Suon² | L. Olmo¹ | C. Bun² | C. Hok² | K. Ashley¹ | R. D. Bush¹ | P. A. Windsor¹

TBED2017;00:1-13
doi:10.1111/tbed.12609

PERCENTAGE OF CORRECT ANSWERS(%)

INTERNAL PARASITES

	2008	2010	2012
HI	9.13	84.77	97.33
LI	10.83	4.03	1.33

INFECTIOUS DISEASE & BIOSECURITY

HI	29.13	79.30	97.50
LI	29.23	34.40	47.17

NUTRITION

HI	36.30	76.00	92.80
LI	36.50	54.30	36.90

REPRODUCTION

5 Principles of biosecurity?

Principle 1: Livestock quarantine & animal movements

Principle 2: People, equipment & vehicle hygiene

Principle 3: Food & water safety

Principle 4. Animal Health Management, Surveillance and Reporting

Principle 5. Public Awareness Training & Recording

Conducted recent e-surveys of SEACFMD Coordinators, then OIE Delegates/Rep's.

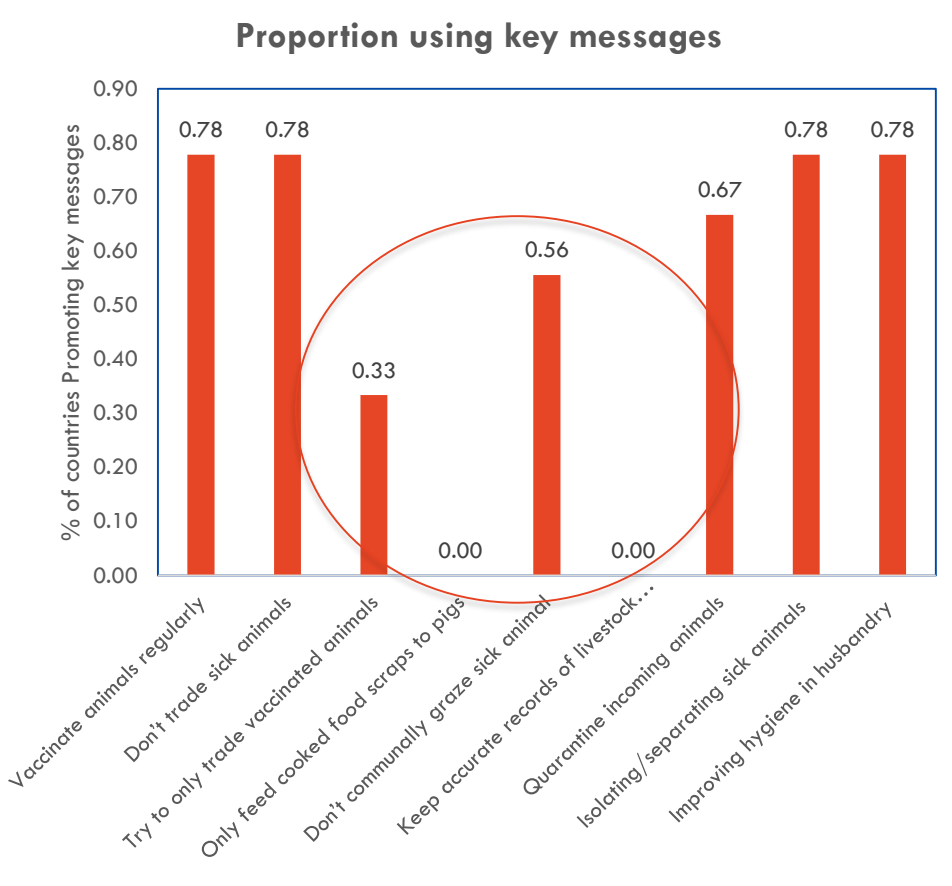
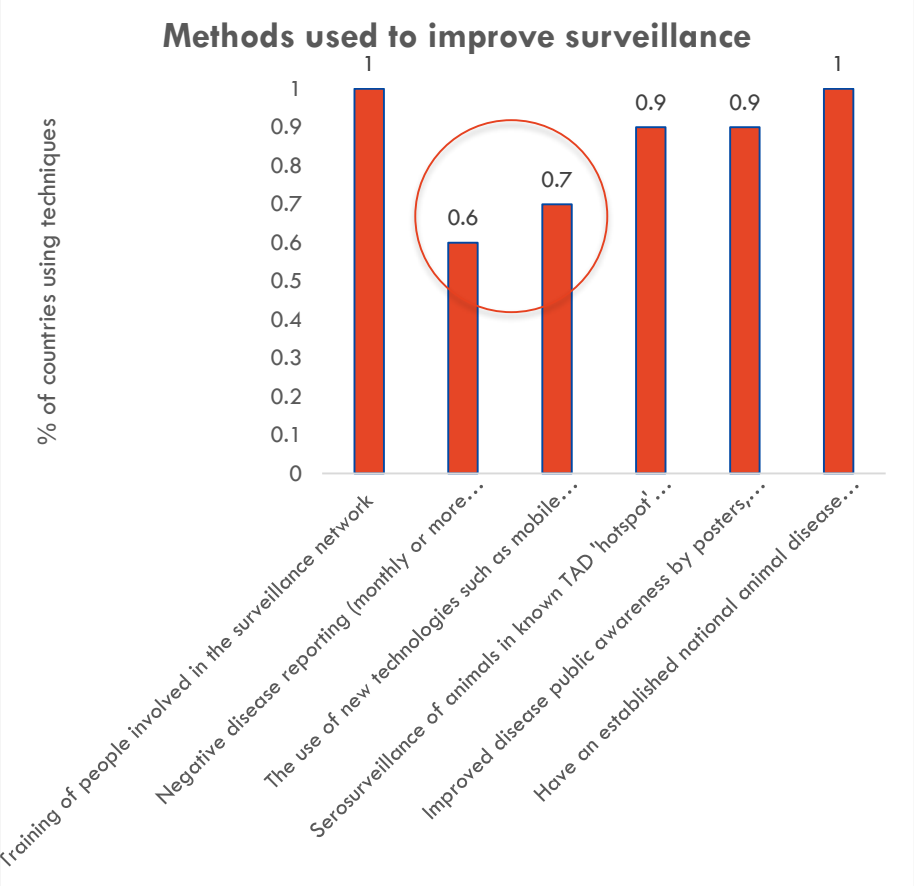
Questions on biosecurity of:

1. Smallholder livestock farms &
2. Village-level biosecurity
2. Commercial sector farm biosecurity
3. National biosecurity programs for safer regional trade of livestock & their products.



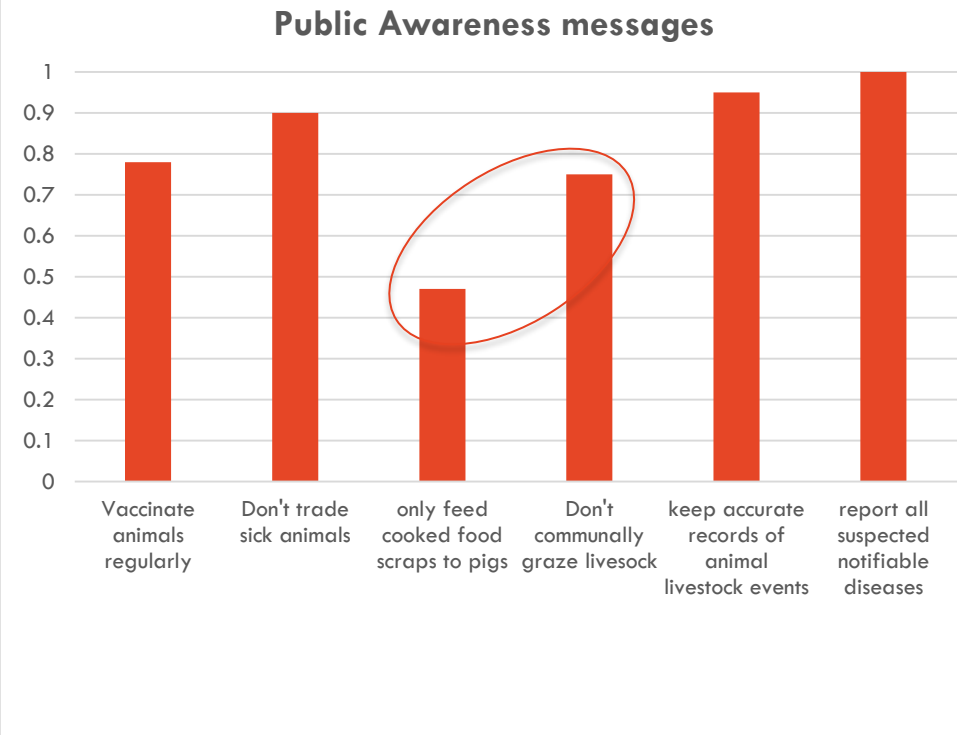
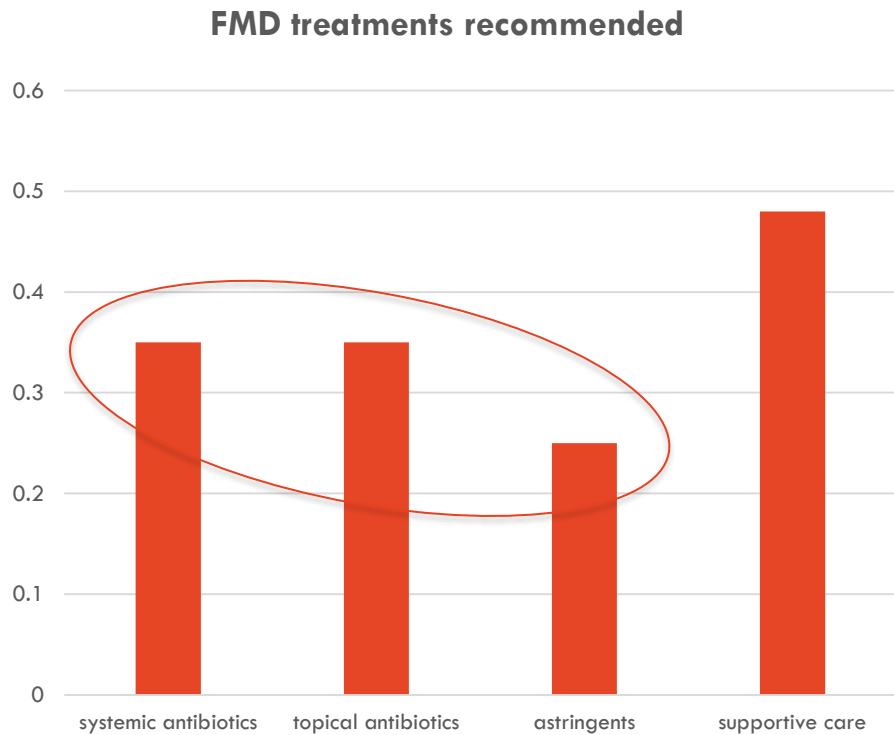
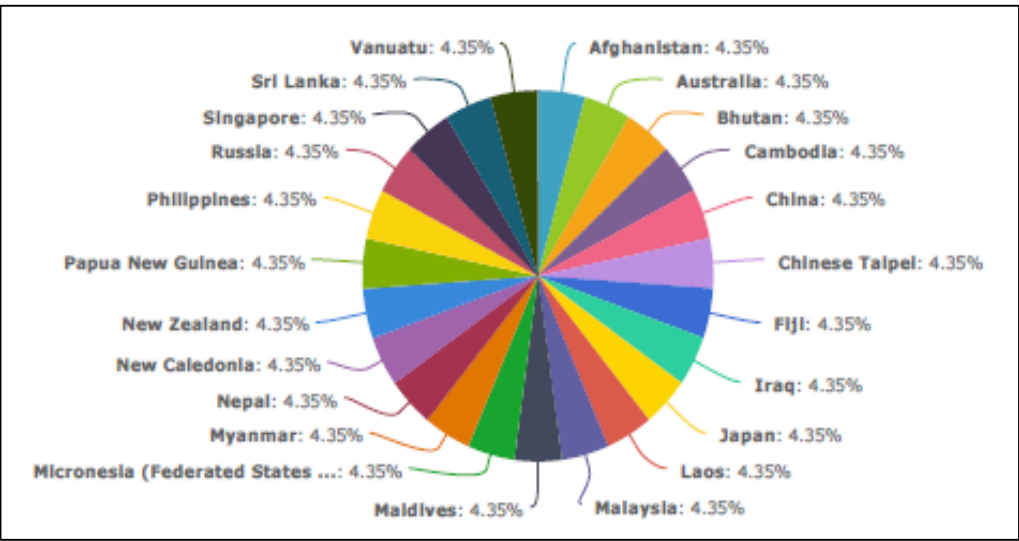
Pilot Survey: SEACFMD Coordinators in Pakse, Laos, August , 2017

- 10/12 responses using tablets
- Cambodia, China, Indonesia, RoKorea, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam
- FMD status:
 - 7 FMD present;
 - 1 FMD free WITH vax (RoKorea);
 - 2 FMD-free WITHOUT vax (Philippines, Indonesia)



Results of survey of OIE Delegates Asia/SE Asia/Pacific online Sep-Oct, 2017

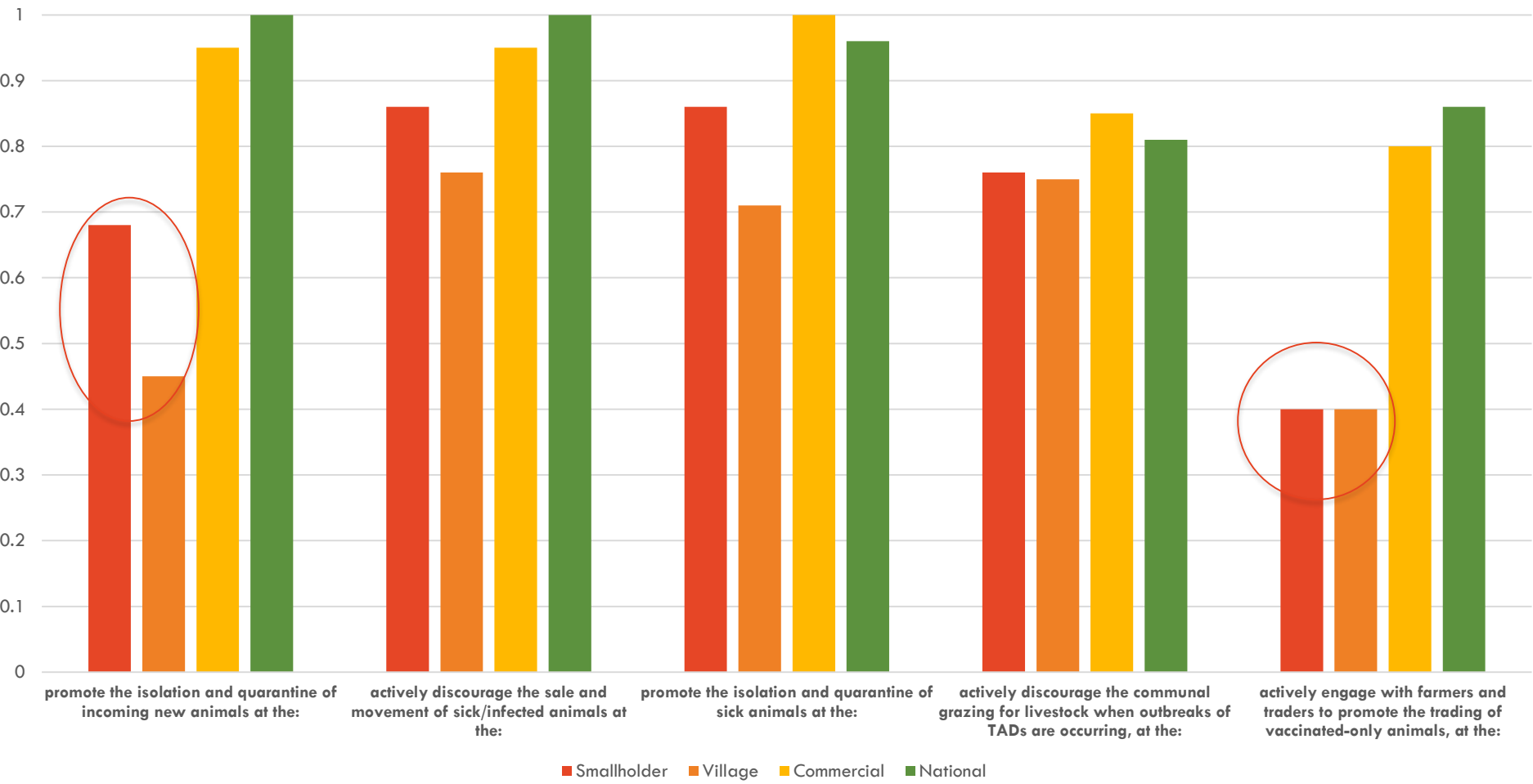
- 23/36 (64%) responses from:
- Nil: Indonesia, RoKorea, Thailand, Vietnam
 - responded in pilot = 33 countries
- FMD Status:
 - 13 FMD present/unclassified by OIE,
 - 3 FMD-free zones WITH Vax,
 - 7 FMD-free WITHOUT Vax.



Results: 23/36 (64%) OIE Delegates Asia/SE Asia/Pacific online Sep-Oct, 2017

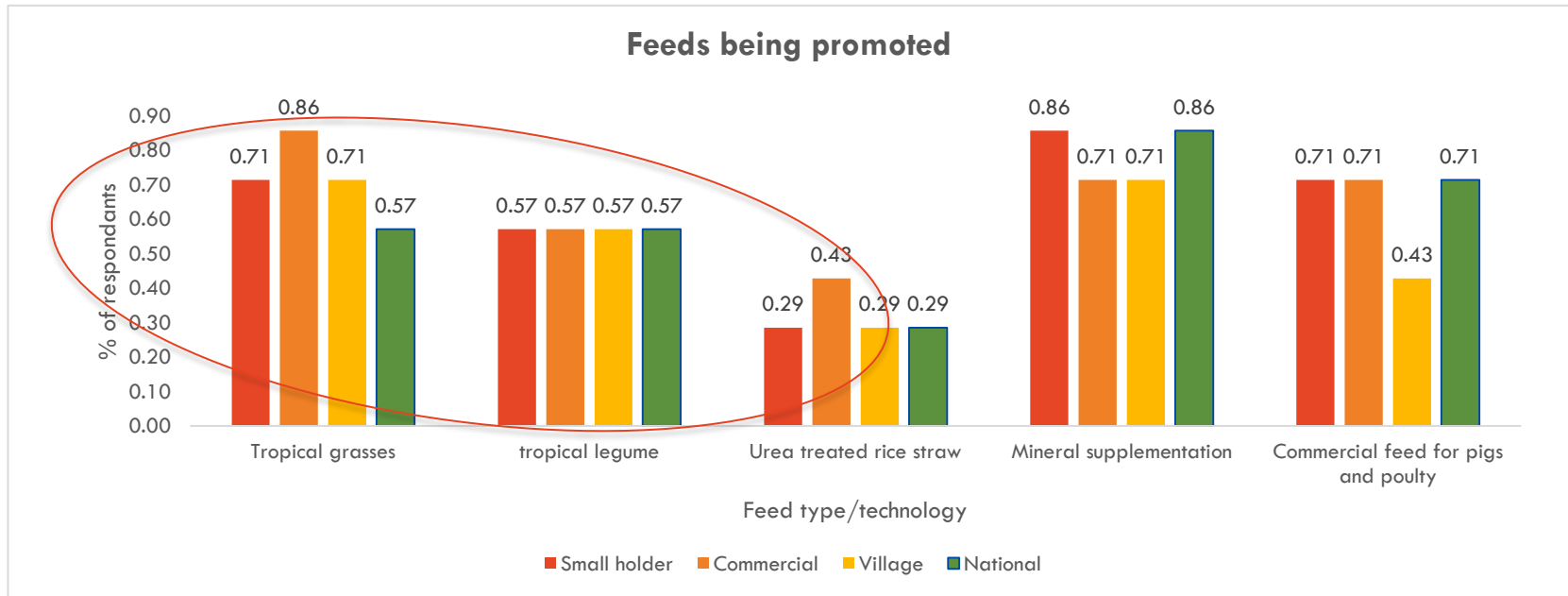
– Biosecurity messages to smallholders & villages are lower priority

Principle 1: Livestock Quarantine and Animal Movements

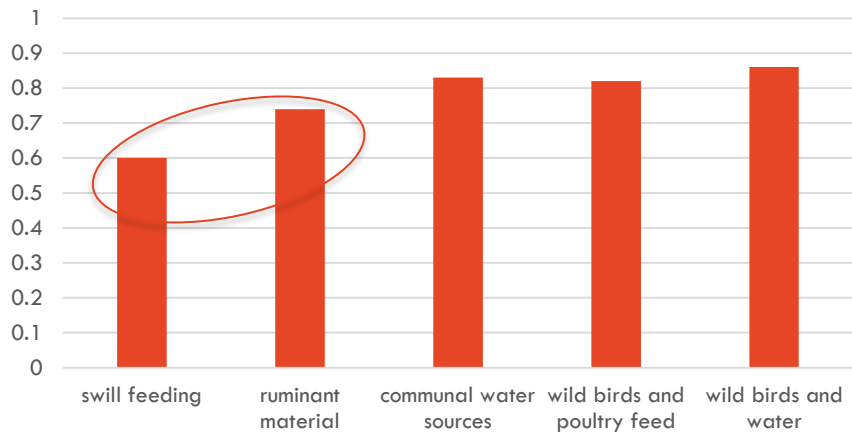


Results: connection between improved feeding & health focus?

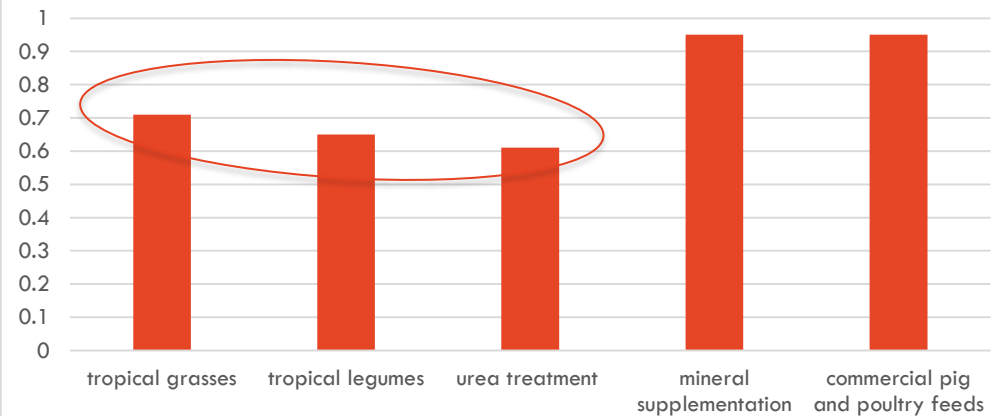
SEACFMD Coordinators compared with OIE Delegates surveys



Safe feeding practices promoted related to:



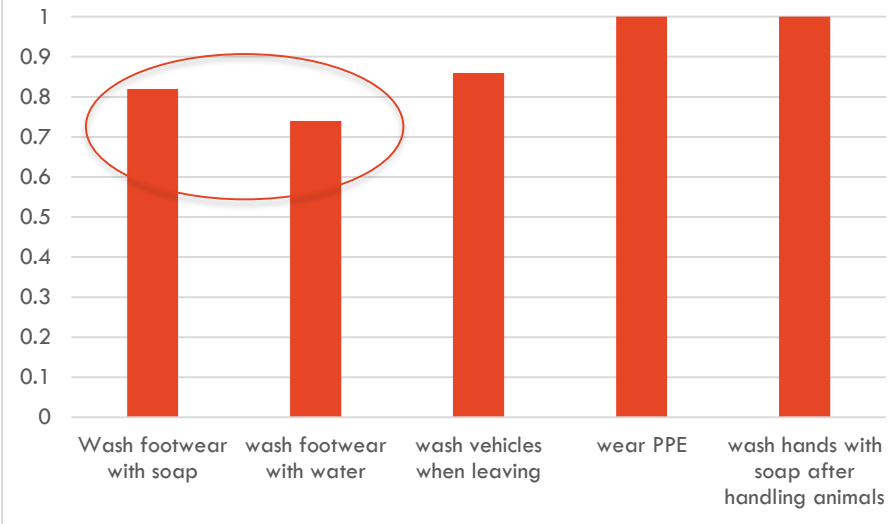
Feed types promoted



Preliminary Conclusions

- Poor ‘memory’ & low emphasis:
 - cooking swill for pigs
 - ? no ruminant feed to ruminants
 - record keeping (esp. smallholders)
 - trading of vaccinates
 - isolation of incoming stock
- Increased need for –ve reporting
- ? Overuse of systemic antibiotics
- ? Low appreciation of role of improved feed & health in smallholders farming system, esp.
 - tropical grasses,
 - legumes,
 - urea supplementation
- Inadequate promotion of hygiene/washing foot-ware

Hygiene practices promoted by the biosecurity systems/activities/programmes farmers, traders and extension workers and other staff:



- **Vax. suppresses FMD; admission of biosecurity failure**
- **Improved biosecurity has great potential but done poorly esp. smallholder farms & villages**
- **Biosecurity KAP needs separate pro-active training; in-press**

Southeast Asian FMD Control & Eradication Programs: historical perspectives

	ENHANCING TOOLS			
	Strategic Vaccination	Movement Controls & biosecurity	Surveillance & Emergency Response	Public Awareness & Biosecurity
INDONESIA	✓	✓	✓	✓
PHILIPPINES	✓ / ?	✓	✓	✓
SE ASIA/ MEKONG	✓ / x	?	?	?

'Everything is simpler than you think, and at the same time more complex than you imagine.'

Goethe

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