

Farmer investment into biosecurity on broiler and layer farms in Bali

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Outline

- Background
- Aims of the study
- Survey locations and respondents
- Data analysis
- Results
- Conclusion

Background

- High Pathogenic Avian Influenza virus (HPAI) has been widely discussed up to date for its impacts not only on the poultry industry, but also for its potential to cause human fatalities.
- The importance of enhancing biosecurity along the food chain to reduce the risk of disease spread.
- To start with, by identifying the level of biosecurity on farm producers. Good implementation of biosecurity on farm should receive a financial incentive for doing so.

Aims of the study

- To identify the level of biosecurity on farms, both broiler and layer, in Bali by discussing measures that have been implemented on both farms.
- To discuss the amount spent in these areas compared with farm size.



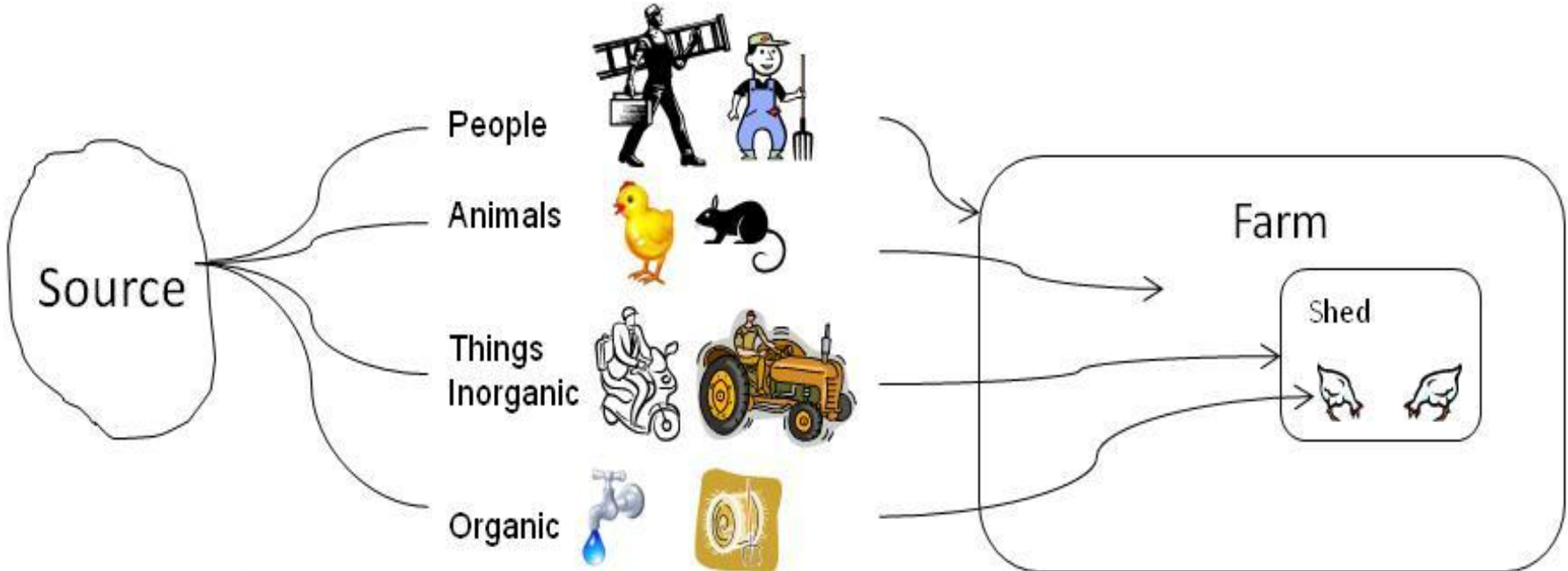
Survey locations and respondents

- The survey location was purposely chosen, based on the poultry population and AI outbreaks in the region.
- The number of respondents was determined using a quota sampling.
- The number of respondents for each type of farm (layer and broiler) was 60 farmers, totaling 120 respondents.

Data analysis

- Focused on at farm gate, between farm gate and the shed, and at the shed door.
- The risk areas encompass 3 major components of biosecurity : isolation, traffic control and sanitation
- There were 44 biosecurity control measures.
- Using Biosecurity Control Score (Patrick and Jubb 2010)
- A simple linear regression to identify relationship between amount spent on biosecurity and farm size

the 9 biosecurity stages (Patrick and Jubb 2010)



1. Vector/fomite status of farm inputs

2. Traffic onto farm

3. Distance from source of pathogens to shed

4. Exposure of farm

5. Biosecurity at farm boundary

6. Biosecurity between farm boundary and shed

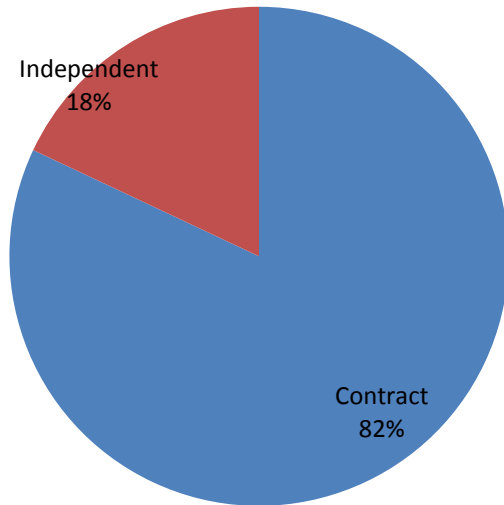
7. Biosecurity at the shed door

8. Traffic into shed

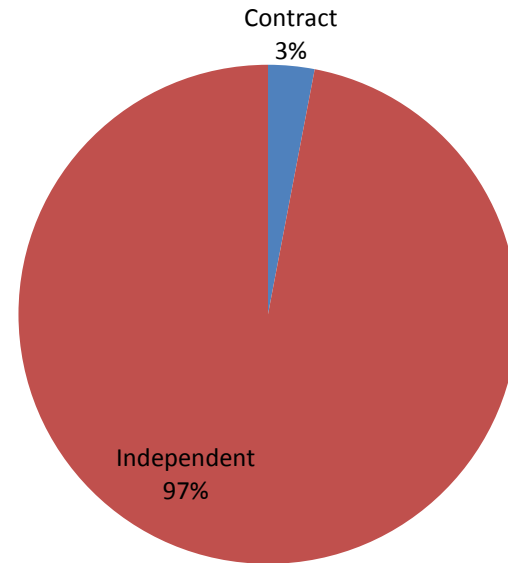
9. Susceptibility of flock

Distribution of respondents according to their chicken management

Broiler

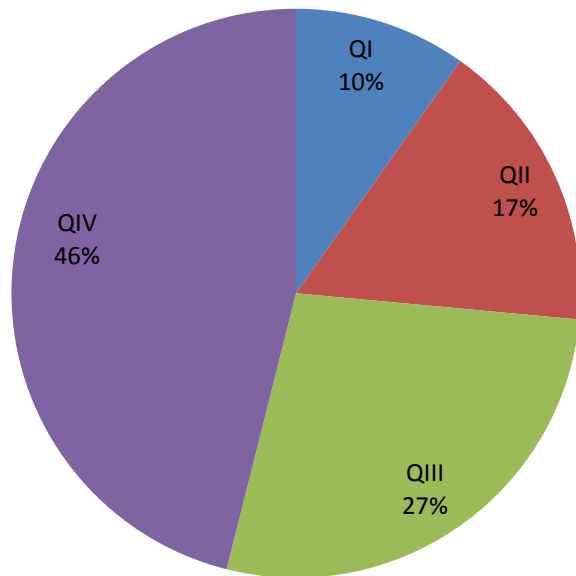


Layer



Distribution of respondents according to farm size

Broiler



Layer

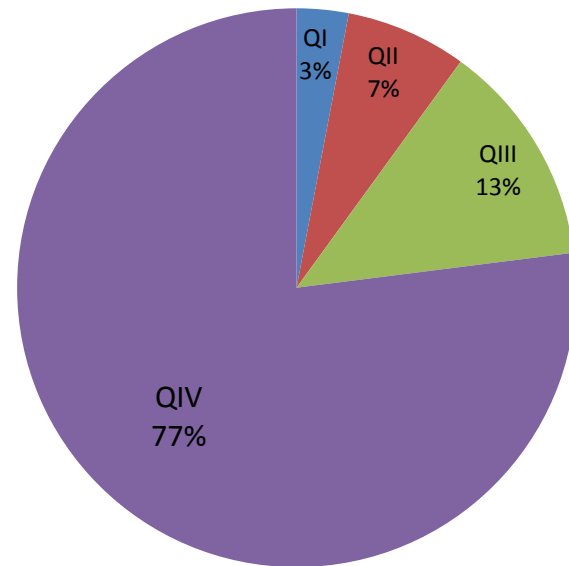


Table 3: Average years of experience and farm size of respondents in Bali

	Broiler	Layer
Years of experience on farm	6.37	14.37
Number of sheds	1.3	5.22
Land size (m ²)	1298	1600
Number of chicken managed	4,875	21,982

Level of biosecurity at farm gate

- Layer farms have implemented better biosecurity measures with regards to fencing and locks.
- Both farms have poorer biosecurity performance in terms of signs.
- Two good things applied on broiler farm: 1) the number of entrances is limited; 2) shower and changing rooms for visitors and employees are sufficient.

Level of biosecurity between the farm gate and the shed

- The likelihood of the AI virus spreading from the farm gate and the shed is lower on broiler farms than layer farms.
- Feed sealed against rodents, overflow taps, split feed and chickens and ducks wandering the shed are better managed in broiler farms than in layer farms.
- Broiler farms get advice from the company, while layer farms tend to be independent producers

Level of biosecurity at the shed door

- Signage on shed doors is neglected on nearly all farms.
- Provision of a concrete footbath in front shed entrance is negligible for layer farms.
- Wild birds and rodents are able to freely enter the shed, that achieve a low biosecurity score in this area.



Table 9: Average cost spent on biosecurity for broiler and layer farms

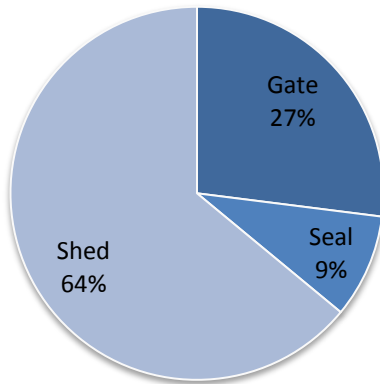
Quartile	Average cost spent for broiler (Rp/bird)	Average cost spent for layer (Rp/bird)
I	555	636
II	422	713
III	374	620
IV	418	781

Farmer investment into biosecurity

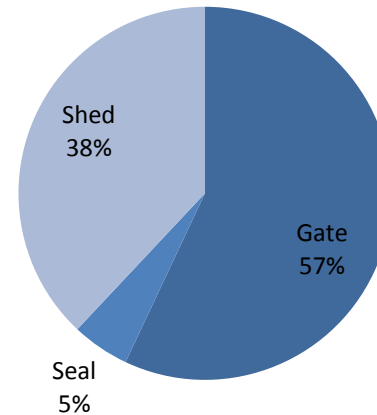
- Larger farm size may encourage farmers to invest into biosecurity enhancement to protect their business.
- The larger the layer farm, the higher the investment in biosecurity.
- However, this is not the case for broiler producers.

Distribution of biosecurity cost

Broiler



Layer



- Farm gate investment comprises boundary fence, parking facilities, signs around perimeter and footbath availability.
- Shed investment includes the amount spent on shed walls, locks, signage, footbaths and disinfectant.
- The seal represents the percentage spent on biosecurity activities between the farm gate and the shed, mainly for the management of the feed shed

Table 10: Linear regression result for money spent on biosecurity and the size of broiler farm

	Coefficient	T test	Sig
Size of farm	-0.010	0.006*	-1.726
Constant	500.786	39.507	0.000

Table 11: Linear regression result for money spent on biosecurity and the size of broiler farm

	Coefficient	T test	Sig
Size of farm	0.001	0.521	0.001
Constant	-7.478	-2.036	0.046

Conclusion

- A similar profile of biosecurity implementation from farm gate to the sheds exists for both broiler and layer producers.
- Layer producers tended to have more consideration on secure boundary fence and locks, while broiler farms showed a better biosecurity performance in providing footbaths in front of the shed compared to layer producers.
- In terms of cost spent on biosecurity, on average, there is quite big difference between broiler and layer farms.
- There is a significant relationship between money spent and size of farm for broiler producers.

- The study provides information upon which to plan and determine the most cost-effective approach to improve the implementation of biosecurity at production point.
- In particular, it helps focus decisions on those parts of the risk factors most likely to produce the virus spread, and it allows the impact on biosecurity enhancement to be assessed.

Acknowledgement

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