

### BIOSECURITY MEASURES ON BROILER FARMS IN SUBANG, WEST JAVA INDONESIA

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#### Introduction

Poultry farms can be categorized into four sectors according to a classification system developed by the FAO (FAO, 2004). Sector 3 and 4 farms, by definition, have lower levels of biosecurity than farms belonging to sector 1 and 2. Therefore, poultry farms in sector 3 and 4 have a higher potential risk for acquiring and transmitting disease, including Highly Pathogenic Avian Influenza (HPAI). As part of a larger collaborative multi-intervention pilot project in Cipunagara Sub-district of Subang District, the Bogor Agricultural University, the Livestock Services of Subang and the Indonesian-Dutch Partnership on HPAI control are designing interventions to raise biosecurity levels of sector 3 farms in this sub-district. However, relatively little is known about the present biosecurity levels on these farms. The aim of this study therefore was to provide information on the present biosecurity measures which are in place on sector 3 farms in Cipunagara and to measure farmers' attitudes and opinions towards biosecurity improvements.

#### Research Methods

A cross-sectional survey was carried out from January 18th until January 24th, 2010. The target population was sector 3 poultry farms in Cipunagara Subdistrict, Subang District, West Java. There were 25 sector 3 poultry farms in Cipunagara at the time of the survey which were all broiler farms. It was decided to sample the entire target population of 25 farms. Data were collected by means of a questionnaire which was modified from an existing questionnaire developed by the Australian Centre for International Agricultural Research (ACIAR). Respondents were farm owners or farm managers. The questionnaire was administered during a face-to-face interview and contained questions about existing biosecurity measures, farm infrastructure, farm management, poultry health and productivity as well as farmer's knowledge of biosecurity and their opinion about the ease of implementation of biosecurity measures. Questions pertaining to biosecurity could be grouped into the three principles of biosecurity as defined by the FAO (FAO, 2008), namely traffic control (2 questions), sanitation (15 questions) and isolation (23 questions). The proportion of the biosecurity measures which were applied on each farm out of the total number of biosecurity measures addressed by the questionnaire (40 items) was calculated and expressed as a percentage. Farmers' opinions about the ease of implementation of biosecurity measures was scored on a scale of 1 to 3 with 1 being not very easy and 3 being very easy to implement. The proportion of farmers' opinions falling in scores 1, 2 or 3 for a variety of biosecurity measures was then calculated. Data were analyzed using Microsoft Office Excel 2007.

#### Results and Discussion

The proportion of biosecurity measures which were applied by poultry farms in sector 3 in Cipunagara Subdistrict out of the total of 40 biosecurity measures addressed by the questionnaire is presented in Table 1.

Table 1 shows that the level of biosecurity on poultry farms in sector 3 is still far from optimal. Out of the total of 40 biosecurity items which were addressed in the questionnaire, a maximum of 23 (57.5%) items were present on one farm. An average of 16.88 (42.2%) biosecurity items were present on the surveyed farms. The least number of biosecurity measures which were present on the farms were related to traffic control.

Only one farm (4%) had a sign instructing visitors to report before entering the farm and not a single farm had a visitor registration system in the form of a log book. The highest number of biosecurity measures which were present on the farms were related to isolation (segregation) with an average of 10.28 (45.0%) items and a maximum of 14 (61.0%) items being present.

Table 1 The number and percentage of biosecurity practices applied at poultry farms in sector 3 in Cipunagara, Subang, out of the total number of biosecurity measures addressed by the questionnaire (n=40)

Principles of biosecurity	Number of items	Minimum	Average	Maximum
Traffic Control	2	0 (0.0%)	0.04 (2.0%)	1 50.0%
Sanitation	15	4 (26.7%)	6.56 (43.7%)	9 (60.0%)
Isolation	23	7 (30.0%)	10.28 (45.0%)	14 (61.0%)
Over all	40	12 (30.0%)	16.88 (42.2%)	23 (57.5%)

Twenty four farmers (96%) separated sick birds from healthy birds and burned or buried dead birds, whereas all 25 farms indicated that they never allowed unsold poultry to return from the market to the farm, 17 (68%) farms practiced an all in all out system, and 23 from 32 sheds (72%) always locked the sheds. Nevertheless, none of the farms controlled the access of wild birds, rodents, or insects into the poultry shed or had strict measures to keep other poultry or domestic animals away from their flock. Most farms (18 farms; 72%) did not have fences, Just 5 (20%) farms had gates, just 4 (16%) farms had locks on gates, 21 (84%) farms did not have warning signs in front of the farms and sheds, and not a single farm had a hygiene barrier in front of sheds. In terms of sanitation measures, almost all (21 farms; 84%) provided hand washing facilities for workers, cleaned (with water and soap) and disinfected the sheds regularly after finishing the production cycle, and 17 (68%) farms changed the litter at least two times in a cycle. All of the farms sourced their water either from a well or from the tap. Nevertheless, other hygiene facilities were lacking such as just 12 from 32 (37.5%) sheds had foot baths in front of the sheds, just 1 (4%) farm had special clothes and 7 (28%) farms had boots to wear while handling the poultry, and just 4 (12.5%) sheds had warning signs for workers or visitors reminding them of proper hygienic standards. In addition, there was open water on 13 (52%) of the farms which can be an attractant for wild fowl, insects and rodents.

The biosecurity measures which all farmers considered most easy to implement were burning of dead chickens, burying dead chickens and removing the manure from the house. In contrast, the biosecurity measure which the majority of farmers (84%) found not very easy to implement was showering at the main entrance.

### Conclusion

The majority of farms in this survey were independent farms with limited or no supervision by contract companies and/or government. This could partly explain their mediocre biosecurity status. However, the fact that the majority of farmers considered almost all of the addressed biosecurity measures very easy to implement, suggests that the deficiencies in biosecurity which were found in this survey are more a result of a perceived lack of urgency than because of structural or financial constraints. This leaves room for an educational and supervisory role for the local district livestock services.

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### References

- [FAO, 2004] *Recommendations on the Prevention, Control and Eradication of Highly Pathogenic Avian Influenza in Asia. FAO Position Paper, September 2004.* Rome, Italy
- [FAO, 2008] *Biosecurity for Highly Pathogenic Avian Influenza. Issues and Options.* Rome, Italy