Supplementary Figure 1. Le *et al.*

QUESTIONNAIRE FOR LPAI INVESTIGATION ON THE KNOWLEDGE, ATTITUDE, PRACTICES, AND IMPACT AT FARMS

I. INFORMATION TO READ TO RESPONDENT

Good morning/afternoon/evening. I am ……, a veterinarian of.……

We are planning a study in August 2019 and September 2019 to identify potential risk factors of low pathogenicity avian influenza. The information will help finding appropriate control and prevention strategies for of low pathogenicity avian influenza in Vietnam.

Participation in this survey will take approximately 40 minutes. Your participation in this research is voluntary. There is a possibility that you may feel uncomfortable with the questions, but you may stop whenever you want or skip the question.

There are no risks for participating.

If at any time during the interview you are not clear about the question, be sure to ask me.

If you have any questions later, please contact

- Dr. Le Thanh Tung, Director of Vinh Long Sub-Department of Animal Health

- Dr. Le Trung Kien, Vietnam Department of Animal Health

- Or Dr. Chu Duc Huy, Vietnam Department of Animal Health

II. QUESTIONNAIRE

Date of investigation	_ _ / _ _ / _ _ _ _
Name of investigator	

Address

Province	
District	
Commune	
Model	
Name of farmer	
Phone number of seller	
Order collected sample	

X co-ordinate: …… Y co-ordinate: ……

A. GENERAL INFORMATION

1. How old are you?
   - ☐ Under 20
   - ☐ 21-30
   - ☐ 31-40
   - ☐ 41-50
   - ☐ Over 50

2. What is your gender?
   - ☐ Male
   - ☐ Female

3. What is your highest education?
   - ☐ None
   - ☐ Elementary
   - ☐ Middle school
   - ☐ High school
   - ☐ College
   - Other ……..

4. How long have you involved in poultry trading?
   - ☐ Under 1 year
   - ☐ 6-10 years
   - ☐ 1-5 years
   - ☐ Over 10 years

5. What type of birds do you usually sell?
   - ☐ Chickens
   - ☐ Pigeons
   - ☐ Ducks
   - ☐ Quails
   - ☐ Muscovy duck
   - ☐ Other……

6. What is the approximate number of birds that you have?
   Chickens: …….. Pigeons: …….
   Ducks: ……. Quails: ……
   Muscovy duck: …….. Other: …….……

7. Which month in the year was the best seller of your poultry?
   Please specify the month:……..

8. Where do you usually buy your poultry?
   - ☐ Same commune
   - ☐ Different commune ☞
     Address1: Prov……., Dist……,Comm……
     Address2: Prov……., Dist……,Comm……
     Address3: Prov……., Dist……,Comm……

9. What source do you usually buy poultry from?
   - ☐ Self-hatching
   - ☐ Trader
   - ☐ Hatchery
   - ☐ Other:……..

10. What is the reason for buying the poultry from that source?
    - ☐ Price
    - ☐ Relationship
    - ☐ Convenience
    - ☐ Other:……..

B. KNOWLEDGE

(Do not read the answers in this part)

1. Have you ever heard about AI (bird flu)?
   - ☐ Yes
   - ☐ No

2. Have you ever heard about LPAI (low pathogenicity avian influenza)? (If no, skip Q3)

☐ Yes ☐ no

3. What is the difference between HPAI and LPAI?

☐ Mortality ☐ Clinical signs ☐ Infectivity ☐ Don't know

4. What is the causative agent of AI?

☐ Virus ☐ Bacteria ☐ Parasite ☐ Don't know

5. Which animals can be infected with AI?

☐ Only chicken ☐ Poultry ☐ Mammals ☐ Don't know

6. From where did you learn about AI?

☐ TV
☐ Radio
☐ Newspaper
☐ Brochure
☐ Market manager
☐ Animal health worker
☐ Training course
☐ Other….

7. Do you think that AI can be prevented? (if the answer is Not sure/Don't know, skip Q6)

☐ Yes ☐ Not sure ☐ Don't know

8. In your opinion, Can you tell me something that you think you could do to prevent AI in your poultry when you introduce the new flocks or handling/slaughtering them?

☐ Vaccine
☐ Keep poultry in good condition (clean area)
☐ Separate species
☐ Keep separately all poultry from other poultry for at least 2 weeks
☐ Wash hand with soap before and after taking care of poultry and other animal
☐ Wear gloves
☐ Wear a mask
☐ Other.....

9. In your opinion, how is AI spread among poultry?

☐ Contact with infected bird ☐ Other….

- ☐ Contact with contaminated equipment
- ☐ Contact with virus brought by people, their clothing or footwear
- ☐ Don't know

10. In your opinion, how is AI spread in humans?

- ☐ Contact with infected or sick bird
- ☐ Contact with contaminated equipment
- ☐ Eat duck blood pudding
- ☐ Other….
- ☐ Don't know

11. Have you ever seen the infected poultry with AI showing clinical signs?

- ☐ Yes
- ☐ No
- ☐ Not sure

12. Which infected avian species will show the clinical signs?

- ☐ Chicken
- ☐ Duck
- ☐ Muscovy duck
- ☐ Not at all

13. Do you know the clinical signs of AI in poultry?

- ☐ Sleepiness
- ☐ Dark/red/blue comb and wattles
- ☐ Swollen and puffy looking eyes
- ☐ Sudden death in large number
- ☐ Ruffled feathers
- ☐ Diarrhea
- ☐ Other….
- ☐ Don't know

14. What do you do with your poultry that you suspect have AI?

- ☐ Keep them in a closed building/separate from other poultry and animal
- ☐ Sell them
- ☐ Slaughter for food
- ☐ Throw them away in river or pond
- ☐ Kill them and bury them
- ☐ Burn them
- ☐ Report to local authority
- ☐ Give antibiotics
- ☐ Do nothing
- ☐ Other…….

15. What will you do if there is an outbreak of AI in the area where you purchase your poultry?

☐ Sell off all your poultry ☐ Do nothing

☐ Follow animal health authority instruction ☐ Other…..

16. Have you ever attended, been trained or participated in an activity that educated about bird flu?

☐ Yes How many times?.....

☐ No When is the latest time?.....

17. Do you know about Decree number 119/2013/NĐ-CP dated 09-10-2013 of Prime minister on the regulations of administrative sanctions in the field of animal health, livestock, animal feeds, and Circular number 53/2013/TT-BNNPTNT dated 12-12-2013 of the Ministry of Agriculture and Rural Development for terrestrial animal diseases reporting regulations?

☐ Yes ☐ Not sure

☐ No

18. Do you know the purpose of the surveillance?

☐ Yes ☐ Not sure

☐ No

If your answer is yes, can you explain:
……
……
……

C. ATTITUDES

1. If you thought, you had a bird flu case in your cage or near your shop (other owner) would you report it? (If the answer is No/Not sure, skip Q2)

☐ Yes ☐ Not sure

☐ No

2. To whom would you be more likely to report suspected cases of bird flu in poultry?

☐ Market manager ☐ Local authority

☐ Veterinarian

3. Do you think you will be safe from bird flu without using PPE in handling the poultry?

☐ Yes ☐ Not sure

☐ No

4. Bird flu issues are important for your business?

☐ Yes ☐ Not sure

☐ No

5. How serious a problem do you think bird flu is in Vietnam or your region?

☐ Very ☐ Not very

☐ Somewhat

6. Do you feel well informed about bird flu?

☐ Yes

☐ No

7. Do you agree with the current solutions of local authority for the control of AI?

☐ Yes ☐ Not sure

☐ No

8. Do you think the programs of AI control will give you more benefits?

☐ Very ☐ Not sure

☐ Somewhat

9. Do you think that for the control of AI is a part of your responsibility?

☐ Yes ☐ Not sure

☐ No

10. Do you wish you could get more information about bird flu?

☐ Yes

☐ No

11. What are the sources of information you think can get effectively on bird flu?

☐ TV ☐ Market manager

☐ Radio ☐ Animal health workers

☐ Poster, brochures ☐ Family, friends, neighbors and colleagues

☐ Newspapers ☐ Other…….

12. Do you willing to participate in an AI surveillance?

☐ Yes

☐ No

D. PRACTICES

1. Do you use the personal protective equipment (e.g. mask, gloves) when handling or slaughtering live birds? (should be checked directly by interviewer)

☐ Yes

☐ No

❖ If the answer is **Yes**: How often do you use?

☐ Every time

☐ Sometime

❖ If the answer is **No**: Why did not you use?

☐ Cost money ☐ I don't believe it help to protect from AI

☐ It is not convenience

2. Do you use the personal protective equipment (e.g. mask, gloves) when contacting with sick or dead birds?

☐ Every time ☐ Never

☐ Sometime

3. Do you use soap or disinfectant to clean your hands and equipment after finishing your work?

☐ Yes

☐ No

❖ If the answer is **Yes**: How often do you use?

☐ Every time

☐ Sometime

❖ If the answer is **No**: Why did not you use?

☐ Cost money ☐ I don't believe it help to protect from AI

☐ It is not convenience

4. Do you spray disinfectant on your vehicles before and after you use for transport poultry?

☐ Every time ☐ Never

☐ Sometime

5. Do you use the same vehicle to carry other products or humans (your family)?

☐ Every time ☐ Never

☐ Sometime

6. What will you do when you find the dead birds during your transportation? (select more than 1)

☐ Keep them in sealed plastic bags ☐ Burn them

☐ Sell them ☐ Report to animal health workers

☐ Slaughter for food ☐ Other…….

☐ Throw them away on the road ☐

7. Do you sanitize the lairage?

☐ Yes

☐ No

❖ If the answer is **Yes**: How often do you sanitize the lairage?

☐ Every day ☐ After selling batch

☐ Every week ☐ Never

☐ Every month

❖ If the answer is **Yes**: How do you sanitize lairage area?

☐ Cleaning by normal water ☐ By disinfection materials

☐ Cleaning by brush

❖ If the answer is **No**: Why did not you clean up?

- ☐ Cost money and waste time
- ☐ I don't believe it help to protect from AI
- ☐ It not my responsibility, it belong to market manager
- ☐ Not required

8. What will you do when you find the **sick birds** in your business area? (select more than 1 answer)

- ☐ Keep them in separate from other poultry
- ☐ Slaughter for food
- ☐ Sell them as soon as possible
- ☐ Report to animal health workers
- ☐ Give them antibiotics
- ☐ Do nothing

9. What will you do when you find the **dead birds** in your business area? (select more than 1 answer)

- ☐ Keep them in separate from other poultry
- ☐ Bury or burn them
- ☐ Sell them
- ☐ Report to animal health workers
- ☐ Slaughter for food
- ☐ Other…….
- ☐ Throw them away

10. Do you separate the new imported birds?

- ☐ Yes
- ☐ No

11. Do you keep chickens separate with ducks or Muscovy duck? (interviewer should observe the real situation)

- ☐ Yes
- ☐ No

12. How do you usually sell your poultry products?

- ☐ Sell directly in the market ; Name of market:……
- ☐ Sell to the trader
- ☐ Seft-consumption

E. IMPACT

1. Contribution of poultry to your total income:

   ☐ Under 10%
   ☐ 10 – 30%
   ☐ 31% - 50%
   ☐ Over 50%
   ☐ Not related to income

2. How your income from poultry changed within the last six months?

   ☐ Increase
   ☐ Decrease
   ☐ No change

3. How does the requirement of the trader to the quality of poultry change??

   ☐ Increase
   ☐ Decrease
   ☐ No change

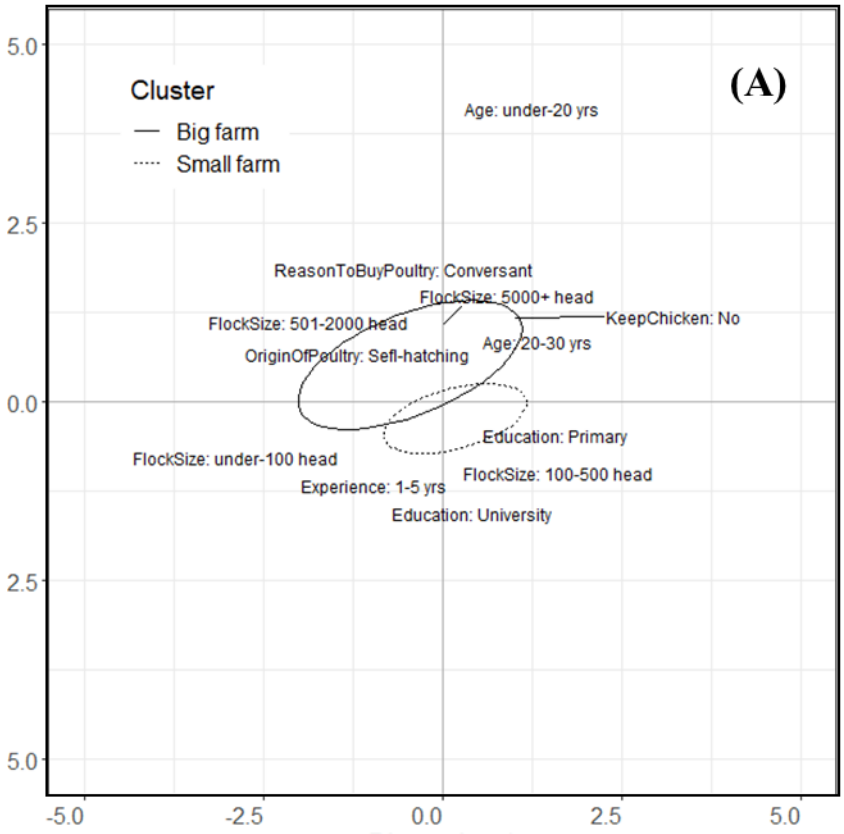
4. Do you want to invest more in your poultry business?

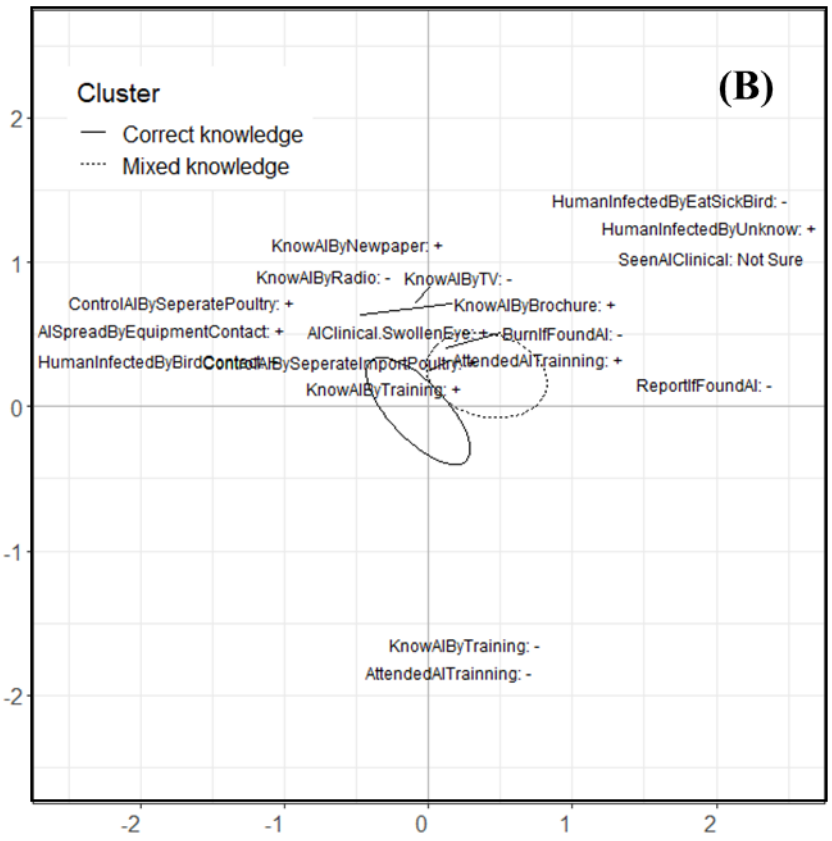
   ☐ Yes
   ☐ No

5. How much did you pay for the treatment of your poultry last year?
   ……
   How did the treatment cost change compare to the previous year?

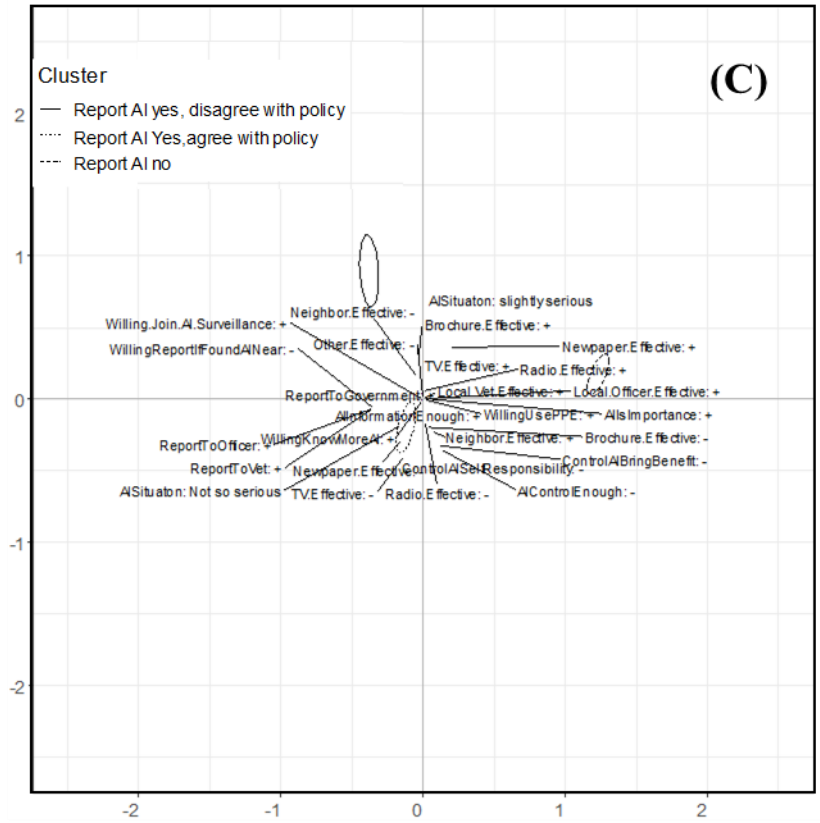
   ☐ Increase
   ☐ Decrease
   ☐ No change

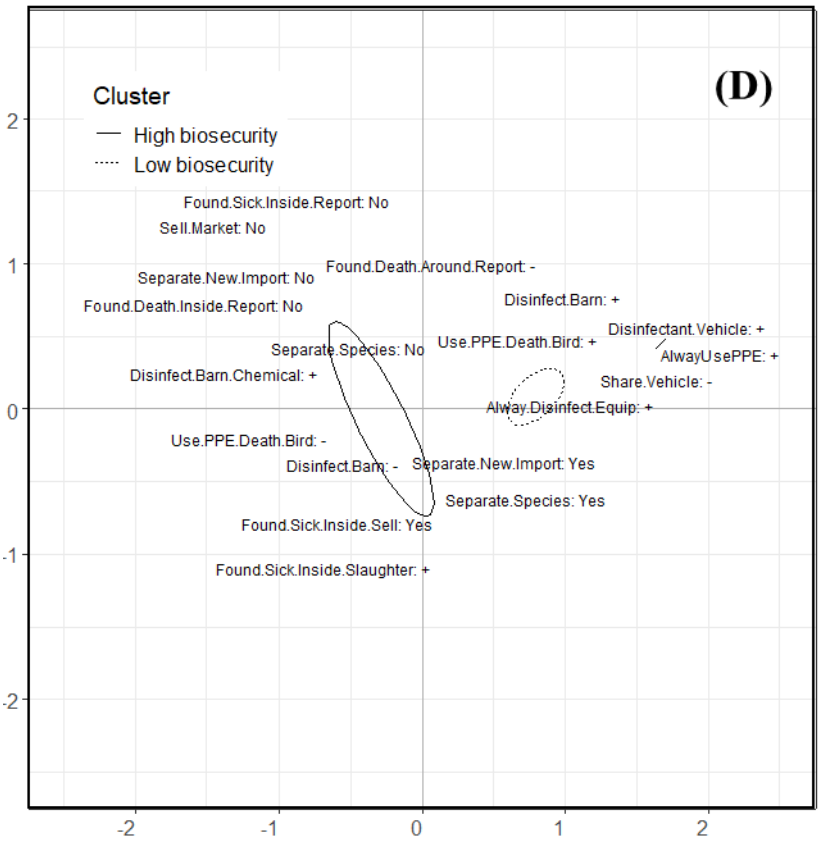
Thank you very much for participating in our survey.





Supplementary Figure 2. MCA biplot in each of four sections. MCA scatterplot shows questionnaire responses related to respondent demographics (A), knowledge (B), attitude (C), and practice (D). The clusters identified by the hierarchical clustering on principal components method were indicated by ellipses superimposed on each MCA scatterplot.





Supplementary Figure 2 *(cont)***. MCA biplot in each of four sections.** MCA scatterplot shows questionnaire responses related to respondent demographics (A), knowledge (B), attitude (C), and practice (D). The clusters identified by the hierarchical clustering on principal components method were indicated by ellipses superimposed on each MCA scatterplot.

Supplementary Table 1. Summary of avian influenza virus surveillance in Vietnam from 2009 to 2019

Year	Region	Province	No. of samples	AIV positive	Prevalence (95% CI)	Subtype (no. of isolates)	Reference
2009	North	Nam Dinh	700	-	0.0		
	South	Bac Lieu	758	39	5.1 (3.7–7.0)	H3N2 (1), H3N8 (1), H4N6 (7), H9N2 (26), H11N3 (3), (H11N9 (1)	[22]
2010	North	Nam Dinh	761	-	0.0		
	South	Bac Lieu	1,327	26	2.0 (1.3–2.9)	H6N2 (24), H6N6 (1), H9N6 (1)	[22]
2011	North	Nam Dinh	600	6	1.0 (0.4–2.2)	H3N8 (1), H4N2 (1), **H5N1 (1)**, H6N6 (3)	[23]
	South	Ca Mau	1,511	81	5.4 (4.3–6.6)	H3N6 (1), H3N8 (7), H4N6 (4), **H5N1 (16)**, H6N2 (46), H6N9 (2), H11N5 (3), H11N9 (2)	[23]
2012	North	Nam Dinh	1,201	74	6.2 (4.9–7.7)	H3N2 (11), H3N6 (9), H3N8 (10), H4N6 (6), **H5N1 (26)**, H5N2 (1), H6N2 (4), H6N6 (6), H9N2 (10), H9N8 (1), H11N9 (4)	[23]
	South	Dong Thap	1,224	40	3.3 (2.3–4.4)	H4N6 (1), **H5N1 (4)**, H6N2 (1), H7N1 (2), H9N2 (13), H10N7 (3), H11N3 (2)	[23]
2014	Central	Hue	3,045	178	5.8 (5.0–6.7)	H3N2 (18), H3N6 (1), H4N6 (2), **H5N6 (8)**, H6N2 (14), H6N6 (16), H9N2 (109), H9N6 (5), H11N6 (1), H11N7 (4)	[4, 5]
2015	Central	Hue	2,040	49	2.4 (1.8–3.2)	H3N1 (1), H3N8 (3), H4N2 (3), **H5N1 (4)**, **H5N6 (9)**, H6N1 (14), H9N2 (15)	[21]
	South	Vinh Long	1,400	243	17.4 (15.4–19.4)	H3N2 (1), H4N6 (1), **H5N1 (130)**, H6N6 (24), H9N2 (86), H11N9 (1)	[21]
2016	South	Vinh Long	3,300	131	4.0 (3.3–4.7)	H3N2 (11), H3N8 (2), **H5N1 (5)**, H6N6 (69), H9N2 (31), H10N6 (7), H11N9 (5), H12N5 (1)	[18]
2017	North	Lang Son	1,000	148	14.8 (12.7–17.2)	**H5N6 (6)**, H6N6 (3), H9N2 (139)	
	South	Vinh Long	1,800	167	9.3 (8.0–10.7)	H3N2 (2), **H5N1 (21)**, H6N6 (63), H9N2 (79), H10N3 (2)	[18]
2018	North	Lang Son	1,000	306	30.6 (27.8–33.6)	H3N2 (29), **H5N6 (2)**, H6N6 (89), H9N2 (186)	
	South	Vinh Long	1,846	139	7.5 (6.4–8.8)	H3N2 (1), H4N6 (2), **H5N1 (17)**, **H5N6 (11)**, H6N6 (52), H7N7 (3), H9N2 (47), H9N6 (1), H11N1 (1), H11N9 (3), H13N9 (1)	[17]
2019	North	Lang Son	1,000	206	20.6 (18.1–23.2)	**H5N6 (2)**, H6N6 (25), H9N2 (179)	
	South	Vinh Long	1,634	109	6.7 (5.5–8.0)	**H5N1 (12)**, **H5N6 (22)**, H6N6 (31), H9N2 (42), H10N3 (2)	
	South	An Giang	200	77	38.5 (31.7–45.6)	H3N2 (3), **H5N6 (9)**, H6N6 (14), H9N2 (51)	
Total			26,347	2,019	7.7 (7.3–7.9)		

AIV: avian influenza virus, CI: confidence interval.
High pathogenicity avian influenza viruses are highlighted in bold.

Supplementary Table 2. Unconditional associations between the outcome variable (virus isolation positive) and the 21 explanatory variables**.**

Variable	VI positive	Birds	OR (95%CI)	P-value
Sampling species				
Chicken	10	520	1.00	Reference
Duck	1	328	0.16 (0.01–0.83)	0.08
Muscovy duck	0	80	NA	0.99
Age				
Under 20 year-old	1	59	1.00	Reference
20 - 30 year-old	10	280	2.11 (0.39–39.04)	0.481
31 - 40 year-old	0	280	NA	0.99
41 - 50 year-old	0	279	NA	0.99
Upper 50 year-old	0	30	NA	1.00
Gender				
Female	10	220	1.00	Reference
Male	1	708	0.03 (0.00–0.16)	<0.01
Education				
Primary	2	318	1.00	Reference
High school	9	410	3.49 (0.75–16.27)	0.99
College	0	60	NA	1.00
University	0	10	NA	1.00
No	0	130	NA	0.99
Experience				
Under 1 year	1	49	1.00	Reference
1 - 5 years	9	431	1.02 (0.19–19.07)	0.98
6 - 10 years	1	288	0.17 (0.01–4.35)	0.21
More 10 year	0	160	NA	0.99
Keep duck				
No	10	550	1.00	Reference
Yes	1	378	0.15 (0.01–0.76)	0.07
Keep Muscovy duck				
No	2	757	1.00	Reference
Yes	9	171	19.92 (5.08–131.44)	<0.01
Buy the hatchlings from the same commune				
No	9	411	1.00	Reference
Yes	2	517	0.18 (0.03–0.69)	0.03
Reason to by the hatchlings				
Cheap	10	289	1.00	Reference
Convenience	1	339	0.09 (0.00–0.45)	0.02
Conversant	0	300	NA	0.99
AI can spread by contact with the contaminated equipment				
No	10	639	1.00	Reference
Yes	1	289	0.22 (0.01–1.16)	0.15
AI clinical sign can be observe in duck				
No	10	520	1.00	Reference
Yes	1	408	0.13 (0.01–0.67)	0.05

OR: odds ratio, CI: confidence interval, AI: avian influenza.

Supplementary Table 2 *(cont)***.** Unconditional associations between the outcome variable (virus isolation positive) and the 21 explanatory variables

Variable	VI positive	Birds	OR (95%CI)	P-value
Willing to report if recognize an AI event around				
Yes	3	846	1.00	Reference
Not sure	8	82	27.51 (7.79–127.45)	<0.01
Report AI event to the local officer				
No	8	82	1.00	Reference
Yes	3	846	0.04 (0.01–0.13)	<0.01
Report AI event to the local vet				
No	8	82	1.00	Reference
Yes	3	846	0.04 (0.01–0.13)	<0.01
Report AI event to the local government				
No	8	82	1.00	Reference
Yes	3	846	0.04 (0.01–0.13)	<0.01
Do you think AI situation in your area become more severe?				
No	10	169	1.00	Reference
Yes	1	759	44.91 (8.52–827.04)	<0.01
Brochure is an effective way to collect the AI information				
No	10	570	1.00	Reference
Yes	1	358	0.16 (0.01–0.84)	0.08
Newpaper is an effective way to collect the AI information				
No	10	599	1.00	Reference
Yes	1	329	0.18 (0.01–0.96)	0.11
Share vehicle				
Always	9	131	1.00	Reference
Some time	2	297	0.10 (0.01–0.39	<0.01
Never	0	500	NA	0.99
Report the dead bird to the local authority if found it around				
No	8	82	1.00	Reference
Yes	3	846	0.04 (0.01–0.13)	<0.01
Report the sick bird to the local authority if found inside farm				
No	9	41	1.00	Reference
Yes	2	887	0.01 (0.00–0.04)	<0.01

Supplementary Table 3. Numbers of respondents in each identified of the two respondent demographic cluster groups (n=61) and percentages of responses for each question type

Variable	Big farm (n=17)	Small farm (n=44)
Age		
Under 20 year-old	11.8	2.3
20 - 30 year-old	29.4	31.8
31 - 40 year-old	23.5	36.4
41 - 50 year-old	29.4	29.5
Upper 50 year-old	5.9	0.0
Gender		
Female	11.8	38.6
Male	88.2	61.4
Education		
No	11.8	15.9
Primary	29.4	34.1
High school	58.8	34.1
College	0.0	13.6
University	0.0	2.3
Experience		
Under 1 year	0.0	11.4
1 - 5 years	58.8	34.1
6 - 10 years	23.5	34.1
More 10 years	17.6	20.5
Keep chicken		
No	29.4	13.6
Yes	70.6	86.4
Keep duck		
No	64.7	52.3
Yes	35.3	47.7
Keep Muscovy duck		
No	82.4	79.5
Yes	17.6	20.5
Flock size		
Under 100 heads	0.0	15.9
100 - 500 heads	5.9	79.5
501 - 2000 heads	47.1	2.3
2001 - 5000 heads	47.1	0.0
More than 5000 heads	0.0	2.3
The most time to sell poultry		
Jan - Mar	100.0	100.0
Buy the hatchlings from the same commune		
No	58.8	27.3
Yes	41.2	72.7
Buy the hatchlings from the different commune		
No	41.2	72.7
Yes	58.8	27.3

Supplementary Table 3 *(cont)***.** Numbers of respondents in each identified of the two respondent demographic cluster groups (n=61) and percentages of responses for each question type

Variable	Big farm (n=17)	Small farm (n=44)
The origin of the hatchlings		
Sefl-hatching	0.0	27.3
Hatchery	82.4	15.9
Trader	17.6	56.8
Reason to by the hatchlings		
Cheap	5.9	61.4
Convenience	35.3	38.6
Conversant	58.8	0.0

Supplementary Table 4. Numbers of respondents in each identified of the two respondent knowledge cluster groups (n=61) and percentages of responses for each question type

Variable	Correct knowledge (n=51)	Mixed knowledge (n=10)
Know AI		
Yes	100.0	100.0
Know LPAI		
No	84.3	100.0
Yes	15.7	0.0
Know the different between HPAI and LPAI		
No	100.0	100.0
AI cause by virus		
Yes	100.0	100.0
AI cause by bacteria		
No	100.0	100.0
AI cause by parasite		
No	100.0	100.0
Do you know which species can be infected by AIV?		
No	100.0	100.0
Know AI by television		
No	15.7	20.0
Yes	84.3	80.0
Know AI by radio		
No	19.6	40.0
Yes	80.4	60.0
Know AI by newspaper		
No	86.3	80.0
Yes	13.7	20.0
Know AI by brochure		
No	86.3	80.0
Yes	13.7	20.0
Know AI by local officer		
Yes	100.0	100.0
Know AI by local vet		
Yes	100.0	100.0
Know AI by the training course		
No	13.7	10.0
Yes	86.3	90.0
Thought that AI is controllable		
Yes	100.0	100.0
AI can be controlled by vaccine		
Yes	100.0	100.0
AI can be controlled by keeping the good environment		
Yes	100.0	100.0
AI can be controlled by keep separate poultry		
No	72.5	90.0
Yes	27.5	10.0
AI can be controlled by separating the poultry newly import		
No	56.9	90.0
Yes	43.1	10.0

AI: avian influenza, LPAI: low pathogenicity avian influenza, HPAI: high pathogenicity avian influenza.

Supplementary Table 4 *(cont)***.** Numbers of respondents in each identified of the two respondent knowledge cluster groups (n=61) and percentages of responses for each question type

Variable	Correct knowledge (n=51)	Mixed knowledge (n=10)
AI can be controlled by soap wash		
Yes	100.0	100.0
AI can spread by contact with the infected bird		
Yes	100.0	100.0
AI can spread by contact with the contaminated equipment		
No	76.5	90.0
Yes	23.5	10.0
AI can spread by contact with the contaminated cloth/boot		
No	100.0	100.0
Human can be infected by AI from the infected bird		
No	88.2	100.0
Yes	11.8	0.0
Human can be infected by AI from the contaminated equipment		
No	100.0	100.0
Human can be infected with AI by eating the sick bird		
No	0.0	80.0
Yes	100.0	20.0
Human can be infected with AI by unknown source		
No	100.0	20.0
Yes	0.0	80.0
Know the AI clinical signs		
Yes	100.0	30.0
Not sure	0.0	70.0
AI clinical sign can be observe in chicken		
Yes	100.0	100.0
AI clinical sign can be observe in duck		
No	54.9	30.0
Yes	45.1	70.0
AI clinical sign can be observe in Muscovy duck		
No	100.0	100.0
AI clinical sign is depression		
Yes	100.0	100.0
AI clinical sign is edema in the comb		
Yes	100.0	100.0
AI clinical sign is eye swelling		
No	76.5	90.0
Yes	23.5	10.0
AI clinical sign is sudden death		
Yes	100.0	100.0
AI clinical sign is ruffed		
No	100.0	100.0
AI clinical sign is diarrhea		
No	100.0	100.0

Supplementary Table 4 *(cont)***.** Numbers of respondents in each identified of the two respondent knowledge cluster groups (n=61) and percentages of responses for each question type

Variable	Correct knowledge (n=51)	Mixed knowledge (n=10)
Attended the AI training		
No	13.7	0.0
Yes	86.3	100.0
Know about vet law		
Yes	100.0	100.0
Know the purpose of the surveillance		
Early detection	90.2	90.0
Diagnosis	9.8	10.0

Supplementary Table 5. Numbers of respondents in each identified of the three respondent attitude cluster groups (n=61) and percentages of responses for each question type

Variable	Report AI but disagree with policy (n=8)	Report AI and agree with policy (n=46)	Don't Report AI (n=7)
Willing to report if recognize an AI event around			
Yes	100.0	100.0	0.0
Not sure	0.0	0.0	100.0
Report AI event to the local officer			
No	0.0	0.0	100.0
Yes	100.0	100.0	0.0
Report AI event to the local vet			
No	0.0	0.0	100.0
Yes	100.0	100.0	0.0
Report AI event to the local government			
No	0.0	0.0	100.0
Yes	100.0	100.0	0.0
Do you think using PPE is safer for poultry contact?			
Yes	100.0	100.0	100.0
AI situation is important for your business			
Yes	100.0	100.0	100.0
Do you think AI situation in your area become more severe?			
No	37.5	15.2	57.1
Yes	62.5	84.8	42.9
Do you think the AI information provided to you was enough?			
Yes	100.0	100.0	100.0
Do you agree with the local control measures?			
No	100.0	0.0	0.0
Yes	0.0	100.0	100.0
Do you think AI control is your benefit?			
No	87.5	0.0	0.0
Yes	12.5	100.0	100.0
Do you think AI control is your responsibility?			
No	100.0	4.3	0.0
Yes	0.0	95.7	100.0
Do you want to receive more AI information?			
Yes	100.0	100.0	100.0
Television is an effective way to collect the AI information			
No	12.5	30.4	14.3
Yes	87.5	69.6	85.7
Radio is an effective way to collect the AI information			
No	25.0	26.1	28.6
Yes	75.0	73.9	71.4
Brochure is an effective way to collect the AI information			
No	37.5	60.9	57.1
Yes	62.5	39.1	42.9
Newpaper is an effective way to collect the AI information			
No	37.5	63.0	28.6
Yes	62.5	37.0	71.4

AI: avian influenza, PPE: personal protective equipment.

Supplementary Table 5 *(cont).* Numbers of respondents in each identified of the three respondent attitude cluster groups (n=61) and percentages of responses for each question type

Variable	Report AI but disagree with policy (n=8)	Report AI and agree with policy (n=46)	Don't Report AI (n=7)
Local officer is an effective way to collect the AI information			
Yes	100.0	100.0	100.0
Local vet is an effective way to collect the AI information			
Yes	100.0	100.0	100.0
Neighbor is an effective way to collect the AI information			
No	75.0	56.5	57.1
Yes	25.0	43.5	42.9
Willing to join the AI surveillance			
Yes	100.0	100.0	100.0

Supplementary Table 6. Numbers of respondents in each identified of the two respondent practice cluster groups (n=61) and percentages of responses for each question type

Variable	High biosecurity (n=17)	Low biosecurity (n=44)
Use PPE when slaughtering		
Yes	100.0	100.0
The frequency of PPE using when slaughtering		
Some time	11.8	100.0
Always	88.2	0.0
Use PPE when handling the death bird		
No	0.0	93.2
Yes	100.0	6.8
Disinfectant equipment		
Yes	100.0	100.0
The frequency of disinfectant equipment		
Some time	0.0	88.6
Always	100.0	11.4
Disinfect vehicle		
No	11.8	100.0
Yes	88.2	0.0
Share vehicle		
Always	0.0	31.8
Some time	0.0	68.2
Never	100.0	0.0
Bury the dead bird if found it around		
Yes	100.0	100.0
Slaughter the dead bird if found it around		
No	100.0	100.0
Feed the dead bird to the other animal if found it around		
No	100.0	100.0
Throw the dead bird if found it around		
No	100.0	100.0
Burn the dead bird then disinfect the area if found it around		
Yes	100.0	100.0
Report the dead bird to the local authority if found it around		
No	5.9	13.6
Yes	94.1	86.4
Disinfect the barn		
Yes	100.0	100.0
The frequency of disinfect barn		
Some time	17.6	90.9
Always	82.4	9.1
Barn disinfectan method		
Water	100.0	0.0
Chemical	0.0	100.0
Separate the sick bird if found inside farm		
Yes	100.0	100.0

PPE: personal protective equipment.

Supplementary Table 6 *(cont).* Numbers of respondents in each identified of the two respondent practice cluster groups (n=61) and percentages of responses for each question type

Variable	High biosecurity (n=17)	Low biosecurity (n=44)
Slaughter the sick bird if found inside farm		
No	100.0	90.9
Yes	0.0	9.1
Sell the sick bird if found inside farm		
No	100.0	95.5
Yes	0.0	4.5
Treat the sick bird if found inside farm		
Yes	100.0	100.0
Report the sick bird to the local authority if found inside farm		
No	0.0	11.4
Yes	100.0	88.6
Feed the dead bird to the other animal if found inside farm		
No	100.0	100.0
Throw dead bird if found inside farm		
No	100.0	100.0
Burn or bury the dead bird if found inside farm		
Yes	100.0	100.0
Report the dead bird to the local authority if found inside farm		
No	0.0	29.5
Yes	100.0	70.5
Separate the newly imported poultry		
No	0.0	50.0
Yes	100.0	50.0
Keep separate species		
No	11.8	63.6
Yes	88.2	36.4
The method to sell the poultry		
Bring to market	0.0	34.1
Sell to trader	100.0	50.0
Self-consume	0.0	15.9