

Risk mitigation for Influenza A (H7N9) spread outside of China through informal poultry trade

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Abstract:

In order to know the pattern of informal trade of spent hens, and to further identify the potential risk pathways for the risk mitigation plan, we interviewed the key informants in border area, and assessed the risk of the informal way regarding the release of avian influenza (AI) viruses. We found that approximately 0.3 million spent hens per year were moved across Hekou port via boat to Vietnam in recent years, much less compared to 1 million volume per year in 2013. Economic-oriented (3 to 4 yuan/kg price difference) and consumer preference drive cross-border poultry movement. We also used the information on organization of informal trade to qualitatively evaluate the risk of release of AI viruses.

Background:

Influenza A (H7N9) was firstly emerged in China in March 2013, and five seasonal epidemic waves of H7N9 have been observed. No human cases have been reported so far beside of China. FAO and FAO China pay serious and cautious attention and actions the border areas with high level of risk and focus on chicken value chain. Yunnan province is surrounded by Sichuan, Guizhou and Guangxi provinces with H7N9 positive findings reported in the fifth wave. Meanwhile, Southern part of Yunnan province shares borders with Viet Nam, and informal trade of spent hens from China to Viet Nam have been noticed.

Methods:

We selected Hekou border county in Yunnan province for pilot study in 2016. Methods on open discussion with county level veterinary staff had been used to collect relevant information. The snowball survey method had been used to identify key informants and semi-structured questionnaires had been given for the information collection.

Results:

1. Spent hen distribution

There were nearly 24,205,783 spent hen in Yunnan province of 2016.

Yuxi city, Dali and Honghe prefecture had 68% spent hen of the province.

2. Spent hen movement pathway

Two traders in Hekou County involved in crossing border trade, they bought spent hen from Tonghai County through traders in Mengzi County and sold to Vietnamese traders by boat via Shanyao and Hekou station.

3. Price of spent hen movement

The price difference was as high as 3-4 yuan/kg (8 yuan/head).

| Price | Tonghai county | Mengzi county | Hekou county | Viet Nam border area |
|------------|----------------|---------------|--|--|
| March 2016 | 7 yuan/kg | 8 yuan/kg | Wholesale: 10 yuan/kg Retail: 13-14 yuan/kg | ≈ Cross border trader price ≈ LBM price |

4. Volume of spent hen movement

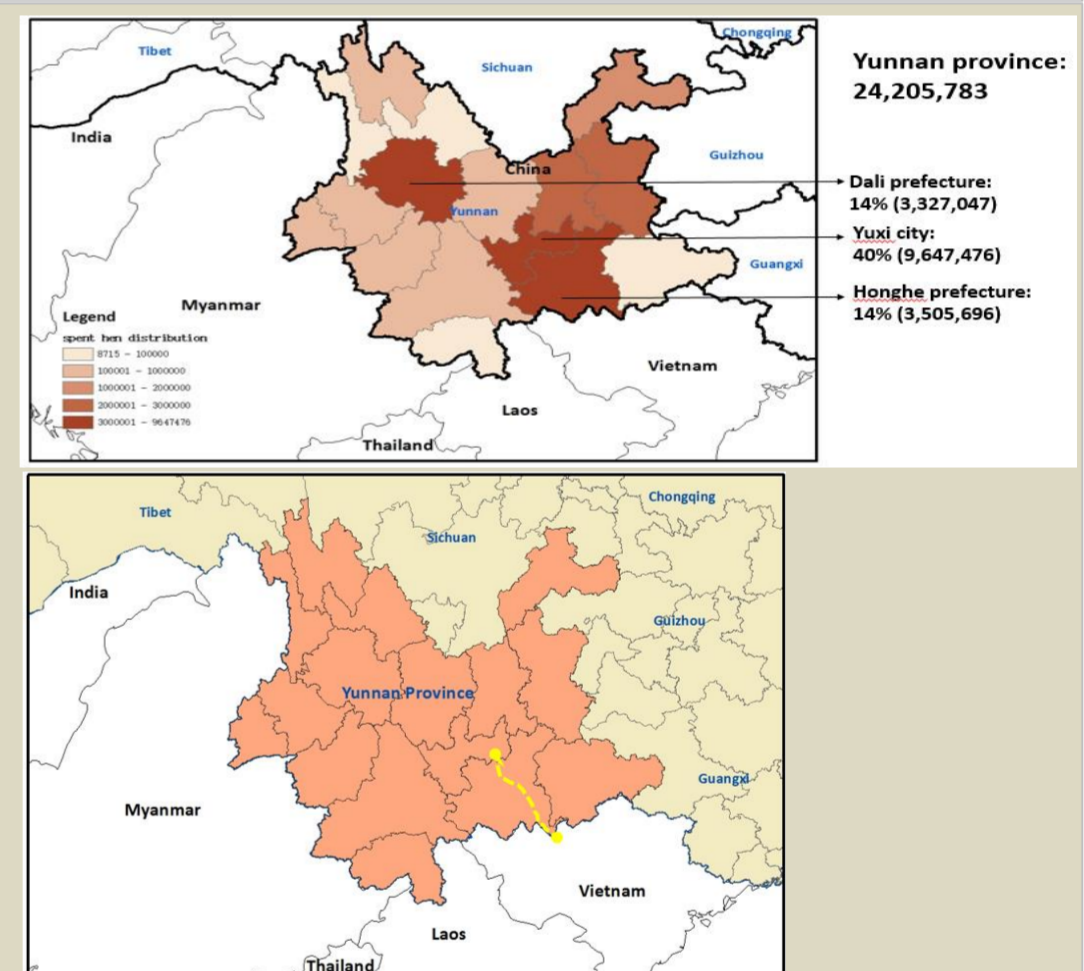
Approximately 0.3 million head spent hen move across Hekou port to Viet Nam in 2016, much less compared to 1 million volume per year 2013 before.

| Volume | No. of spent hen/day (head) | No. of spent hen/year (head) |
|-------------|-----------------------------|------------------------------|
| 2016 | ≈ 500 | ≈ 300,000 |
| Before 2013 | ≈ 2000 | ≈ 1,000,000 |

5. Reasons for spent hen trade decrease

Due to emergency H7N9 issue in 2013, there was a ban to enforce poultry cross-border trade by the Viet Nam government, so the management of poultry cross-border movement was more strict than 2013 before.

Meanwhile, some Chinese farmers went to Viet Nam border to raise poultry.



Recommendation:

1. Conduct value chain analysis (collaborate with Viet Nam) to get the whole picture of poultry cross-border movement and identify the potential risk pathways.
2. Strengthen border surveillance.
3. Further studies need to explore whether this trade volume and behavior could be associated with the transmission risk of H7N9 virus infection in poultry from China to Viet Nam.