

# Risk factors for introduction of highly pathogenic avian influenza into Danish poultry farms

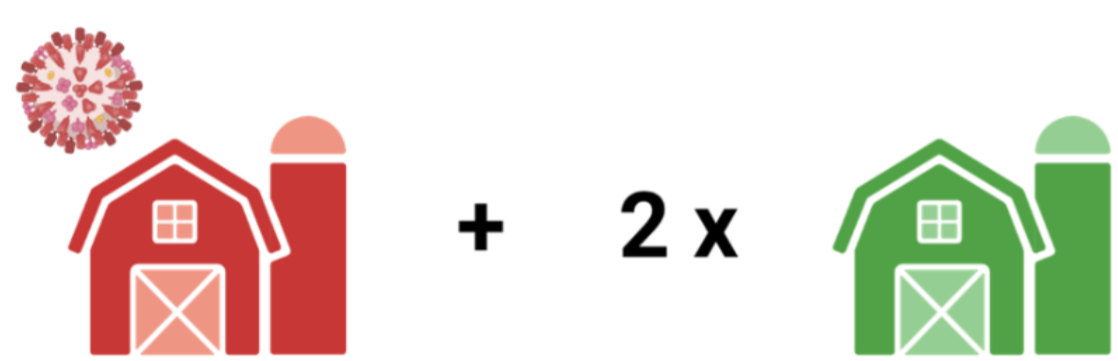
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## Objective and study design

The objective was to compare the odds of introduction of HPAI into farms with poultry and other captive birds related to potential risk factors including farm characteristics, environmental factors and biosecurity measures.

In a case-control study, we matched previous outbreak farms to control farms on farm type, number of birds and distance to wetlands and coastal areas.

### ① Matching of previous outbreak farms and control farms



### ② Questionnaire



### ③ Analysis of potential risk factors



## Population

	HPAI outbreaks Oct 2020 - Sept 2023 Total (n = 36) / invited* (n = 29)	Cases (n = 18)	Controls (n = 34)
Broilers and layers	6 / 6	6	12
Turkeys	10 / 4	4	6
Game birds	4 / 3	1	2
Slaughter ducks and geese	2 / 2	0	0
Hobby	14 / 14	7	14

\* Only one primary outbreak per farm eligible

38% of outbreak farm owners declined to participate due to time constraints, concern of legislative restrictions, or compliance issues with the veterinary authorities.

**Conclusion: The results suggest that observation of waterfowl or gulls near farm buildings and lack of bird deterrents are more common in case farms compared to control farms**

Observation of waterfowl/gulls	Cases	Controls
None 500 m from farm	1 (5.6%)	13 (38.2%)
In any numbers 500 m from farm	1 (5.6%)	5 (14.7%)
In any numbers 20 m from farm	5 (27.8%)	11 (32.4%)
In any numbers on roof or around buildings	11 (61.1%)	5 (14.7%)

Use of bird deterrents	Cases	Controls
Yes	1 (5.6%)	8 (23.5%)
No	17 (94.4%)	26 (76.5%)

### Observation of waterfowl or gulls at various distances to farm

Increase in OR when waterfowl or gulls are observed in close proximity to farm



### Lack of bird deterrents

Non-significant increase in OR when no bird deterrents are used

