

Predicting high risk of mortality during transportation of Danish broiler flocks



Vibe Pedersen Lund*, Liza Rosenbaum Nielsen & Björn Forkman

¹ Department of Large Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, 1870 Frederiksberg C, Denmark
E-mail: vl@sund.ku.dk

BACKGROUND

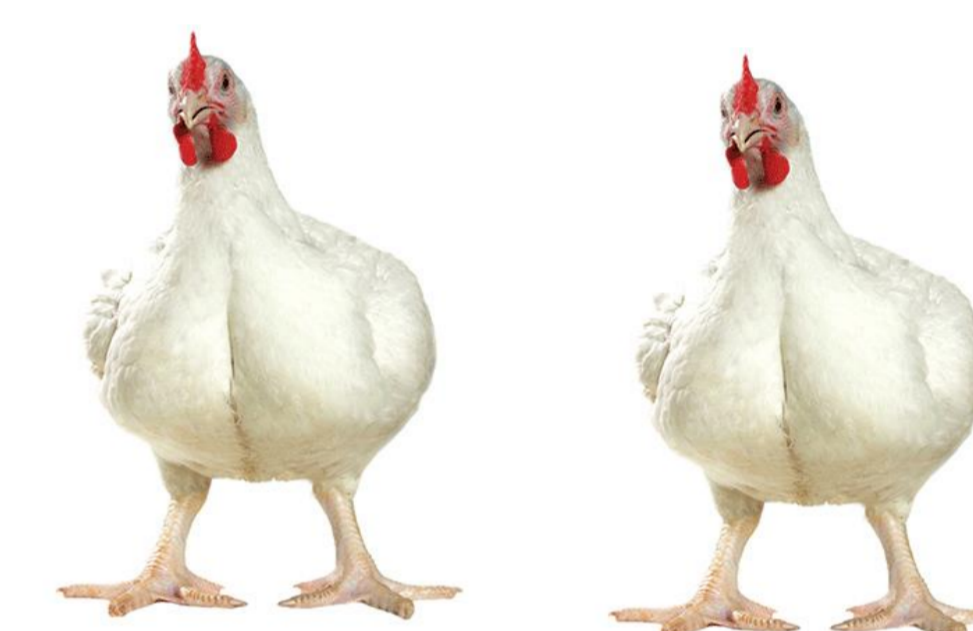
- ❑ Broilers dead-on-arrival (DOA) is evidence of reduced bird welfare during transportation
- ❑ A number of risk factors have been studied individually, but little is known about the associations between these factors and their ability to predict high DOA prevalence in flocks going to slaughter

STUDY OBJECTIVE

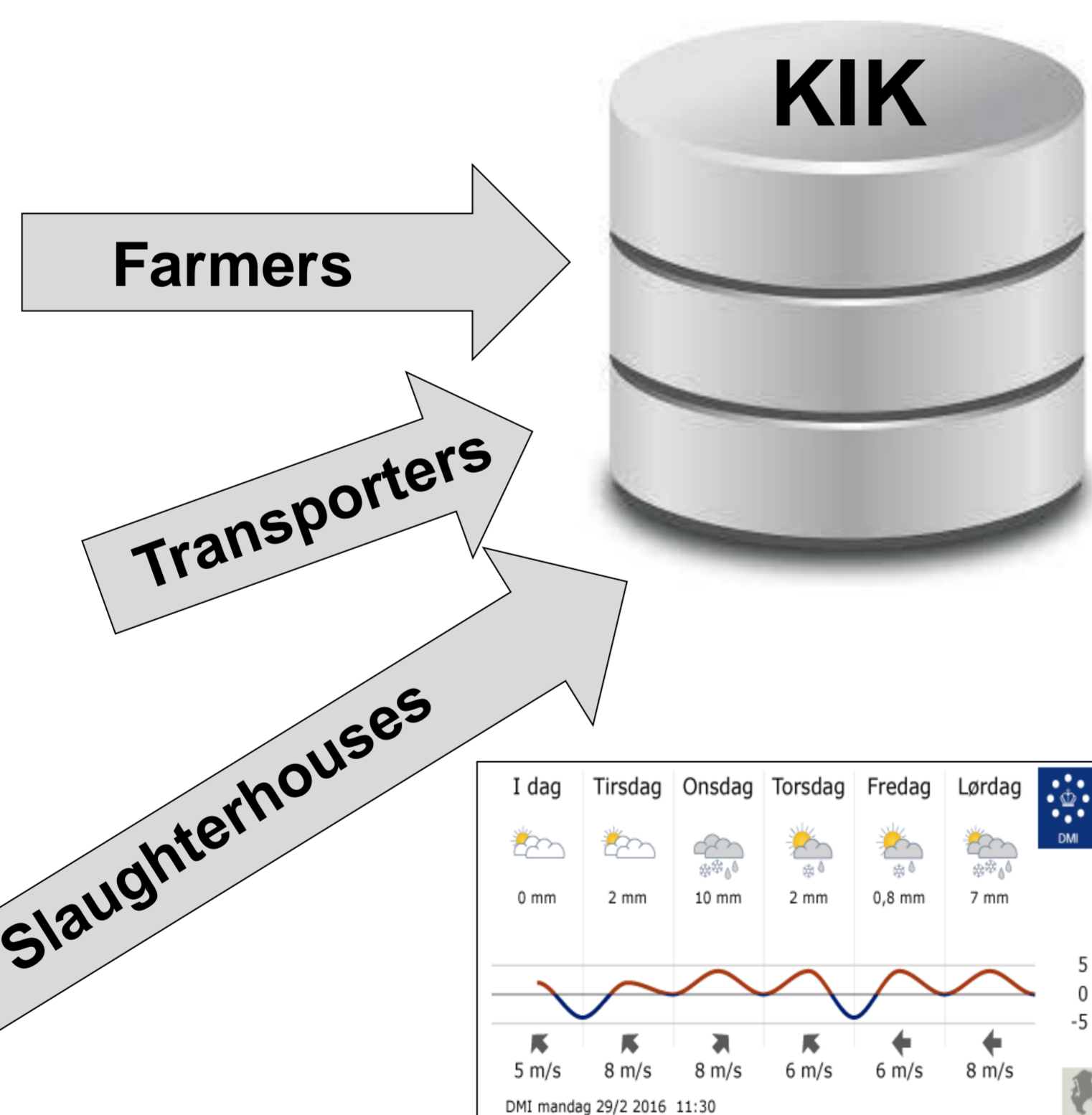
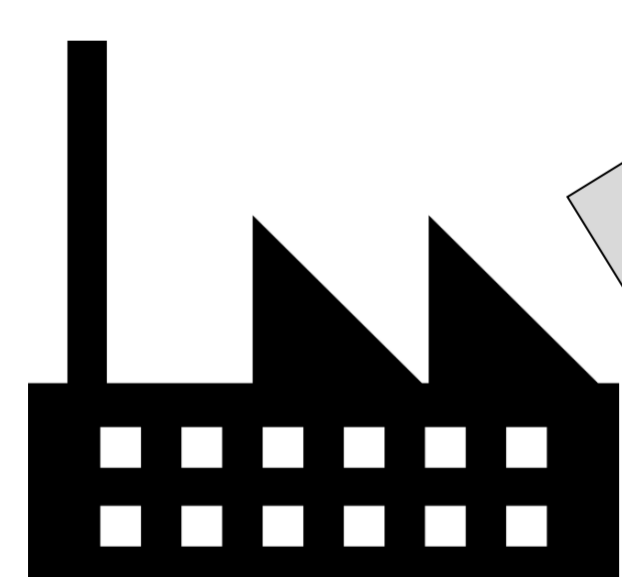
To use observed information recorded on delivered broiler flocks in 2011-2014 to identify factors predicting if a broiler flock is at risk of getting a high DOA prevalence when being sent to slaughter (high = among the 15% highest DOA percentages)

MATERIALS & METHODS

- ❑ Retrospective longitudinal observational study involving **10,963 broiler flocks** transported to slaughter at three major Danish processing plants in 2011-2014
- ❑ Covers 356 houses on 155 Danish broiler farms with regular flock deliveries – exempting thinning flocks
- ❑ Data from the Danish Quality Assurance System in the Broiler Production (KIK) database
- ❑ Data from the Danish Meteorological Institute (DMI)
- ❑ Generalized multivariable mixed model with farm and house within farm as random effects
- ❑ Binary outcome with cut-off at 15% highest observed DOA percentages (i.e. >0.342% DOA)



RESULTS



Final model included - high(er) risk levels are marked in red

Temperature ($\leq 0^{\circ}\text{C}$ or $>0-15^{\circ}\text{C}$ or $>15^{\circ}\text{C}$)

Slaughterhouse (A, B or C)

Longer distance from farm to abattoir in km

Time of day (Day, Evening, Night)

Age at slaughter (≤ 37 days or >37 days)

Total on-farm mortality, higher %

Relative humidity (RH), lower % (little effect)

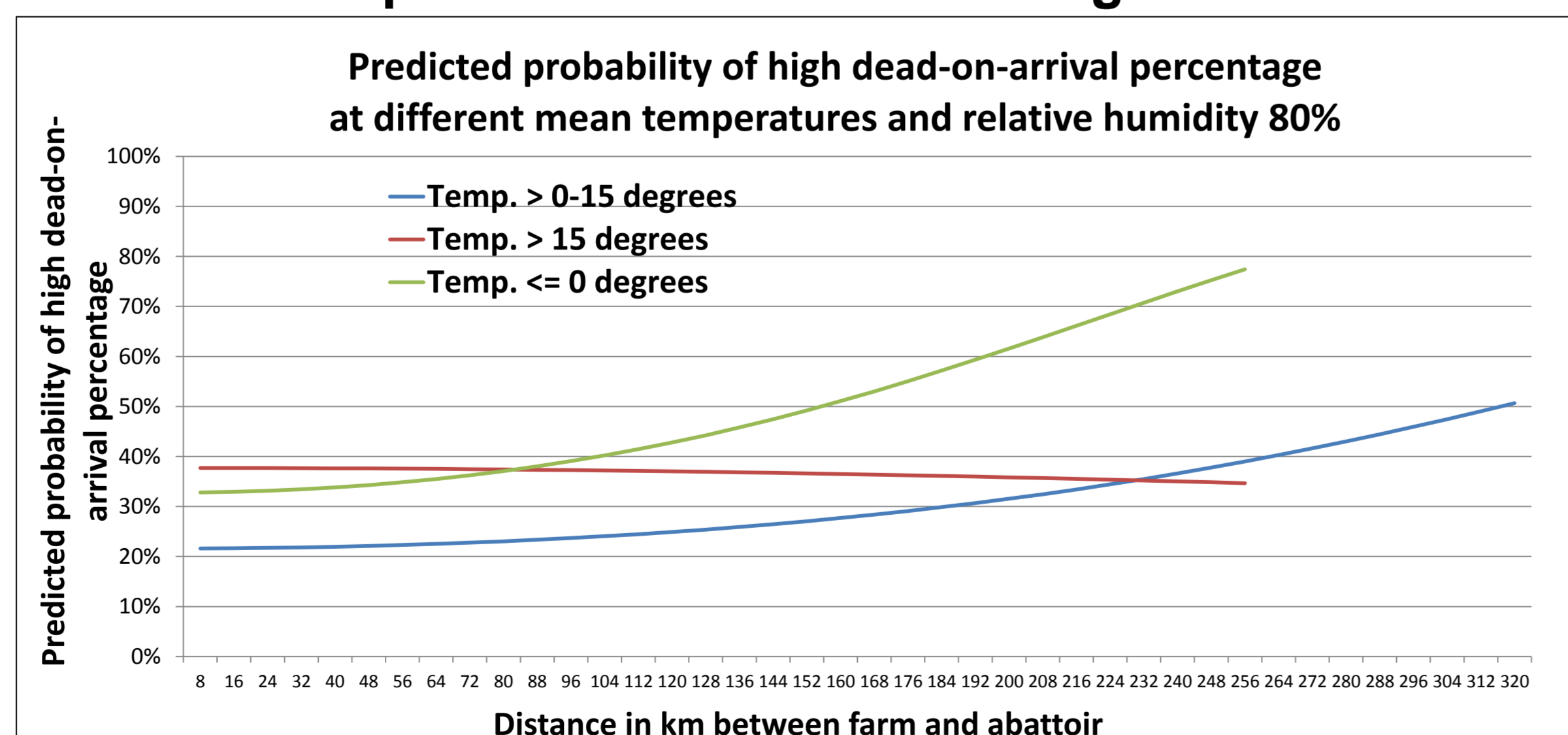
Previous thinning (Yes/No)

Interaction between distance and temperature

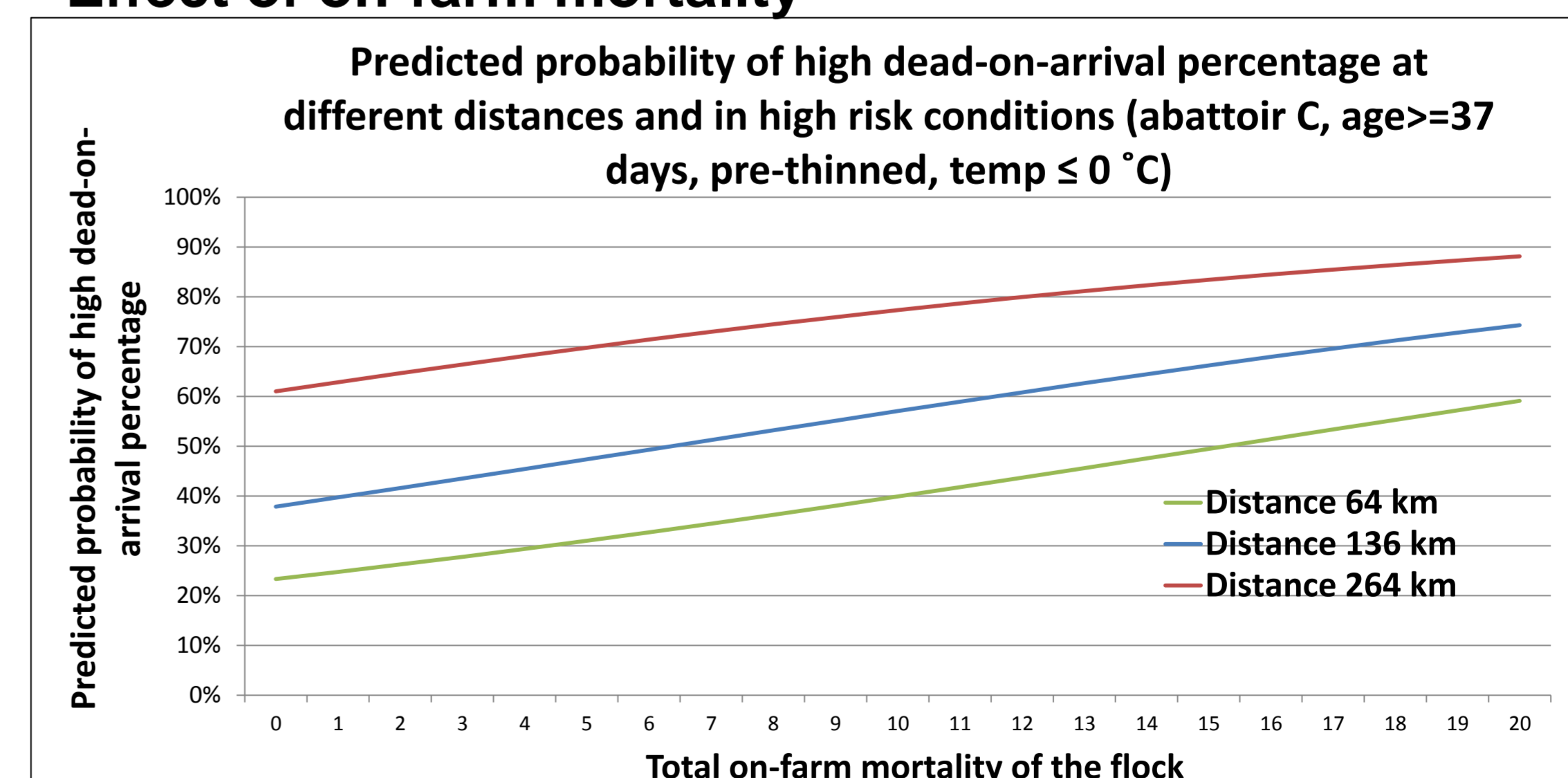
Interaction between distance and previous thinning

DOA risk

Effect of temperature and distance in high risk conditions



Effect of on-farm mortality



CONCLUSION

Temperature, distance and on-farm mortality markedly influenced the risk of high DOA

Cold ($\leq 0^{\circ}\text{C}$) and warm ($>15^{\circ}\text{C}$) weather most problematic. Long distance most problematic under cold conditions.

Transport to certain abattoirs, older birds, daytime or evening catching, previous thinning increases the risk of high DOA.