



Dynamic monitoring of weight data at the pen vs. at the individual level

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Introduction

Background

1. Systematic data collection from pig production is becoming more common
2. Use of collected data has potential to improve production and foretell changes
3. Information (usually) collected with low level of detail

Goals:

1. Examine the loss of information by higher-level (*i.e.* from individual to pen) herd monitoring





Introduction

Source:

Danish Pig Farm (Kappel)

Included data:

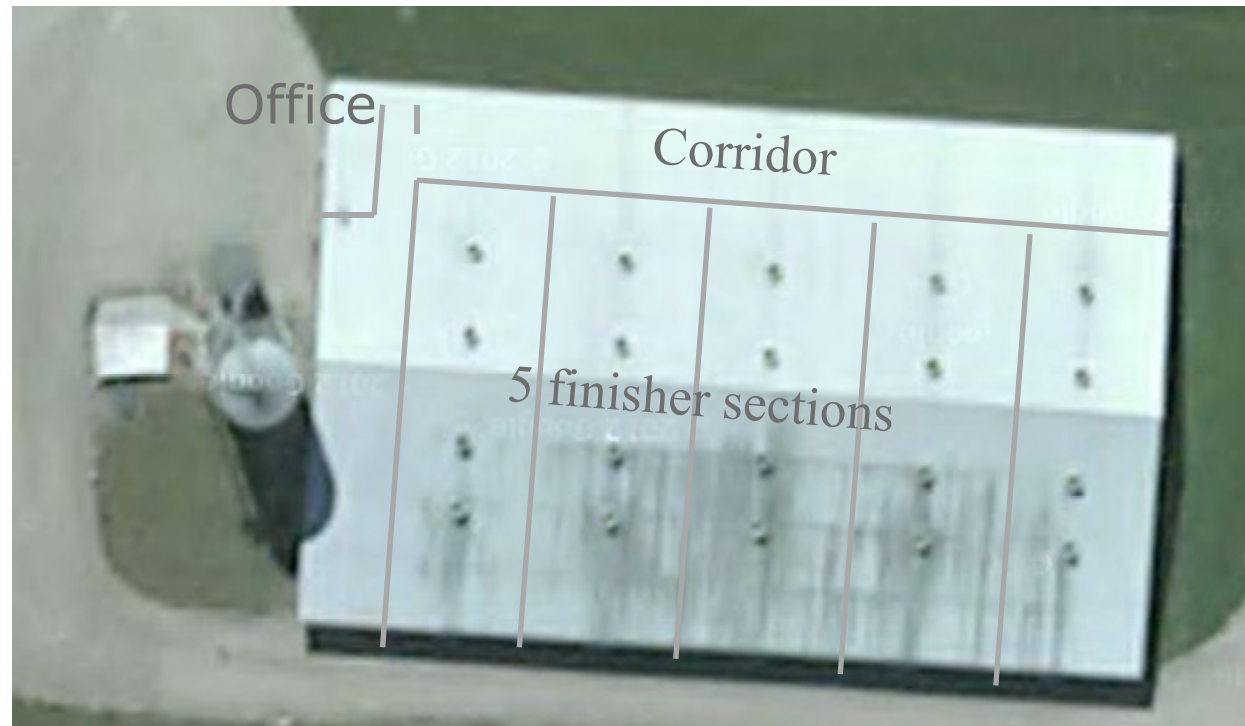
216 grower/finisher **pigs**

Two double-pens

(each 36 pigs)

for **Three batch-periods**

(10 weeks each)





Materials and methods: Modelling

Method:

Generalized Dynamic Linear Models (***GDLM***)
(system- and observation variance estimated from separate batch-period)

Modeling of ***weekly weight*** measurements

Modeling levels:

Six double pen-periods: ***Individual level***
Six double pen-periods: ***Double pen level***
Three double-pen periods: ***Single pen level***

Measured outcome:

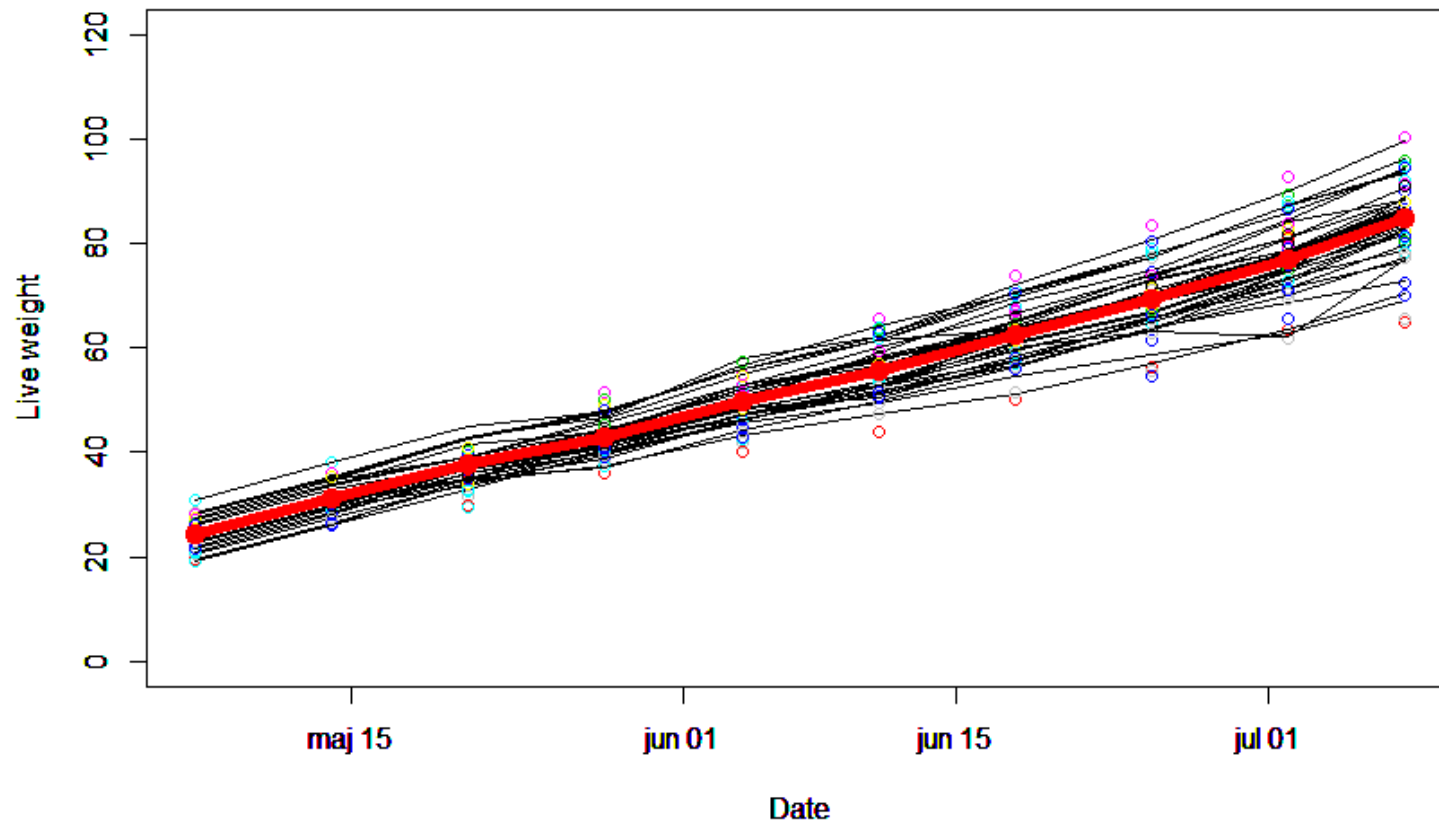
Average weekly ***forecast error***, given the modeling level





Results

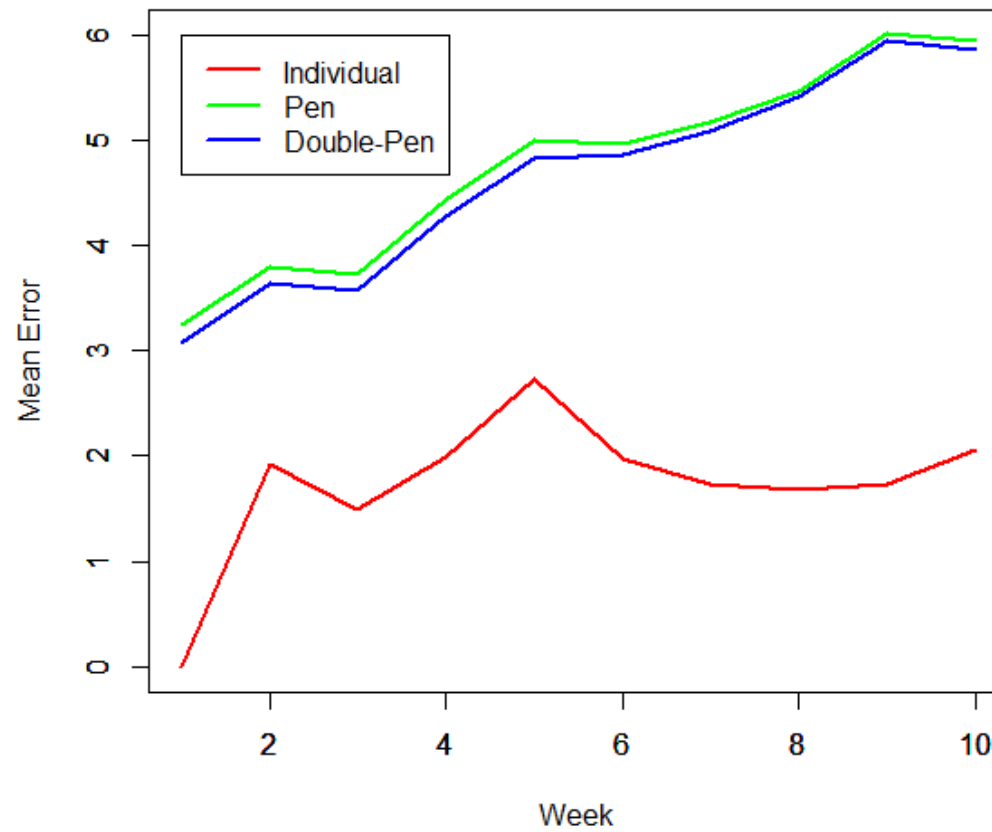
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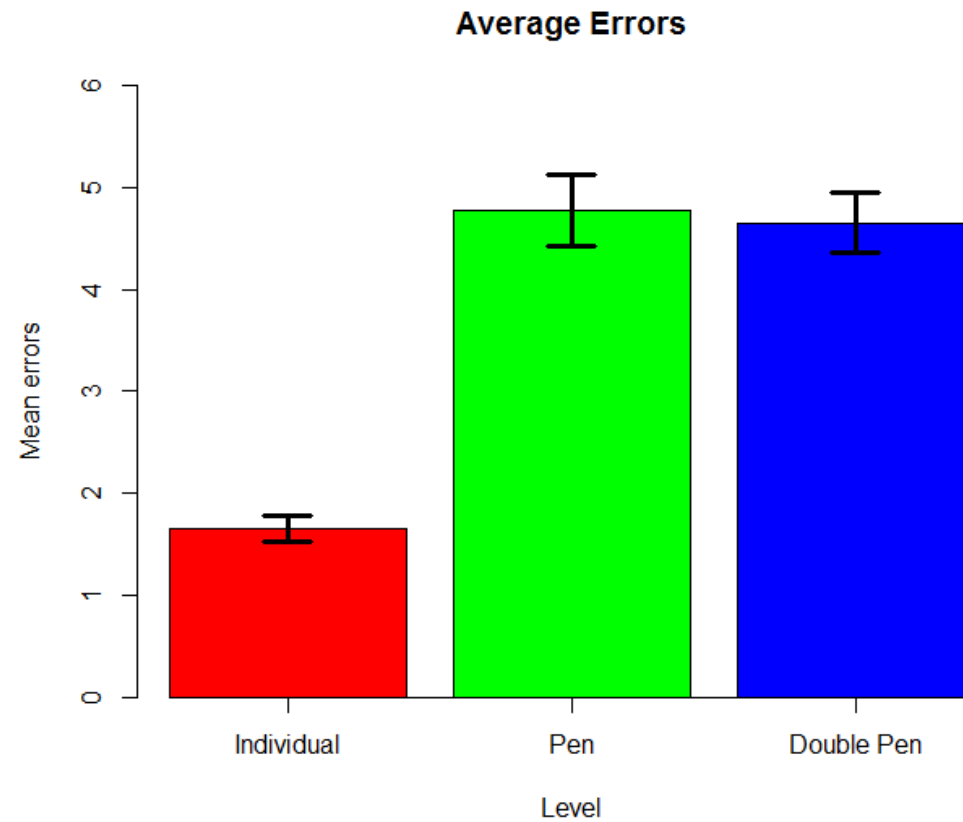


Results:

Error given Time



Results





Conclusions

1. On average, the absolute weekly weight **forecast error increases** from 1.67 kg to 4.60 kg (**275 %**), when forecasts are made on double pen level compared to individual level
2. There seems to be **no significant difference** between errors, when forecasts are made on the pen level compared to double pen-level
3. Weight forecast errors on (double)-pen level **increases with time**, due to the greater diversity of the pen at later times. This dependency **is not present on individual level**

Perspectives:

Dynamic modeling of more traits for ailment indicators
Potential implications for delivery decisions needs to be assessed





Thank you!

Co-authors:



Cécile Cornou
Expertise:
**Dynamic Linear
Modeling**



**Anders Ringgaard
Kristensen**
Expertise:
Herd Management



Nils Toft
Expertise:
**Epidemiology and
statistics**

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