

Application of weather driven crop growth models to long term experiments

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Objectives

Test of extrapolation crop yield models
against observed yield in
long term trials and regional statistics

Sites

Data from 1966-96

- Crop: Oats
- Fertilised
- Pre-crop: Winter wheat
- Crop rotation: 3 types
- Cultivar: differs



Prediction of oats grain yield

Regression Model:

$$\text{Observed yield} = a + b * X$$

Strategi

X would be predictable under climate change
X is becoming more and more complex

The coefficient of determination was calculated for between year variations

Preliminary concluding results

- **Sowing date** was poorly correlated to yield
- **Length of growth period** correlated essentially better
- **High temperatures** in the 3:rd month correlated with low yields
- **High precipitation** correlated with high yields, no clear pattern though

Preliminary concluding results cont.

- Regional** yields correlated better with simple weather models than did experimental yield.
- Growth **simulation model** was the best predictor for one site, but not for the other.