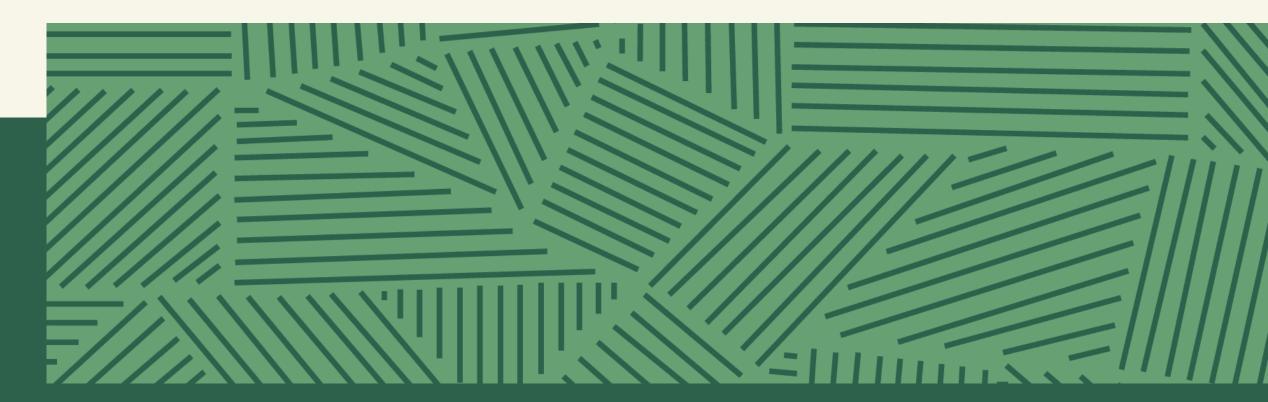# Case presentation
JU ML-course x JV AI-lab

Jordbruksverket

- The Swedish Board of Agriculture is Sweden's expert authority in the areas agriculture, fishery and rural areas.

  - This means for instance that we monitor and analyse the development within the sector and keep the Government informed, and we also implement political decisions within our field of activity.

  - Our mission is for Sweden to produce food in a sustainable and profitable way. We also contribute to good animal welfare throughout our country and living rural areas in all parts of Sweden.

The AI-Lab

- **Objective**: Streamline operations and enhance customer benefits using AI.

- **Focus Areas**: Office support, machine learning, automation.

- **AI Lab**:
  - Acts as a bridge between technical solutions and practical applications.
  - Works closely with the organisation to ensure solutions meet needs.

- **Team Composition**: Cross-functional group with expertise in AI strategy, system development, business development, infrastructure, data analysis, law, HR, communication, and digital workplace.

Case Study: Predictive Analysis for Crop Pests

- **Objective**: Utilize crop and weather data to predict food production and optimize pesticide use.

- **Data Sources**:
  - Crop data
  - Weather data

- **Approach**:
  - Analyze historical data to identify patterns and trends.
  - Use machine learning models to forecast pest outbreaks and their impact on crops.

- **Expected Outcomes**:
  - Improved accuracy in predicting food production.
  - Enhanced decision-making for farmers and policymakers.
  - Reduced crop losses and increased yield.

Where to get the data

- **Jordbruksverket.se > Prognos och varning – API**
  - Use provided username/password
  - https://api.jordbruksverket.se/rest/povapi/graderingar

Explaining the data

In short:

Contamination levels of pests on different types of crops

Type: **REST**
Format: **JSON**
Span: **1980-now**
Interval: **weekly**

Data fields

- Delomrade *(delområde)*   area
- Ekologisk   organic
- Forforfrukt *(förförfrukt)*   pre pre crop
- Forfrukt *(förfrukt)*   pre crop
- Graderingstyp   type of measurement
- Utvecklingsstadium   stage of development *(%)*
- Groda *(gröda)*   crop
- Jordart   soil type
- Lan *(län)*   region
- Latitud   latitude
- Longitud   longitude
- Plojt *(plöjt)*   plown
- Sadatum *(sådatum)*   sowing date
- Skordear *(skördeår)*   harvest year
- Sort   type *(sub-category of crop)*
- Matmetod *(mätmetod)*   method of measurement
- Skadegorare *(skadegörare)*   name of pest
- Varde *(värde)*   value

For example:

% ang blad 1-3 : Area percentage that is afflicted. Measured by looking at the crops 3 most prominent leaves.

Antal/strå : Amount of bugs per straw.

Demo

Links

- Coordinate converter: https://www.lantmateriet.se/sv/geodata/gps-geodesi-och-swepos/Om-geodesi/Geodesitjanster/enkel-koordinattransformation/

- Display location of a set of coordinates: https://karthavet.havochvatten.se/visakoordinater/

- More about the Prognos och Varning API: https://jordbruksverket.se/e-tjanster-databaser-och-appar/e-tjanster-och-databaser-vaxter/prognoser-och-varningar/prognos-och-varning-api