Case Study

Cropin

Empowering One Of The World's Largest Brewing Companies In Making Smarter Procurement Strategies Through Ai And Machine Learning Capabilities

The Customer

Heineken N.V. is a Dutch brewing company, founded in 1864 in Amsterdam. Currently the world's second-largest brewing company, Heineken owns over **167 breweries in more than 70 countries**. It produces **250 internation**al, regional, local and specialty beers and ciders and employs approximately **73,000 people**. Through "**Brewing a Better World**", sustainability is embedded in the business and delivers value for all stakeholders.

The Challenges

Heineken has made a public commitment to source **60% of its raw materials** from the African region. The company was particular about the quality and the quantity of sorghum, barley and other ingredients required for its final product. They wanted to leverage technology to mitigate risks relating to raw material availability in their value chains and empower their local sourcing teams with a procurement toolkit so that they could better plan their purchasing targets. Season-wise mapping and monitoring of sorghum acreage at different stages held significance in sound marketing planning and inventory management for the client. The various teams carried out data collection and reporting using basic tools such as pen, paper, and spreadsheets. This excessive dependence on human labour resulted in more data loss and inconsistencies in acreage and yield estimations.

Some of the specific challenges that the organisation faced include:

Manual Intervention in Crop Yield Estimation

- Labour intensive process
- Cost ineffective for large-scale estimation
- Inadequate monitoring due to lack of standard benchmarks

Data Quality Issues

- Labour intensive process
- Inaccurate reporting of yield at the plot level
- Poor data verification at different levels of management

Mismatch In Manual Data & Actual Yield

- Use of manual forms (area auditing, crop name, irrigation type, max yield value) by field team for capturing data
- Inconsistent yield and production forecast
- Intentional data manipulation

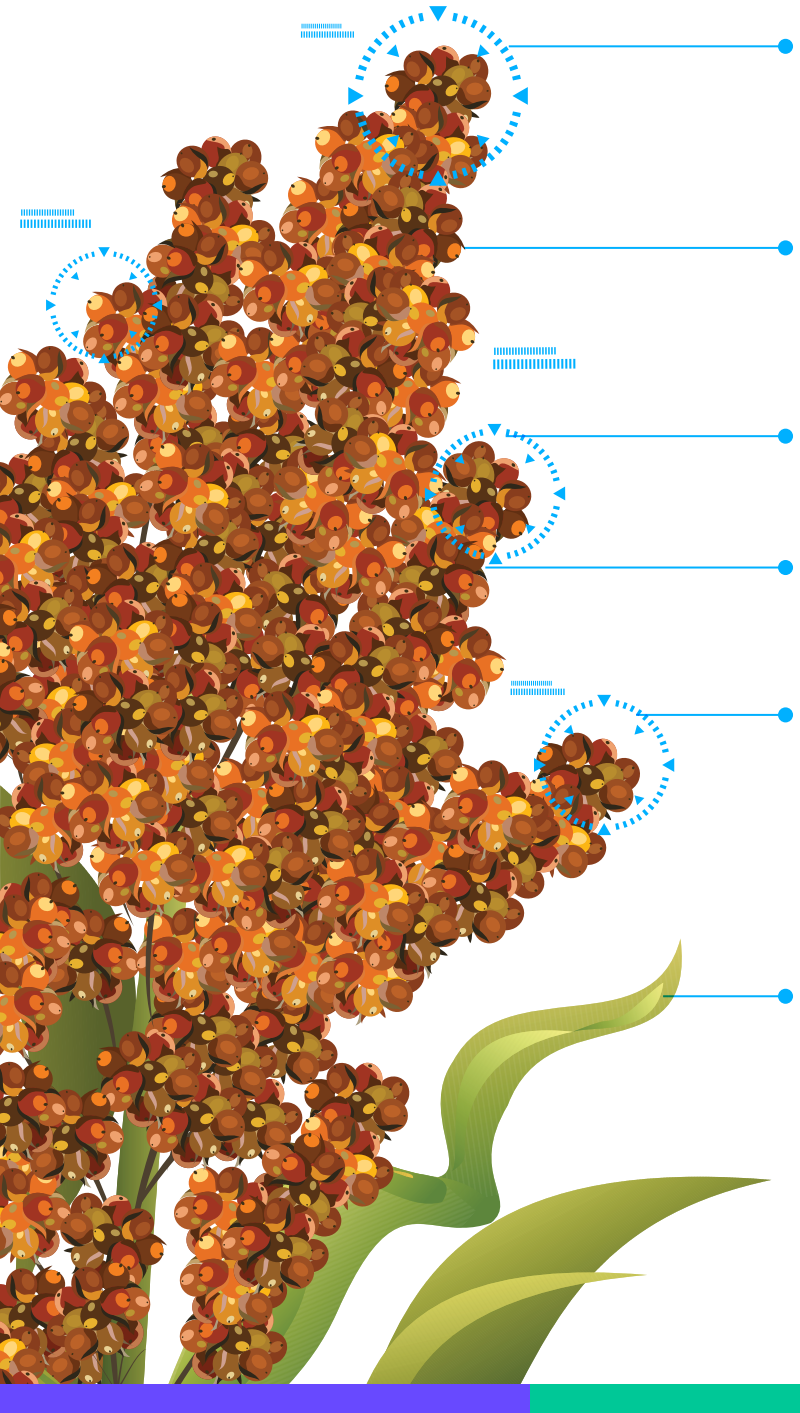
CropIn's Innovation

Owing to their unique requirements, Heineken partnered with CropIn in 2018 and leveraged SmartRisk™, CropIn's AI-led predictive solution, to map **8 Nigerian states** of Kaduna, Kano, Jigawa, Gombe, Yobe, Katsina, Borno and Niger for

- Identifying and mapping sorghum growing areas
- Getting details on hectarage planted
- Monitoring the health of the crop, and
- Predicting yield

To get the above insights on sorghum planting and yield trends, the client utilized SmartRisk™, an AI and ML-based solutions from CropIn, that utilizes high-frequency satellite imagery and cadastral mapping based opportunity identification, to provide a complete picture for a specific landholding, irrespective of its size or location by analysing a variety of data points — from chlorophyll index and NDVI values to water stress.

Results



CropIn's successful implementation of its digital technology for Heineken analysed over **25 million hectares of land across 8 Nigerian states** '

SmartRisk crop classification was also used for detecting **9 cover crops (maize, barley, cotton, sesame, paddy, groundnut, millet and soybean)** grown along with sorghum

Monitoring of **10 local government areas** (sourcing units) done bi-weekly

Health monitoring, yield and acreage prediction to calculate production for sorghum specifically achieved with **84% accuracy over time**

SmartRisk™ also analysed the **crop's historical performance** over the last 3 years to understand the sorghum planting and yield trends. This did not just facilitate better sourcing decisions for the company, but also allow Nigerian breweries to determine their beverage composition based on the availability of ingredients

CropIn's crop modeling methodology was tailored to the local complexities in Nigeria - small plots, heavy intercropping and cloud cover. Its deep learning engine with interactive, user-friendly interfaces established the performance of every pixel at district and state level - both historical and present -— **to deliver insights at a fraction of the traditional cost and effort, helping key stakeholders to hedge risks and make informed business decisions**

IMPACT NUMBERS

8 STATES IN NIGERIA:
OVER 25 MILLION HECTARES ANALYZED

9 CROPS DETECTED:
SORGHUM, MAIZE, BARLEY, COTTON, SESAME, PADDY, GROUNDNUT, MILLET AND SOYBEAN

YIELD PREDICTION ACCURACY **84%**

SmartFarm®
Farm Management Solution

SmartRisk®
Agri Business Intelligence Solution

SmartWare®
Packhouse Solution & Traceability

RootTrace™
The Seed-to-shelf Traceability Solution to Preserve Global Food Integrity

AcreSquare®
A B2b Farmer Engagement Application