Functional Requirements Document (FRD)

# Project Name: Cornflow

# 1. Introduction

Purpose:  
The purpose of this document is to define the functional requirements for the Cornflow system that supports data-driven decisions for Sai-Krupa Trending Pvt Ltd. It ensures that all stakeholders share a common understanding of the system's functional expectations.  
  
Scope:  
The scope of this document includes the data pipeline, reporting, user roles, and business rules to be implemented for visual analytics and cost-effective operations. This document aligns with the BRD and expands on how the system will behave.

# 2. System Overview

Cornflow is designed to collect, clean, and analyze historical corn production data to deliver real-time dashboards and strategic insights. It supports business expansion, cost reduction, and ROI improvement by providing accurate, role-based access to reports and KPIs.

# 3. Stakeholders

- Sponsor: Rameshewar Shelke  
- Analyst/Engineer: Sainath Chikane  
- Users: Operations, Finance, Strategy Teams at Sai-Krupa Trending Pvt Ltd

# 4. Functional Requirements

## 4.1 Data Upload and Integration

- FR1. The system must allow upload/import of corn production datasets from Excel or CSV formats.

- FR2. The system should validate input files to ensure completeness and correctness.

## 4.2 Data Cleaning and Standardization

- FR3. Remove duplicates and nulls from columns like Production(T), Year, District.

- FR4. Convert incorrect data types (strings in numeric fields) automatically or flag them.

## 4.3 Data Storage

- FR5. Store cleaned data in a structured database (MySQL).

- FR6. Uploaded on GitHub

## 4.4 Dashboard & Reporting (Power BI)

## Reduce Cost

- FR7.Show dashboard for top 10 state of Maharashtra ,which rate always on top over the year

- FR8. Visual representation for District where production below than state average from Maharashtra

## High-potential territories for expansion

- FR11. Corn production by state - Heatmap

- FR12. Year-vise Production trend by state

- FR13. Yearly Production Vs Price by state

- FR13. Production contribution by state india-wide

- FR13 Production contribution by district near MH state (MP)

- FR14 Production contribution by district near

MH state (Gujrat)

- FR14 Production contribution by district near MH state (Karnatka)

-FR14 Production contribution by district for higher producer state for all 3 year

-FR15 Production contribution by district for second higher producer state for all 3 year

-FR16 Production contribution by district for third higher producer state for all 3 year

## 4.5 Access and Security

- FR10. Implement role-based access (Admin, Analyst, Viewer).

- FR11. Only authorized users can update or delete data.

## 4.6 Insights for Decision Making (My SQL)

## Reduce Cost

- FR12. Display average, min, max production by district & state

- FR13. Reduce activity and man power where production below than state average Maharashtra

- FR14. Reduce activity and man power where production below and state average

and near to min of state for each year of Maharashtra

- FR15. Try to avoid that district where corn rate always on high over the year of Maharashtra

-FR16. Try to avoid that district where rate always on top over the year and production near minimun of state or below that avg of state

-FR17.Note - we don,t have your operation data otherwise we help you in best way next time provide that also !

## High-potential territories for expansion

- FR18. State with low price and high production

- FR19. State where average price always less than national average price for all 3 year

- FR20. Identify state where production high and in that state identify which district on top for give high production for all 3 years top 10

-FR20. Identify which district gives maximun production for all 3 year all over india

-FR21. District where avg production always on more than nationonal average for 3 year

-FR22. State where avg rate always more than national avgerage rate for all 3 year

-FR23. Identify state which have more than national avgerage rate for all 3 year , and in that state which district are on top regarding rate

-FR24. District which average rate more than national average rate for all 3 year

-FR25. District of MP where maximun production & less than national average rate

-FR26. District of Gujrat where maximun production & less than national average rate

-FR27. District of Karnatka where maximun production & less than national average rate

# 5. Assumptions

- Historical production data is available and consistent.  
- Users have basic familiarity with dashboards and reports.

# 6. Future Considerations

- Integration with weather and market data APIs.  
- Mobile dashboard access.  
- AI/ML forecasting models.