

# Project Luther Proposal

No title yet

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## Scope

Generally, total crop production and indicators that are related to agricultural commodity or food security are presented as the total volume by year or by country. It will be interesting to learn the relationship between the selected indicators and the total crop production. A regression model can be used to describe the relationship, if any, and predict the crop production.

## Methodology

1. Gather data for all the features and dependant variables (i.e., crop production and crop prices)
2. Clean the data
3. Perform exploratory data analysis, including investigate the data, get descriptive statistics, and make plots
4. Apply a regression model and assess its goodness-of-fit
5. Make prediction

## Data sources

- Food Security: <http://www.foodsecurityportal.org/api>
- Climate Change Knowledge Portal:  
[http://sdwebx.worldbank.org/climateportal/index.cfm?page=downscaled\\_data\\_download&menu=historical](http://sdwebx.worldbank.org/climateportal/index.cfm?page=downscaled_data_download&menu=historical)
- The World Bank: <https://databank.worldbank.org/data/home.aspx>
- The Global Economy.com:  
[https://www.theglobaleconomy.com/rankings/arable\\_land\\_percent/](https://www.theglobaleconomy.com/rankings/arable_land_percent/)
- International wheat production statistics:  
[https://en.wikipedia.org/wiki/International\\_wheat\\_production\\_statistics](https://en.wikipedia.org/wiki/International_wheat_production_statistics)
- Macrotrends: <https://www.macrotrends.net/1369/crude-oil-price-history-chart>

## Prediction

- Any crop production in a country each calendar year (e.g., wheat, rice, maize, or soybean)
- Optional: Any crop prices for each country

## Features

Features	Description
R	Rain fall or precipitation (mm per year by country)
T	Temperature (in °C)
A	Agricultural land (% of total arable land)
I	Global inflation rate
E	Employment in agriculture (% of total employment)
G	GDP (in \$US)
P	Population density or population size by country
C	World Crude Oil Price (in \$US)
V	Agriculture, value added (% of GDP)

## Take note

- May not have enough data point for any crop prices
- Limited data entries (~200 countries, generally between year 1996-2015)
- May add or remove features depending situation
- There will be correlation among the multiple data sets (or multiple time series)