We plan to create a portal that includes the following parameters:

(Census data from years 1977 to 2022 for the counties in six chosen states was obtained using the API key)

The following parameters will be used for visualization within the portal we give to you:

1. **Crop Production and Yield**:
   * **Parameters**: Crop type, year, state/county, planted/harvested area, average yield per acre, production totals.
   * **Visualization**: Bar charts, line graphs, interactive maps.
2. **Livestock Inventory and Production**:
   * **Parameters**: Livestock type (e.g., cattle, hogs, poultry), year, state/county, inventory numbers, production quantities.
   * **Visualization**: Bar charts, pie charts, line graphs.
3. **Economic Data**:
   * **Parameters**: Farm income, expenses, price received, price paid, value of production.
   * **Visualization**: Bar charts, line graphs, pie charts.
4. **Acreage and Land Use**:
   * **Parameters**: Type of land use (e.g., cropland, pastureland), year, state/county, total acreage.
   * **Visualization**: Maps, bar charts, pie charts.
5. **Farm Demographics**:
   * **Parameters**: Number of farms, farm size, year, state/county.
   * **Visualization**: Bar charts, pie charts, line graphs.

Also, comparing parameters for two states or counties using visualizations like scatter plots, bar charts, or line graphs is an approach we will take to compare data among different areas.

1. **Scatter Plots**:
   * **Usage**: Compare two variables (e.g., average yield per acre vs. total production) between two states or counties.
   * **Example**: Scatter plot showing the relationship between corn yield and production in Iowa and Illinois over several years. We can also make this map an interactive one and allow users to select different counties within the states and notice the changes over the time period of 1977 to 2022. These can compare any of the six states.
2. **Bar Charts**:
   * **Usage**: Compare quantities (e.g., total acreage, production totals) side by side for two states or counties.
   * **Example**: Bar chart comparing soybean production in Indiana and Illinois for each year from 1977 to 2022.
3. **Line Graphs**:
   * **Usage**: Compare trends over time for two states or counties.
   * **Example**: Line graph showing the trend in milk production in Indiana and Missouri over the past decade. We can also graph corn and soybean trends on the same line graph to compare changes in crop usage and production over a period of time.
4. **Box Plots**:
   * **Usage**: Compare the distribution and variability of data between two states or counties.
   * **Example**: Box plots showing the distribution of wheat yields in Illinois and Missouri by county or by the state overall.
5. **Pie Charts**:
   * **Usage**: Compare the proportion of different categories (e.g., types of crops grown) between two states or counties.
   * **Example**: Pie charts showing the proportion of different livestock types in Indiana and Michigan (counties or state).

The following information are things we plan to do to assist farmers who are viewing the site in predicting trends or observing previous trends from 1977 to 2022 within the counties of the states: Missouri, Indiana, Illinois, Michigan, Ohio, and Kentucky. Some of these ideas require us to obtain outside data to achieve these comparisons and visualizations. We will complete these following ideas as time permits.

1. **Crop Yield and Production Data**:
   * Historical and current yield data for various crops. ( the data from 1977 to 2022)
   * Production totals to understand market supply.
2. **Price Information**:
   * Prices received for crops and livestock.
   * Price trends over time to aid in market timing and financial planning.
3. **Soil and Land Use Data**:
   * Soil quality and type information.
   * Land use patterns to improve crop rotation and land management.
4. **Pest and Disease Reports**:
   * Incidence of pests and diseases affecting crops and livestock.
   * Effective pest and disease management strategies.
5. **Input Costs**:
   * Data on the cost of seeds, fertilizers, pesticides, and other inputs.
   * Cost trends to aid in budgeting and purchasing decisions.
6. **Market Trends**:
   * Demand and supply trends for various agricultural products.
   * Export and import data to understand international market dynamics.
7. **Livestock Data**:
   * Inventory and production data for various livestock.
   * Trends in livestock health and productivity.
8. **Environmental Impact**:
   * Data on the environmental impact of various farming practices.
   * Information on sustainable and eco-friendly farming practices.

We can set some filters in the portal so that users can get the desired plots and information. We can also offer users the option to download both the plots and the data used to create them.