Agriculture Credit Union
Ag Investors Group

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your Investment Advisor
for Agriculture Farmers
and Business

Customer X
Investment
Data Analysis

Study Objective:

Where is the best area in the between Manitoba and Alberta to invest in a farm with crop rotation (Barley and Spring Wheat) ?
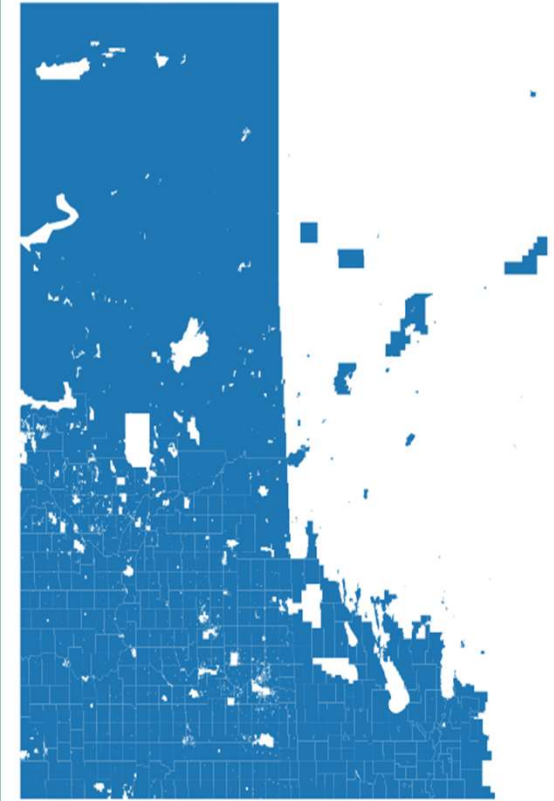
Scope:
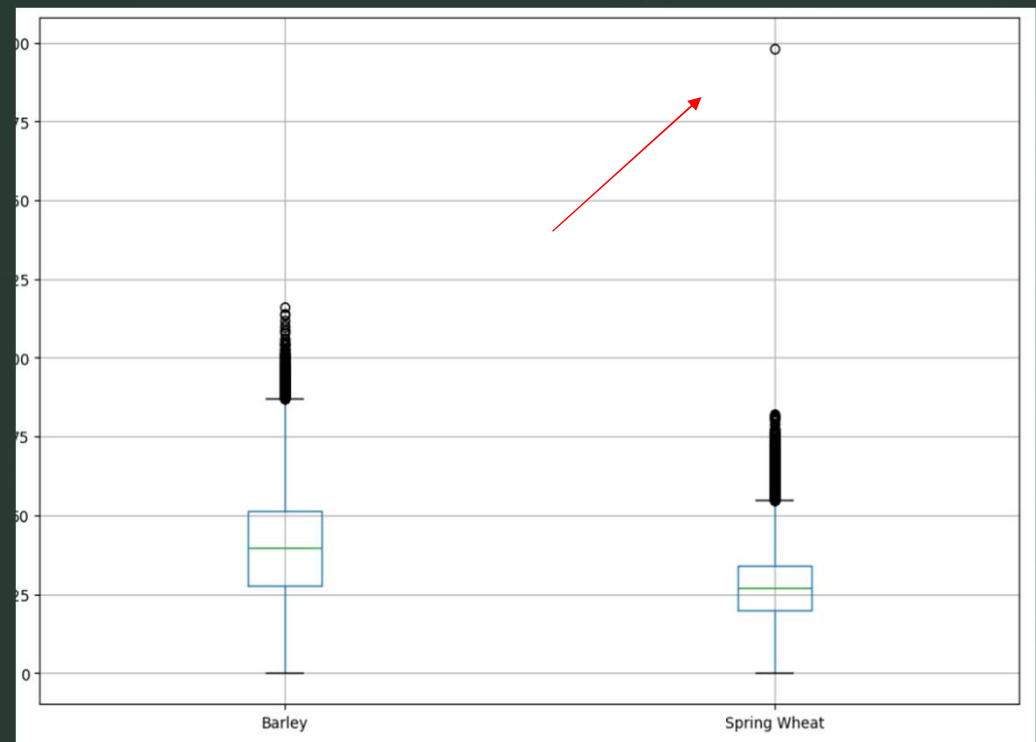
| 397 Rural Municipalities (Manitoba and Saskatchewan). | 2 Crop types : Barley and Spring Wheat | Yield data from 2003 to 2021 |

Data Cleaning:

- Data standardization (Adjustment of data types, crops unit measure conversion).

- Uniting the Saskatchewan and Manitoba data sets in one table.

- Checking and dropping outliers.
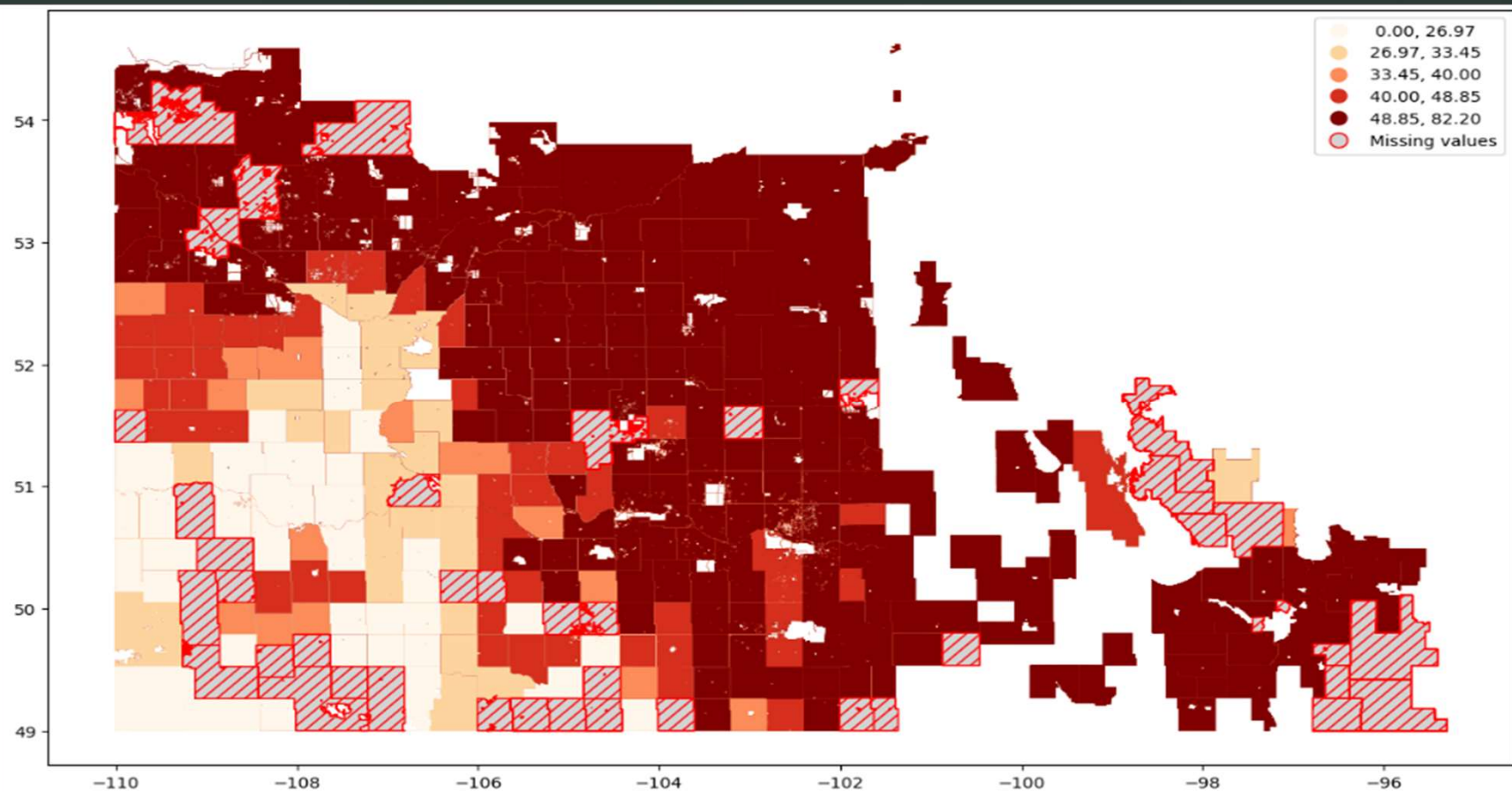
- Nulls were dropped for K-means clustering analysis

Exploratory Data Analysis:

GIS Analysis to visualize areas with highest production (Barley – 2001, 2021):
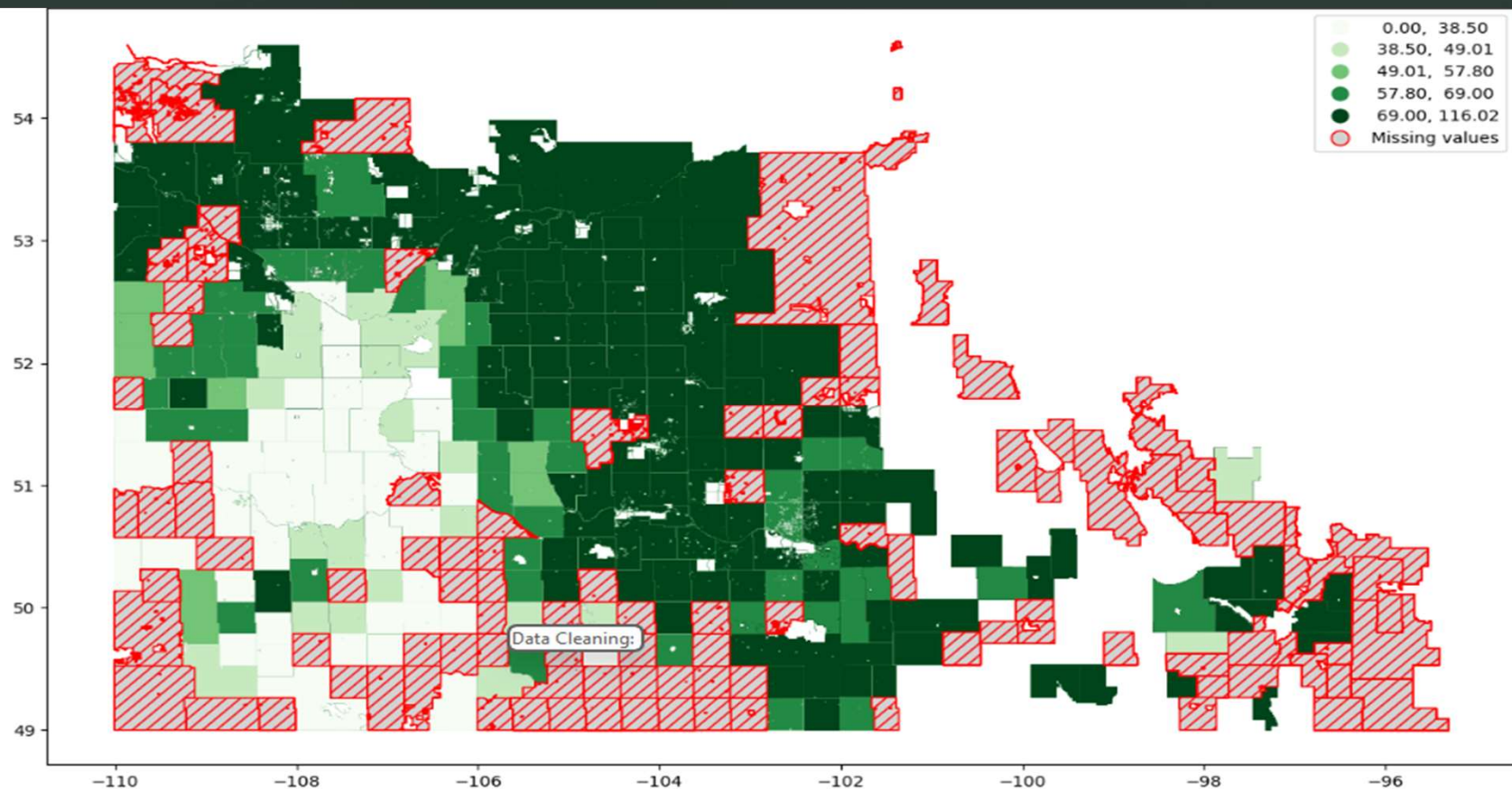
Exploratory Data Analysis :

GIS Analysis to visualize areas with highest production (Spring Wheat – 2001, 2021):
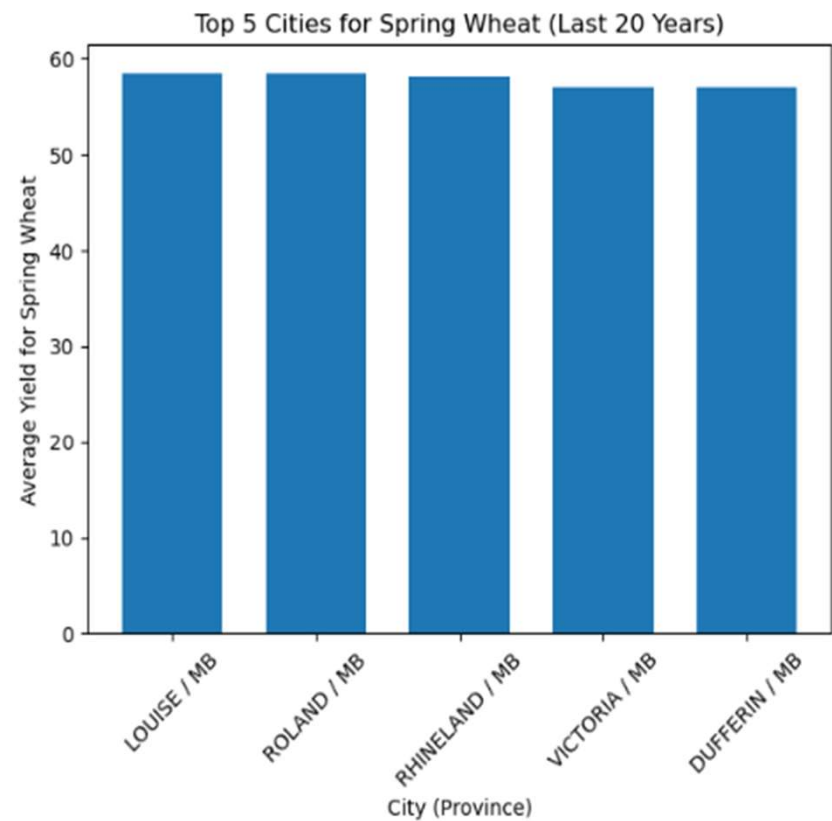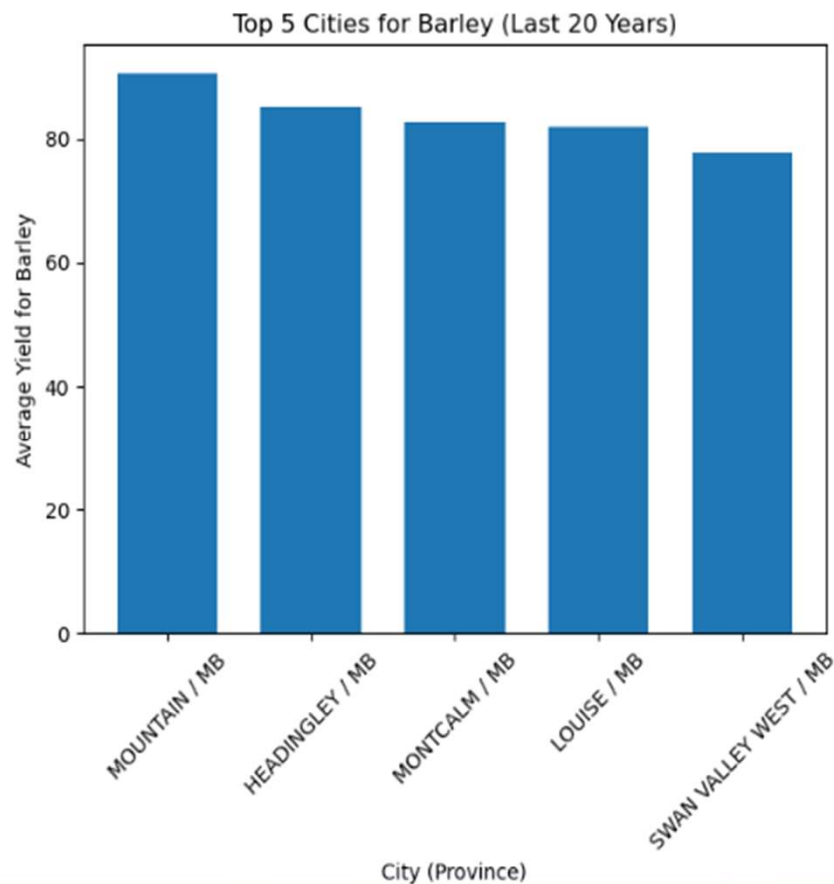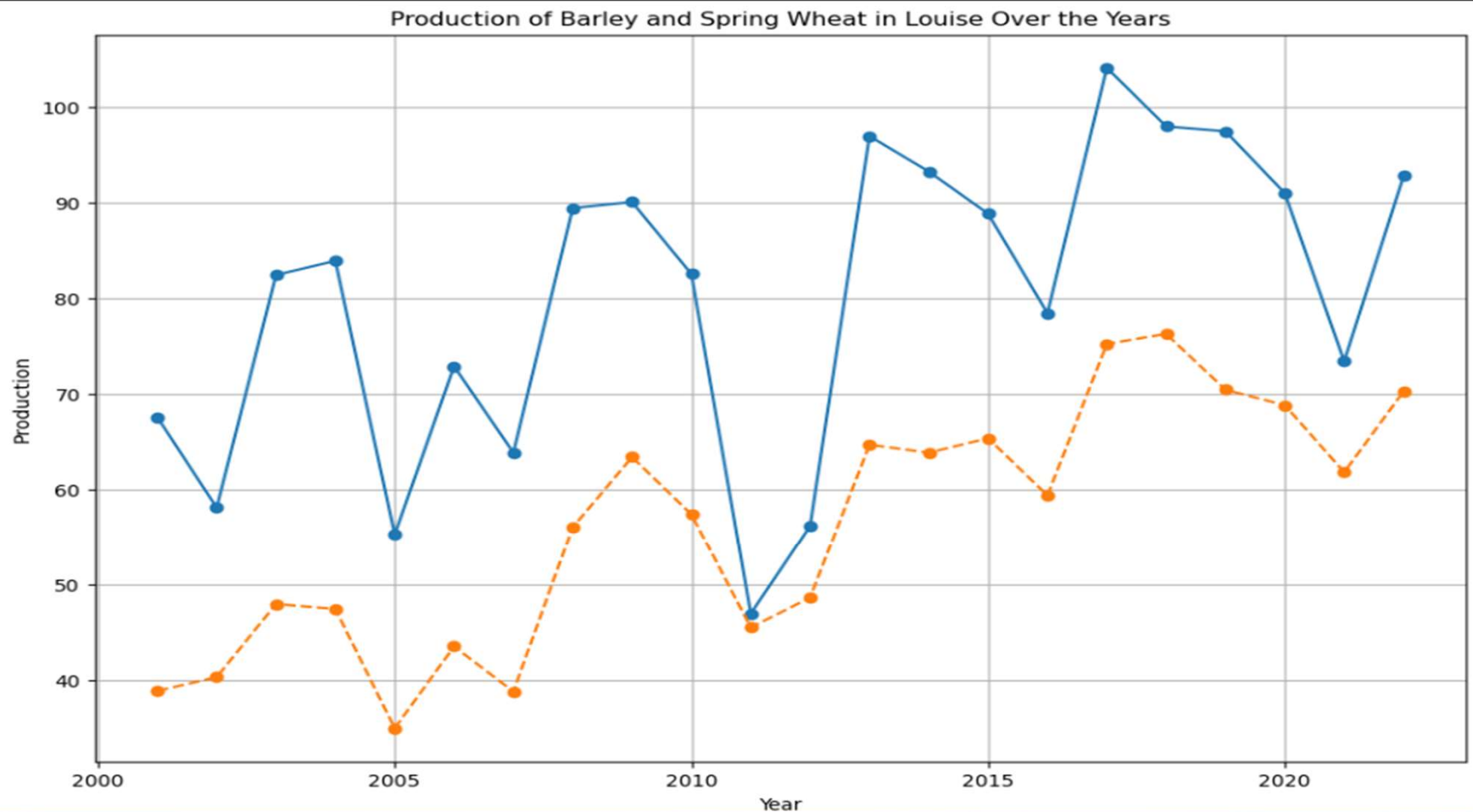
Exploratory Data Analysis :

Calculate the five cities that with the highest production of barley and spring wheat in the last 20 years (descending) , and their estimated revenue based in the average price per bushel.

	RM	Province	Barley	Estimated_Revenue
345	MOUNTAIN	MB	90.619890	621.652445
329	HEADINGLEY	MB	85.154220	584.157949
342	MONTCALM	MB	82.709858	567.389623
337	LOUISE	MB	81.860153	561.560647
378	SWAN VALLEY WEST	MB	77.723949	533.186290

	RM	Province	Spring Wheat	Estimated_Revenue
337	LOUISE	MB	58.527110	571.224594
363	ROLAND	MB	58.486857	570.831726
358	RHINELAND	MB	58.148140	567.525848
383	VICTORIA	MB	57.124061	557.530836
311	DUFFERIN	MB	57.014817	556.464615

Exploratory Data Analysis :

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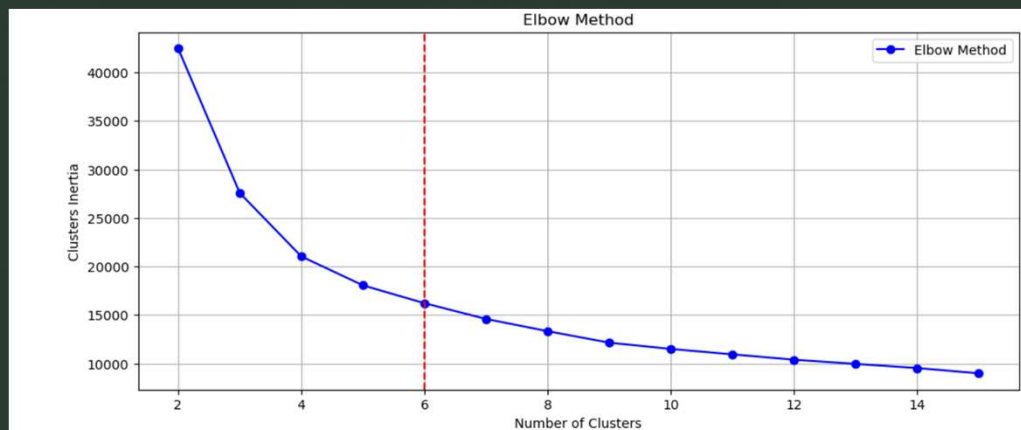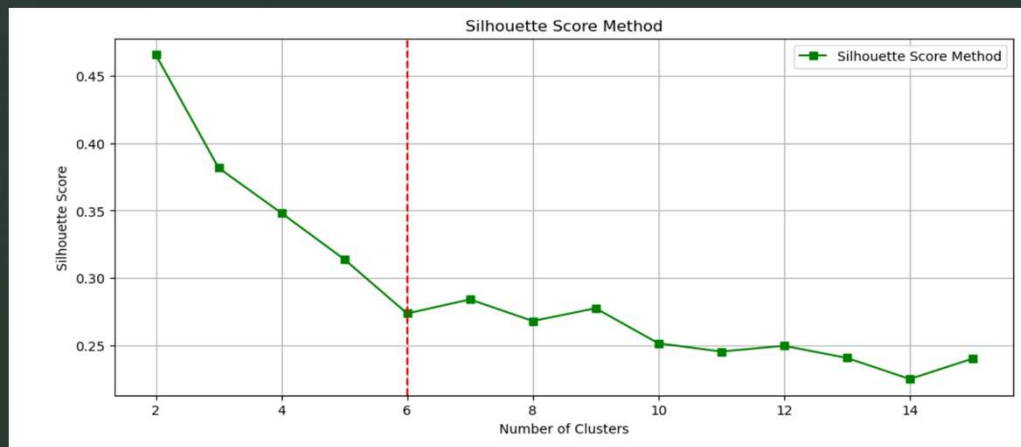
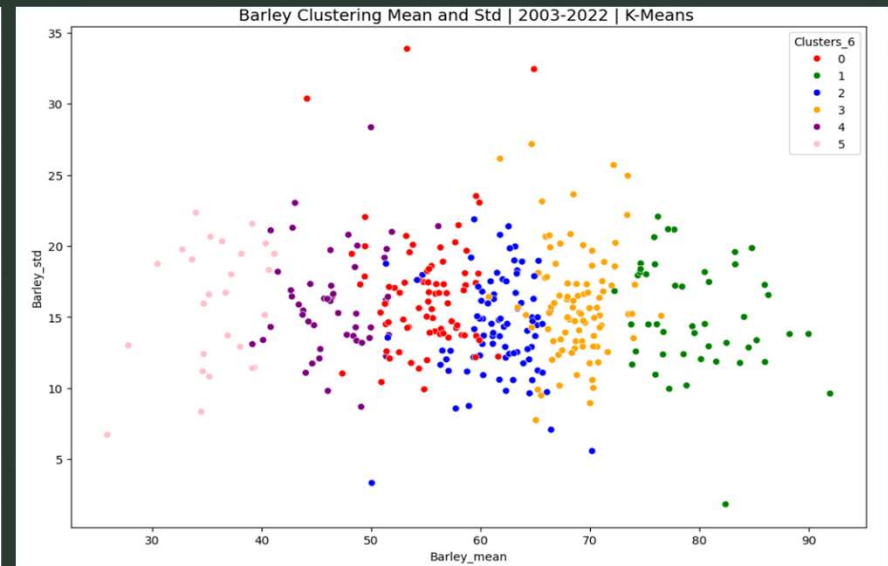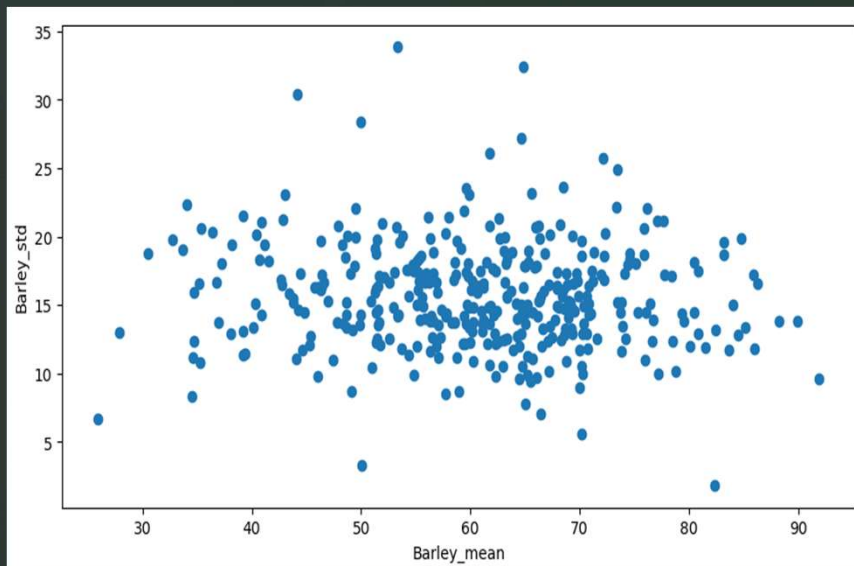Production of Barley and Spring Wheat in Louise Over the Years

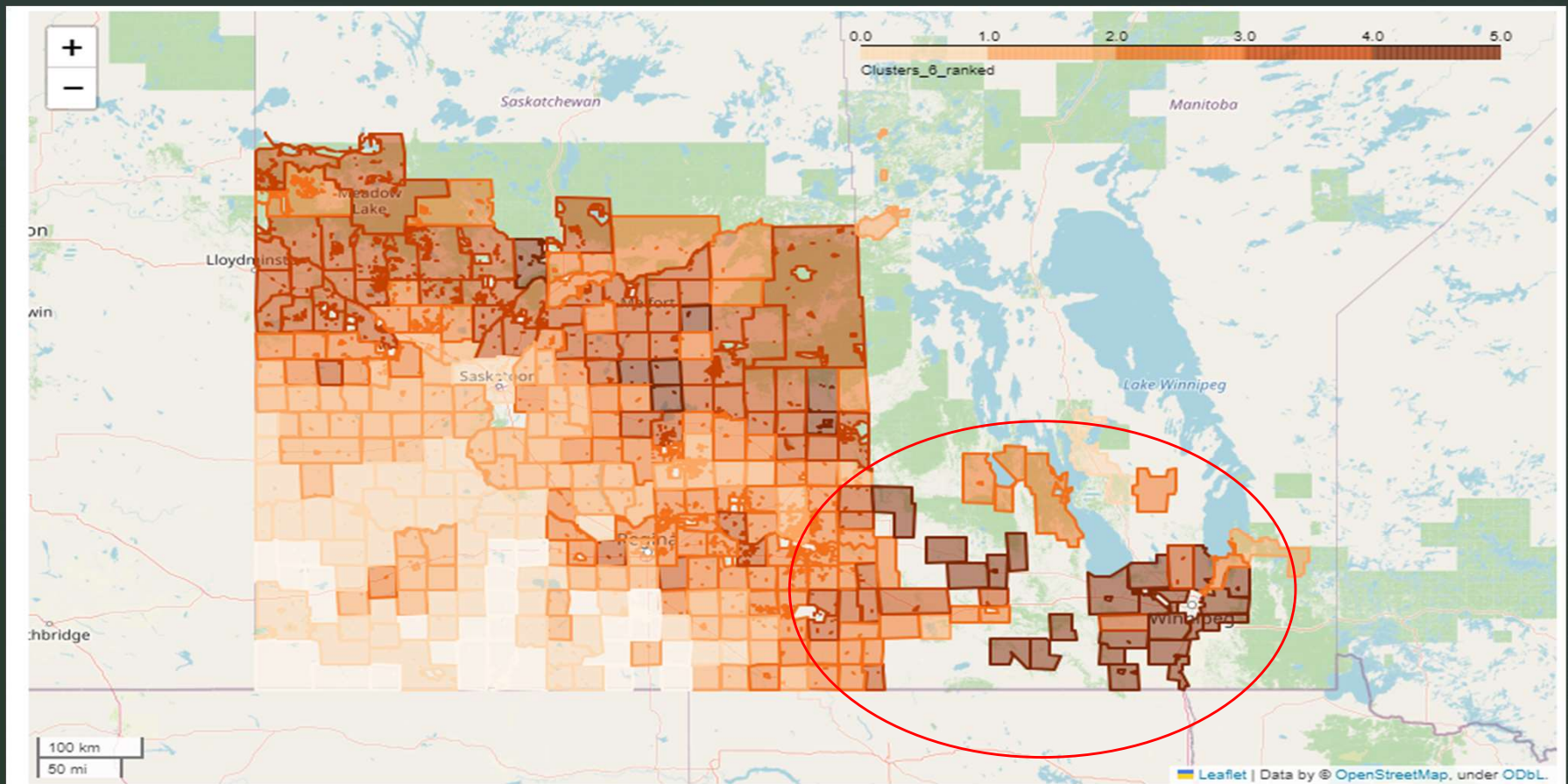# Un-Supervised Machine Learning: K-Means Clustering:

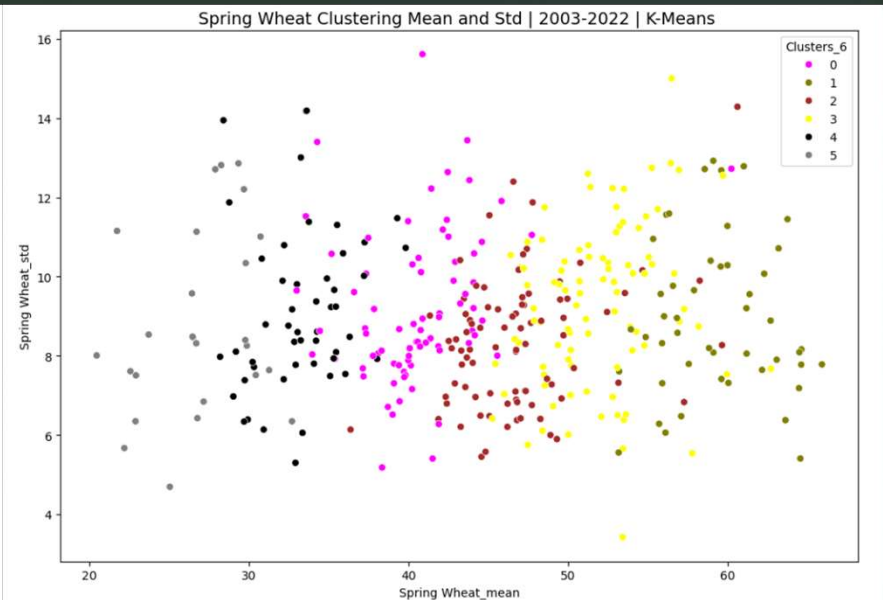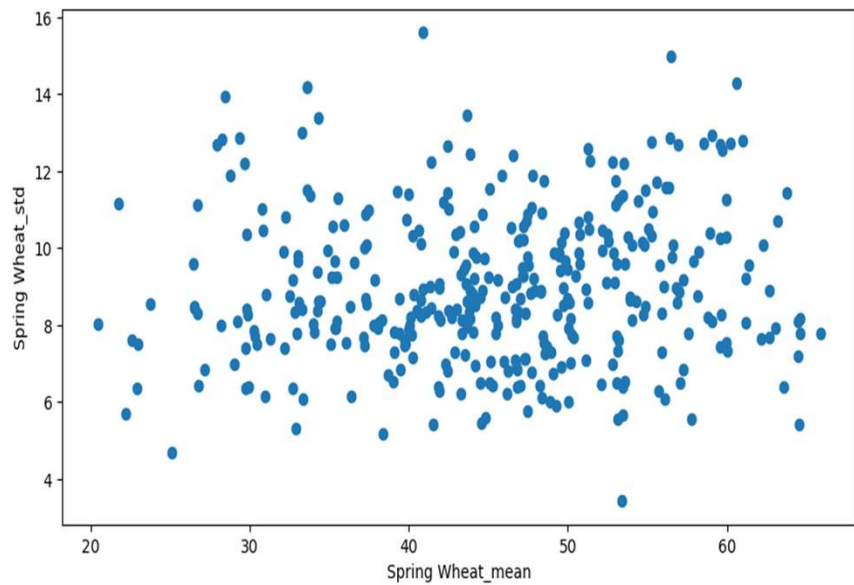# Un-Supervised Machine Learning: K-Means Clustering:

Barley

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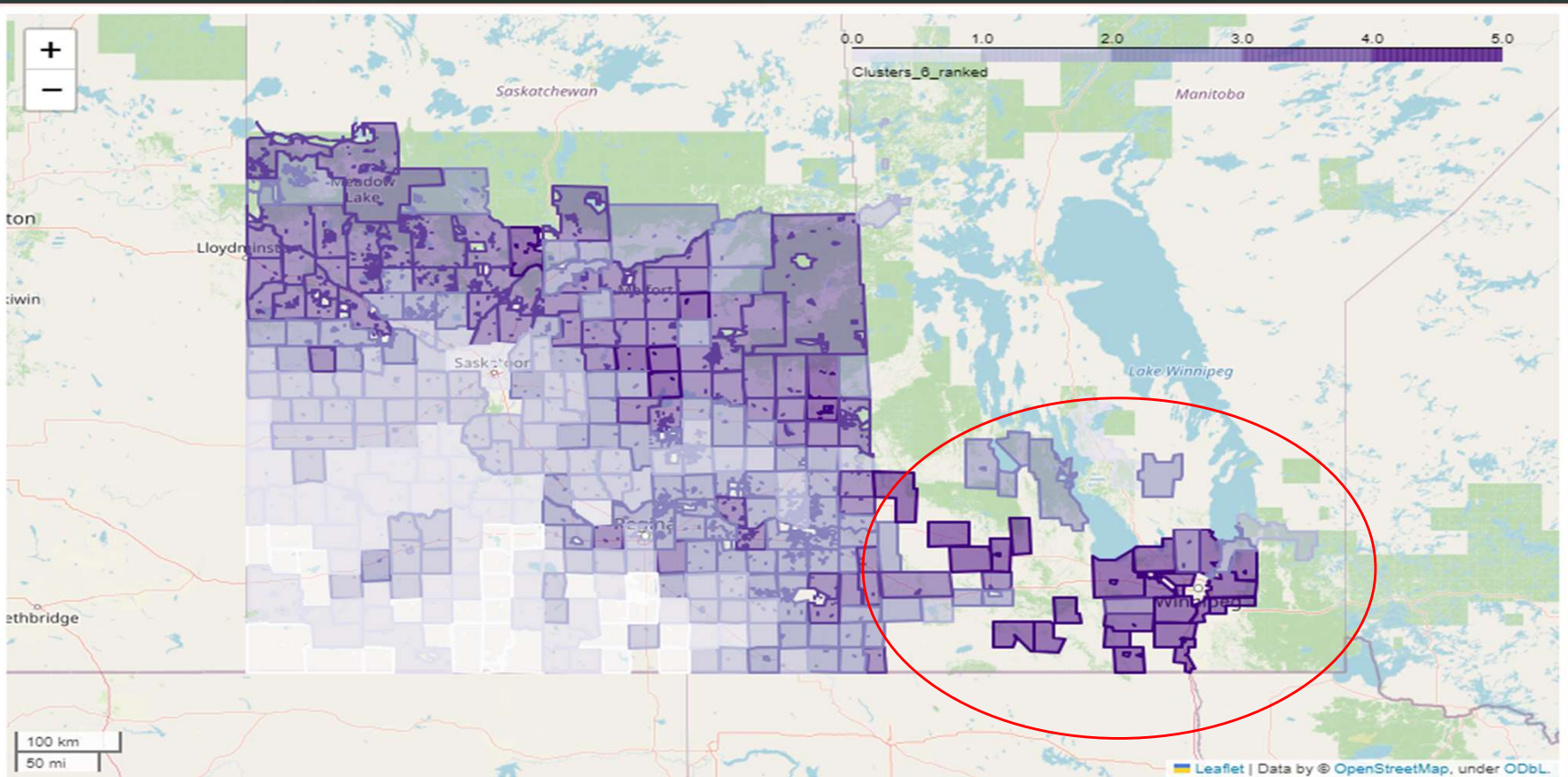# Un-Supervised Machine Learning: K-Means Clustering:

Spring Wheat

Un-Supervised Machine Learning: K-Means Clustering:

Spring Wheat

Conclusion:

- Based on the analysis of most productive Municipalities que can notice that the Southwestern Manitoba has the most productive averages for both crops. Probably due the chernozem soils (black and brown).

- Both crops thrive in very similar environment so they would be excellent for rotation.

- Louise (MB) one of the top 5 for both crops, being the best city recommended.

- Because the production trends of both crops are very similar the low production years are mostly associated with weather conditions.