



International Commodities

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One Pager Project Brief

Wheat Commodity Trends: Global Overview and Key Insights (2020 – 2024)

Context & Objective

Wheat is an important global commodity because it is a staple food for many people and is used in products like bread and pasta. It is widely grown, traded around the world, and plays a key role in food security and the global economy

Key Findings

Global wheat trends from 2020 to 2024 show a consistent decline in major indicators, including but are not limited to imports, exports, and stock levels. This downward trend suggests systemic challenges affecting the wheat industry globally.

Data Overview/Cleaning:

- Over 20 countries/regions, we focused on the items (otherwise known as indicators such as imports/exports/production, and so on)
- Dataset titled "International Commodities" contained only data on wheat
- Incomplete data for certain years and regions; limited regional diversity (mainly Europe and Africa)
- Intended quarterly regional analysis proved too granular for the available data scope.
- Absence of a data dictionary and unclear regional groupings (e.g., "North Africa 7," "Major Importers 6")

Data Observations:

- Decline in wheat indicators began in 2020 and is still declining, we expect started due to the COVID-19 pandemic. However, the drops have become less dramatic each year
- Environmental stressors (drought, heat, floods) may have compounded the decline by affecting crop yields

Insights

- Wheat production strategies must adapt to regional environmental and economic conditions.
- Emphasizing flexibility and sustainability, such as through regenerative agriculture, is key for long-term viability

Recommendations

- **Strengthen Climate Resilience:** Invest in adaptive farming practices and infrastructure to mitigate environmental impacts
- **Stabilize Supply Chains:** Support trade policies that buffer against global disruptions like pandemics
- **Improve Forecasting:** Utilize trend data to help stakeholders (i.e. farmers, traders) anticipate shortages and plan strategically

Considerations

- We don't know what the criteria is to be a region on the dataset
- Limited representation from African nations and lack of clarity on regional groupings make it difficult for an in depth analysis (i.e. North Africa 7, Majority Importers 6, etc)

Agenda

Introduction

Data Overview

Analysis

Recommendations

Introduction

Brief Overview:

Analyze the price trends of Wheat as a commodity between the periods and geographical regions documented in the data set, to identify seasonal patterns, price fluctuation, and key influencing factors.

Stakeholders:

- Food and Agriculture Organization
- World Trade Organization
- Farmers/Traders/Exporters/Importers

Timeframe in Dataset:

10/2020 to 09/2024

Executive Summary

Context: Wheat is an important global commodity because it is a staple food for many people and used in products like bread and pasta. It is widely grown, traded around the world, and plays a key role in food security and the global economy

Objective: Find the patterns of wheat as a commodity throughout many countries

Key Findings: Wheat overall has been decreasing in terms of import/export and beginning/closing stock.

Recommendations: Enhance resilience in wheat production, help stabilize global supply chains and improve forecasting and planning.

Data Overview

Data we looked at includes:

- Over 20 countries/regions
- Import/Exports, Production, Domestic Total, Domestic Feed, Opening/Ending Stock

Highlight Questions:

- How have beginning and ending stocks changed over the years?
- Which countries import/export the most?
- What countries had the most production rates?
- Are there any seasonal patterns in wheat exports or imports?
- How each part contributes to the whole amount being reported (most to least influential on wheat commodities)?

Terminology

Production - the process of making or manufacturing goods and products from raw materials or components

Beginning Stock - represents the inventory a business has at the beginning of a specific accounting period, like a month, quarter, or year.

Ending Stock - represents the inventory a company has available for sale at the close of a fiscal year or accounting period

Import - good or service bought in one country that was produced in another

Export - sending or selling goods (like raw materials or agricultural products) from one country to another.

Domestic Total - the total amount of a particular commodity produced, consumed, or traded within a country's borders, excluding imports and exports.

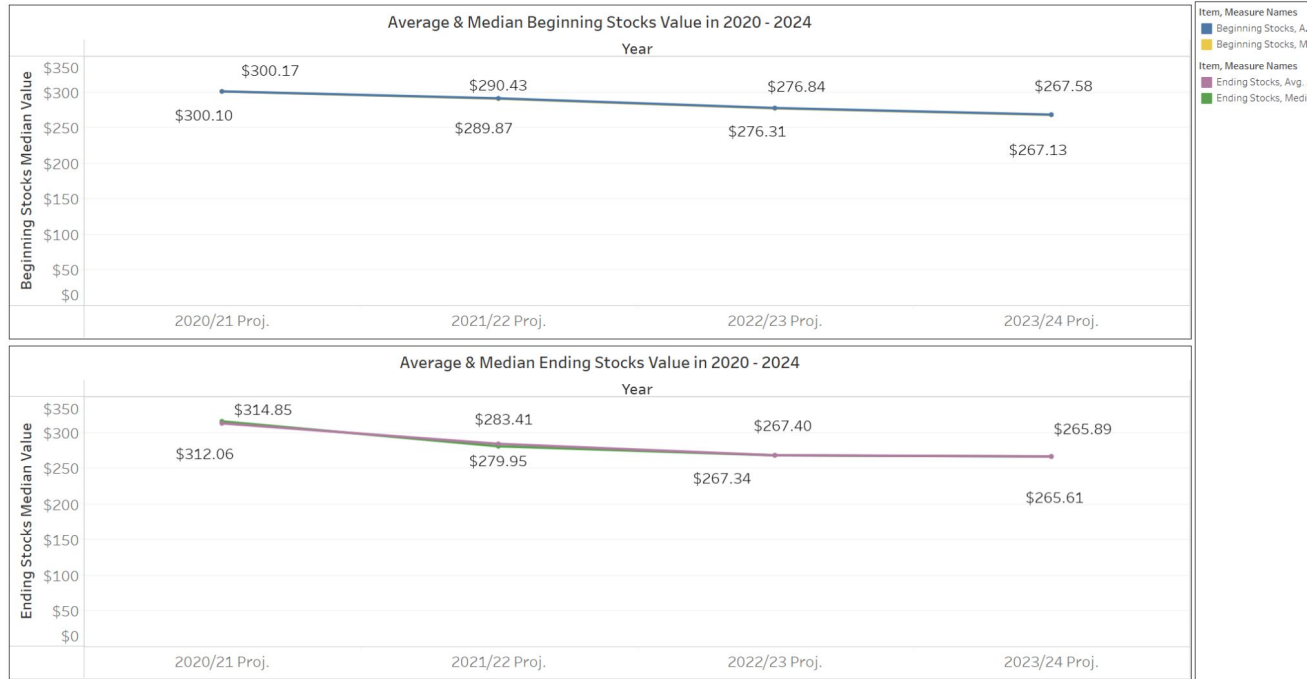
Domestic Feed - is a broad term encompassing all types of food provided to animals that are kept for human use, such as livestock (cattle, pigs, sheep) and poultry (chickens, ducks).

Data Cleaning

- Although the dataset was titled international commodities, we were only provided with data on wheat.
- We checked for any errors that might have threw the data off but only found a few that were easily fixable such as blanks and typos.
- Some regions also had years missing.
- Initially, we intended to create a detailed analysis to monitor the changes for each quarter for each region from 2020 - 2024 but we found it was too challenging for the nature of this project.

Analysis

How Has Beginning/Ending Stocks Changed over the Years in the World?

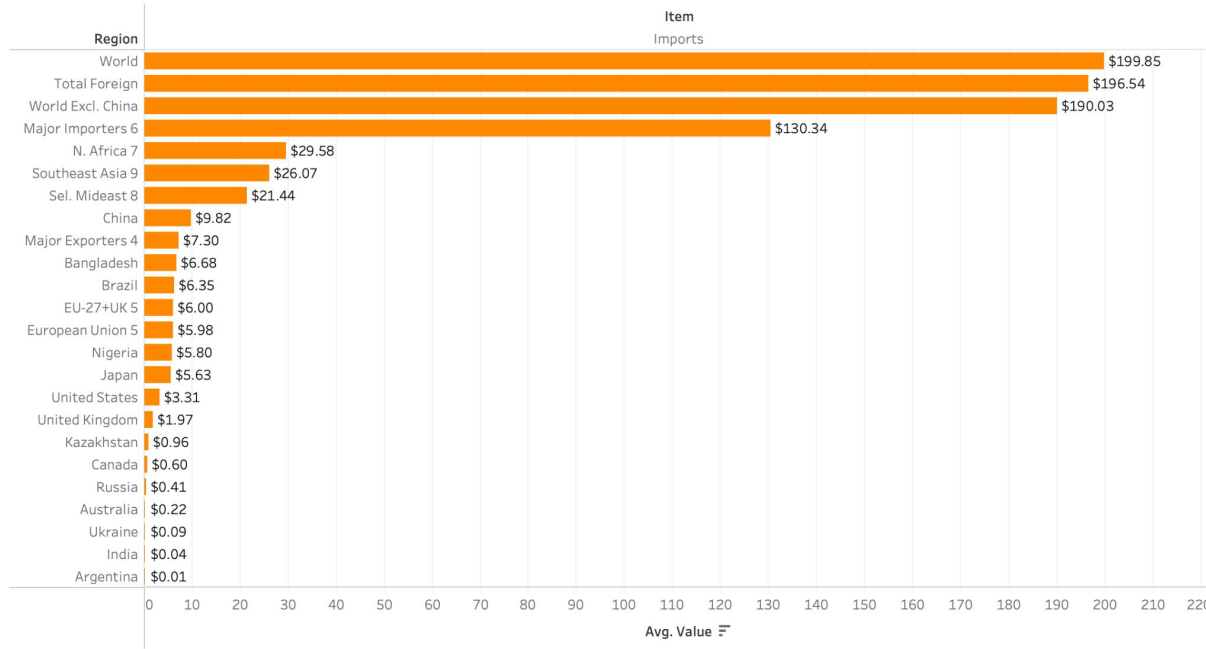


Findings:

From 2020 to 2024, global beginning and ending stocks for wheat declined. The sharpest drop happened after 2020, but the decreases have become smaller each year, suggesting the market is starting to stabilize.

Analysis

Which Countries Imports the Most?

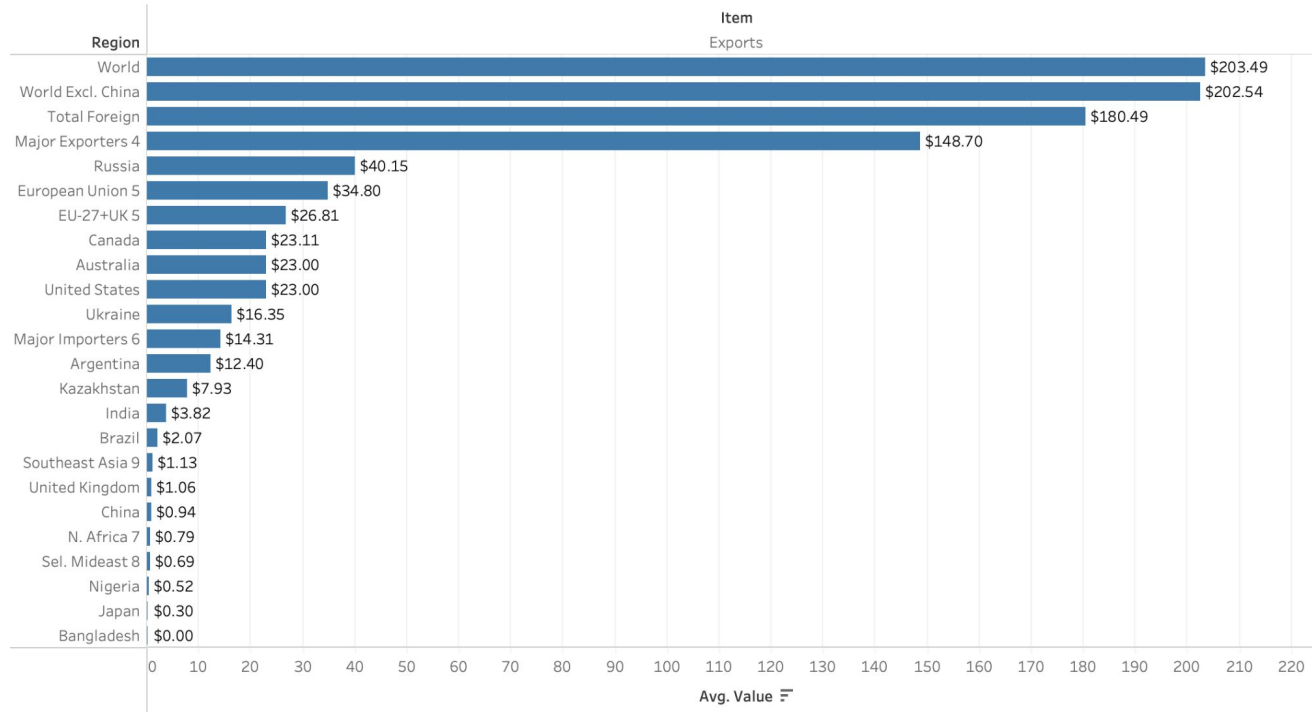


Findings:

- North Africa imports the most with an average of \$30 per year
- Argentina imports the least with less than \$0.01 per year
- Total World imports \$200 per year with major importers accounting for \$130 per year

Analysis

Which Countries Exports the Most?



Findings:

- Russia exports the most with an average of \$40 per year
- Bangladesh exports the least with \$0 per year
- Total World exports \$203 per year with major exporters accounting for \$149 per year

Analysis

Which countries had the highest production rates?

Wheat Production Rates

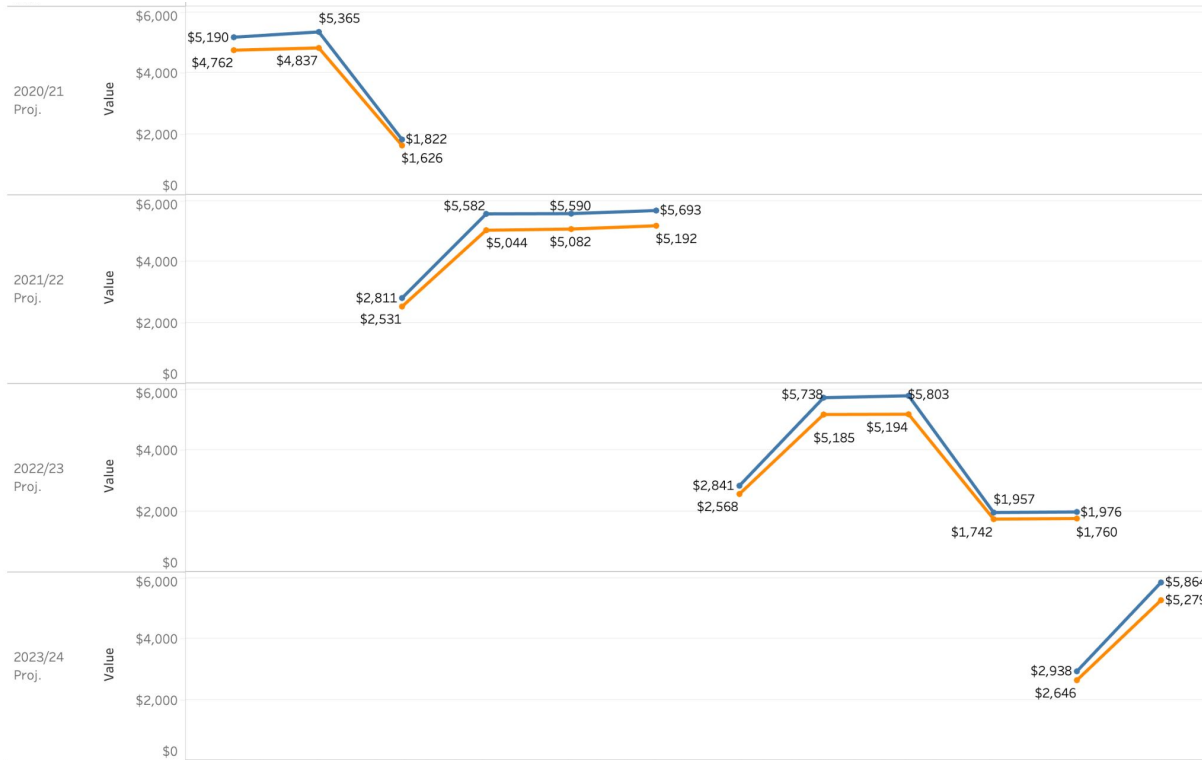


Findings:

- China is the leading country with the highest production for 4 consecutive years
- India is the second country with the highest \$1,251 in 2023/2024
- All region production declined after 2021

Analysis

Are there any seasonal patterns in wheat exports or imports?



Findings:

- **Overall Decline:** Both imports and exports have generally decreased since 2020/21
- **Fluctuations:** Noticeable drops in some quarters (e.g., Q4 2020/21, Q2 2022/23)
- **Narrow Gap:** The lines move closely together, showing that when imports drop, exports often do too

Possible Reasons:

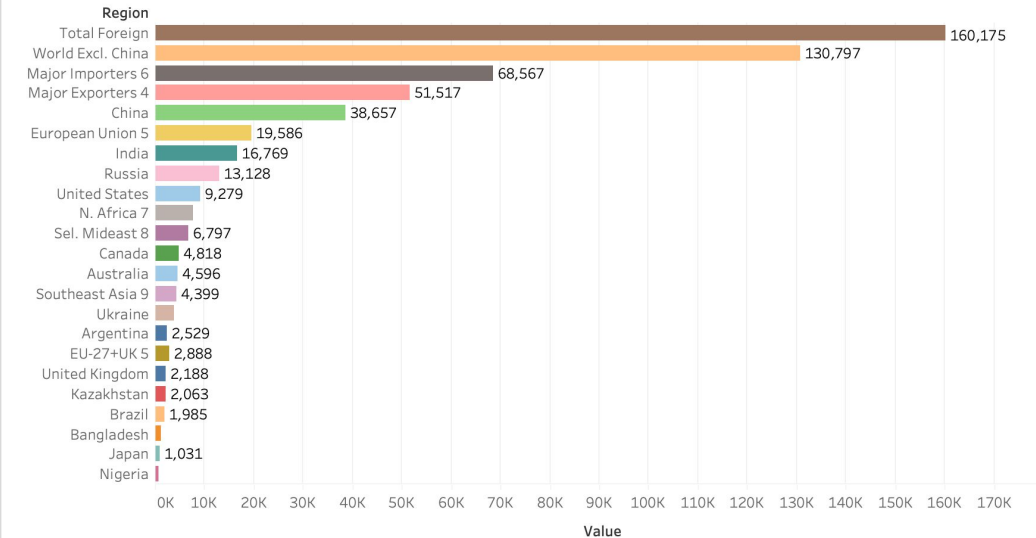
- **COVID-19:** Disrupted supply chains and lowered global demand
- **Climate Events:** Droughts, floods, and heat in key regions reduced production and trade
- **Economic & Policy Factors:** Trade tensions or shifting policies may have impacted the wheat market



Analysis

How each part contributes to the whole amount being reported (most to least influential on wheat commodities)?

Most to least influential



Caption
Count of International Commodities Data - Value for each Region. Color shows details about Region. . The Region filter keeps 24 of 24 members.

How does each region contribute to the whole being reported on?

1. Beginning Stocks
2. Domestic Feed
3. Domestic Total
4. Ending Stocks
5. Exports
6. Imports
7. Production

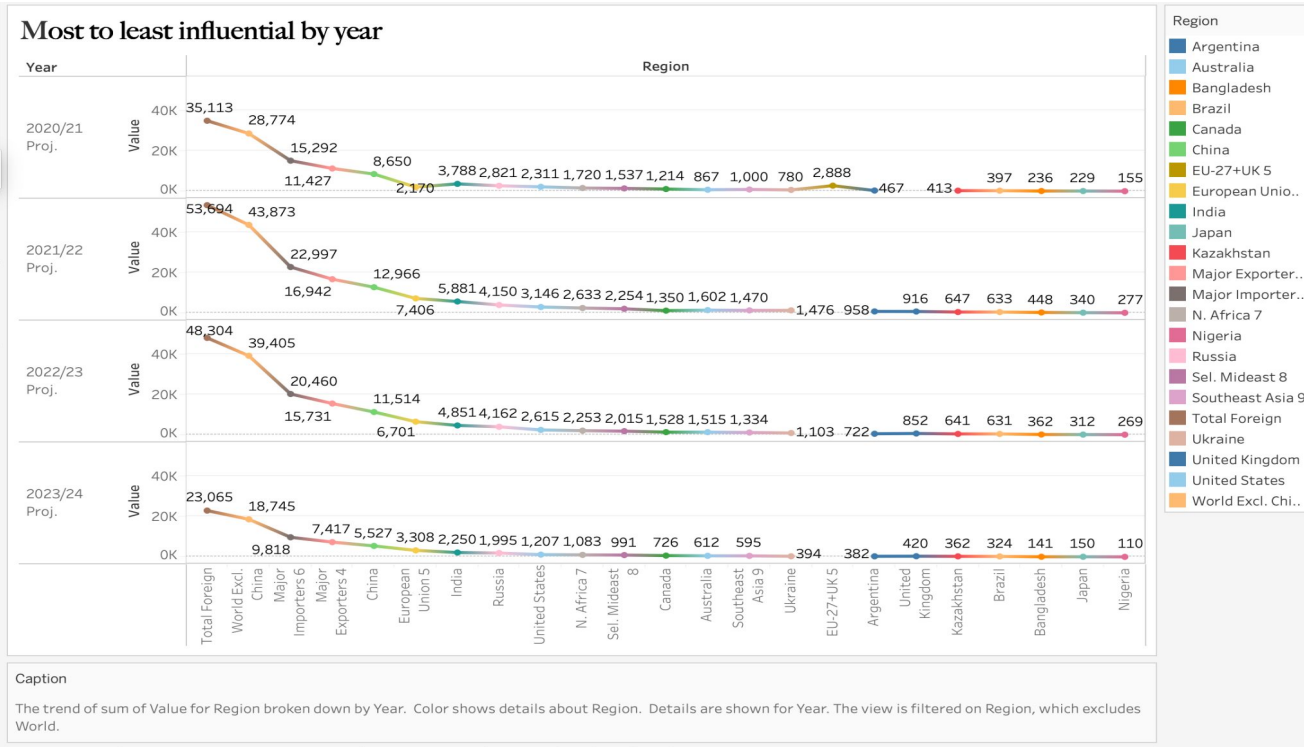
Most to least influential region on wheat commodities)?

There are 24 regions reported, the top three are the Major Importers 6, Major Exporters 4 and China.

The bottom three are Bangladesh, Japan and Nigeria. The most influential due to efficiency of the farming operation through maximizing the production used to grow the crop.

Analysis

Reported (Most to Least Influential on Wheat commodities by Year)?



Insights

- Yrs 2021-23 the World did exceptionally well in overall total of wheat commodities.
- A major decline began in 2023 from production loss.
- Consider what could've led to the results of the decline in year 23/24.
- *Ex: election, slow production, climate change.*



Insights, Recommendations, and Considerations

Insights

- From 2020, the wheat industry has dropped overall. We suspect that this is due to the COVID-19 pandemic.
- The decline in all categories of wheat in 4 consecutive years could have been affected by recurrent factors in the environment like drought, heat stress, and floods, which can reduce crop yield.
- Wheat production must recognize the environmental and economic realities of individual farms, regionally .
- Flexibility is important as operations differ based on geographic location, soils.
- Regenerative agriculture systems on our operations means that wheat growers strive to: Maintain an economically viable and productive farming operation.

Recommendation s

- **Enhance resilience in wheat production** by investing in farming practices and infrastructure that can adapt to climate change, helping to reduce the effects of drought, heat, and flooding, which have led to lower yields.
- **Stabilize global supply chains** by supporting trade policies and partnerships that address disruptions like those caused by COVID-19, which may have contributed to the overall decline in the wheat industry since 2020.
- **Improve forecasting and planning** by leveraging seasonal data and stock trends to help stakeholders—especially farmers and traders—anticipate shortages and adjust strategies accordingly.

Considerations

- We were not informed of what the criteria is to be put on this list.
- Data is very limited to Europe/North America with less representation for African countries. We also did not have a data dictionary to specify which countries are in which union (i.e. North Africa 7, Major Importers 6)

Works Cited

- [World Agricultural Supply and Demand Estimates \(WASDE\) Report](#)
- [National Association of Wheat Growers](#)
- [How Wheat Diseases and Environmental Factors Affect the Wheat Supply](#)