Understanding Real-time Data Back Correction Analysis

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TPSS, ERSD, WTO

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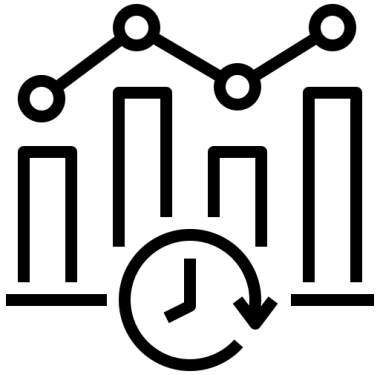
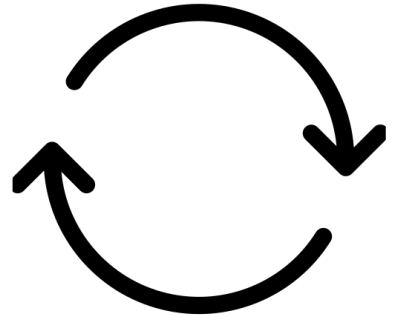


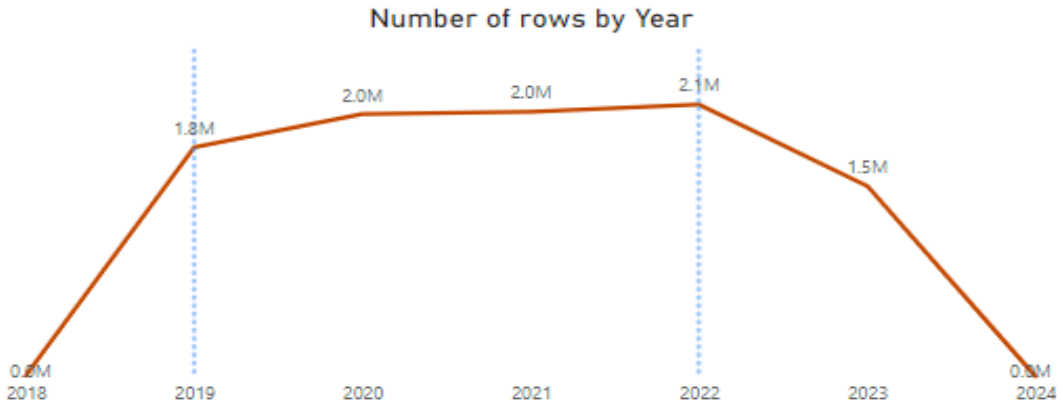


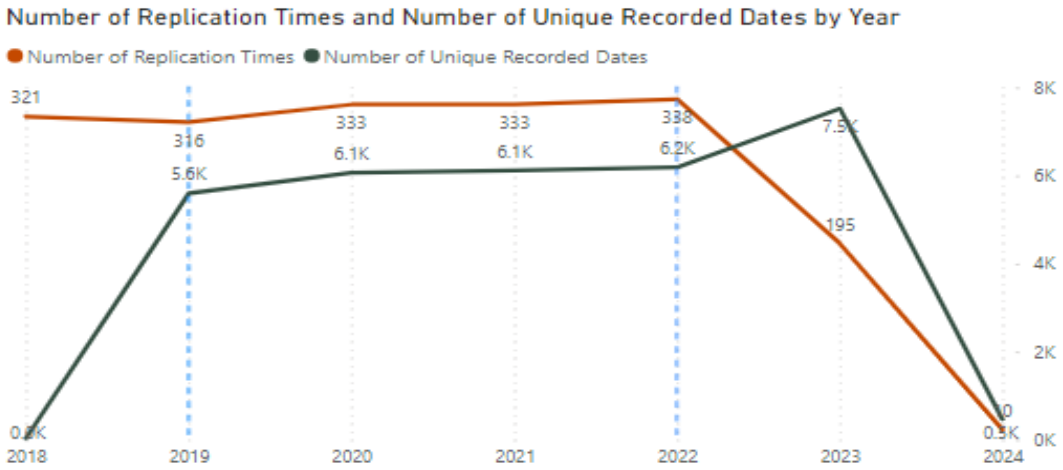
Data Collection (1)

- Source: Azure data lake, wtomais| Containers| kpler-data
- Snapshot data collected from 12/06/2023 to 29/01/2024 (232 days). However, some days in each snapshot are missing, so the maximum number of snapshot dates is 232.
  - Captures historical data from 01/09/2018 to 29/01/2024 across all data
    - For example: The snapshot taken on 12/06/2023 captures recorded wheat volume from 01/09/2018 to 12/06/2023. Notably, it may not cover all dates within this range, as there could be missing dates with no transactions recorded.
  - Annual calculations will be restricted from 2019 to end 2022

*Snapshot data refers to a dataset that captures a specific moment in time, providing a snapshot of the data at that particular point.

Data Collection (2)

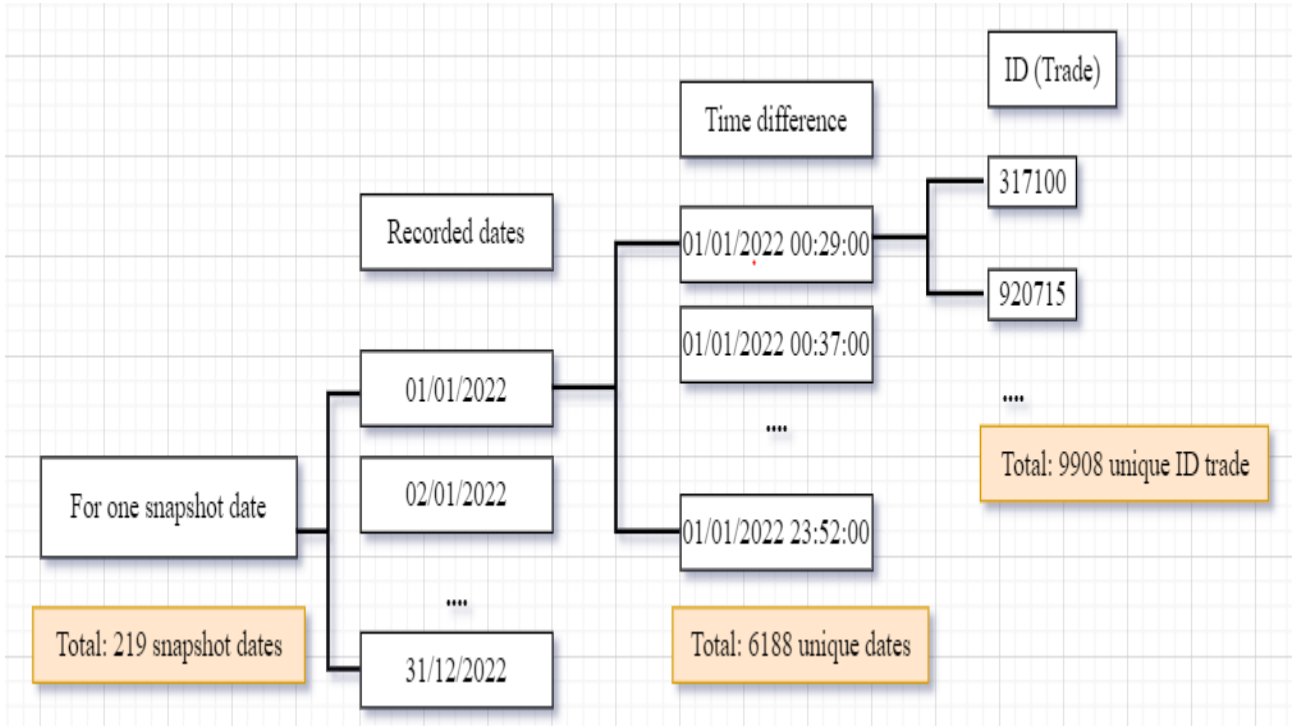




- The number of rows, number of unique recorded dates and the number of replication times from 2019 to end 2022 shows a consistent pattern. Notably, there are fewer recorded values in 2018, 2023, and 2024 due to the following reasons:
  - Historical data for 2018 only starts from 01/09/2018.
  - For each day from 12/06/2023 to the end of 2023, there is less than 232 reps.
  - Historical data for 2024 is only available for the month of January.

Data Collection (3)

For example, in 2022:



On average:

- 17 unique times per recorded date.
- A maximum of 2 trading transactions per unique time
- 9908 rows per snapshot file.

Therefore,

- The total number of rows in 2022 is approximately 9908 x 219 = 2.1M.
- The number of replication times is approximately 2.1M / 6188 = 338 times.

→ This analysis covers the period from 2019 to end 2022 (including replicated values in order to further examine the window where back corrections occur.)

* Replication times = how many instances each unique date -time appears in the dataset

Selected Variables

Variables	Description
Product	Type of a product
Id (Trade)	Recorded trading transactions
Trade status	Status of a transaction: • Scheduled • Loading • In transit • Delivered
Cargo (tons)	Recorded Wheat Volume (tons)
Start (origin)	Start date of the trip

Variables	Description
Installation origin	Name of the origin installation
Installation Destination	Name of the destination installation
Country (origin)	Name of the origin country
Country (destination)	Name of the destination country

Operationalized Variables

Variables	Description
Tracking date	Snapshot date
Time lag tracking date	This variable calculates the time difference (in days) between each subsequent occurrence (tracking date) and the first occurrence of the same trade ID .
Back correction	The percentage difference in cargo volume relative to the initial cargo volume observed in each subsequent occurrence of the trade ID.
Back correction groups	Depending on the back correction value, we categorize them into various groups, including: • Decrease by more than 75%, • Decrease by 50% to 75%, • Decrease by up to 50%, • Increase by up to 50%, • Increase by 50% to 75%, • Increase by 75% to 100%, • Increase by 100% to 500%, • Increase by more than 500%

Variables	Description
Installation partner	Merging the names of the origin and destination installations.
Country partner	Merging the names of the origin and destination countries.

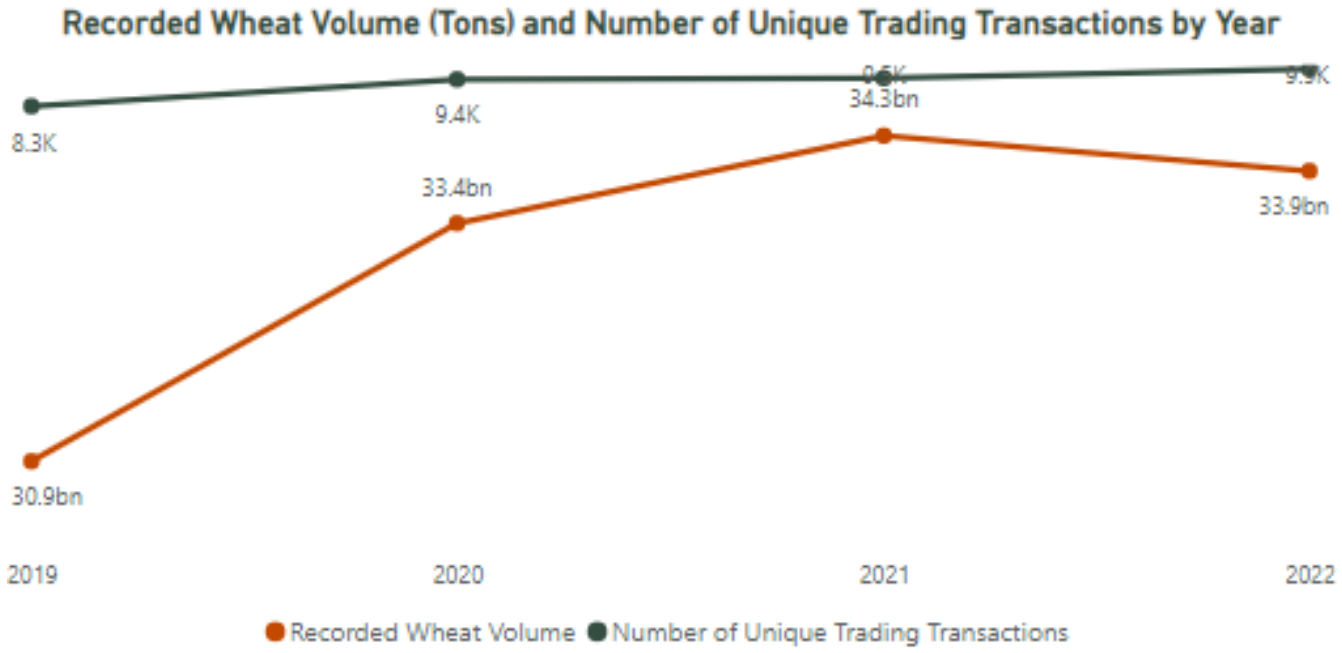
- When discussing trading, it's natural to consider trading partners. Therefore, it makes sense to merge the data of loading and discharging countries and ports

Data Overview (1)

- The Recorded Wheat Volume does not accurately reflect the true volume as it includes replicated loading wheat volumes. However, it still serves as a valuable metric, providing useful insights into overall wheat trade dynamics.
- On average,
  - At least 159 unique trading transactions (ID Trade) per snapshot day,
  - Every trading country partner maintains a minimum of 5 installation pairs,
  - Each installation pair entails a minimum of 3 transactions.

*Recorded wheat volume includes wheat capacity across all trade status (Scheduled, Loading, In transit and Delivered). We retain all trade status because back corrections can occur in any status.

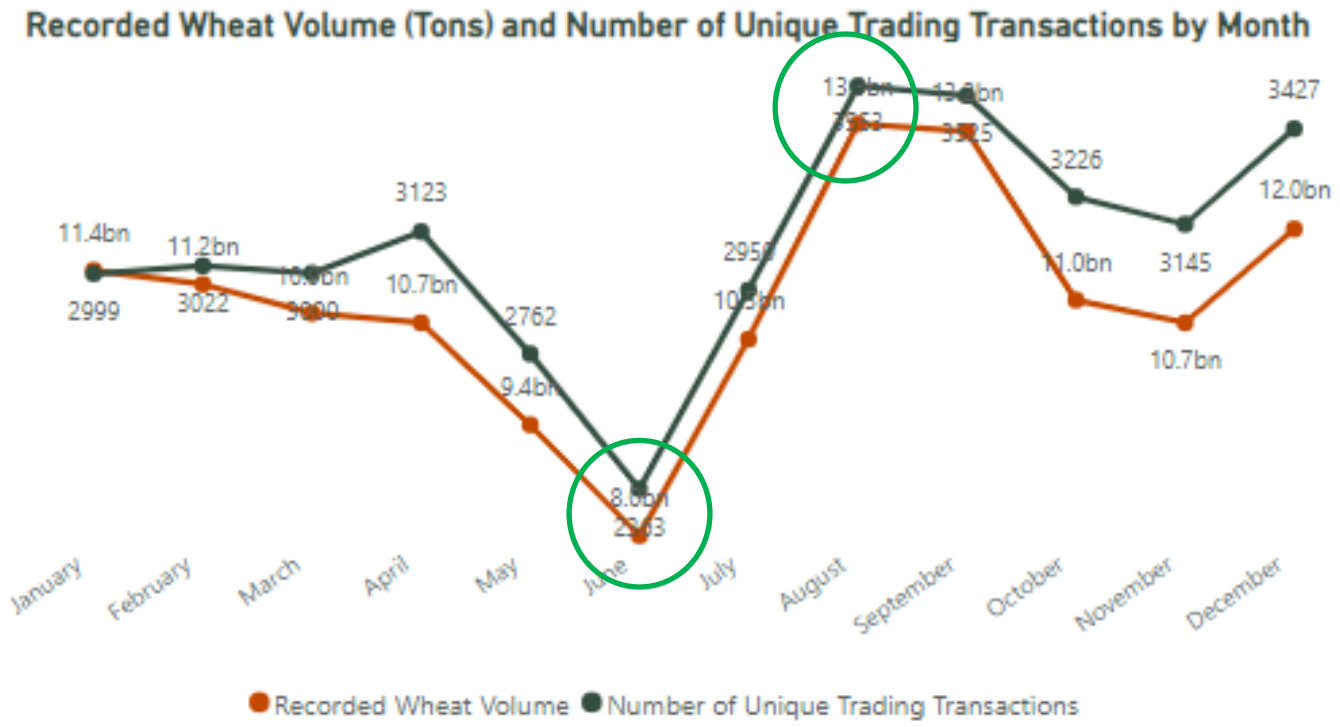
Data Overview (2)



- The Recorded Wheat Volume, measured in tons, is expected to show an upward trend as it accumulates all replicated values. However, there was a decline from 34.3 billion to 33.9 billion (by 1.18%), suggesting that downward adjustments were made by the end of 2022

→ This suggests that the variable 'Number of Unique Trading Transactions' which excludes duplicate values, could be useful for further analysis

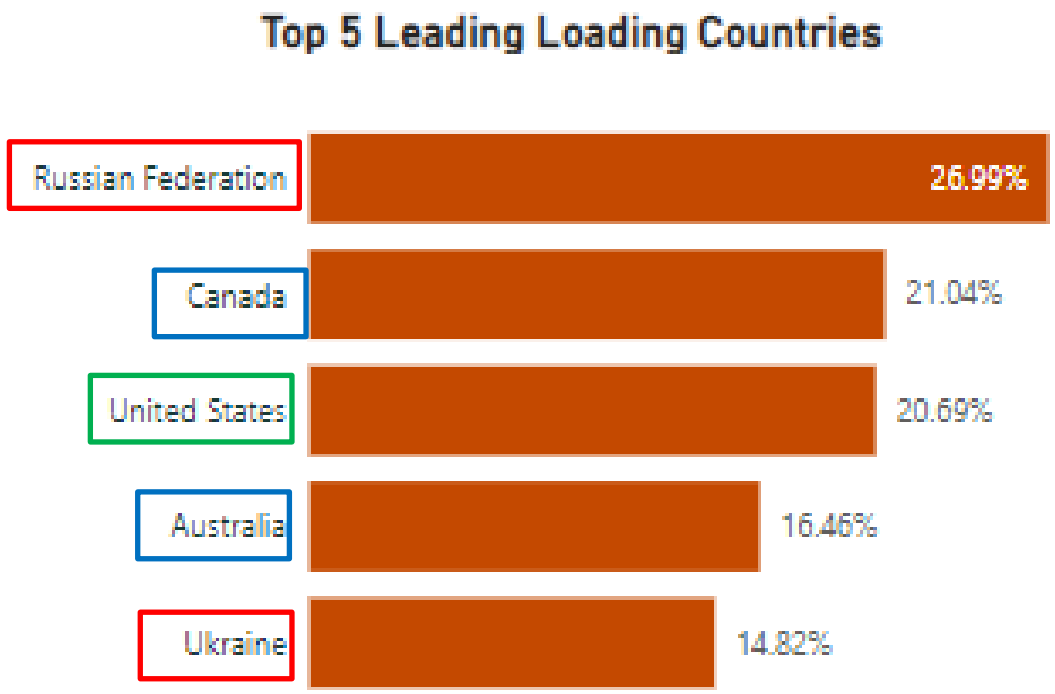
Data Overview (3)



- Both economic indicators: the Recorded Wheat Volume (in tons) and the Number of Unique Trading Transactions—demonstrate a sharp decline in wheat loading volumes in June, reaching their peak in August. This seasonal pattern has consistently been observed.

Data Overview (4)

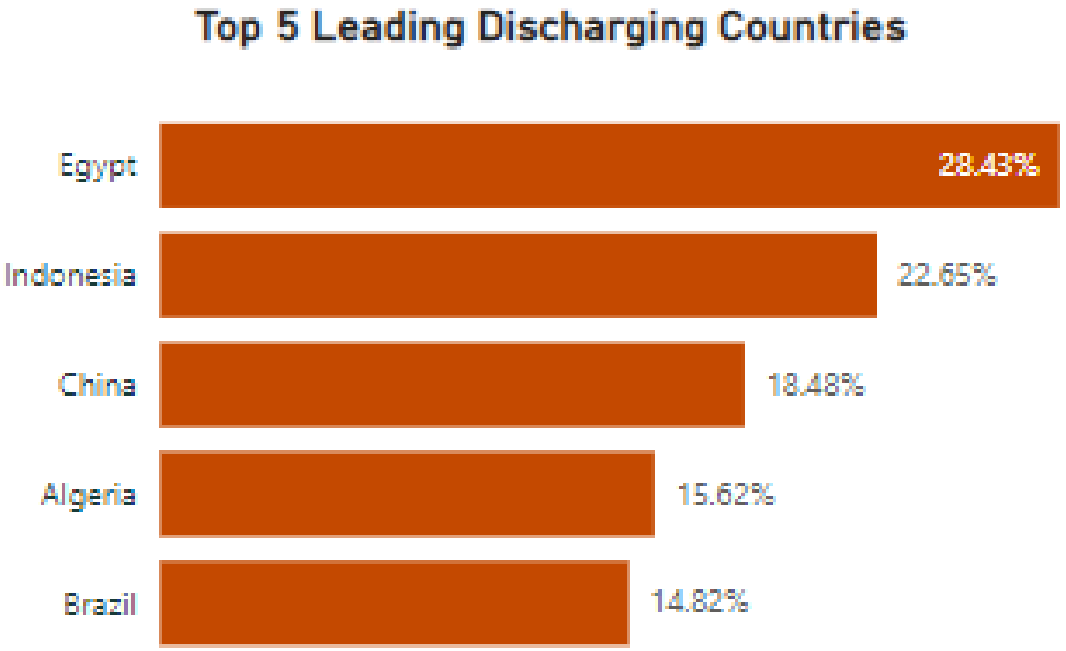
Spanning from 2019 to 2022, including replicated recorded wheat volume



- According to the recorded wheat volume in the dataset, the top five wheat-loading countries are ranked as follows: Russia, Canada, the United States, Australia, and Ukraine.
  - This lineup is predictable considering the vast agricultural lands in Russia and Ukraine, making them pivotal in global agricultural exports.
  - Starting in 2022, due to decreased wheat exports from Russia and Ukraine caused by geopolitical issues, countries like Australia, the USA, and Canada are expected to make up for the shortage in global wheat supply.
  - In the United States, government subsidies may have incentivized agricultural production, leading to an overproduction of certain crops. This surplus has enabled the U.S. to maintain a strong presence in global agricultural export markets

Data Overview (5)

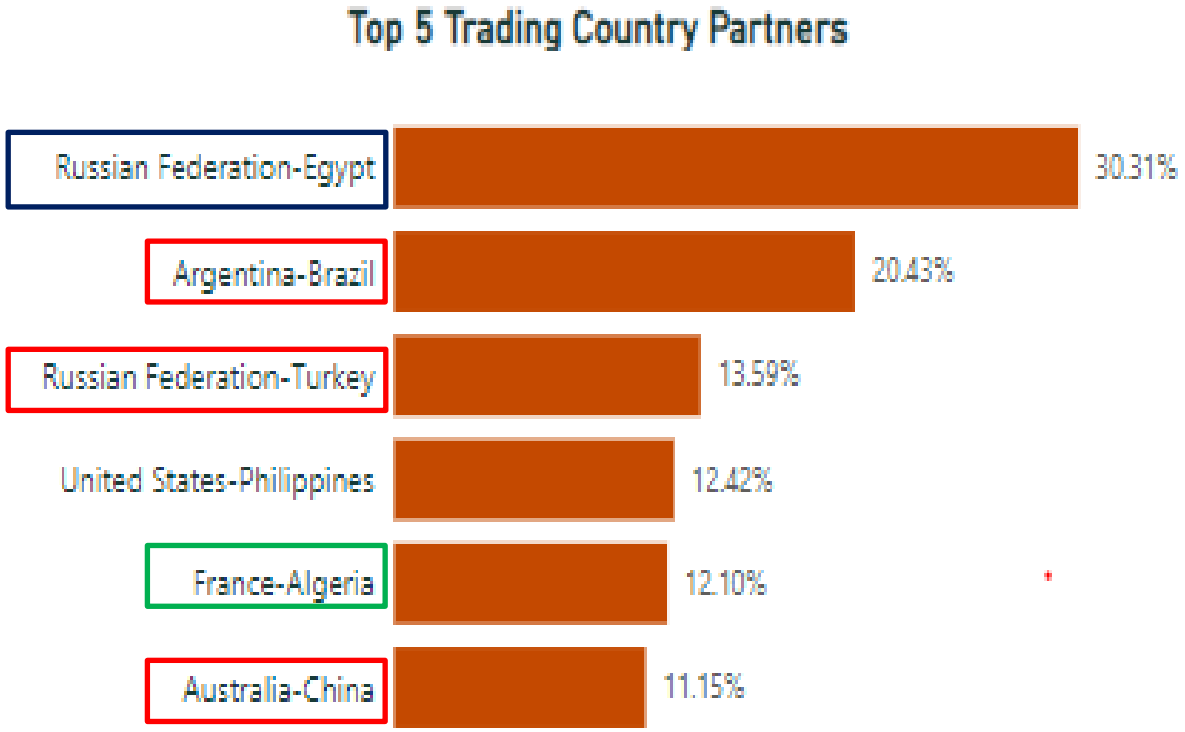
Spanning from 2019 to 2022, including replicated recorded wheat volume



- According to the recorded wheat volume in the dataset, the top five wheat-discharging countries are: Egypt, Indonesia, China, Algeria, and Brazil. These developing countries are generally characterized by either high population pressures, limited arable land, or both, which may increase their reliance on wheat imports to ensure food security.

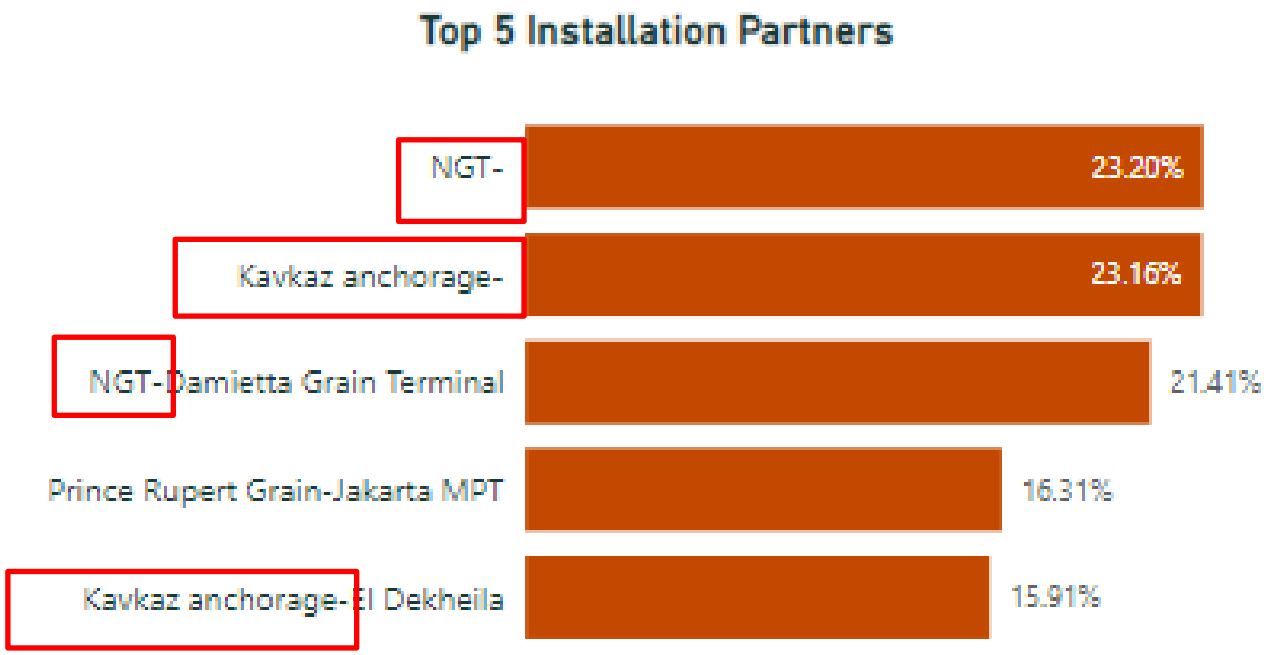
Data Overview (6)

Spanning from 2019 to 2022, including replicated recorded wheat volume



- Neighboring geographic countries such as Argentina and Brazil, Russia and Turkey, and Australia and China often engage in wheat trading. The proximity of these countries tends to increase their likelihood of trading with one another.
- Algeria, having once been a colony of France, maintains strong trade links with its former colonizer.
- Before 2022, Ukraine and Egypt were among the top five trading partners in wheat. Starting in 2022, Egypt became more dependent on wheat imports from Russia while traditionally relying on imports from Ukraine. Russia quickly replaced Ukraine as the main wheat supplier to Egypt making it rank 1st the wheat trading country partner. (see more in slide 36)

Data Overview (7)



- According to the dataset, the major wheat trading ports are NGT (Nile Grain Terminal), Kavkaz anchorage.
  - NGT's location on the Nile River suggests its strategic importance for wheat trade in the region, possibly serving as a key gateway for wheat imports or exports.
  - Kavkaz Anchorage may be a stopover point for ships rather than a traditional port with infrastructure for loading and unloading cargo. It potentially serves as a key waypoint for wheat shipments traveling through the region.

Key takeaways (1)

- Downward Adjustments in 2022: There were reductions made to previously recorded data by the end of 2022.

- Top Wheat-Loading Countries: Russia, Canada, the United States, Australia, and Ukraine

- Top Wheat-Discharging Countries: Egypt, Indonesia, China, Algeria, and Brazil are key importers. High population densities and limited farming land in these developing nations may heighten their dependency on imported wheat for food security.

- NGT and Kavkaz anchorage are significant ports for wheat trading

Key takeaways (2)

- Regional Trading Partnerships: Neighboring countries like Argentina and Brazil, Russia and Turkey, and Australia and China frequently engage in wheat trade, possibly due to geographical proximity.

- Algeria’s Historical Trade Links: Possibly as a former French colony, Algeria continues to receive significant wheat imports from France.

- Shift in Egypt’s Wheat Imports: Prior to 2022, Ukraine was a major supplier for Egypt. Post-2022, Egypt has increasingly relied on wheat from Russia, with Russia replacing Ukraine as Egypt's primary wheat supplier. (see more in slide 36)

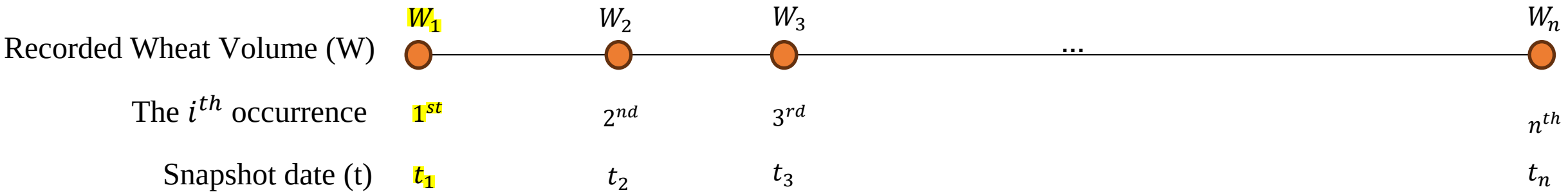
Back Correction Analysis (BCA) Definition (1)

- Back correction refers to the adjustment made to initially recorded data to account for changes or errors discovered after the initial recording. In our study, we talk about retrospective correction involving adjusting data after it has been recorded and processed.

  - Back correction magnitude refers to the degree of adjustment made during the process of back correction,
  - Correction window implies the duration during which adjustments are made to initially recorded data to ensure accuracy. The length of this window is determined by the snapshot date,
  - The "first recorded value" refers to the initial recorded wheat volume for each trading transaction (Id Trade).

Back Correction Analysis (BCA) Definition (2)

For a particular trading transaction (ID Trade):



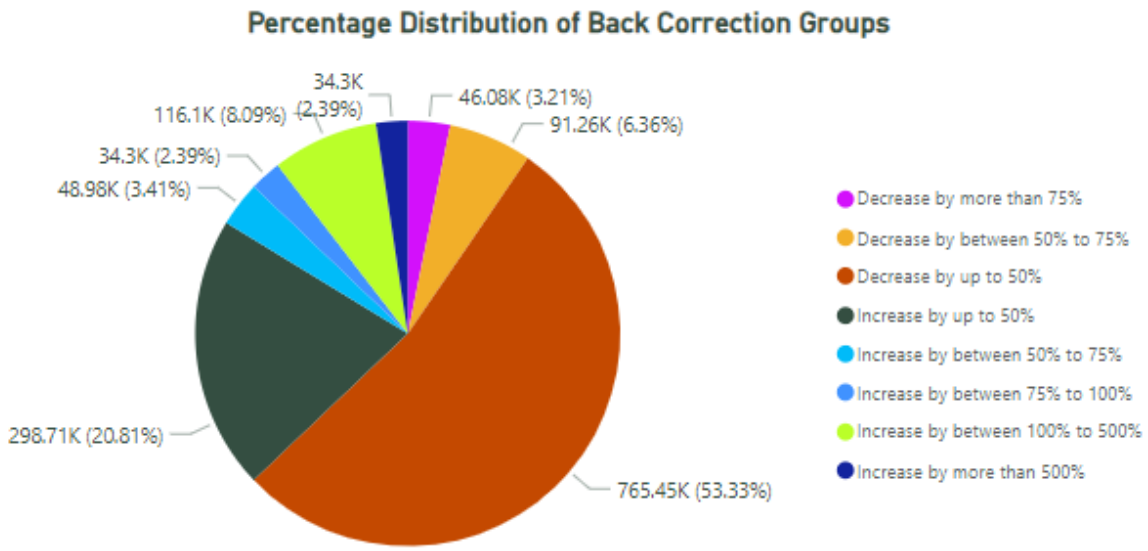
At the 1^{st} occurrence, the back correction $(BC_1) = \frac{W_1 - W_1}{W_1}.100\% = 0,$

At the 2^{nd} occurrence, the back correction $(BC_2) = \frac{W_2 - W_1}{W_1}.100\%$ occuring within (t_2 - t_1) days,

...

At the i^{th} occurrence, the back correction $(BC_i) = \frac{W_i - W_1}{W_1}.100\%$ occuring within (t_i - t_1) days.

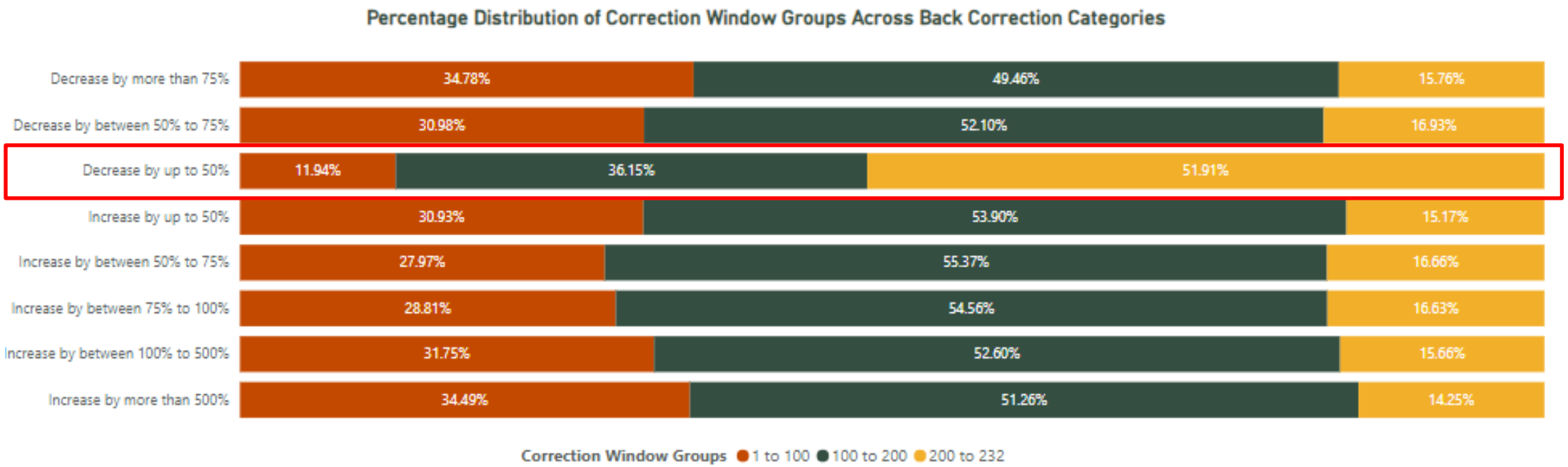
Back Correction Magnitude



Increase	37.1%
Decrease	62.9%

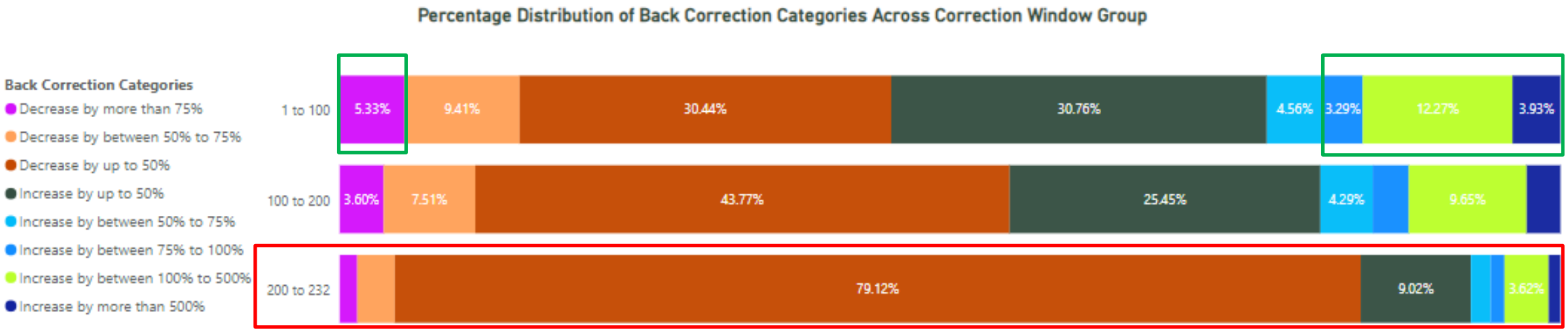
Rank	Back Correction Groups	Percentage Distribution (%)
6	Decrease by more than 75%	3.21
4	Decrease by between 50% to 75%	6.36
1	Decrease by up to 50%	53.33
2	Increase by up to 50%	20.81
5	Increase by between 50% to 75%	3.41
7	Increase by between 75% to 100%	2.39
3	Increase by between 100% to 500%	8.09
8	Increase by more than 500%	2.39

Correction Window



- In most back correction categories, approximately 50% of adjustments occurred between 100 to 200 days.
- In contrast, within the dominant groups where countries reduced their initial values by up to 50%, the corrections took at least 200 days to be implemented.

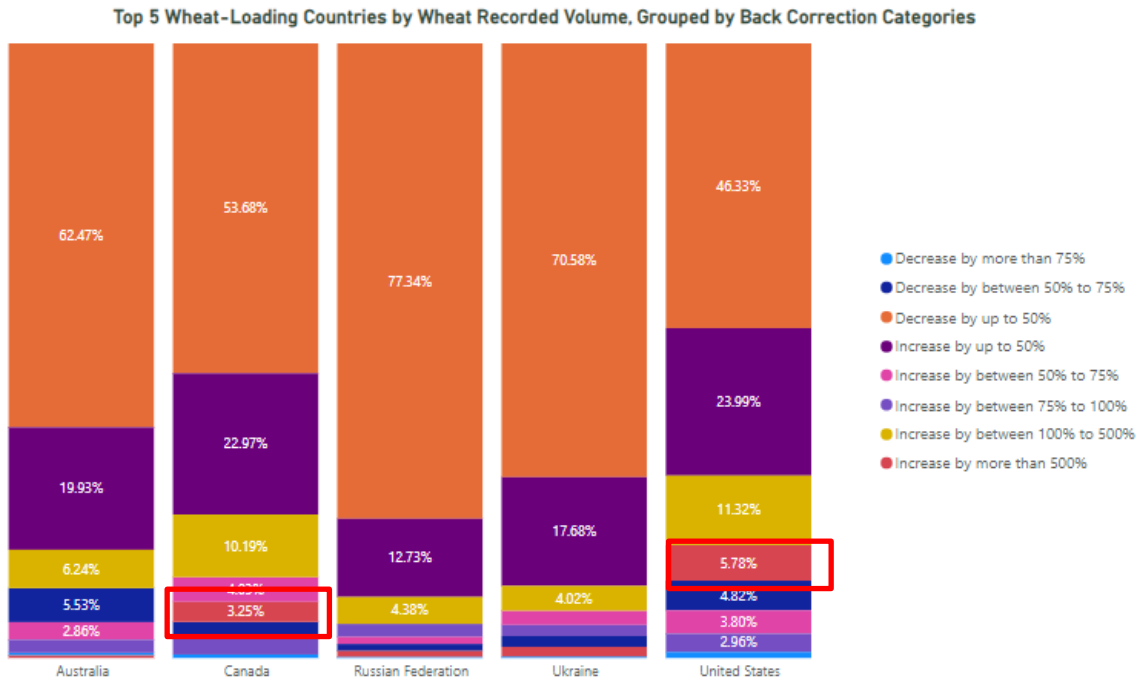
BCA Overview

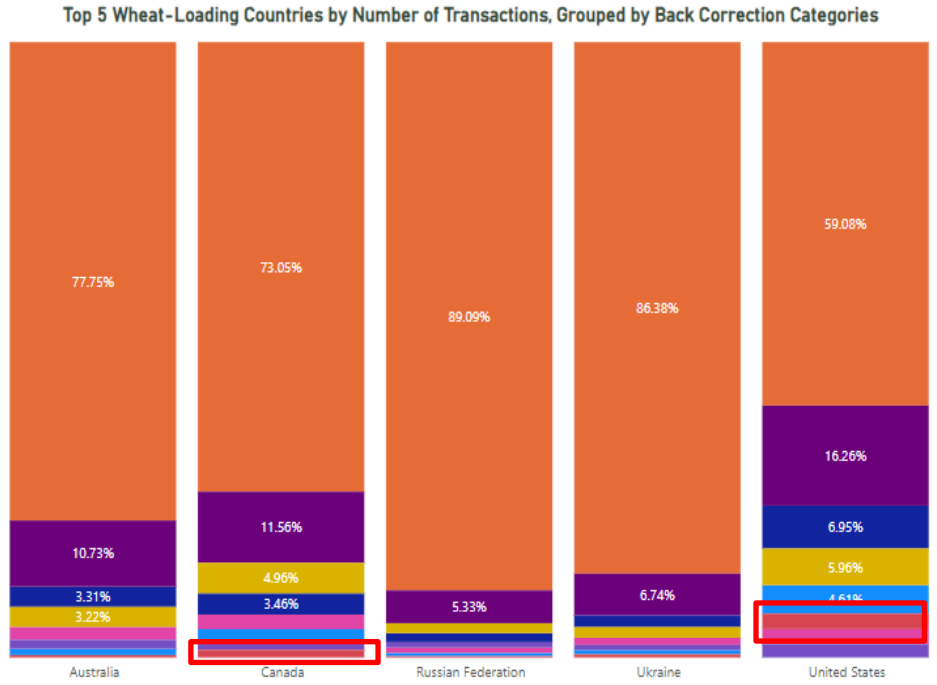


- Adjustments decreasing the original value by up to 50% are dominant in all three correction window categories. Notably, approximately 80% of this group falls within the 200 to 232-day correction window
- The percentage of back corrections exceeding 75% is observed within the 1 to 100 days group, indicating that major adjustments typically take place within the first 100 days.

BCA Country Level (1)

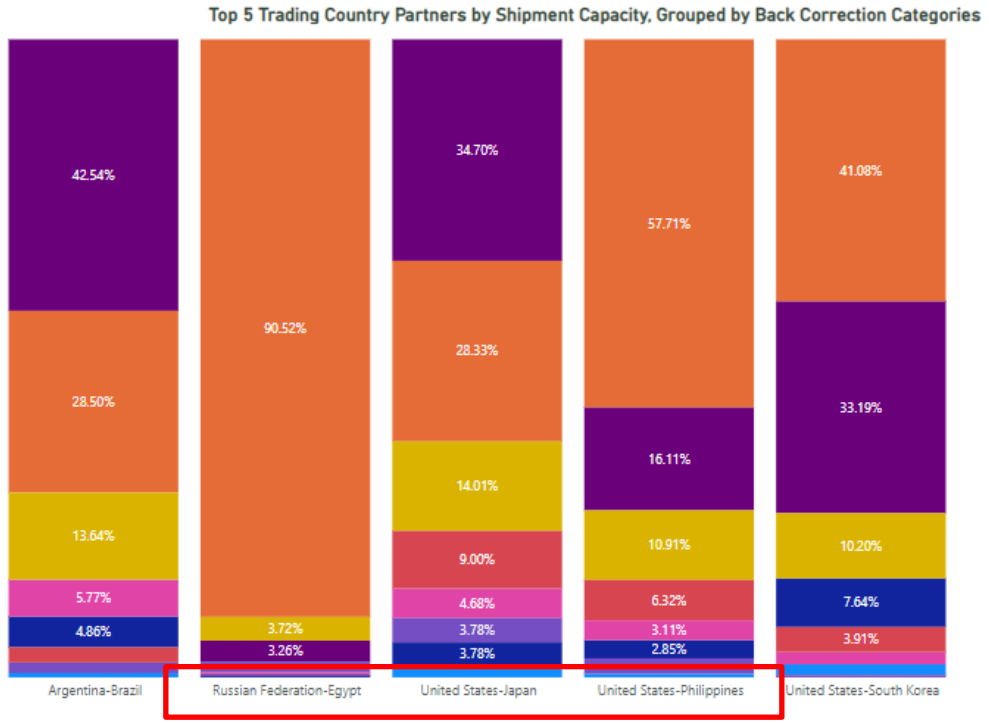
- Back correction varies across countries, but mostly involves a decrease/increase of 50%.
- The major players that make adjustment are **the USA, Canada, Russia, Australia, and Ukraine**, which are also the leading wheat-loading countries.
- In cases where corrections result in a rise by more than 500%, **the USA** (contributing over 50%) and **Canada** (approximately 26%) are the primary contributors.

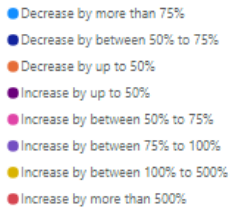


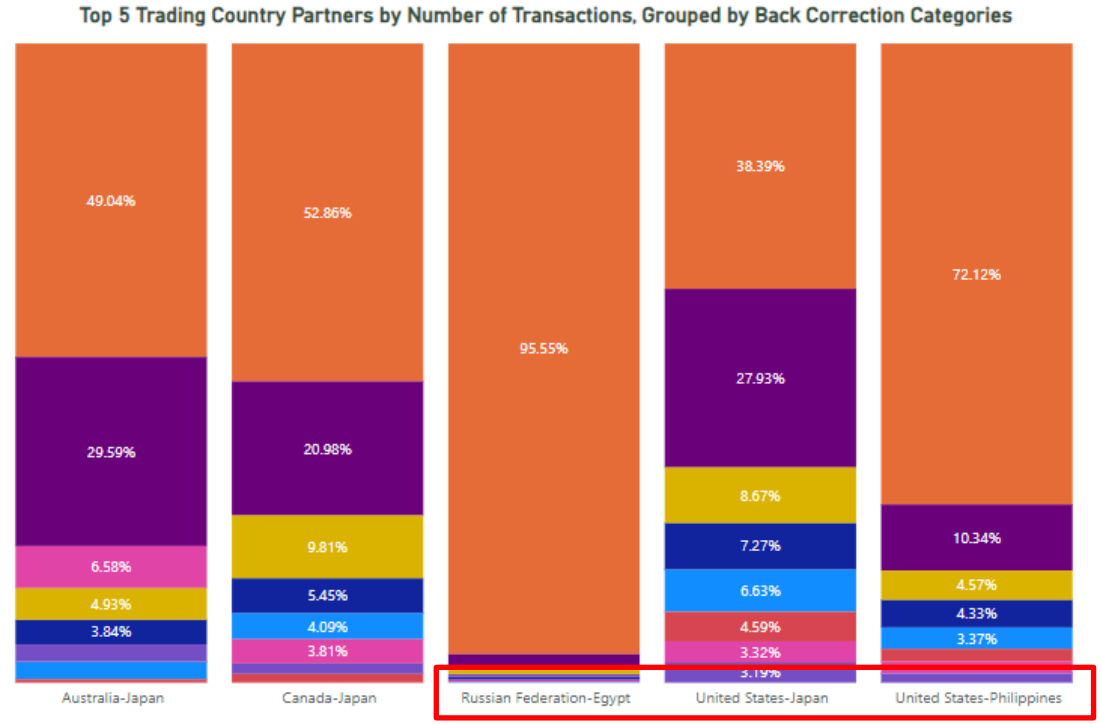


BCA Country Pair Level (1)

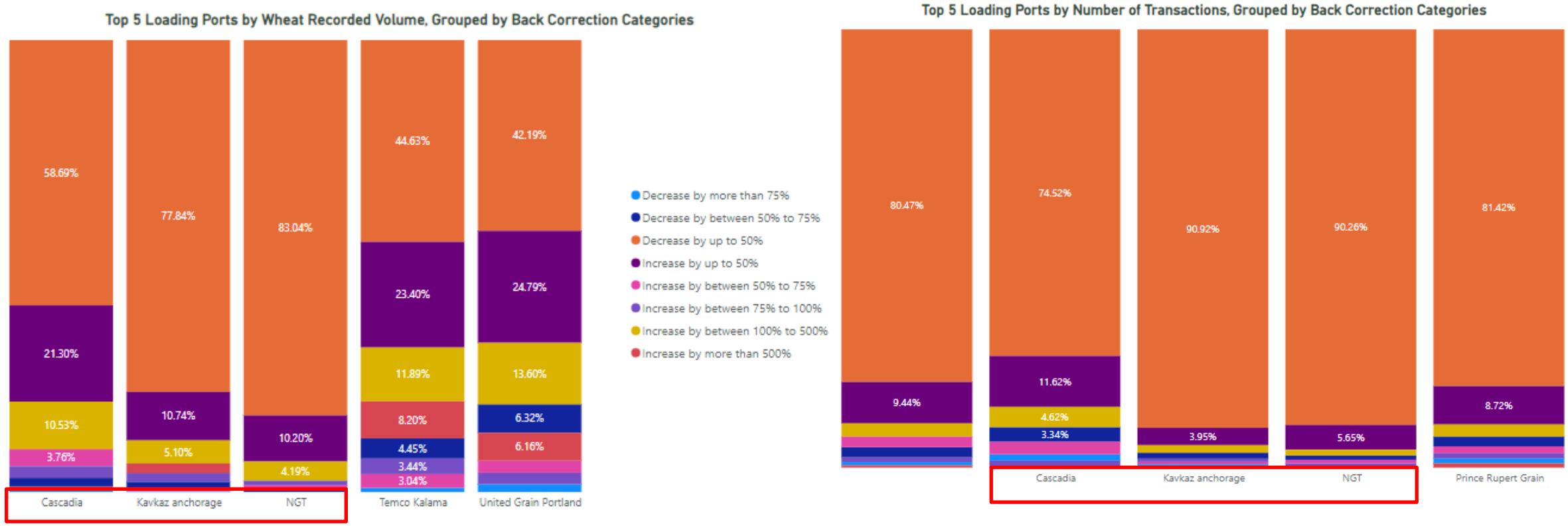
- Back correction varies across country pairs, rather than just at the country level.
- Most of the adjustments involve a decrease/increase of 50%, which may not be a significant adjustment.
- US-Japan tends to have more increasing adjustments than decreasing ones.
- Both economic metrics show that the country pairs making the most adjustments are Russia-Egypt, US-Japan, and US-Philippines.
- Neither economic metric includes Ukraine, indicating that most of the adjustments do not originate from Ukraine.







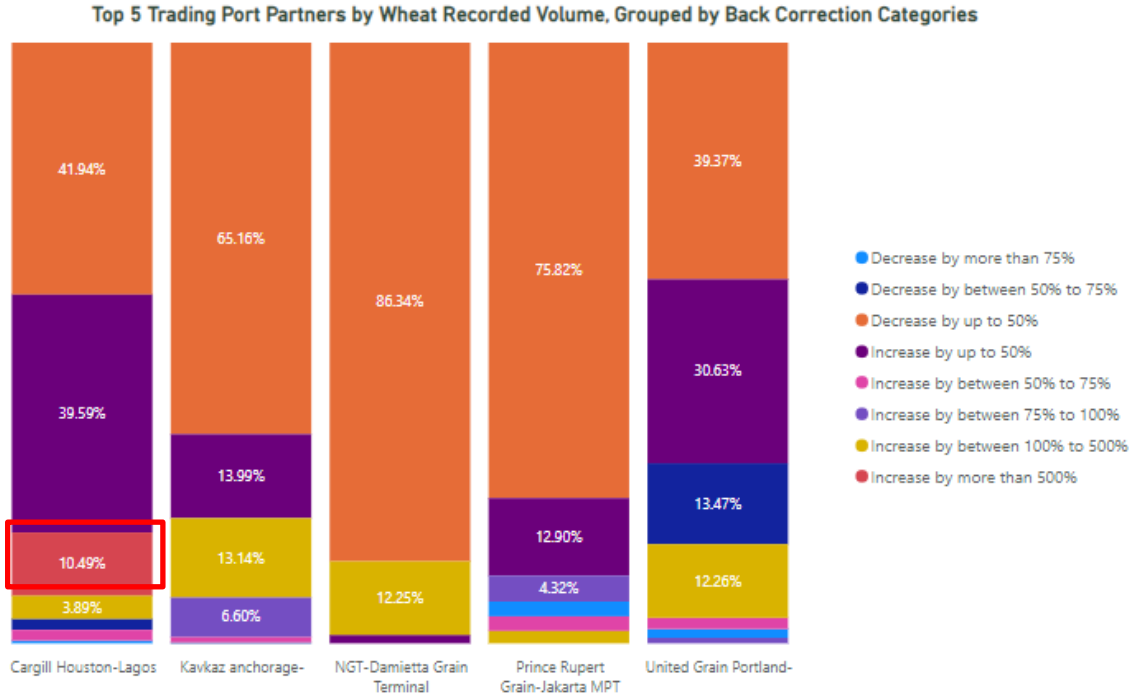
BCA Port Level

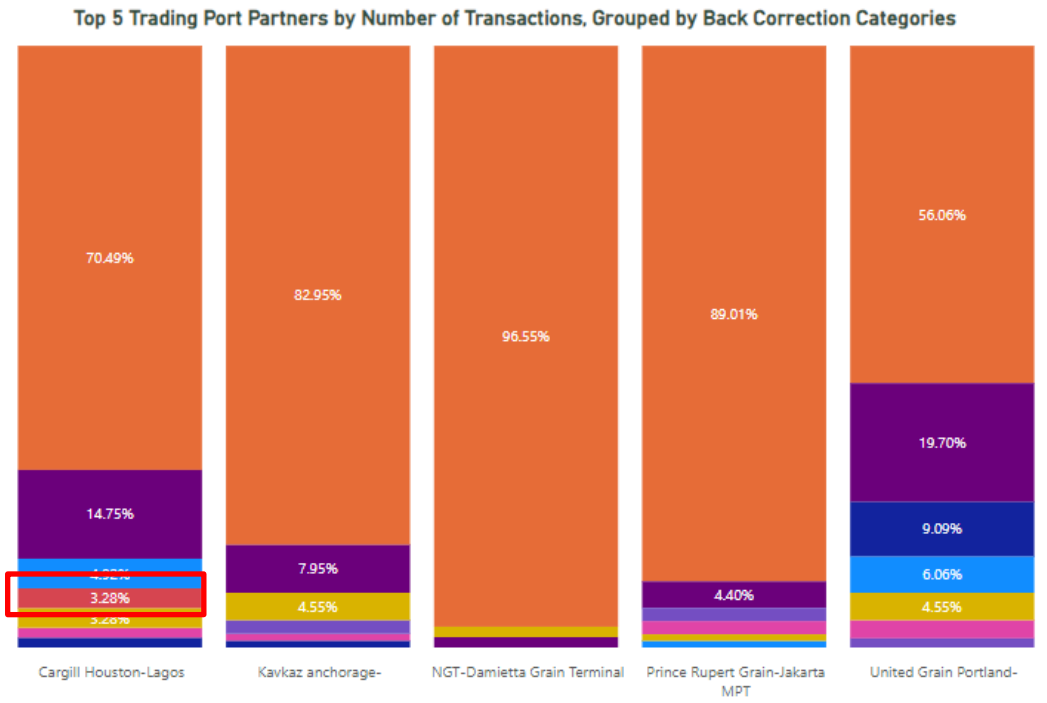


- Back correction varies across ports, but mostly involves a decrease/increase of 50%.
- Both economic metrics show that the loading port making adjustments include Cascadia, Kavkaz anchorage and NGT

BCA Port Pair Level (1)

- Most of the adjustments involve a decrease/increase of 50%, which may not be a significant adjustment.
- Back correction varies across port pairs, rather than just at the port level.
- The trading port partners making adjustment include Cargill Houston-Lagos, Kavkaz Anchorage, NGT-Damietta Grain Terminal, Prince Rupert Grain-Jakarta MPT, and United Grain Portland.
- 100% of the adjustments that resulted in an increase of more than 500% originated from Cargill Houston-Lagos.
- Neither economic metric includes Cascadia, indicating that most of the adjustments do not originate this port.





Summary (1)

- Back corrections **occur at various levels including country/port level, and country pair/port pair level,**

- Most of the adjustments involve a decrease/increase of 50%, which may not be a significant adjustment
→ True wheat loading amount tends to vary, with **a tendency for decreases/ increases of up to 50%.**

- Within all back correction groups, the process typically occurs within 200 days, with the majority of adjustments taking at least 100 days to complete. However, in the case of decreases by up to 50%, adjustments take at least 200 days to complete.
→ Waiting for **at least 200 days starting from the first snapshot date** before considering recorded values as the most accurate

Summary (2)

- The major players that make adjustments are **the USA, Canada, Russia, and Australia**, in that order which are also the leading wheat-loading countries. In cases where corrections result in a rise by more than 500%, **the USA** (contributing over 50%) and **Canada** (approximately 26%) are the primary contributors.

→ Pay more attention to the recorded wheat volume documented from the above countries, especially from the USA.

- The country pairs making the most adjustments are **Russia-Egypt, US-Japan, and US-Philippines. US-Japan** tends to have more increasing adjustments than decreasing ones.

→ Pay more attention to the recorded wheat volume documented from the above trading country partners.

Summary (3)

- The major installations that make adjustments are the **Kavkaz anchorage** and **NGT**.

- The trading port partners making adjustment include **Cargill Houston-Lagos**, **Kavkaz Anchorage**, **NGT-Damietta Grain Terminal**, **Prince Rupert Grain-Jakarta MPT**, and **United Grain Portland**. Notably, 100% of the adjustments that resulted in an increase of more than 500% originated from **Cargill Houston-Lagos.**

→ Pay more attention to the recorded wheat volume documented from the above ports and port pairs, especially from the Cargill Houston-Lagos.
→ Conducting further research or analysis to identify the underlying drivers such as transportation routes, storage capacity, and infrastructure capabilities, which can impact trading strategies.

Summary (4)

For a new **Wheat Recorded Volume** that we see **TODAY**, we can expect the following:

- Back correction and correction window: The final accurate value tends to decrease/increase by up to 50% within 200 days.
- Country level: Recorded values from countries such as the USA, Canada, Russia, and Australia may not be reliable. For instance, if the recorded value originates from the USA and Canada, we expect it to increase by more than 500%.
- Country pair level: Notable country pairs include Russia-Egypt, US-Japan, and US-Philippines. Specifically, recorded value from US-Japan tends to have more increasing adjustments than decreasing ones.
- Port level: Recorded values from ports like Kavkaz Anchorage and NGT may be subject to adjustments.
- Port pair level: Trading port partners making adjustments include Cargill Houston-Lagos, Kavkaz Anchorage, NGT-Damietta Grain Terminal, Prince Rupert Grain-Jakarta MPT, and United Grain Portland. Values originating from Cargill Houston-Lagos are likely to increase by more than 500%.

! The findings of this analysis are solely applicable to wheat products

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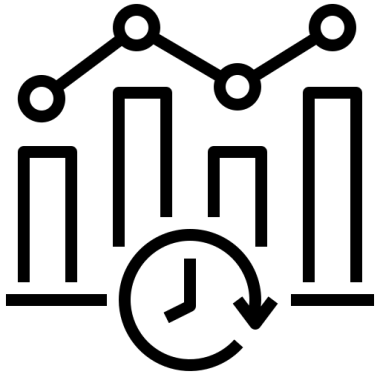
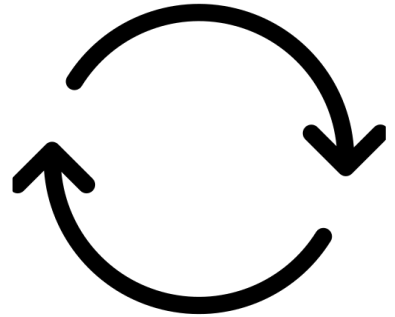
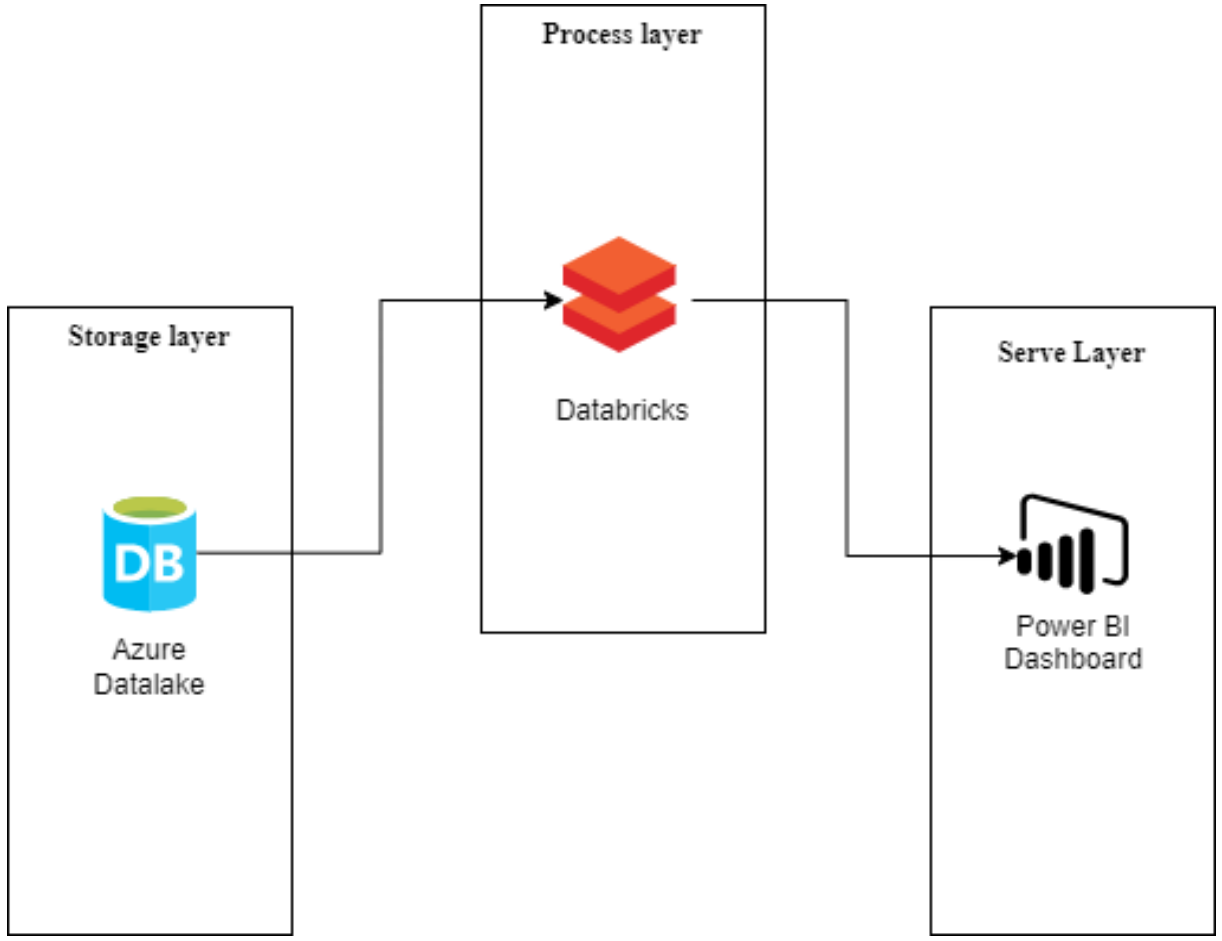




Architecture Diagram



- **Data Storage in Azure Data Lake**: Data is stored under the directory wtomais| Containers| kpler-data in Azure Data Lake.
- **Data Processing with Databricks**: Once the data is securely stored, the next step is to process this raw data to make it suitable for analysis. This processing is performed in Databricks
- **Real-Time Data Visualization with Power BI:** After processing the data in Databricks, the next phase is visualization, We establish a direct connection from Databricks to Power BI.

Daily back correction dashboard

Daily back correction dashboard:

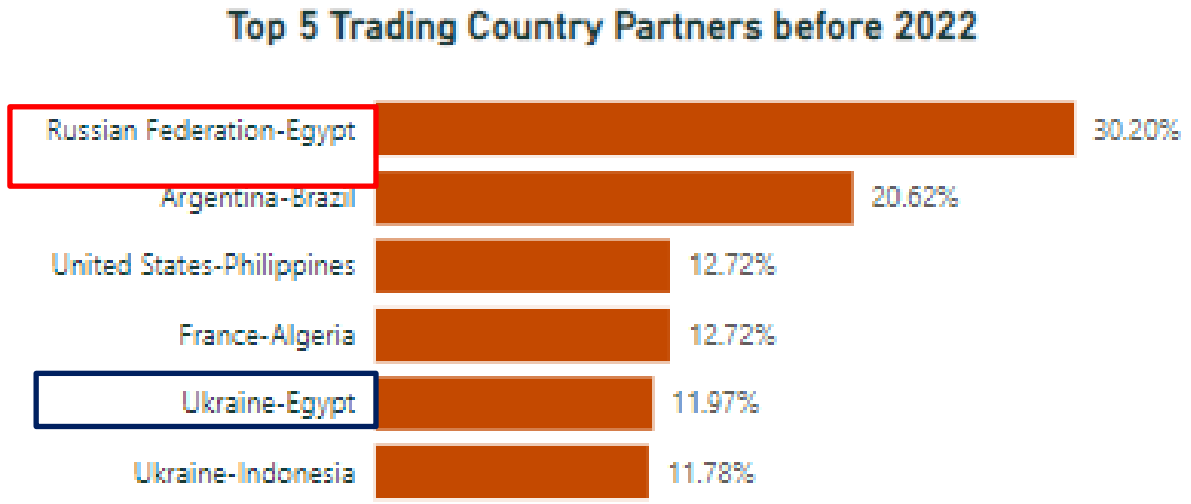
- Displaying the range of the adjustment,
- The percentage distribution of back correction categories,
- The percentage distribution of trade status,
- Identifying countries adjusting,
- Identifying installations adjusting.

Real time dashboard (click here)

THANK YOU 

ANNEX

Top 5 Trading Country Partners 2019- 2021



Before 2022, Ukraine and Egypt were among the top five trading partners in wheat. Starting in 2022, Egypt became more dependent on wheat imports from Russia while traditionally relying on imports from Ukraine. Russia quickly replaced Ukraine as the main wheat supplier to Egypt making it rank 1st the wheat trading country partner.

BCA Country Level (1)

Back Correction Categories	Shipment Capacity	Loading Country
Decrease by more than 75%	49416400	United States
Decrease by more than 75%	21674697	Canada
Decrease by more than 75%	12156970	Australia
Decrease by more than 75%	7015052	Russian Federation
Decrease by more than 75%	4230920	Ukraine
Decrease by more than 75%	3107292	Colombia
Decrease by more than 75%	3091839	Argentina
Decrease by more than 75%	1805141	Lithuania
Decrease by more than 75%	1771480	France
Decrease by more than 75%	1614645	Brazil
Decrease by more than 75%	1148313	Cameroon
Decrease by more than 75%	288337	Romania
Decrease by more than 75%	132660	India
Decrease by more than 75%	49728	Estonia
Decrease by more than 75%	36320	Germany
Decrease by more than 75%	34542	Poland
Decrease by more than 75%	6860	Chile
Decrease by more than 75%	3519	Spain
Decrease by more than 75%	3360	
Decrease by more than 75%	277	Peru

Back Correction Categories	Shipment Capacity	Loading Country
Decrease by between 50% to 75%	236528207	United States
Decrease by between 50% to 75%	153965689	Australia
Decrease by between 50% to 75%	103141300	Canada
Decrease by between 50% to 75%	49776509	Argentina
Decrease by between 50% to 75%	39074730	Russian Federation
Decrease by between 50% to 75%	28901585	Ukraine
Decrease by between 50% to 75%	23743786	France
Decrease by between 50% to 75%	8922785	Poland
Decrease by between 50% to 75%	8165521	Lithuania
Decrease by between 50% to 75%	6639743	Latvia
Decrease by between 50% to 75%	5069456	Estonia
Decrease by between 50% to 75%	3882834	Brazil
Decrease by between 50% to 75%	3791060	Chile
Decrease by between 50% to 75%	3501804	Germany
Decrease by between 50% to 75%	3268350	Uruguay
Decrease by between 50% to 75%	3135630	Cameroon
Decrease by between 50% to 75%	2836417	Romania
Decrease by between 50% to 75%	1111070	Bulgaria
Decrease by between 50% to 75%	457905	Mexico
Decrease by between 50% to 75%	400191	China

Back Correction Categories	Shipment Capacity	Loading Country
Decrease by up to 50%	2641425077	Russian Federation
Decrease by up to 50%	2275330681	United States
Decrease by up to 50%	2024929965	Canada
Decrease by up to 50%	1740067365	Australia
Decrease by up to 50%	1164753051	Ukraine
Decrease by up to 50%	933685487	Argentina
Decrease by up to 50%	469397626	Romania
Decrease by up to 50%	452926063	France
Decrease by up to 50%	272265455	Lithuania
Decrease by up to 50%	259114378	Germany
Decrease by up to 50%	237242299	Latvia
Decrease by up to 50%	215003482	Poland
Decrease by up to 50%	213205994	Brazil
Decrease by up to 50%	197652407	Bulgaria
Decrease by up to 50%	164495369	India
Decrease by up to 50%	36728580	Spain
Decrease by up to 50%	27481663	Uruguay
Decrease by up to 50%	26417540	Colombia
Decrease by up to 50%	25966752	Estonia
Decrease by up to 50%	22563968	South Korea

BCA Country Level (2)

Back Correction Categories	Shipment Capacity	Loading Country
Increase by up to 50%	1178323716	United States
Increase by up to 50%	866692231	Canada
Increase by up to 50%	555070905	Australia
Increase by up to 50%	434860939	Russian Federation
Increase by up to 50%	387008001	Argentina
Increase by up to 50%	291801501	Ukraine
Increase by up to 50%	263208130	France
Increase by up to 50%	104678207	Brazil
Increase by up to 50%	98669407	Latvia
Increase by up to 50%	92898758	Lithuania
Increase by up to 50%	69153109	India
Increase by up to 50%	65543701	Poland
Increase by up to 50%	55003124	Germany
Increase by up to 50%	37670676	Romania
Increase by up to 50%	20964646	South Korea
Increase by up to 50%	19816216	Spain
Increase by up to 50%	19563328	Bulgaria
Increase by up to 50%	16802271	Mexico
Increase by up to 50%	16192919	Uruguay
Increase by up to 50%	7018489	Estonia

Back Correction Categories	Shipment Capacity	Loading Country
Increase by between 50% to 75%	186549362	United States
Increase by between 50% to 75%	152208817	Canada
Increase by between 50% to 75%	79556034	Australia
Increase by between 50% to 75%	72791550	Argentina
Increase by between 50% to 75%	40579097	Russian Federation
Increase by between 50% to 75%	38683592	Ukraine
Increase by between 50% to 75%	34309865	France
Increase by between 50% to 75%	19425479	Lithuania
Increase by between 50% to 75%	17516321	Poland
Increase by between 50% to 75%	15692534	Romania
Increase by between 50% to 75%	8957640	Latvia
Increase by between 50% to 75%	8911854	Germany
Increase by between 50% to 75%	6170853	Brazil
Increase by between 50% to 75%	5792172	India
Increase by between 50% to 75%	5414705	Bulgaria
Increase by between 50% to 75%	3826839	Cameroon
Increase by between 50% to 75%	3161116	Venezuela
Increase by between 50% to 75%	2486504	Spain
Increase by between 50% to 75%	2374893	Cape Verde
Increase by between 50% to 75%	1853795	Estonia

Back Correction Categories	Shipment Capacity	Loading Country
Increase by between 75% to 100%	145322191	United States
Increase by between 75% to 100%	96661589	Canada
Increase by between 75% to 100%	70672382	Russian Federation
Increase by between 75% to 100%	59393978	Australia
Increase by between 75% to 100%	29659261	Ukraine
Increase by between 75% to 100%	27906240	Argentina
Increase by between 75% to 100%	26922678	France
Increase by between 75% to 100%	20789681	Latvia
Increase by between 75% to 100%	19304410	Lithuania
Increase by between 75% to 100%	16829232	Poland
Increase by between 75% to 100%	9966191	Uruguay
Increase by between 75% to 100%	9383300	India
Increase by between 75% to 100%	8011698	Brazil
Increase by between 75% to 100%	8005524	Germany
Increase by between 75% to 100%	4253217	Bulgaria
Increase by between 75% to 100%	4067343	Nigeria
Increase by between 75% to 100%	3065043	Mexico
Increase by between 75% to 100%	2699560	Romania
Increase by between 75% to 100%	1929989	Spain
Increase by between 75% to 100%	1751049	Bangladesh

BCA Country Level (3)

Back Correction Categories	Shipment Capacity	Loading Country
Increase by between 100% to 500%	555852736	United States
Increase by between 100% to 500%	384381794	Canada
Increase by between 100% to 500%	173898426	Australia
Increase by between 100% to 500%	149599318	Russian Federation
Increase by between 100% to 500%	149283006	Argentina
Increase by between 100% to 500%	101189380	France
Increase by between 100% to 500%	66416034	Ukraine
Increase by between 100% to 500%	46525146	Poland
Increase by between 100% to 500%	42218399	Latvia
Increase by between 100% to 500%	28726152	Lithuania
Increase by between 100% to 500%	27581830	Brazil
Increase by between 100% to 500%	18561254	Bulgaria
Increase by between 100% to 500%	13191647	Romania
Increase by between 100% to 500%	10093538	Spain
Increase by between 100% to 500%	8942660	Nigeria
Increase by between 100% to 500%	6719884	Germany
Increase by between 100% to 500%	6419396	India
Increase by between 100% to 500%	6153836	Mexico
Increase by between 100% to 500%	5708864	China
Increase by between 100% to 500%	5093830	Turkey

Back Correction Categories	Shipment Capacity	Loading Country
Increase by more than 500%	284046357	United States
Increase by more than 500%	122689855	Canada
Increase by more than 500%	43913106	Lithuania
Increase by more than 500%	32194394	Russian Federation
Increase by more than 500%	25770508	Ukraine
Increase by more than 500%	17261284	Argentina
Increase by more than 500%	11556765	Australia
Increase by more than 500%	10374427	Latvia
Increase by more than 500%	7476600	Poland
Increase by more than 500%	6894343	Romania
Increase by more than 500%	5636663	France
Increase by more than 500%	2115820	Bulgaria
Increase by more than 500%	2105825	India
Increase by more than 500%	800696	Brazil
Increase by more than 500%	489330	Cameroon

BCA Country Level (4)

Back Correction Categories	Shipment Capacity	Loading Country
Increase by between 100% to 500%	555852736	United States
Increase by between 100% to 500%	384381794	Canada
Increase by between 100% to 500%	173898426	Australia
Increase by between 100% to 500%	149599318	Russian Federation
Increase by between 100% to 500%	149283006	Argentina
Increase by between 100% to 500%	101189380	France
Increase by between 100% to 500%	66416034	Ukraine
Increase by between 100% to 500%	46525146	Poland
Increase by between 100% to 500%	42218399	Latvia
Increase by between 100% to 500%	28726152	Lithuania
Increase by between 100% to 500%	27581830	Brazil
Increase by between 100% to 500%	18561254	Bulgaria
Increase by between 100% to 500%	13191647	Romania
Increase by between 100% to 500%	10093538	Spain
Increase by between 100% to 500%	8942660	Nigeria
Increase by between 100% to 500%	6719884	Germany
Increase by between 100% to 500%	6419396	India
Increase by between 100% to 500%	6153836	Mexico
Increase by between 100% to 500%	5708864	China
Increase by between 100% to 500%	5093830	Turkey

Back Correction Categories	Shipment Capacity	Loading Country
Increase by more than 500%	284046357	United States
Increase by more than 500%	122689855	Canada
Increase by more than 500%	43913106	Lithuania
Increase by more than 500%	32194394	Russian Federation
Increase by more than 500%	25770508	Ukraine
Increase by more than 500%	17261284	Argentina
Increase by more than 500%	11556765	Australia
Increase by more than 500%	10374427	Latvia
Increase by more than 500%	7476600	Poland
Increase by more than 500%	6894343	Romania
Increase by more than 500%	5636663	France
Increase by more than 500%	2115820	Bulgaria
Increase by more than 500%	2105825	India
Increase by more than 500%	800696	Brazil
Increase by more than 500%	489330	Cameroon