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Water Benchmark Results – Phase 4 and Electricity Benchmark results – Phase 1

BLUE NORTH
THINKING. FUTURE

Phase 4 data collection

- Data collection tool changes from phase 3:
  - additional data capture fields for **drenching** and **pre-sorting**;
  - additional data capture fields for water sources;
  - moved the “pack line processes” section to a “water management practices” tab;
  - added a tab with data fields to capture information on water **recycling technologies** applied;
  - incorporation of **electricity use** and cost data capture fields;
  - added a tab with data fields to capture information on the **energy management** practices applied.

- 21 Packhouses responded to the request for data:
  - 12 participated (including four from phase 1, phase 2 and phase 3);
  - 3 are interested and committed to providing data in future data collection rounds;
  - 5 declined to participate;
  - 1 did not respond.

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Phase 4 data collection continued

- All phase 4 datasets run from Jan to Dec 2020

- Water benchmark results are calculated for:
  - Packing line
  - Cold storage
  - Ablutions/office/canteen

- Electricity benchmark results are calculated for:
  - Packing operations
  - CA Operations
  - RA operations

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Benchmark process

- Data collection tool training
- Packhouse capture data (support provided where required)
- Data is sense checked with the packhouse
- All results were displayed:
  - Blue columns on the graphs indicate that the data was complete and within the sense check “range”;
  - Yellow columns on the graphs indicate estimated data;
  - Notes below the graphs provide more information.

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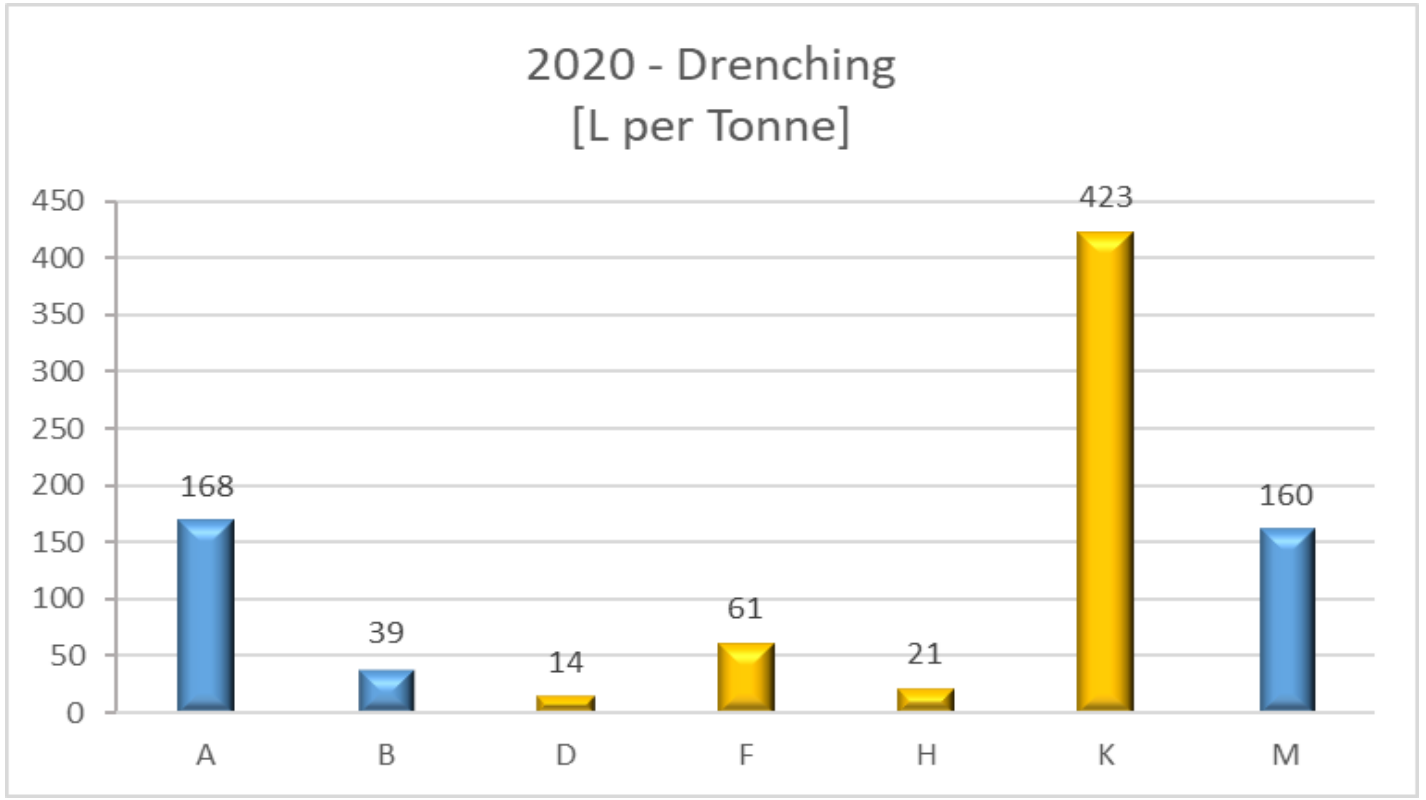
Water Benchmark Results – Drenching



- Packhouse I – This packhouse drenches their pome fruit, but the water used for drenching is not recorded and could not be estimated.
- Packhouse N – This packhouse drenches their pome fruit, but the water used for drenching is not recorded and could not be estimated. Metering was installed in 2021.

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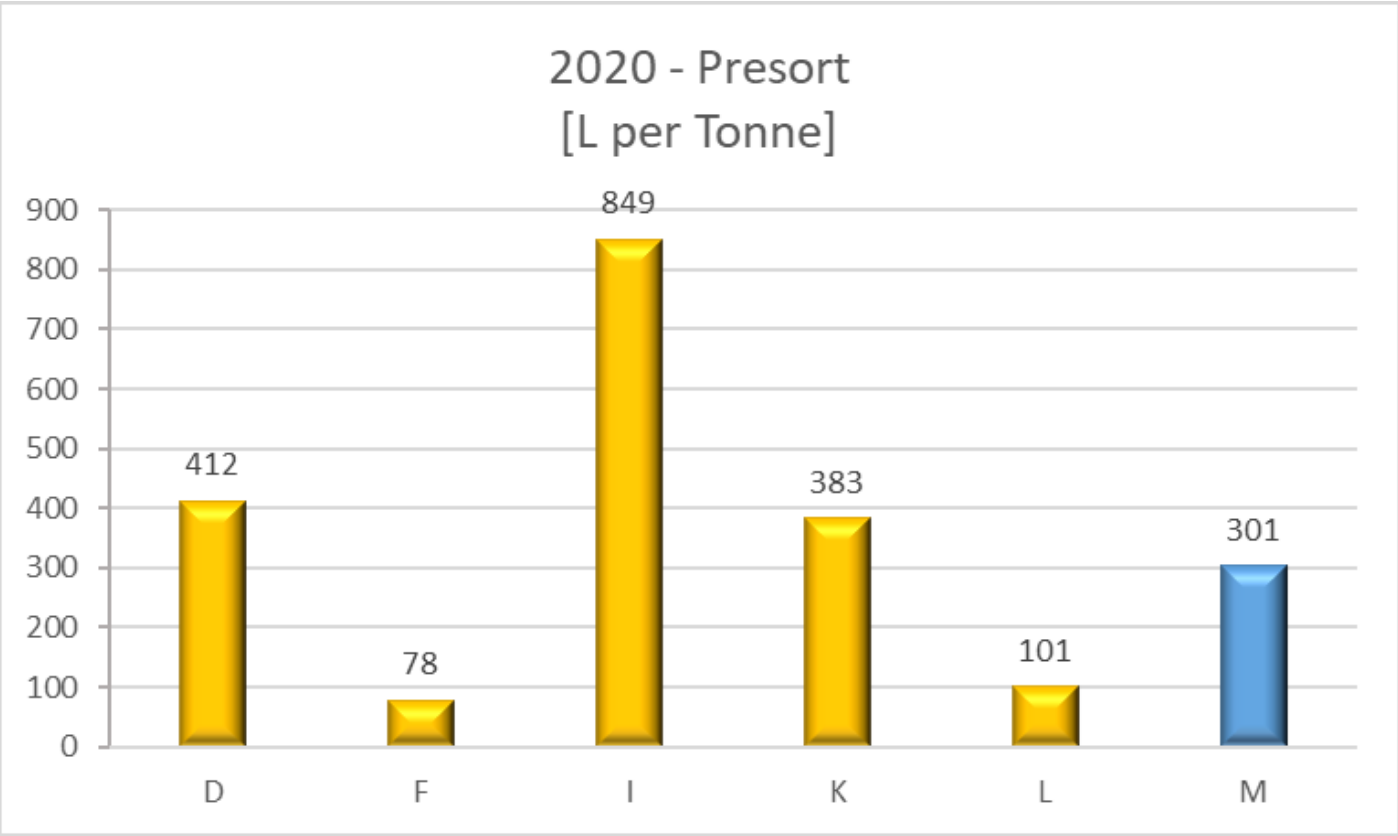
Water Benchmark Results – Pre-sort

- Only packhouses with a dedicated pre-sort line are shown.



- Only packhouse M could provide metered water use data for the pre-sort line, the benchmarks for the other packhouses are all estimates due to a lack of metering.

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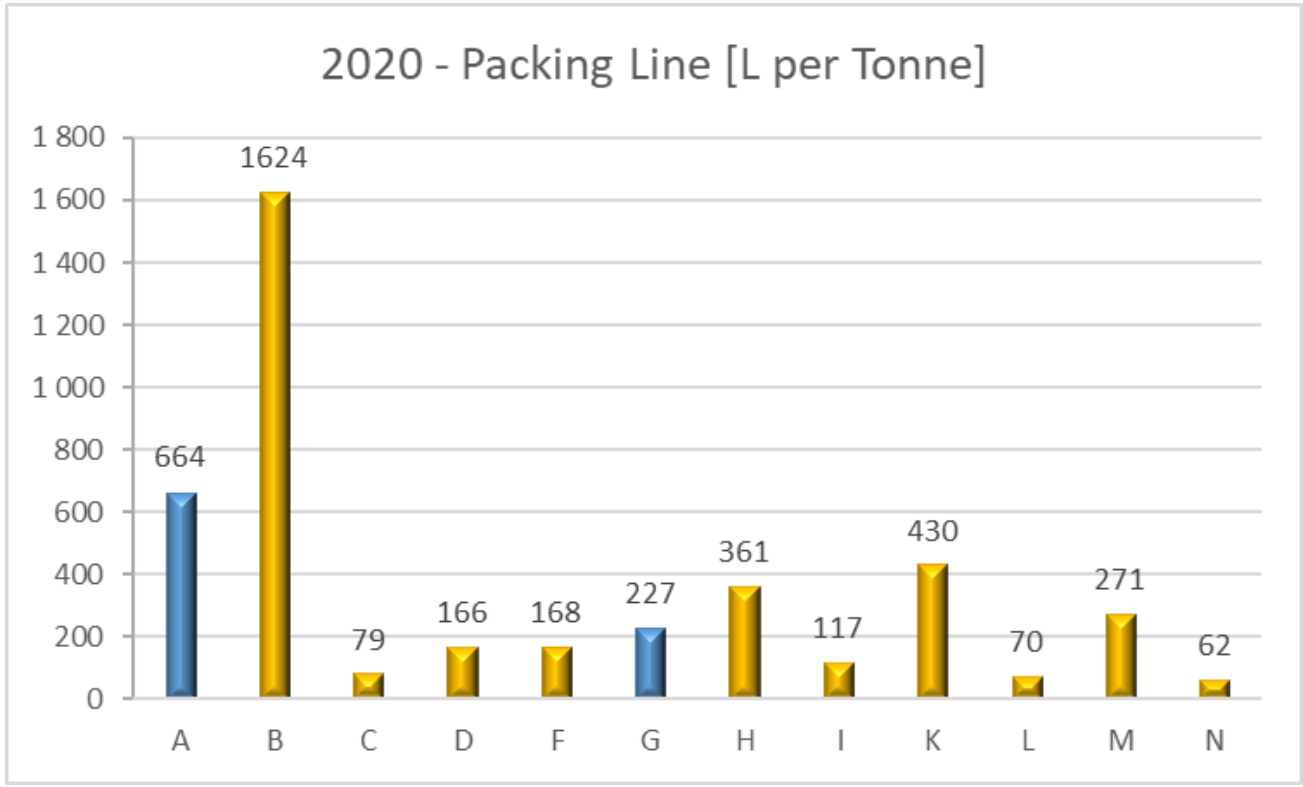
Water Benchmark Results – Packing Line



- Packhouse B – This figure includes water used for the ablutions and garden irrigation around the packhouse and thus forms part of the packing line water use figure.
- Packhouse I – Water is kept in flumes for three months before being drained into reedbeds for natural filtration.
- Packhouse C –This packhouse drains their flumes once every two weeks.
- Packhouse L – The pack line benchmark is very low. This packhouse only drains their flumes two to three times a year, otherwise, flumes are only topped up.

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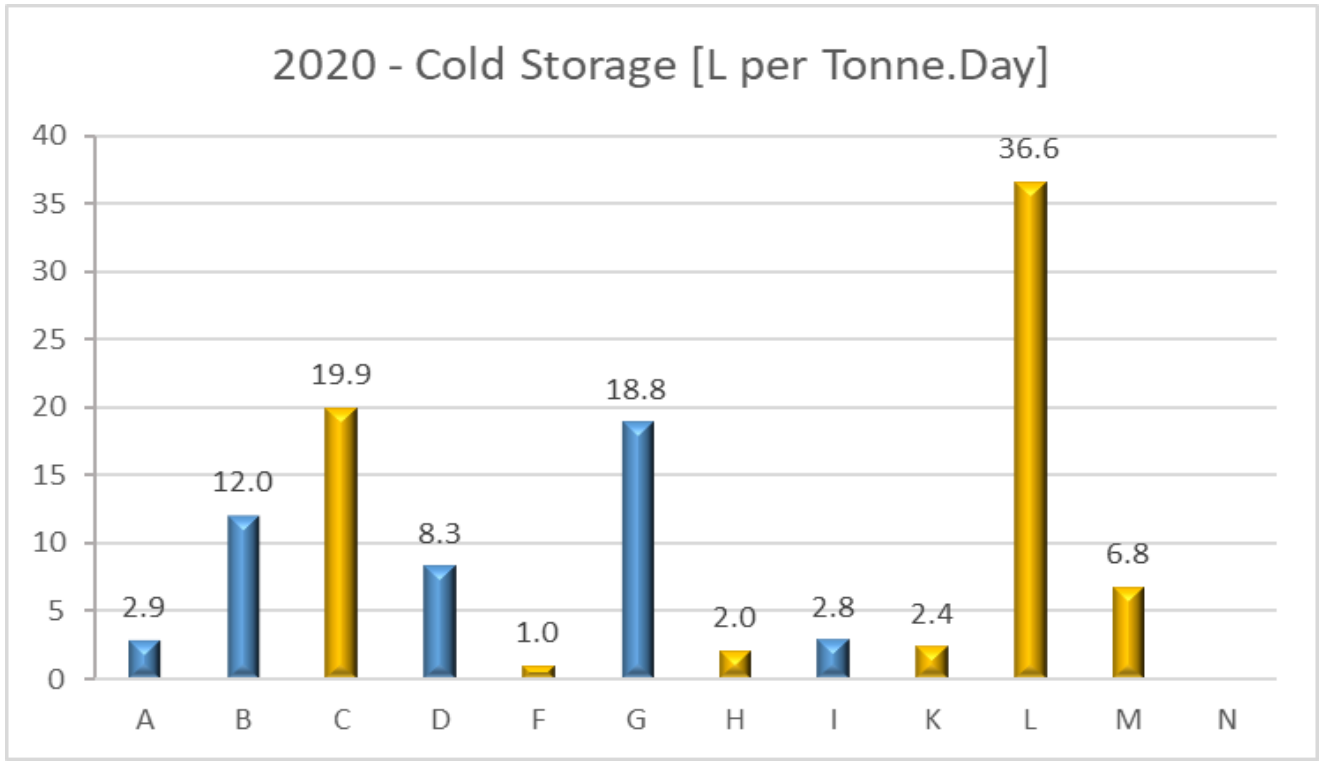
Water Benchmark Results – Cold Storage

- Includes all cold storage water consumption of which cooling towers make up the majority.



- Packhouse L – The cold storage water consumption was used to "balance" the total water consumption.
- Packhouse N – The cold storage water consumption was not metered and could not be estimated. Metering was installed only in 2021.

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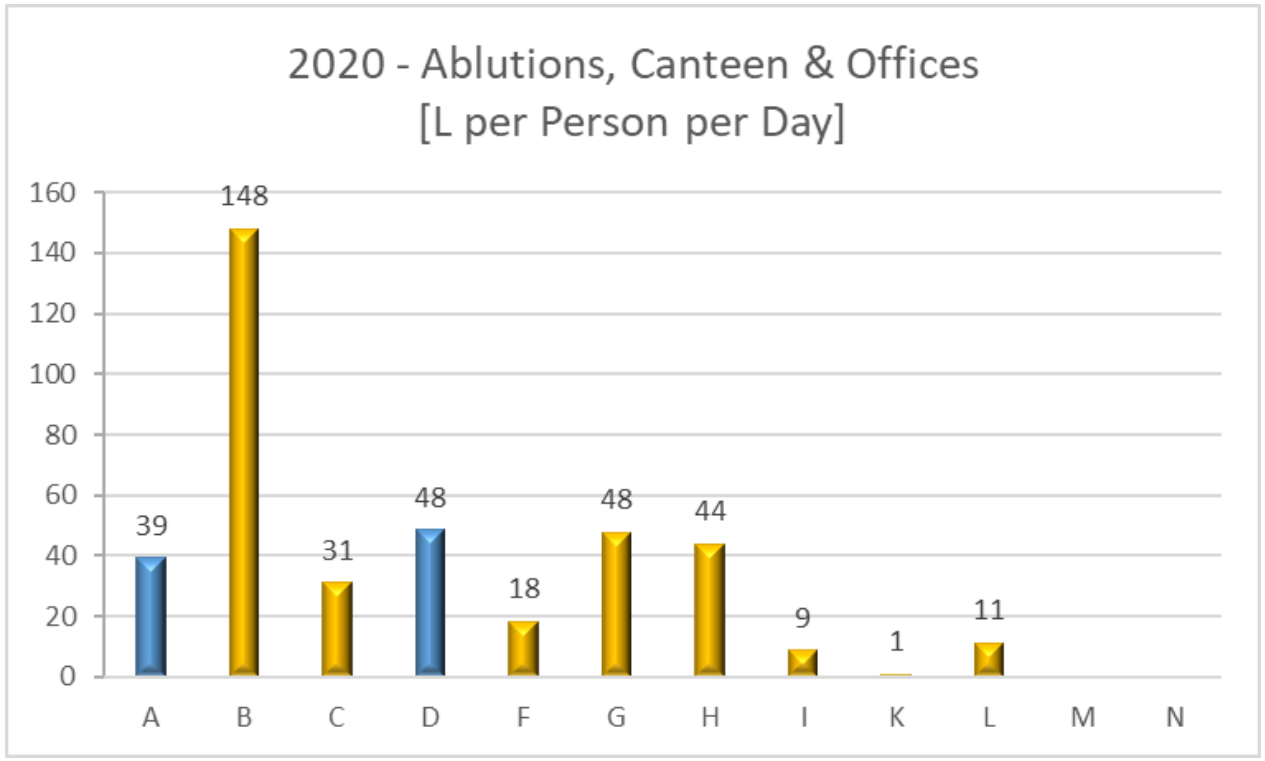
Water Benchmark Results – Ablutions, Canteen & Offices

- Includes the water consumption from Ablutions, Canteen & Offices.



- Packhouse M – Water consumption of ablutions, canteens and offices forms part of “other” water consumption calculation and could not be clearly allocated.
- Packhouse N – The ablutions, canteens and offices water consumption were not metered separately and could not be estimated. Metering was installed in 2021.

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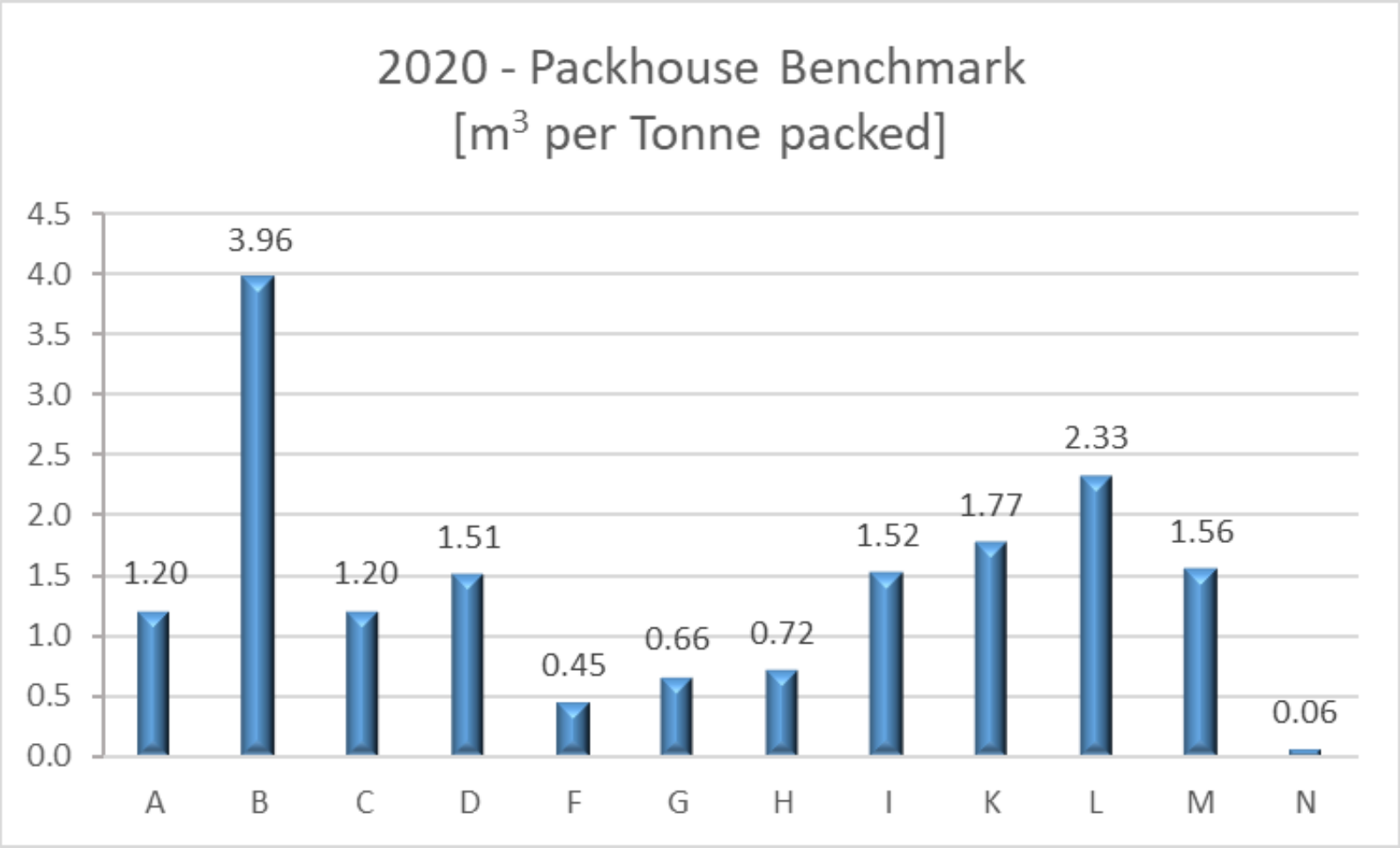
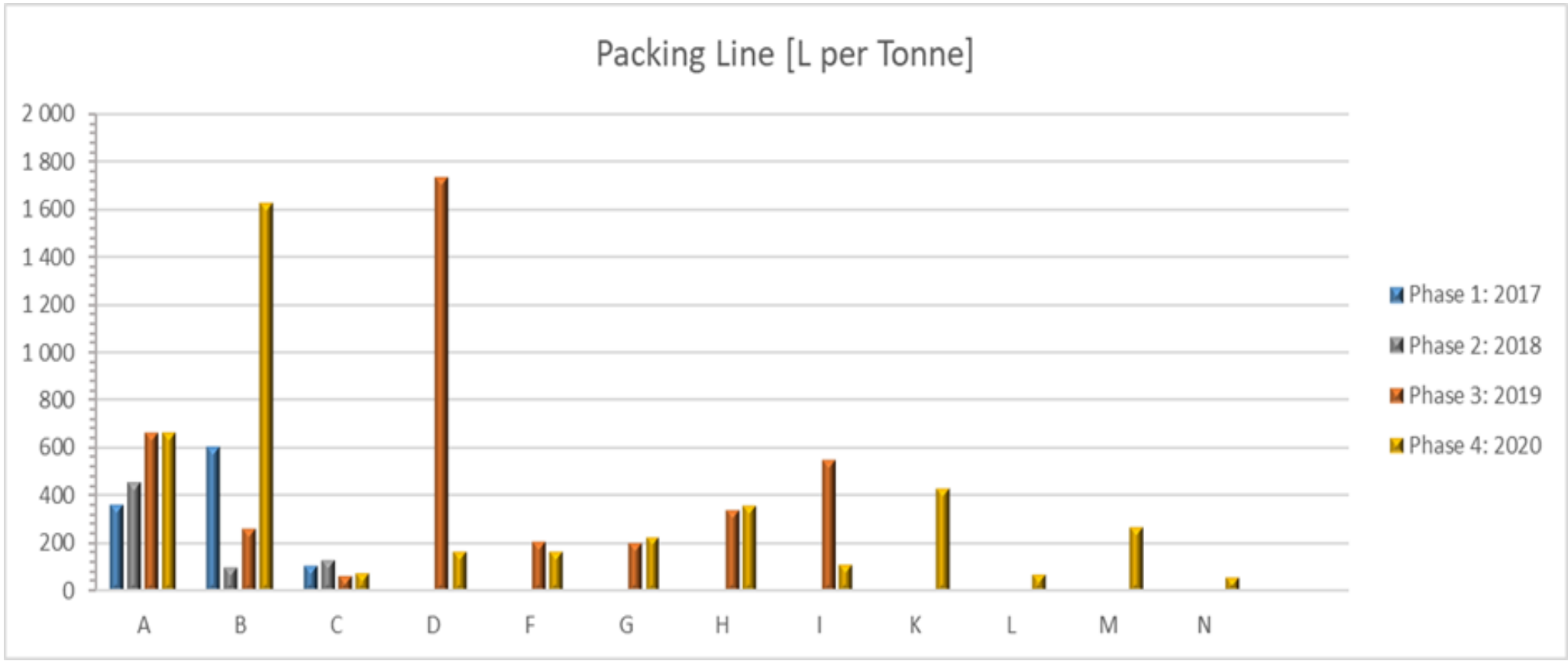
Water Benchmark Results - Overall Packhouse Benchmark

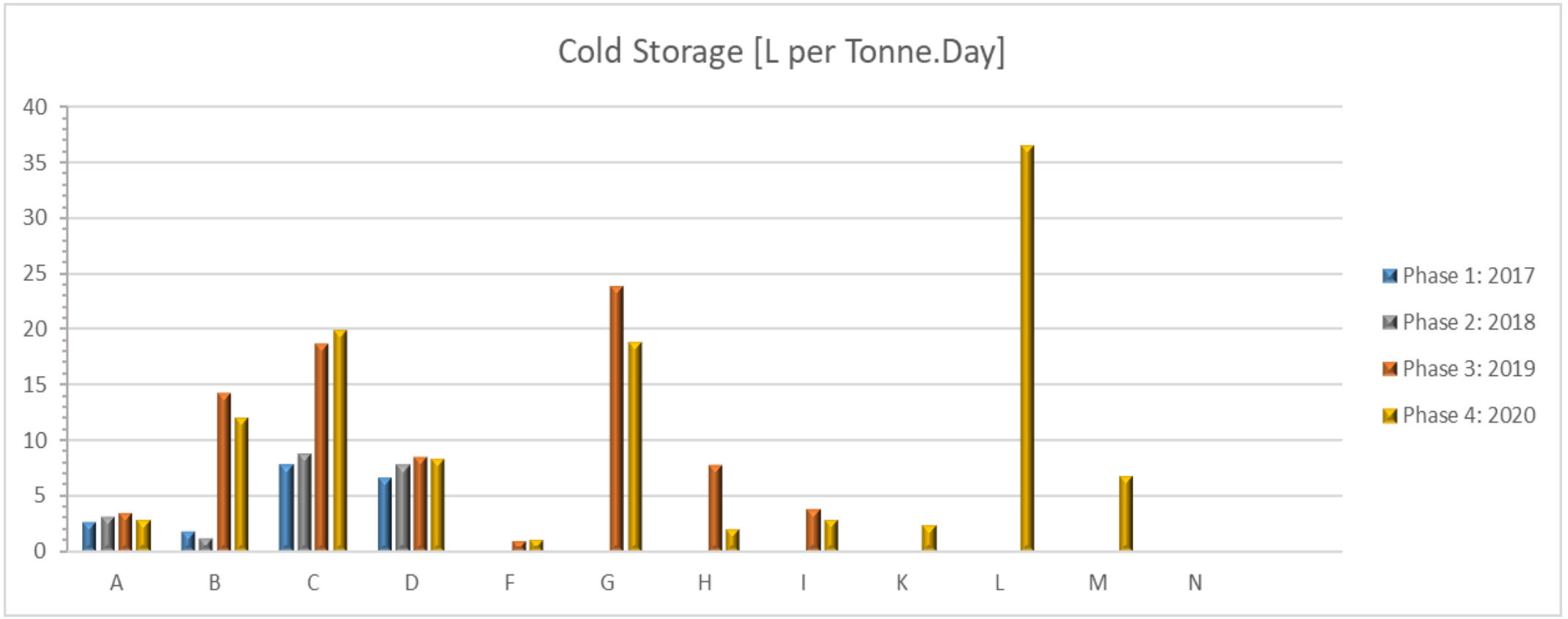


Water Benchmark Results – Year on Year Comparison: Packing line



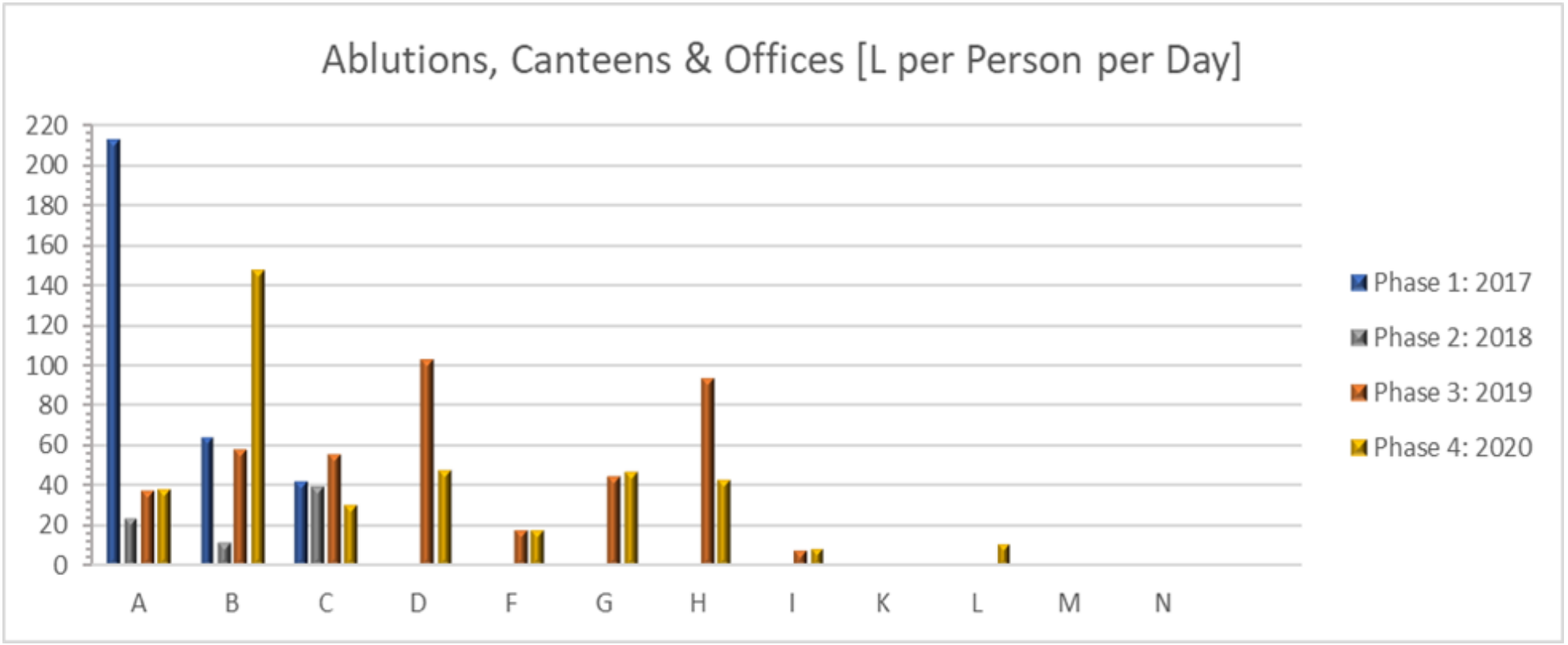
- For the pack line comparison it is best to use Packhouse A's data over all four years.

Water Benchmark Results – Year on Year Comparison: Cold Store



- For the cold storage comparison it is best to use Packhouse A's data over all four years.

Results – Year on Year Comparison: Ablutions, Canteen & Offices



- For the ablutions, canteens and offices comparison it is best to use Packhouse A's results for 2018 and 2019 (2017 data was not allocated correctly).

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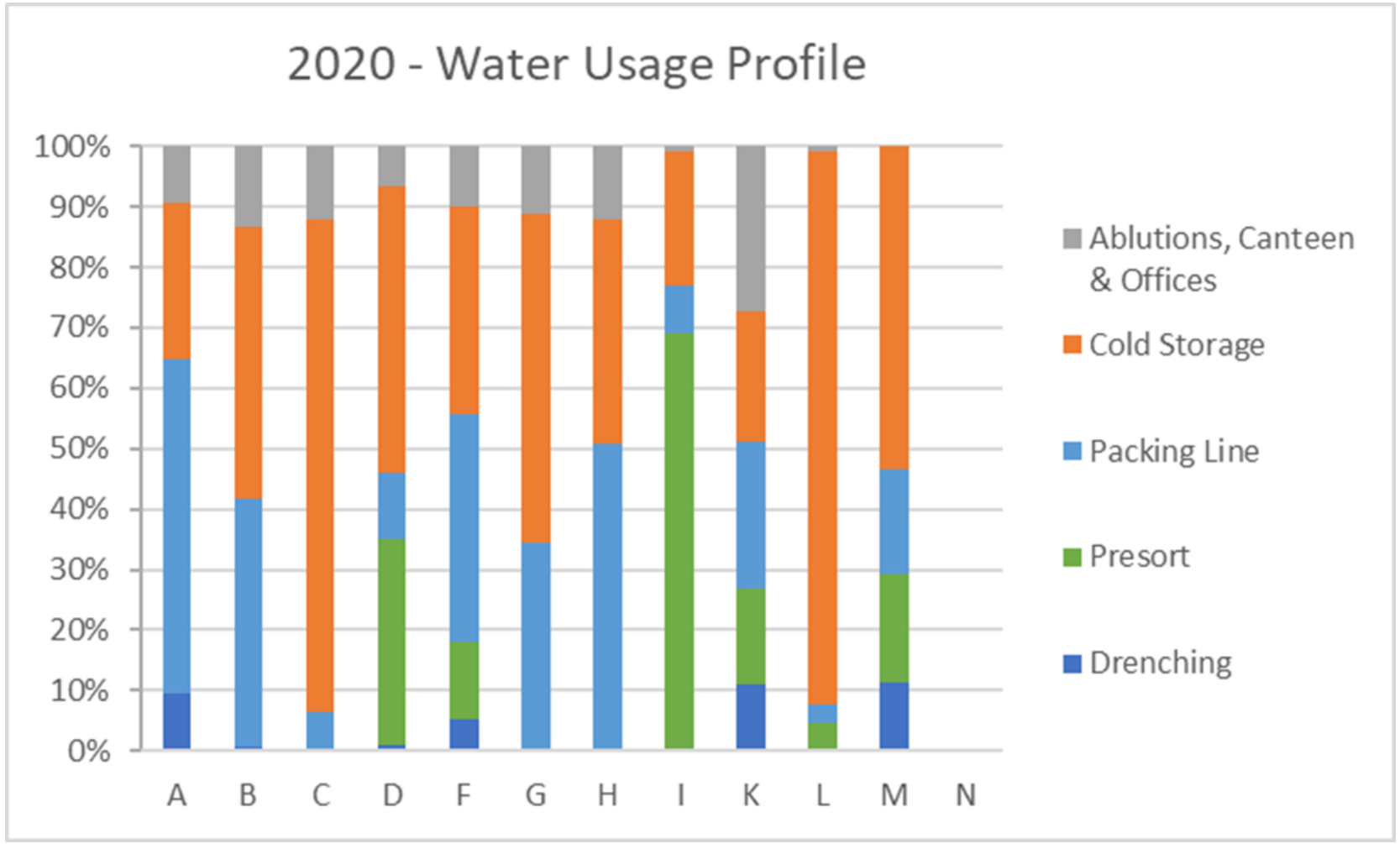
Water Benchmark Results – Water Usage Profiles

- Displays the water use percentage profile per packhouse.



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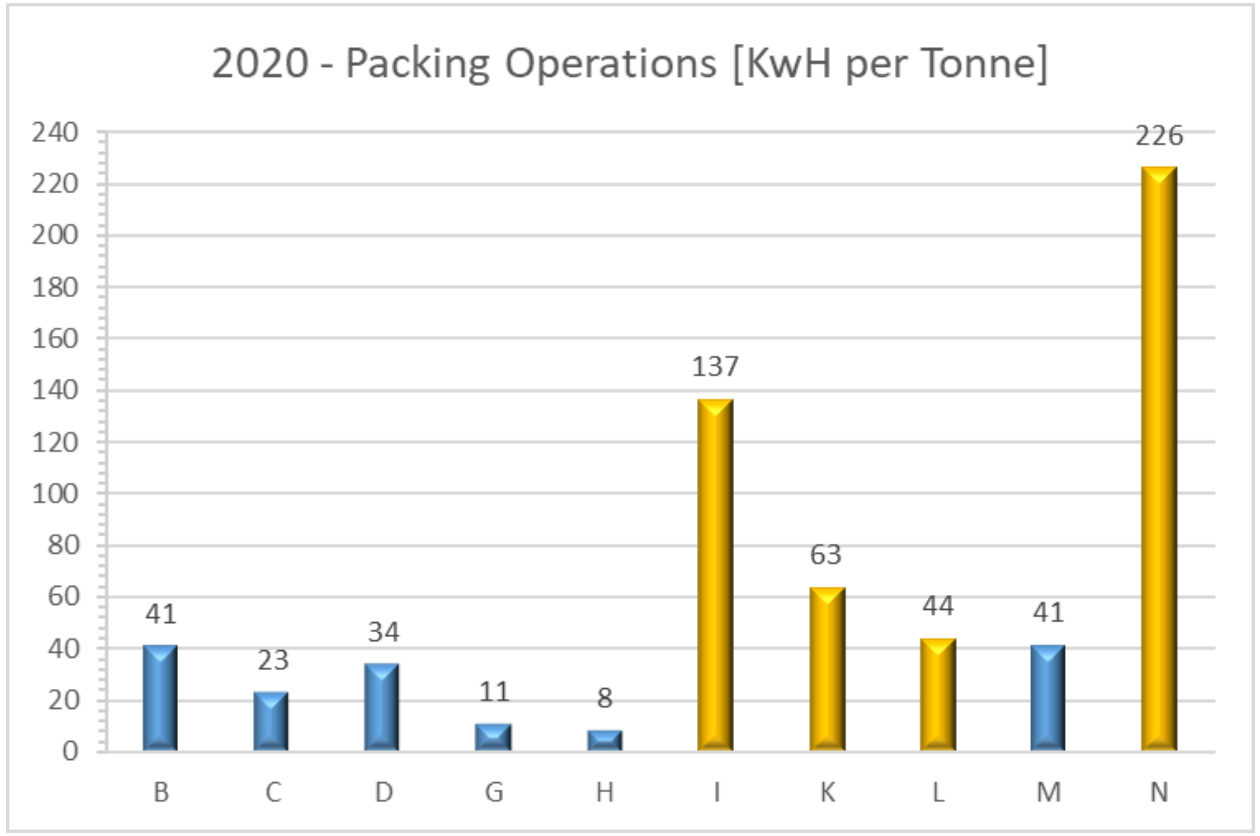
Electricity Benchmark Results – Packing operations

- This includes all operational electricity consumption in the packhouse (pre-sort, packing lines, ablutions, canteens, and offices).



- Packhouse I – This benchmark includes RA operations consumption use.
- Packhouse N – This benchmark includes CA and RA storage electricity consumption as allocation between the different areas in the packhouse was not possible.

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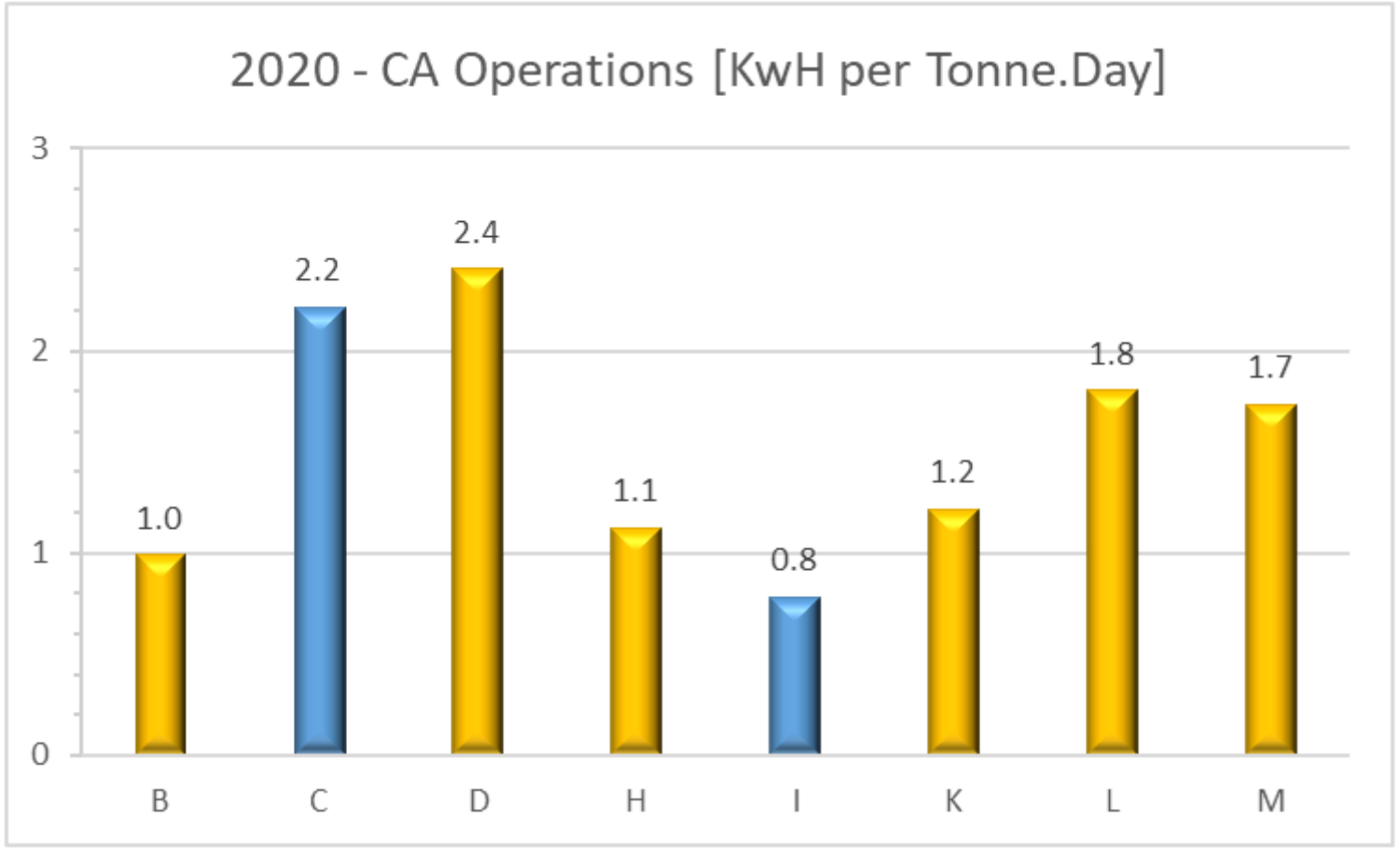
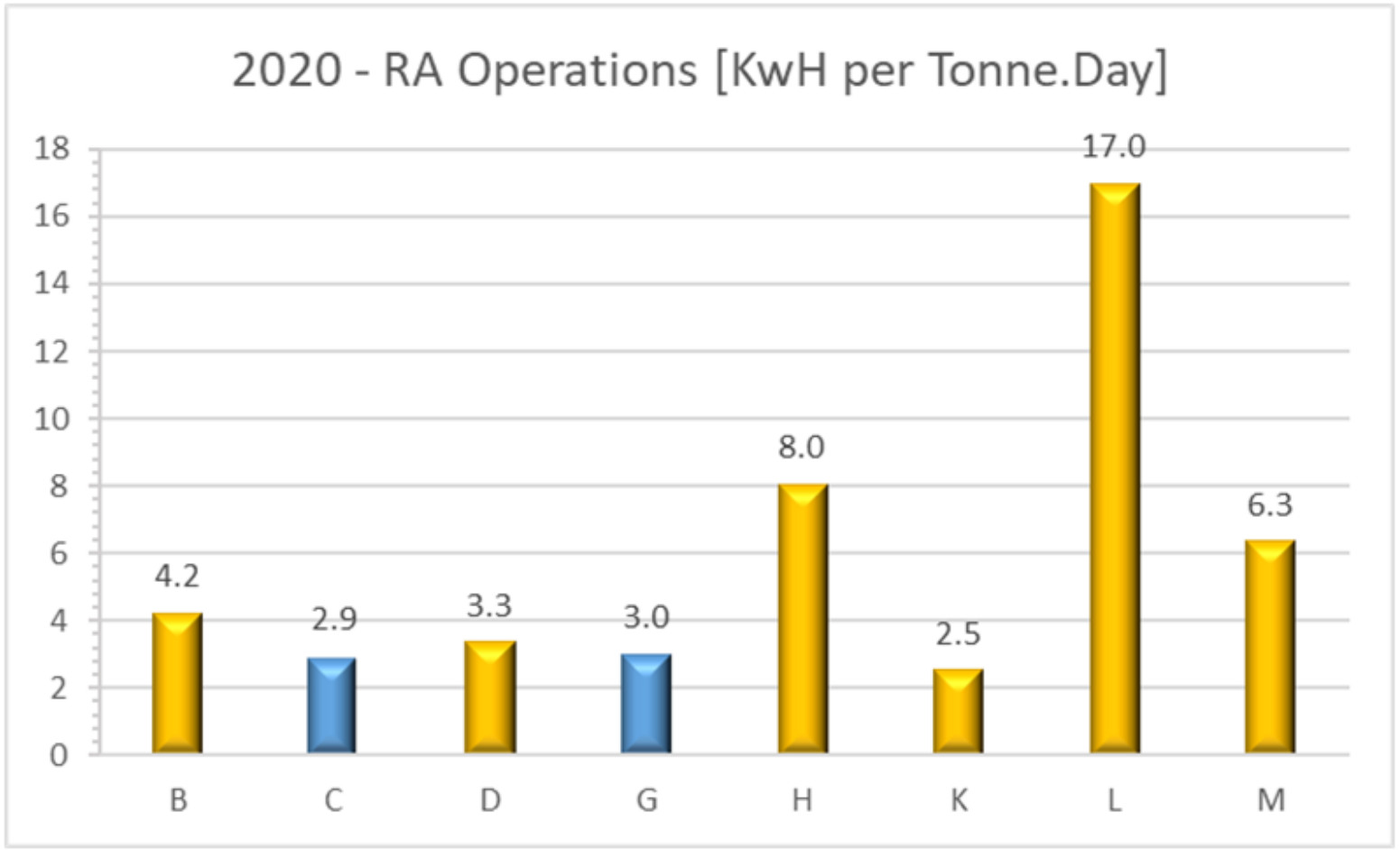
Electricity Benchmark Results – CA Operations

- This includes all electricity consumption relevant only to CA operations (refrigeration plant, compressors, condensers, fans, cooling towers, etc.)

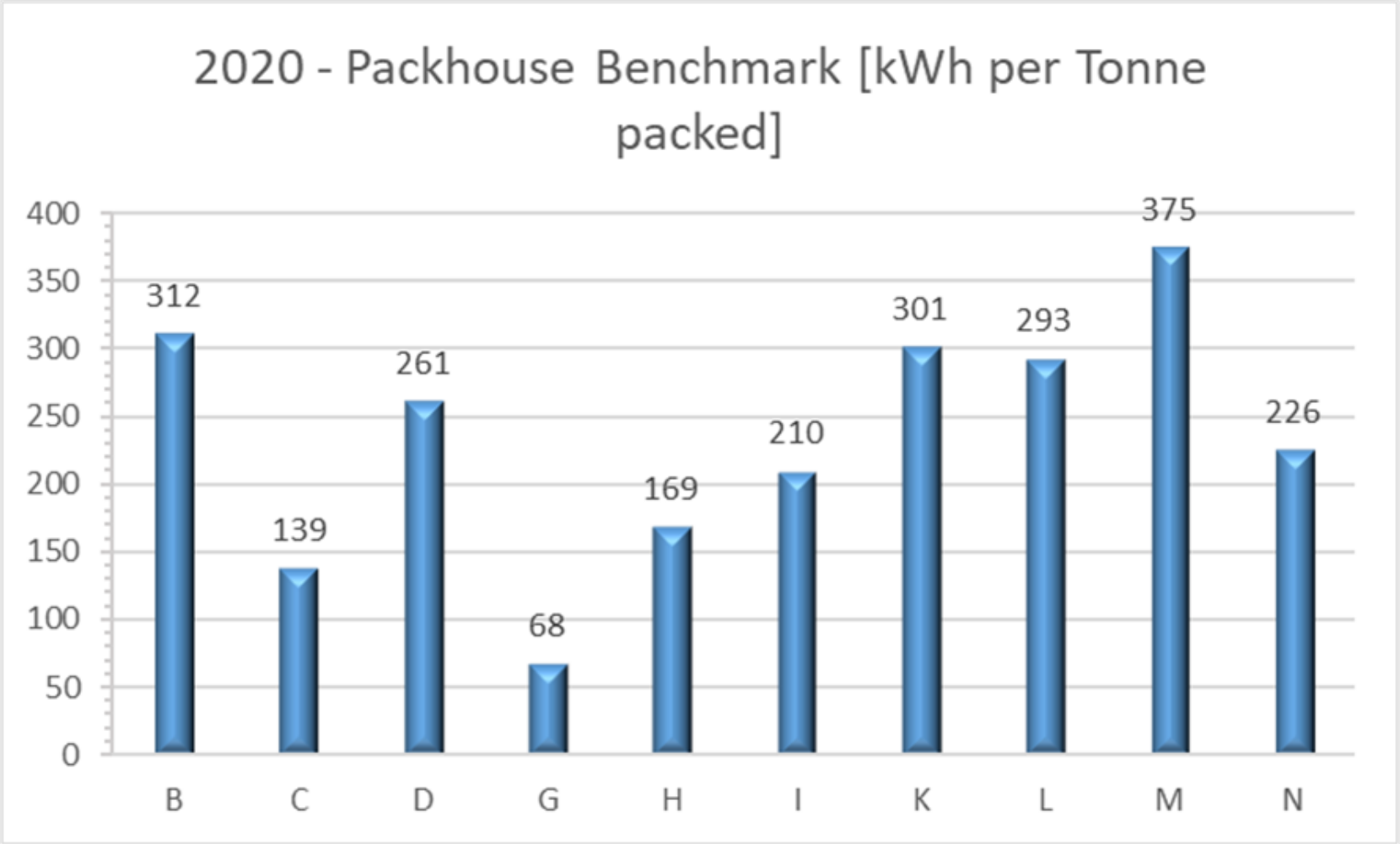


Electricity Benchmark Results – RA Operations

- This includes all electricity consumption relevant only to RA operations (refrigeration plant, compressors, condensers, fans, cooling towers, etc.)



Electricity Benchmark Results – Overall Electricity Consumption Benchmark



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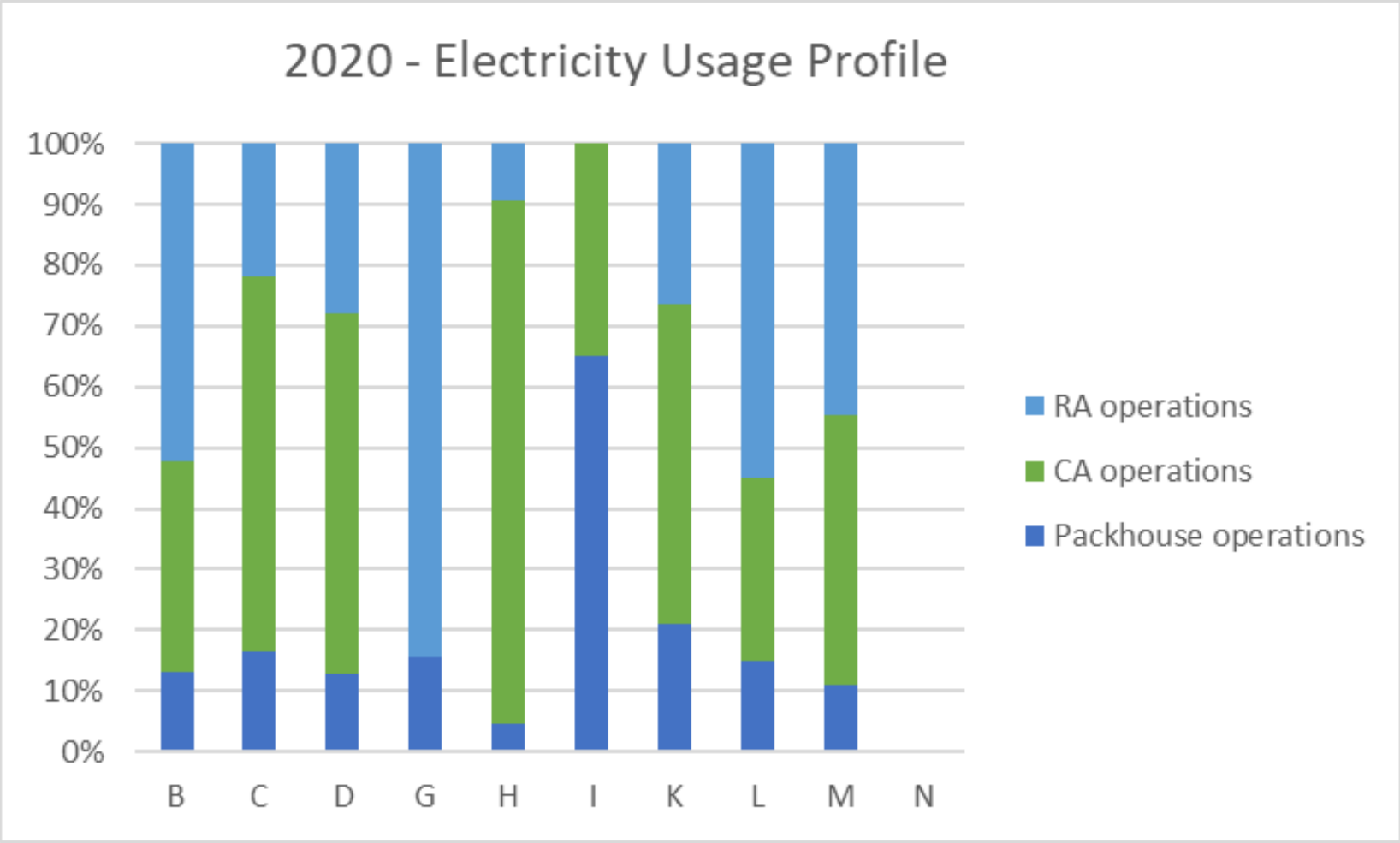
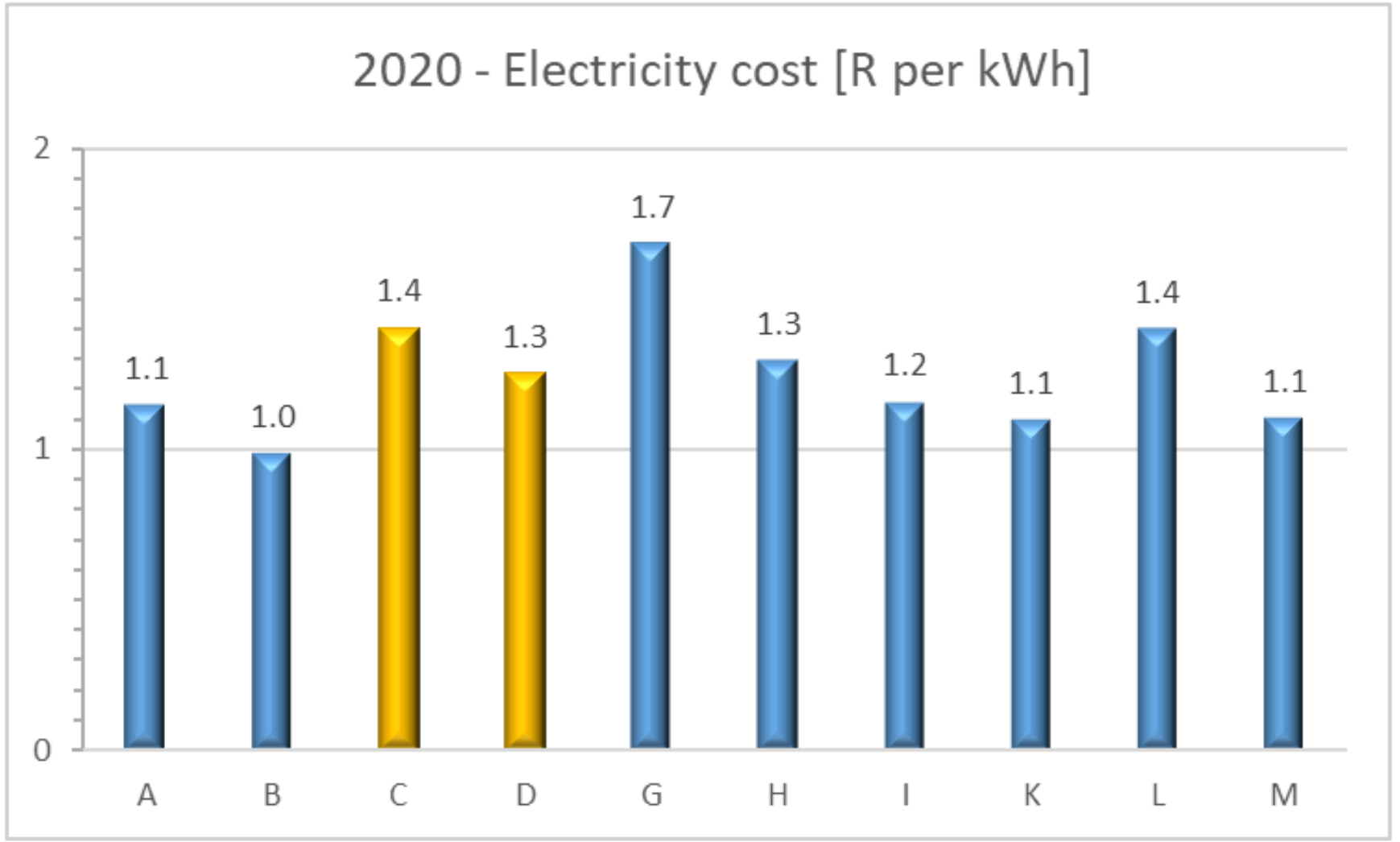
Electricity Benchmark Results – Electricity Use Profiles

- Displays the electricity use percentage profile per packhouse.



Electricity Benchmark Results – Electricity Cost Benchmark



Conclusions

- Phase 4 positives:
  - **Three new** packhouses participated.
  - Year-on-year comparisons – trends starting to emerge.
  - **Water usage** appears to be **stabilizing** and even **decreasing**.
  - Increased awareness of metering blind spots and data quality issue for each specific packhouse.
  - Increased awareness of the project, 3 more packhouses committed to participate in future.
  - Most packhouses already have some **water and energy saving practice**s in place and have plans to implement more in the future.
  - More accurate packing line benchmarks (drenching and pre-sort split out).
  - **Energy benchmarking** initiated.

- Phase 4 challenges:
  - Was unable to achieve 15 packhouse goal.
  - Data quality

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Thank You

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