Get **more milk** from your **Astronaut!**

Free cow traffic and frequently pushed feed can stimulate ingestion and cow activity. You can save valuable time and increase milk production. In farms that combine a Lely Astronaut milking robot & Lely Juno feed pusher we observed an average increase in milk production of 7,4%(**).

A data desk research among(*) Lely farmers compared their performances based on data out of Horizon, their management program. The aim of the research was to investigate the effect of feed pushing on the performance of the Astronaut milking system. Within this customer group we compared the results of 8904 Astronaut users against 4912 Astronaut + Juno users.

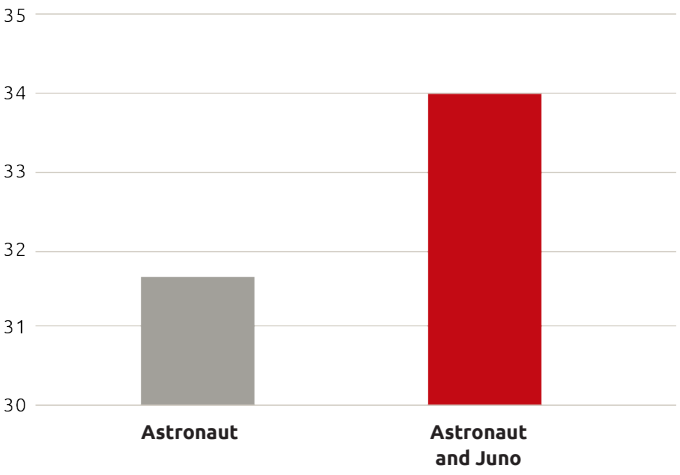
The metrics used for this comparison were:

- Milk production per animal /day
- Milking visits per animal /day
- Refused visits per animal /day
- Percentage of irregular visits per cow /day

All these metrics were measured on a per farm basis.

1. Milk production (kg) per animal per day

Farm Device Group	Median
Astronaut	31.641
Astronaut and Juno	33.992

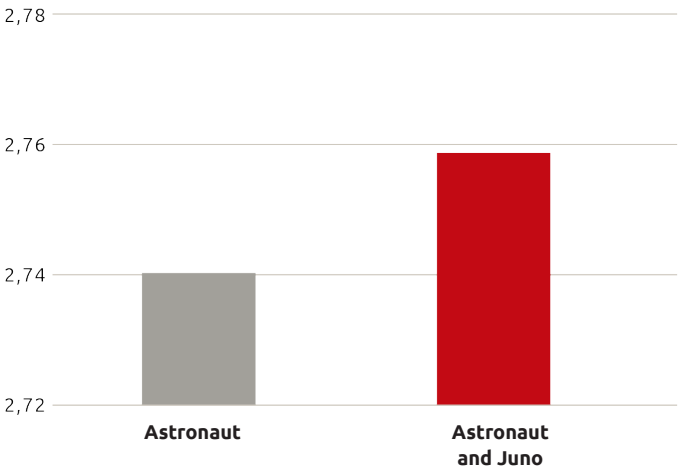


The median value indicates that, typically, higher milk production is observed on farms with a Juno feed pusher next to their Astronaut.

Frequently pushing feed has a positive impact on the ingestion level of the animal. The feed pusher assures feed is within reach at the feed fence during the day supporting the cow's own routine. Whenever a cow presents herself at the feed fence, feed is always available and within reach and therefore the amount of necessary nutrients to produce milk increases as well.

2. Milking visit per animal per day

Farm Device Group	Median
Astronaut	2.74
Astronaut and Juno	2.759

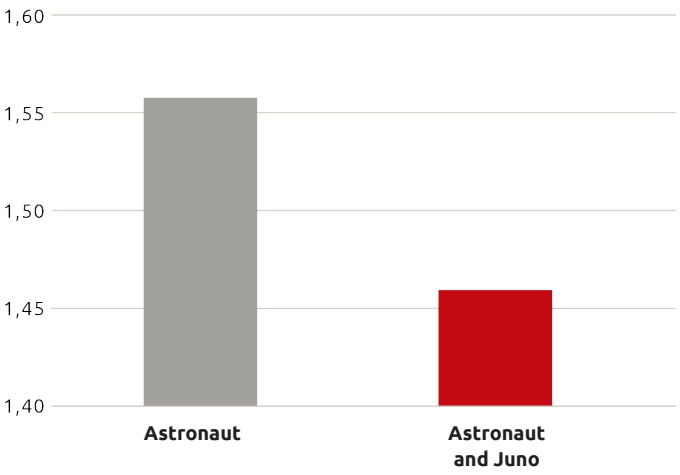


The median value indicates that, typically, a Juno has a positive impact on the number of milking visits per cow per day.

The effect of frequent feed pushing is that the cow is more active spread over the day. Cows can go and eat at their own rhythm which positively influences the visit behavior to the milking robot as well.

3. Milking refusal count per animal per day

Farm Device Group	Median
Astronaut	1.558
Astronaut and Juno	1.459

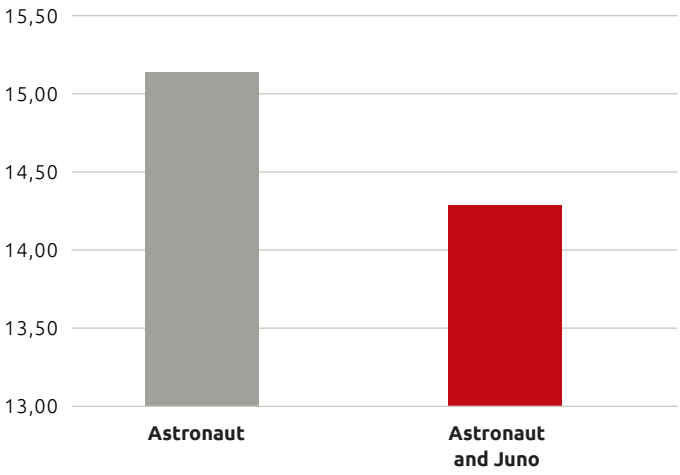


The median value indicates less refusal for farms with a Juno. However, refusal is usually more influenced by the settings than the changed behavior.

Due to the increased milk production cows obtain a higher acceptance rate to be milked.

4. Percentage of irregular visit of cows (%)

Farm Device Group	Median
Astronaut	15.15
Astronaut and Juno	14.29



This metric is calculated by determining the percentage of cows that show irregular milking visit to the Astronaut, with irregularity defined as a condition where a coefficient of variation (CV) of (successful) milking interval is above the given threshold (27% from literature). A drop in milk yield is expected when the CV > 27%. From the graph, it can be observed that the farms with feeding robots show a lower percentage in irregular milking visit.

By frequently pushing feed we avoid peaks at the feed fence which have a negative effect on the cow's own rhythm and occupation levels at the robot. The sudden ingestion of a lot of feed can result in cows getting less active as they need to digest the feed while lying down.

Summary:

Initial analysis on the 4 metrics shows trends where the performance in the farms with a Juno robot is better than the farms which only operate Astronaut robot.

*Quality of the data:

- For milk production/animal, milking/animal, and milking refusal/animal, data from January 1st 2023 is considered.
- For irregularity, data is taken from the last 7 days (calculated on May 29th 2024)
- This data set only considers days in the farm where the Astronaut free time was between 5-10%
- Additional conditions for irregularity metric:
  - Only consider cows with number of milking >= 3.
  - Fresh and dry-off cows are excluded.
  - Farms where irregularity suddenly occurred are excluded.
  - Farms with <5% and >80% inconsistency are excluded.