BouMatic / HERDLINE

MilkGenius – new data unplugged

March 4th 2026, Savannah

MilkGenius in BouMatic ecosystem

Robotic Milking Systems – Dominykas Vizbaras, CEO BROLIS

- Herd / Group / Cow data
- Animal health
- Feeding adjustments
- Automation

Conventional Milking systems – Steve R. Pretz, President – CEO BouMatic

- Random sampling principles
- Feeding adjustments

Discharge Line - Steve R. Pretz, President – CEO BouMatic

- Herd / Pen / Group data
- Feeding adjustments

Data Sharing with Dairy World Participants - Steve R. Pretz, President – CEO BouMatic

- Open for sharing data, cloud to cloud data exchange

How We use the MilkGenius to Address the Problem?

The **MilkGenius In-Line Milk Analyzer** is an advanced sensor that integrates seamlessly with Gemini milk robot or any BouMatic milking system.

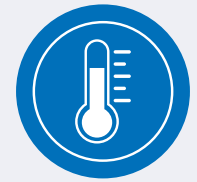
It functions like **a miniature laboratory**, measuring milk composition for each cow in real time.

Fat

Protein

Lactose

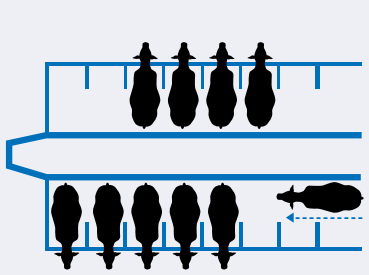
Milk spectrum



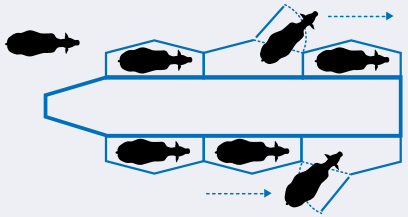
Temperature

MilkGenius Sensor is Compatible with Various Milking Setups

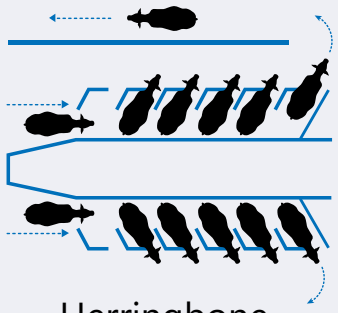
- Unique mid-infrared laser sensor
- No additional reagents
- Remote monitoring
- No on-farm calibration
- No milk sampling
- Each animal is tracked individually
- Maintenance-free
- Automated cleaning procedure



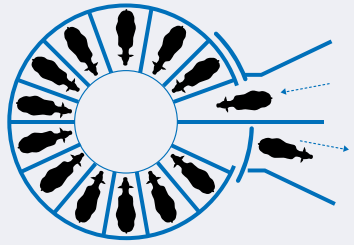
Parallel



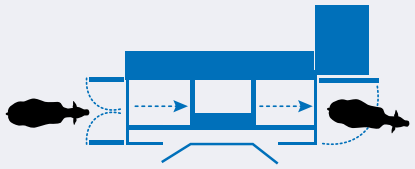
Tandem



Herringbone

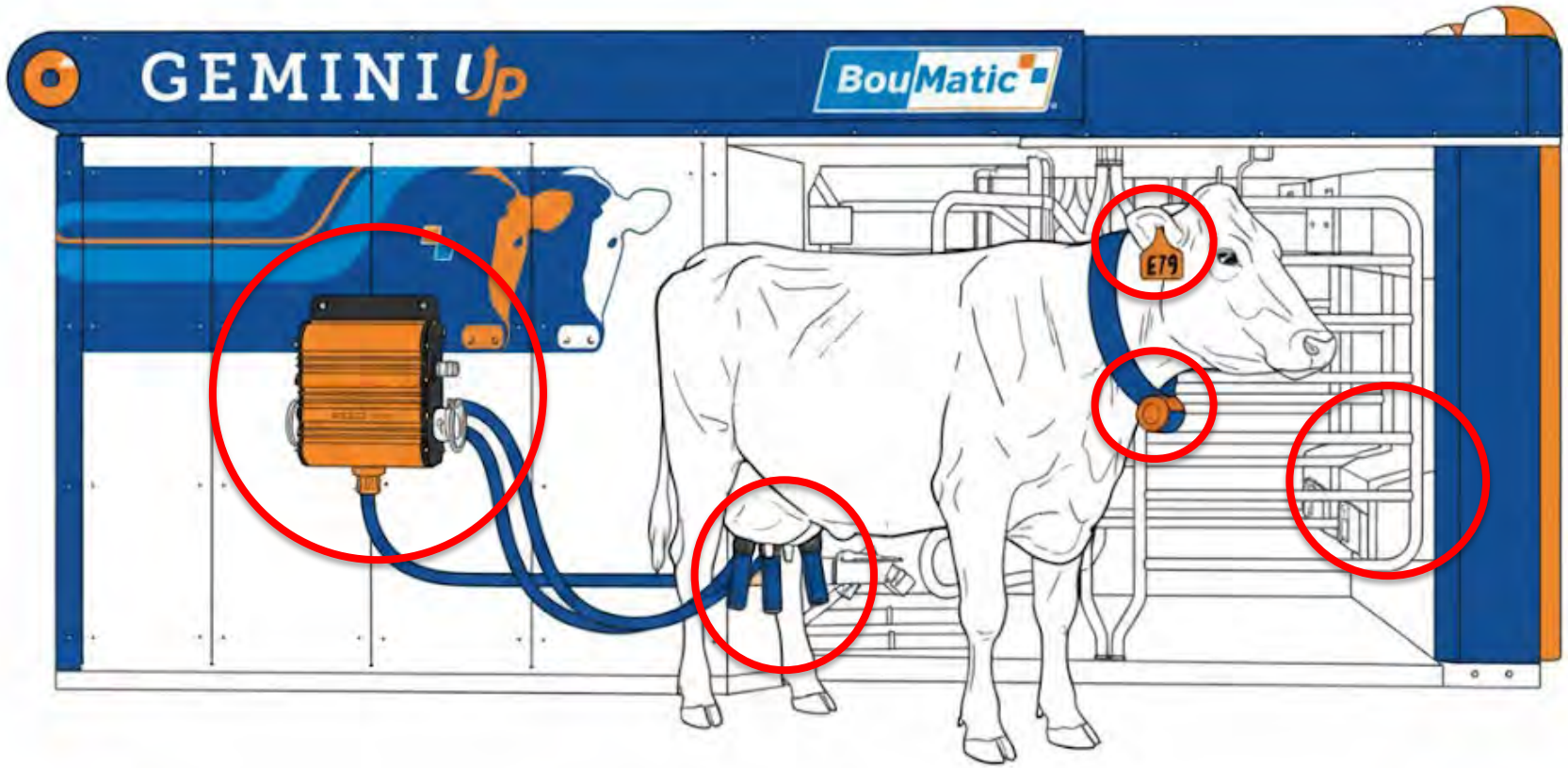


Rotary



Robots

MilkGenius and BouMatic HerdLine in Small Robotic Farms

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MilkGenius and BouMatic HerdLine in Small Robotic Farms

Herd level – Group level – Individual animal

Early detection of health disorders

- Negative energy balance
- Milk fat depression
- Acute cases

Optimize feeding

- Efficient feed usage
- Milk quality improvement
- Herd health monitoring

Improve reproductive performance

- Cow selection
- Improved insemination rates

How Many Data Points Do You Actually Get?

- A farm that has 2 BouMatic robots, 2 MilkGenius sensors and milks ~100 cows daily:
    - Slightly more than 300 milkings a day;
    - 99% of milkings have fat, protein and lactose concentrations;
- Within a month, this farm is expected to have 300 * 30 * 0.99 = **8910 measurements** for fat, protein and lactose.

BHL Animal Health Models

The amount of reliable data from the sensor creates a strong training background for our machine learning models.

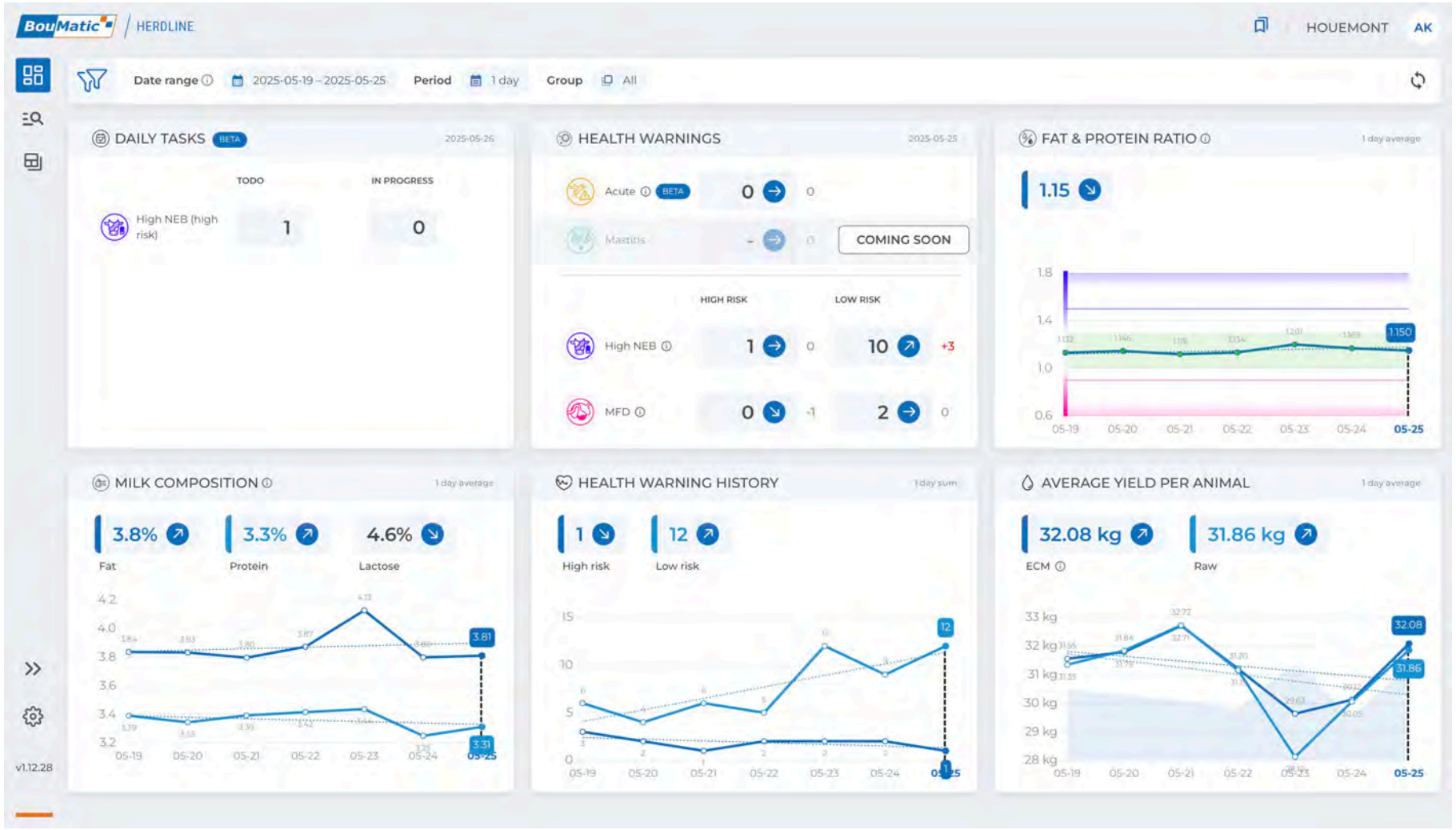
We are able to track individual animals through their lactation, compare them to the herd and see health warning signs early.

Combining this data with other sensors improve the accuracy of the models.

Herd / Group / Cow data: 3 Depth Levels for Information

The top level of the application provides an overview of the full farm:

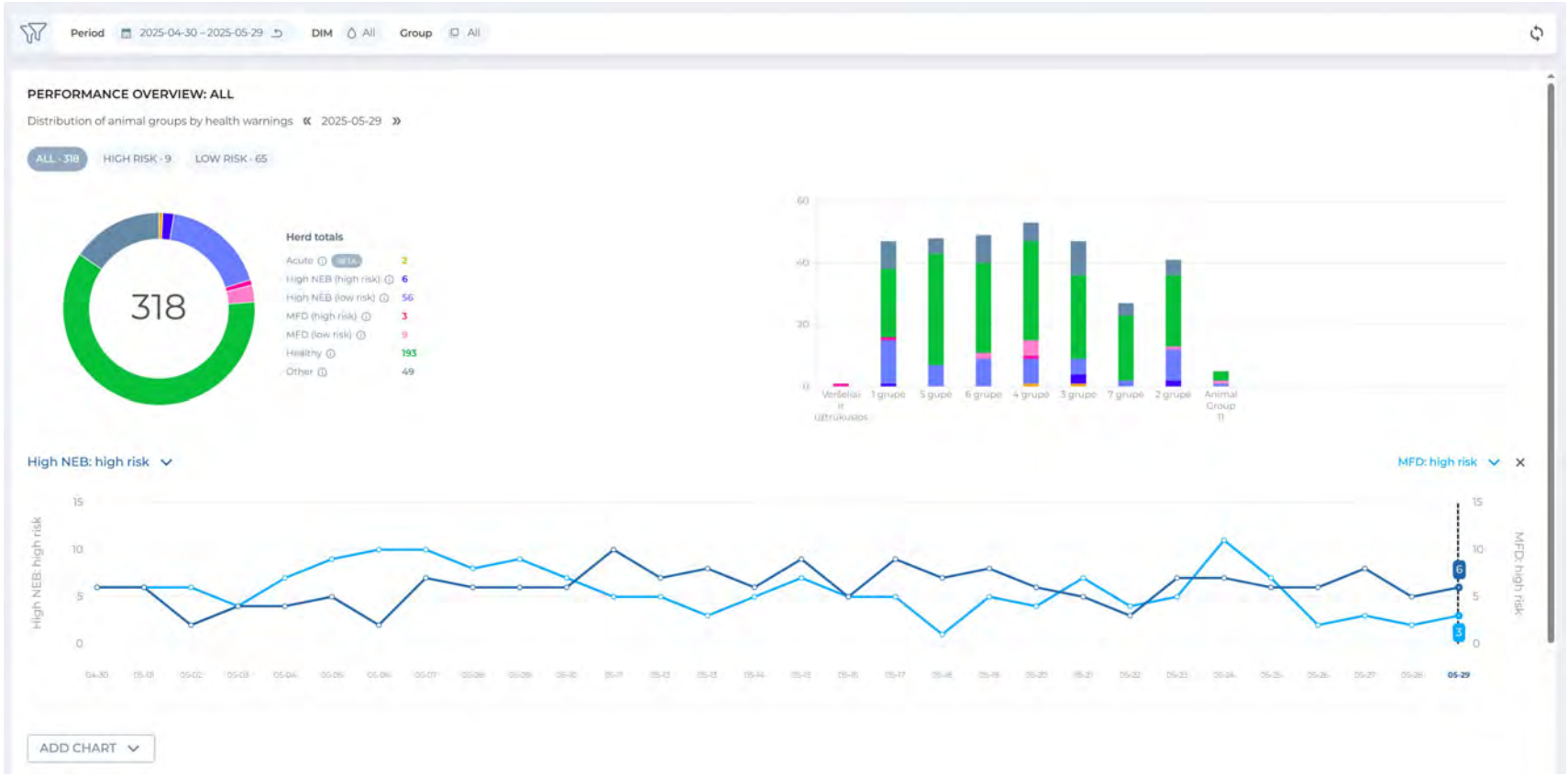
- Average milk yield;
- Fat, protein and lactose percentages;
- Animals at risk.



Herd / Group / Cow data: 3 Depth Levels for Information

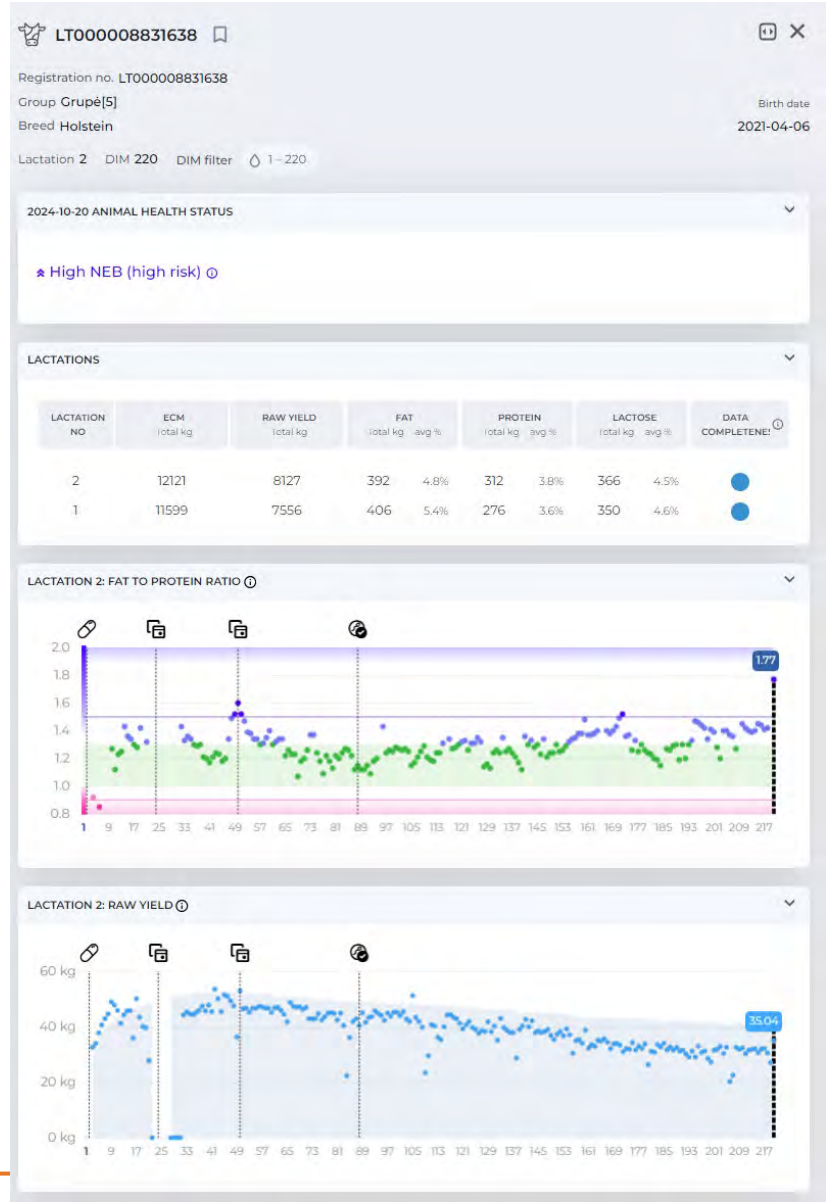
The group level overview shows health status summaries for each group.

This allows the farmer to identify not only sick animals, but notice any deviations among groups and adjust the feed accordingly.



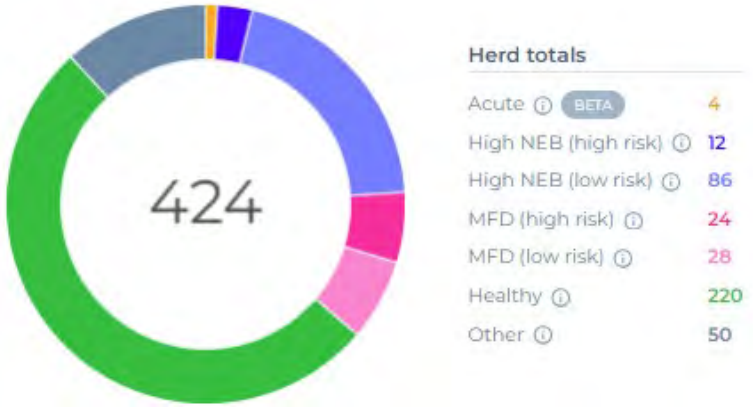
Herd / Group / Cow data: 3 Depth Levels for Information

- **Individual:** each animal has their own summary with the health history and all available data. The user can see:
  - The aggregate numbers for all available lactations;
  - Daily fat to protein ratio for the current lactation;
  - Daily yield for the current lactation and its comparison to the farm mean (for the corresponding lactation)
  - Daily fat concentration;
  - Daily protein concentration;
  - Daily lactose concentration;
  - Daily milk temperature deviation from the session mean; and
  - (if available) all event entries for the given animal.

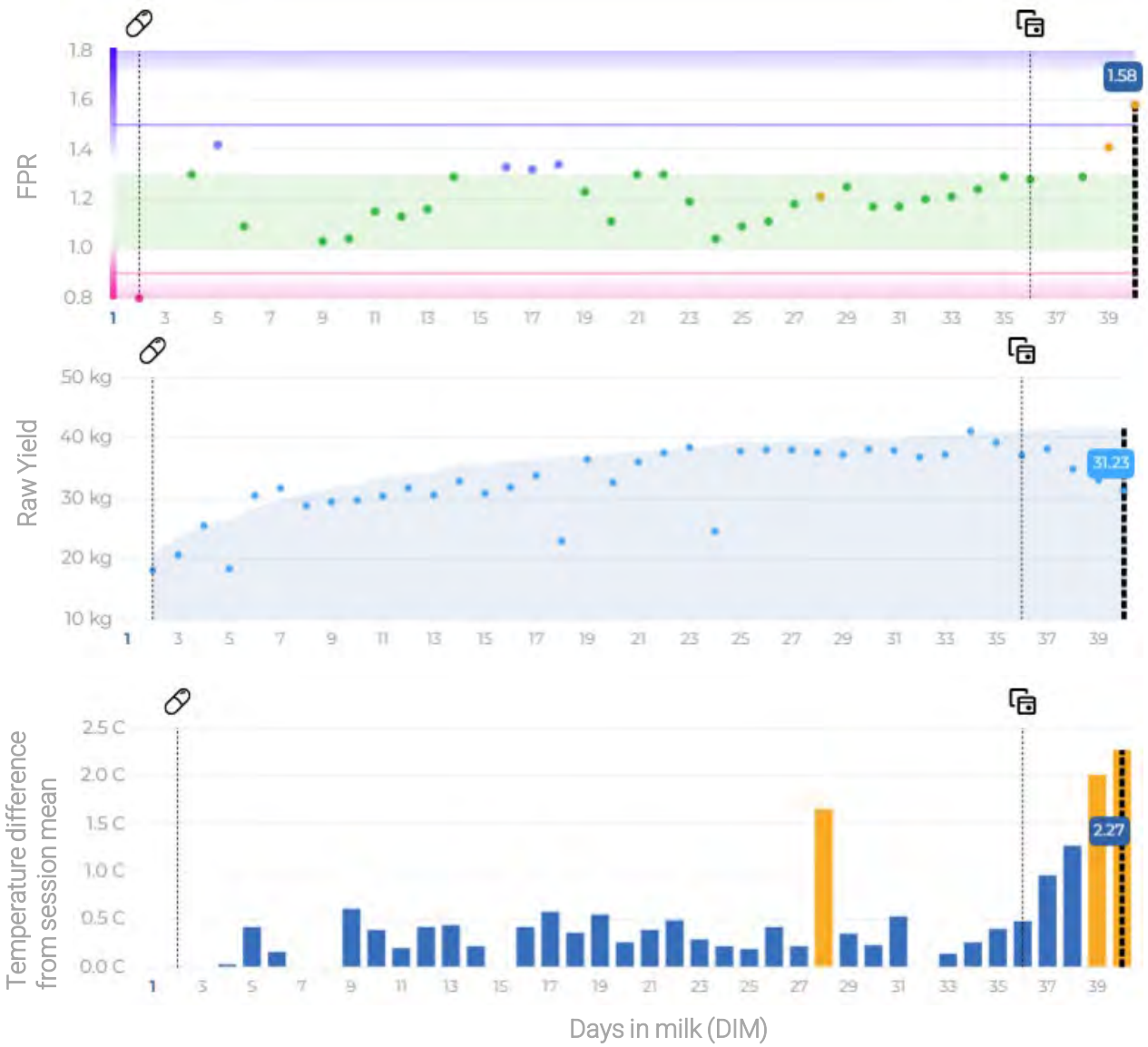


Health Insights from BouMatic HerdLine

- We currently raise the following warnings:
  - Negative Energy Balance (NEB);
  - Milk Fat Depression (MFD);
  - Mastitis
  - Acute (signal when parameters are changing rapidly).



- Animals can also have a status “healthy” if all parameters are within limits and “other” if there is not enough data to determine if the animal is healthy or not.



Automatic NEB Monitoring and Prevention

Nearly every dairy cow experiences a Negative Energy Balance (NEB) around calving. It occurs when the energy required for milk production and maintenance exceeds the energy intake from feed.

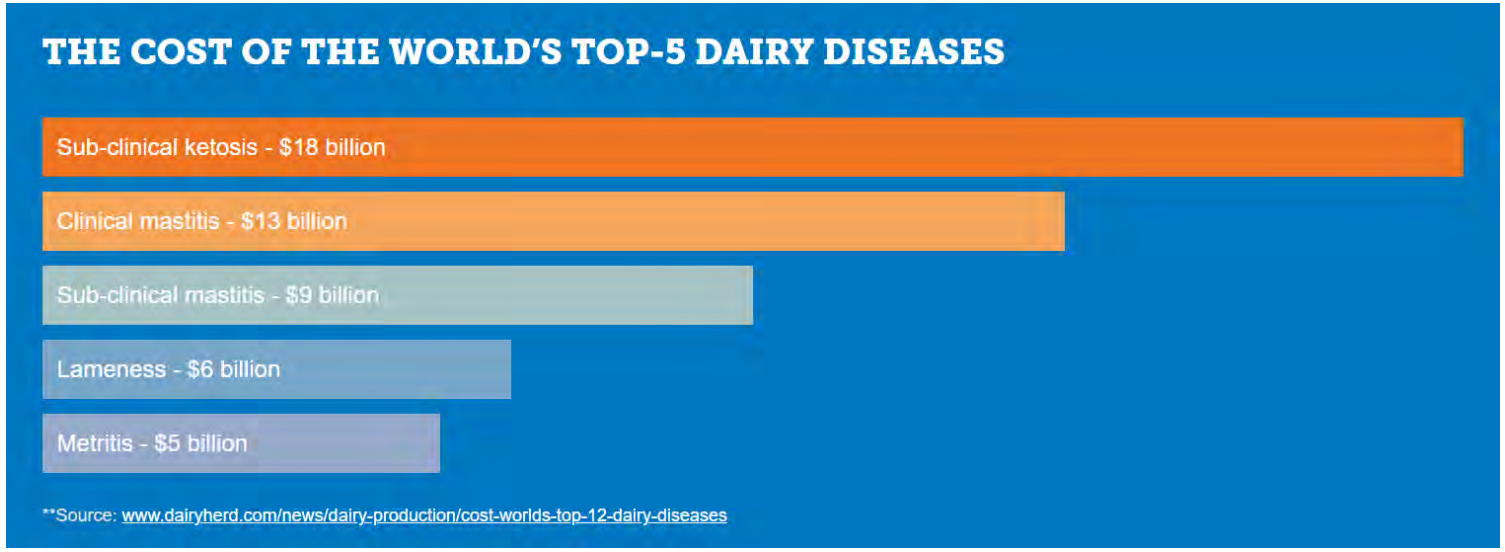
In some cases, NEB causes sub-clinical ketosis, which is difficult to detect because your cow doesn't show obvious clinical signs. But the condition can have several significant impacts.

BHL models track each individual animal and are able to automatically administer liquid energy supplements through BouMatic robots.

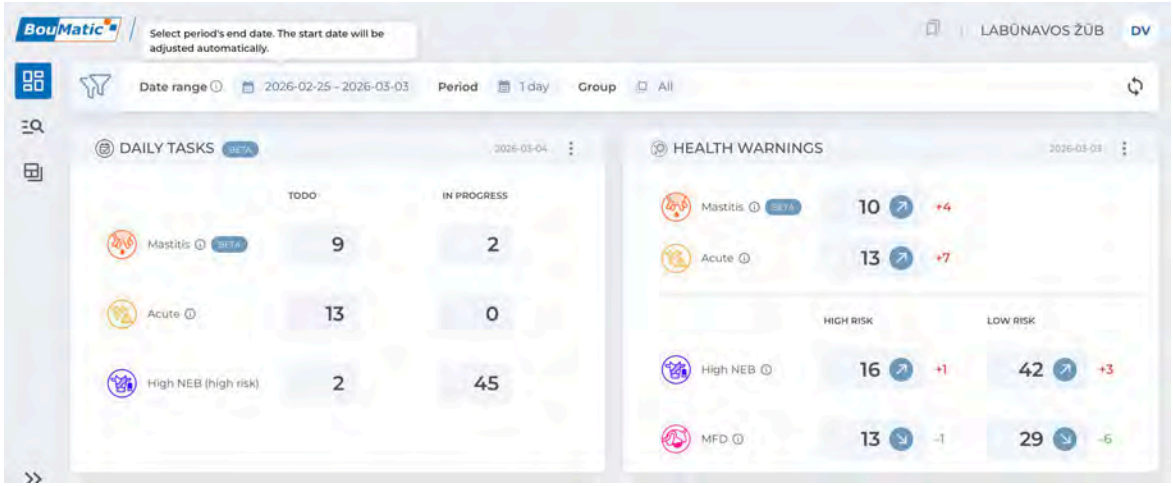
This feature is currently in testing.

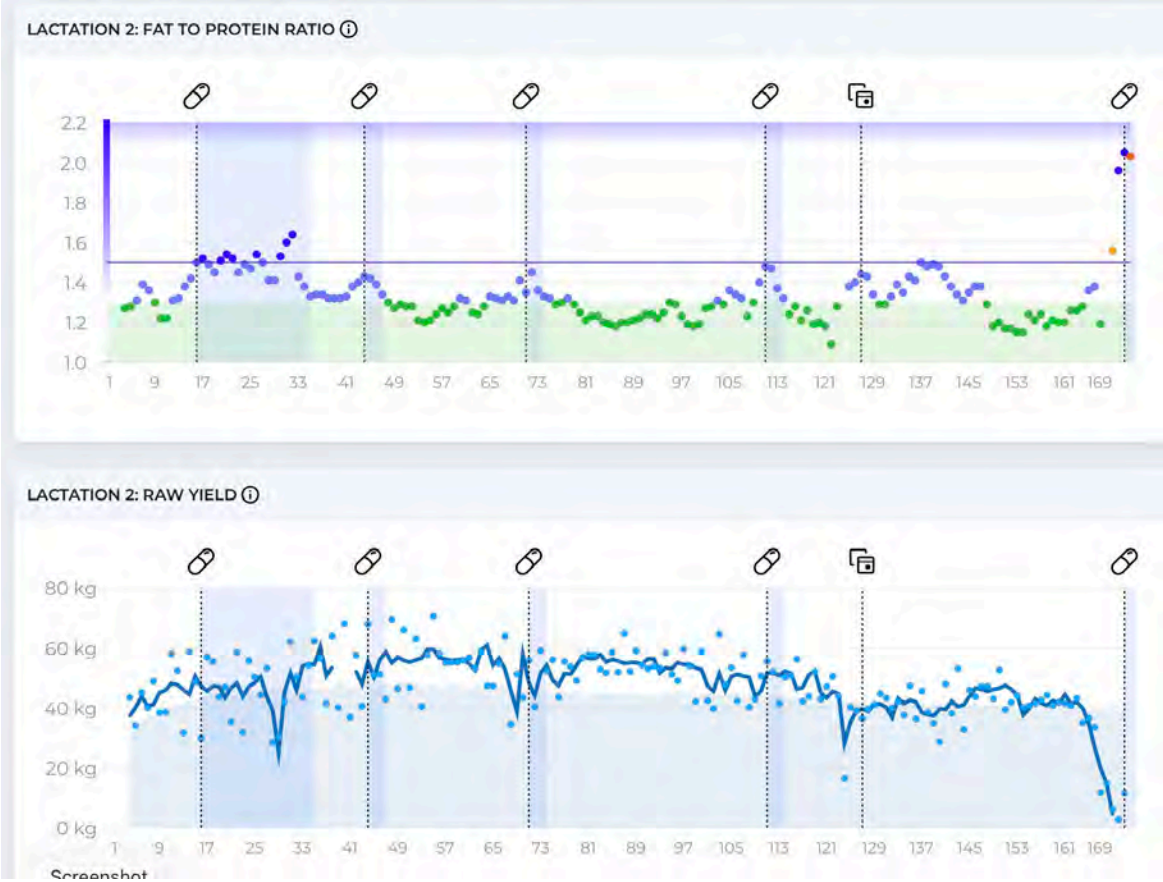
TREATMENTS END TODAY / ENDED: 14

WARNING	ANIMAL NO.	PROGRESS	EVENT	DISEASE	LACT. NO.	DIM	BEGIN	END
High NEB	5264	6 / 1	Treatment Automated	NEB	6	11	2025-05-25	2025-05-25
High NEB	5247	8 / 3	Treatment Automated	NEB	2	10	2025-05-23	2025-05-25
High NEB	4248	7 / 2	Treatment Automated	NEB	1	13	2025-05-24	2025-05-25
High NEB	4245	8 / 2	Treatment Automated	NEB	1	11	2025-05-23	2025-05-24



Mastitis Detection in Robotic Farms

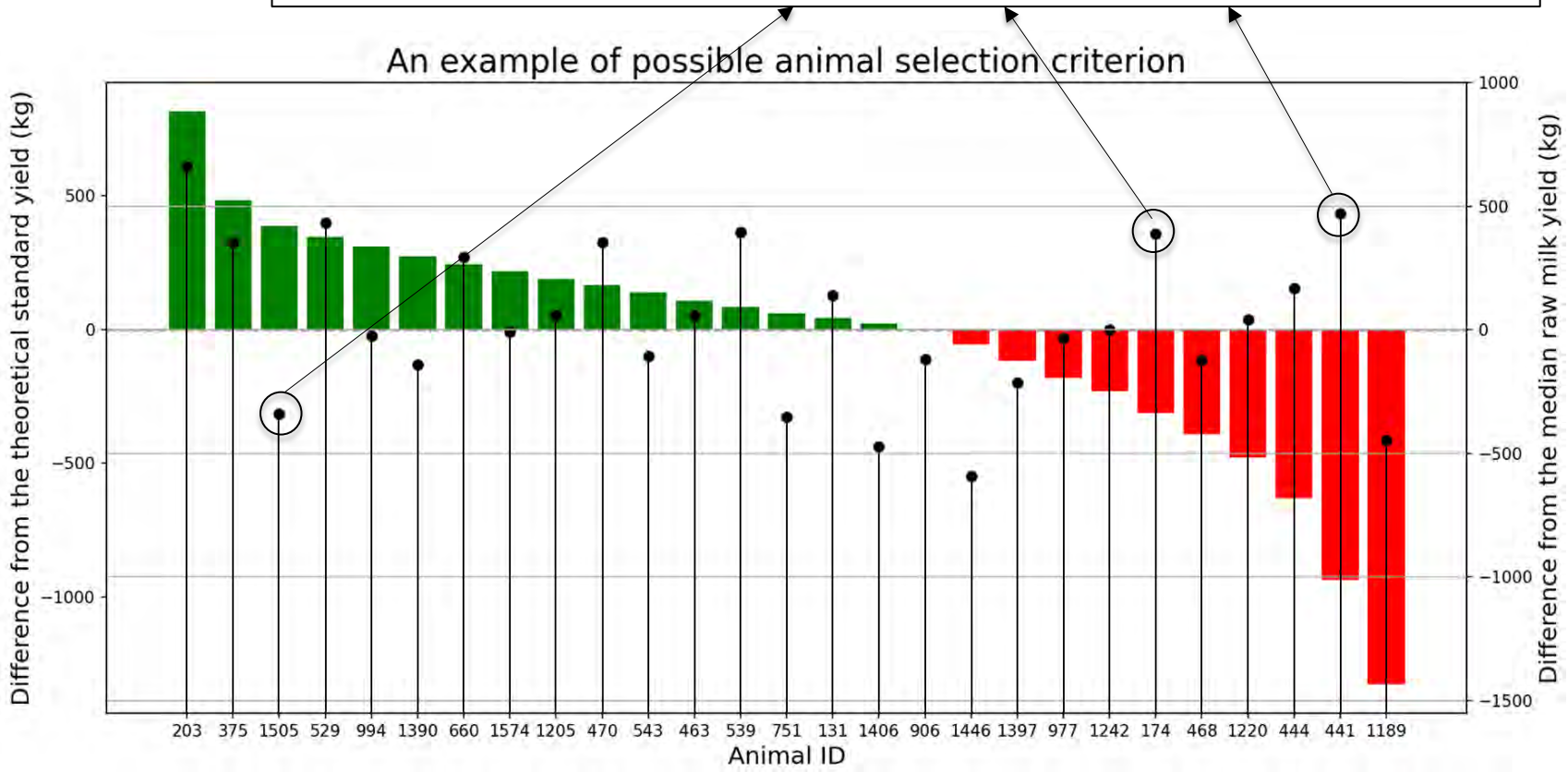




Genetic Selection

Daily animal tracking of milk composition of each animal allows us to select the best-performing animals for further breeding and increase farm efficiency. E.g. use sexed semen and invest in really best-performing cows, not the ones we think they are.

Black dots represent raw milk yield of individual animal while the column (green or red) represents energy corrected milk (considering fats and proteins of each animal). Green columns represent animals which produce high quality milk, not necessarily high volume. The goal of every dairy farm is to maximize herd efficiency by improved selection based on precision data.

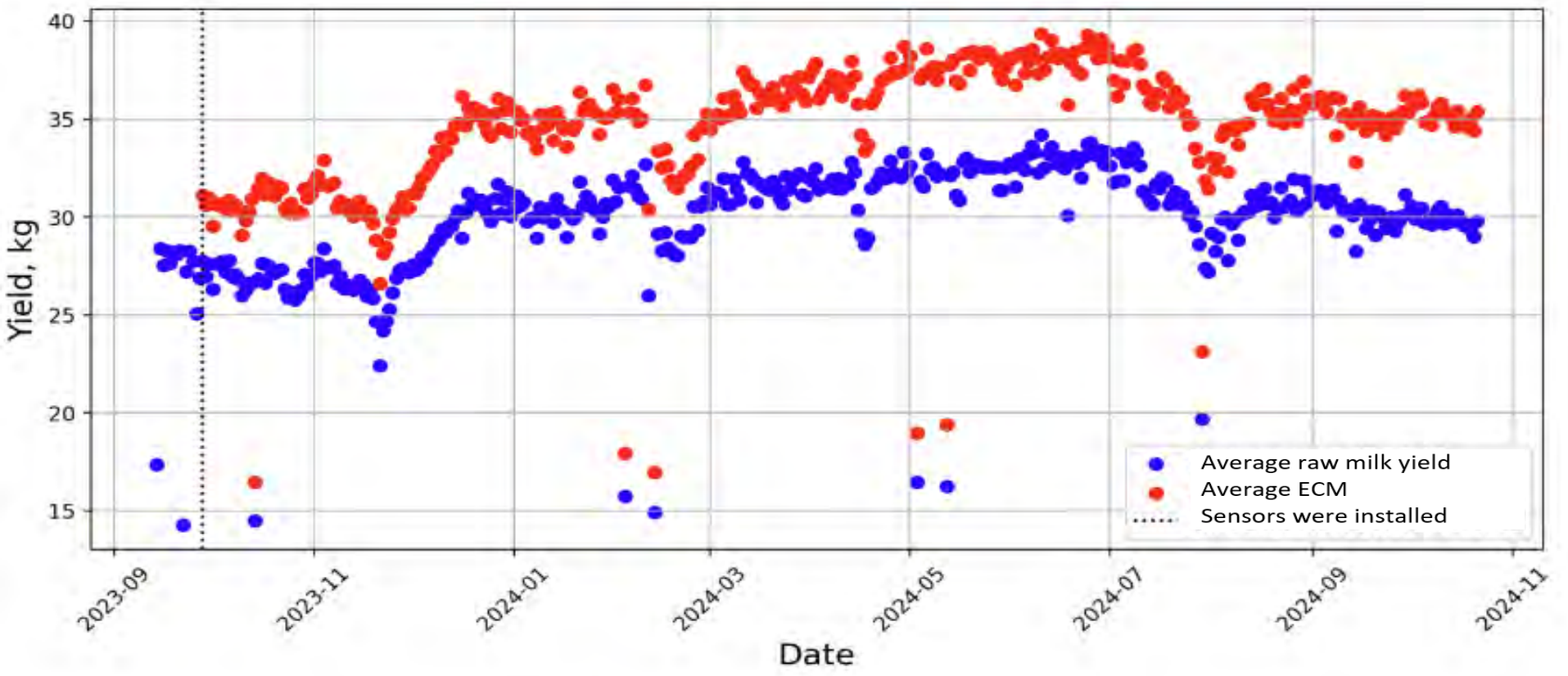


Feeding management

*On this day the farm was out of concentrate feed

- On December 3rd dextrosis was added to combined feed (about 2%).
- From the very next day we can visually see how the milk yield increased and in about three weeks it increased with 6 litres on average per animal.
- Dextrosis price was around 900€ per herd. The increase of milk yield gave around 1400€ profit every day.

Feeding management: Farm Experience



- Start average ECM = 31.13kg
- Best day <u>this week</u> ECM = 35.41kg

Milked cows each day ~426.

<u>Daily gain:</u>

- 35.41 - 31.13 = 4.28 kg (ECM)
- 4.28 * 426 = 1823.28 kg (ECM)

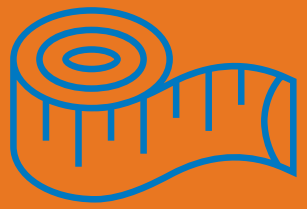
<u>For the specified price of $0.47 per kg:</u>

- 1823.28 * $0.47 = $856.94 day
- 1823.28 * $0.47 * 30d = $25,708.25 month

Milk Genius

Conventional Farm Application

Steve Pretz, CEO - President



Commercial Dashboard for random sampling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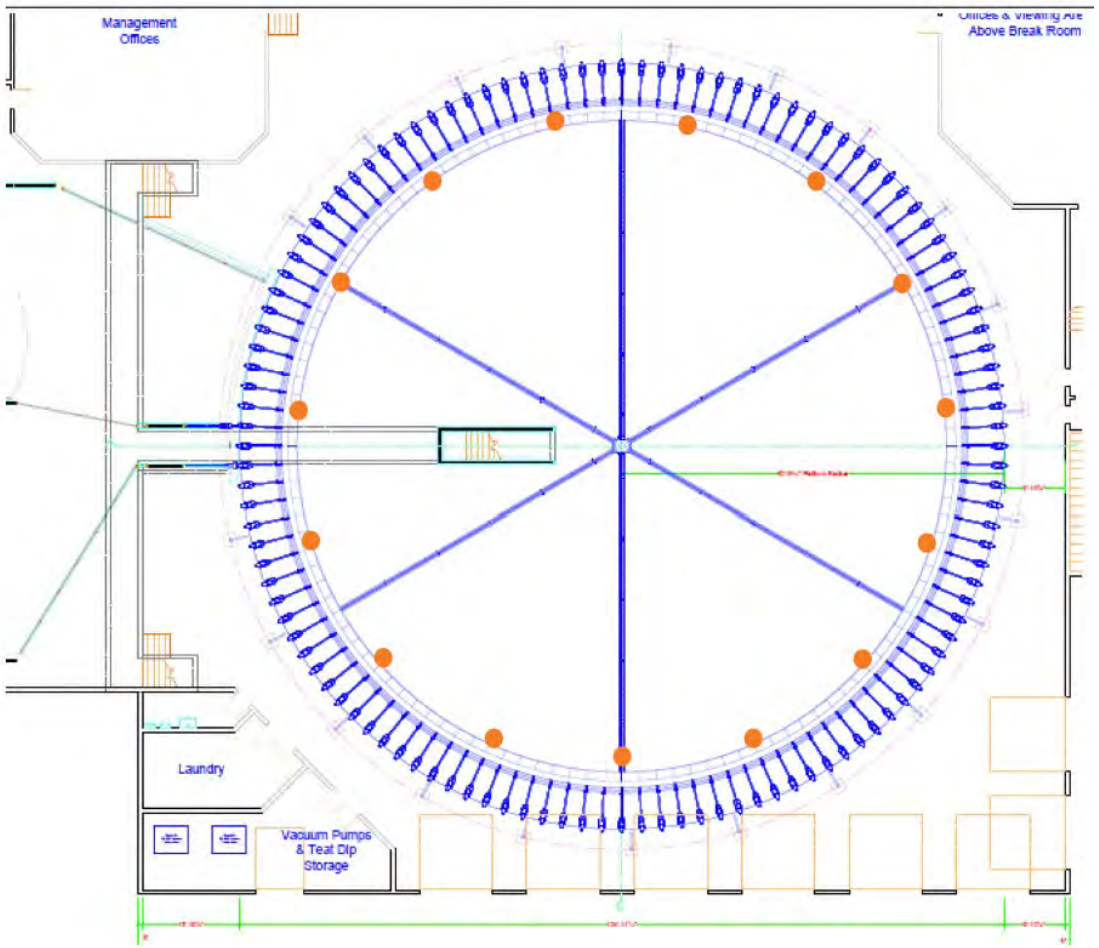
For the life of your dairy

Future of Precision Dat

A Solution to DHIA

Ad Hoc Data Collection

Meter / Sensor can be placed every 8 stalls



BouMatic
For the life of your dairy

PPID

- A Per-Point Identification (PPID) system can offer a reliable, tailor-made RFID solution for any herd size, parlor, or tag type.
- PPID is the ultimate solution for ear tag identification in large batch types and rotary parlors.
- Due to the relatively small antennas, environmental noise is greatly reduced, improving ID performance and any ‘not identified’ animal.
- PPID is not reliant upon datasets of any other cow.
- Can be used on rotary and parallel (side-by-side) stalls and can be used with both neck and ear-mounted tags.

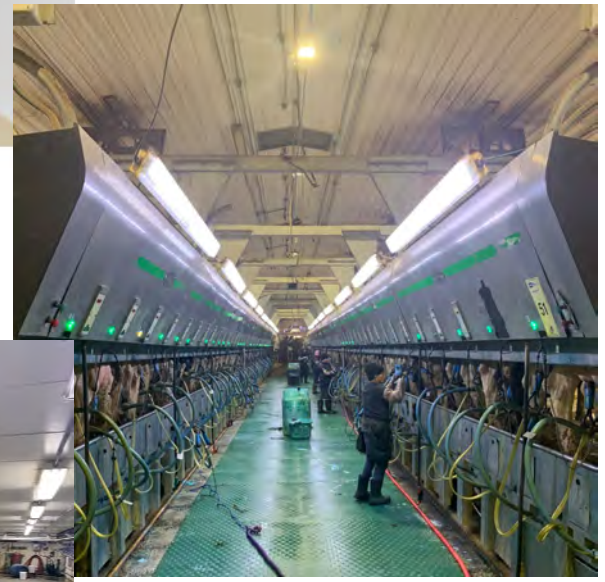
BouMatic

For the life of your dairy

MagStream

The MagStream excels in ease of installation, implementation, and integration. It is plug-and-play, quickly calibrated (statistically), and can be fully integrated with your milking installation, farm automation systems, and herd management software programs.

Now pairing with SmartLite detacher and SmartConnect reporting system



Rotary Type Stall	Parlor 1	Parlor 2	Parlor 3	Parlor 4
Number of Stalls:	80	80	80	80
# of Sensors:	4	8	12	8
% Chance of Not Getting Sensored:	95.00%	90.00%	85.00%	90.00%
% Chance of Getting Sensored (P):	5.00%	10.00%	15.00%	10.00%
Milkings Per Day	2	2	2	3
Days Per Month (or test interval)	30	30	30	30
Total Milkings ("n" tries)	60	60	60	90
% Chance of Not Getting Sensored After **n Tries**:	4.61%	0.18%	0.01%	0.01%
% Chance of Getting Sensored Once After **n tries**:	95.39%	99.82%	99.99%	99.99%
Desired times sensored per cow("x"):	6	6	6	6
% Chance There Are Exactly **"x"** Sensed After **"n"** tries:	4.90%	16.93%	8.80%	8.92%
% Chance There Are At Least **"x"** Sensed After **"n"** tries:	7.87%	56.28%	90.32%	89.68%

Features of MilkGenius when not monitoring every stall but on random stalls

Herd level – Group level – Individual animal

Group and Pen Information

- Group/pen: Protein, Fat and Lactose readings
- Milk quality improvement can be made based off readings

Feeding and Ration Changes

- Efficient feed usage can be determined from pen values in combination with rations.

Individual animal testing and assisting with genetic selection

- Information on the individual animals that are tested within a session.

BouMatic

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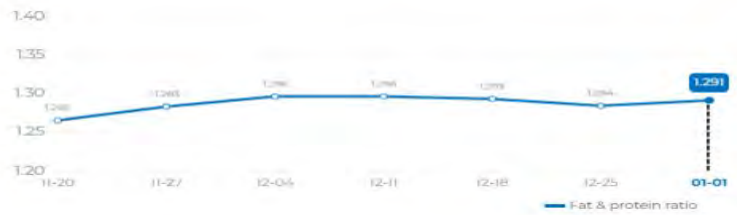
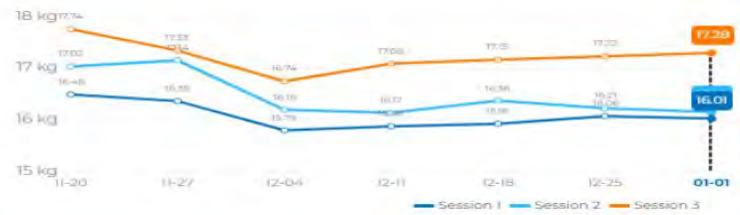
Date range 2025-11-20 – 2026-01-01 Group by 1 week

FAT & PROTEIN RATIO



MILK COMPOSITION

AVERAGE YIELD PER MILKING SESSION

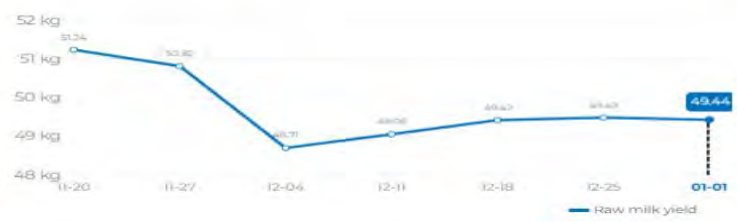


FAT % BY MILKING SESSION

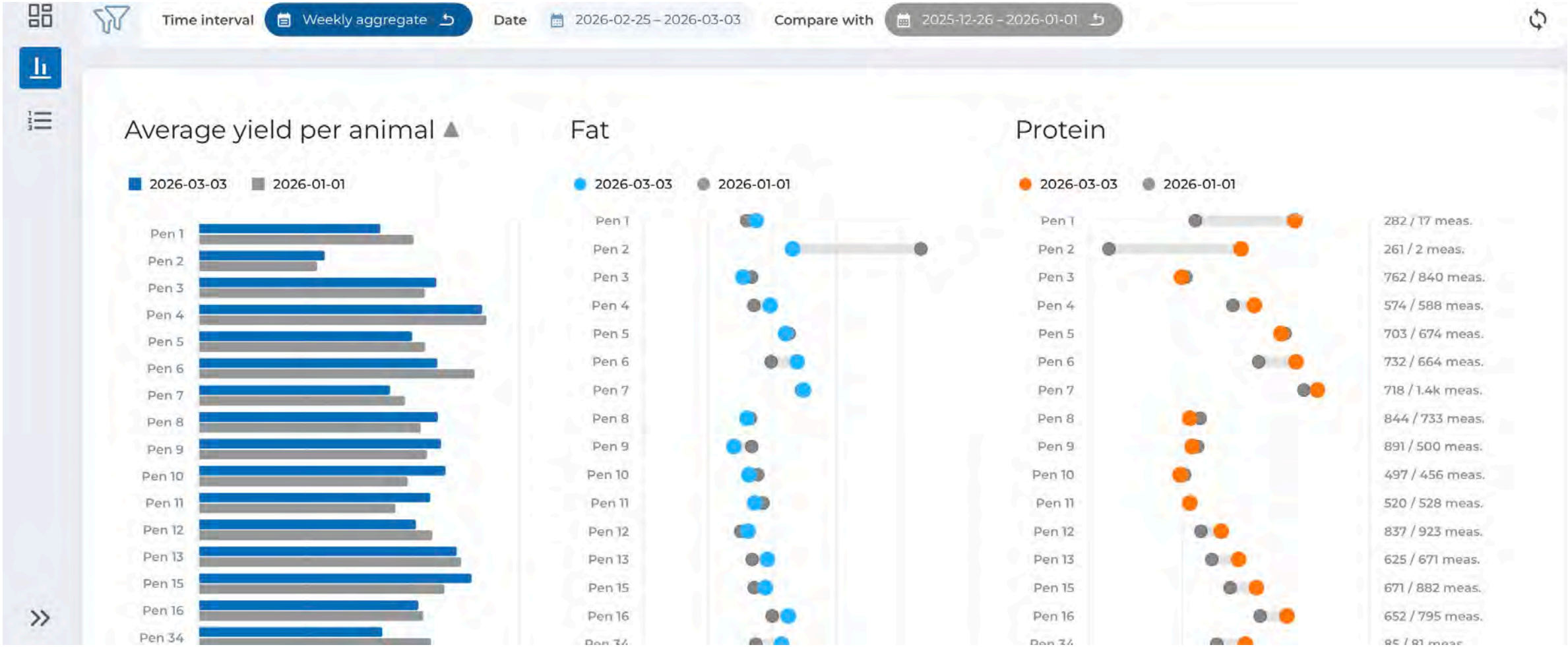
PROTEIN % BY MILKING SESSION

LACTOSE % BY MILKING SESSION

AVERAGE YIELD PER ANIMAL



Big farm data per Pen / Group



BouMatic / HERDLINE CBJ FARMS DV

Lactations All DIM 45 - 65 Min # of meas. 5

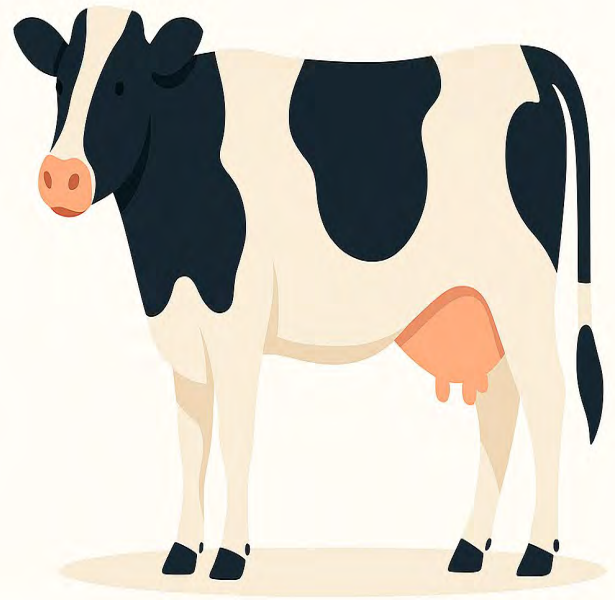
ANIMAL PRODUCTIVITY RANKING

COLUMNS FILTERS EXPORT

Rank	Animal	Lactation	DIM	# of meas.	Latest measurement	Mean yield, lb	ECM, lb	Fat, %	Fat, lb	Protein,...	Prote
10	77192	4	58	14	2026-03-01 01:25:19	16.55	20.35	5.33	0.88	4.56	
6	1226	3	61	21	2026-03-02 14:38:50	27.73	34.99	5.66	1.57	4.46	
10	77213	4	48	14	2026-02-28 18:33:13	17.80	24.33	6.58	1.17	4.45	
8	79583	3	50	16	2026-03-01 08:59:23	24.22	30.81	5.78	1.40	4.42	
8	75585	4	60	12	2026-02-21 18:04:25	24.81	30.63	5.47	1.36	4.37	

Daily uses when monitoring for random sampling

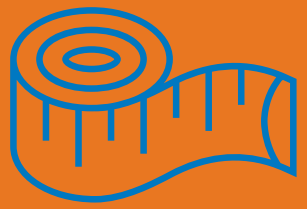
- Overall herd and group information
- Data for your consultants to review to make ration changes and drops in components on a by pen basis.
- Monitor the effect of ration changes to milk production and components.
- Understand what the components of your milk is that is being sent off to the plant



Milk Receiver Discharge Line

- Whole herd production testing.
- Pen Evaluation
- Based on time of day if no metering is present on the farm.

Milk Genius in action on the discharge lines



Ongoing Developments

BouMatic HerdLine ***is open*** for data exchange with Dairy world

Integration

- Taurus connection in place
- API with DairyComp/VAS currently in development
- Cloud to Cloud API with Uniform – Agri currently in development
- Data available in HerdLine and GeminiUp systems

Thank You!