Afimilk – tools for the dairy veterinarian

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Introduction to Afimilk

Afimilk is an Israeli company founded in 1977 and it's a leading company in precision dairy farming acting all over the globe. Throughout the years, the company has emphasized research and innovation and is responsible for groundbreaking developments such as the first ICAR-certified milk meter, the first commercial automated heat detection (system based on pedometers), the first in-line milk analyzer (AfiLab), and most recently the first neck collar (AfiCollar) that measures individual feed intake per cow and the first milking robot solution (Synergy) to operate in a parallel milking parlor.

Farm/herd management solution that includes cow and milk monitoring systems

- Milk meter – recording milk yield, milking rate (speed) and milk conductivity.
- Milk analyser – measuring milk component (protein, fat, lactose and blood).
- Neck collar - heat (estrus) detection, rumination and grazing time, heat stress and individual cow dry matter intake (DMI – currently for TMR, under research for grazing).
- Scale – recording body weigh.

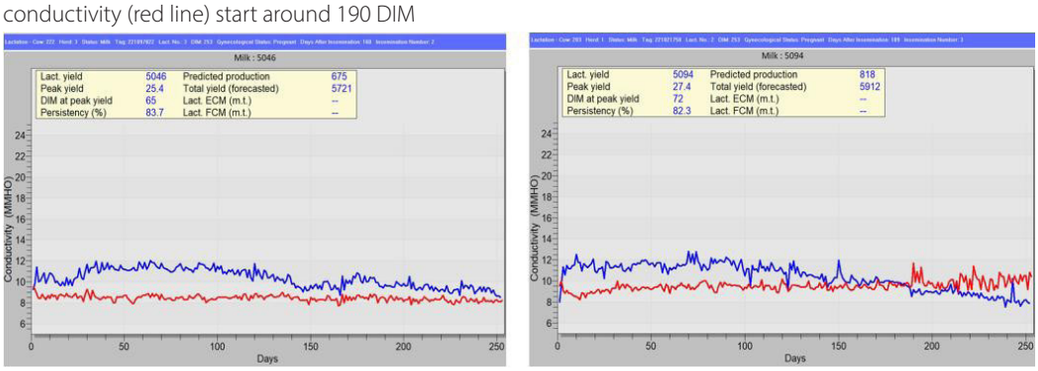
How can it help veterinarians?

Afimilk enables more efficient use of time and faster, more accurate decision making for both dairy farmers and veterinarians.

Auto heat detection ensuring:

- Highly accurate heat detection.
- Only non-cycling cows are presented rather than just missed heats.
- PD rechecks done only on cows that need it (suspect abortion).

Figure 1. Cow with healthy udder (right) vs cow with sub-clinical mastitis (left), indicated by high variance of daily milk conductivity (red line) start around 190 DIM



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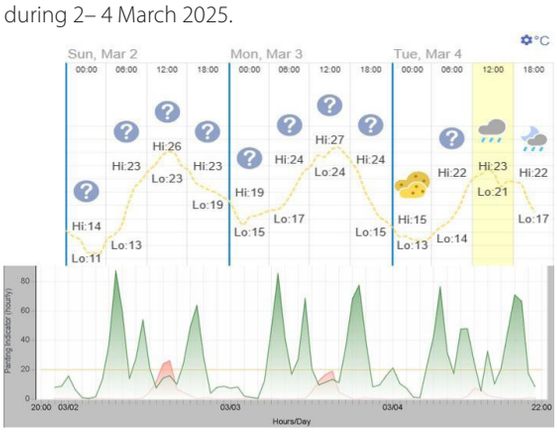
Health monitoring:

- Highly accurate health information for effective treatment protocols.
- Monitoring of heat stress.

Figure 2. Herd's heat stress (orange) and grazing (green) hourly behaviour in relation to weather changes at a farm in Waikato during 2– 4 March 2025.



Import of SCC data combined with mastitis, production, and fertility status to enable better management decisions on sub clinical problem cows.

Figure 3. Afi user report to combine SCC import data with mastitis, age and fertility information.

SCC Cow Summary V5 - Updated Last: 13/04/2025 19:37:15

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Index	Cow	Status+ group	Lact. no.	Gyn. status	Status	Dry date	Calving date	After calving	Daily avg.yield	Days to dry off	Milk test date	SCC (m.t.)	SCC-1	SCC-2	SCC-3	SCC-4	No. cases mas	Lifetime clinical
1	15052	1002	8	Pregnant	Milk	--	05/08/2024	251	17,8	101	21/01/2025	4297	1234	--	--	--	1	2
2	14008	1002	7	Not for Inse	Milk	--	30/04/2024	348	12,8	--	21/01/2025	4040	7315	--	--	--	0	1
3	18095	1002	5	Pregnant	Milk	--	29/08/2024	227	24,6	53	21/01/2025	3945	8731	--	--	--	0	0
4	15109	1002	8	Pregnant	Milk	--	12/08/2024	244	21,2	68	21/01/2025	3350	18	--	--	--	0	0
5	18200	1002	5	Pregnant	Milk	--	15/08/2024	241	15,4	57	21/01/2025	3293	151	--	--	--	0	1
6	18231	1003	4	Pregnant	Milk	--	14/08/2024	242	12,0	55	21/01/2025	2966	1453	--	--	--	0	1
7	17106	1002	6	Pregnant	Milk	--	31/07/2024	256	22,9	62	21/01/2025	2940	359	--	--	--	0	0
8	19557	1003	4	Pregnant	Milk	--	14/11/2024	150	17,7	147	21/01/2025	2430	--	--	--	--	1	2

Feeding cows

- Rumination, grazing, weight and milk data combined helps to assess daily pasture quality for each group/ herd.
- Enable far more efficient use of concentrate feed and supplements based on yield, DIM, weight, milk component and pasture quantity/quality.

Veterinary visit report enabling quicker and easier decision making

- What is her milk production?
- How is she ruminating and grazing?
- Is she in positive or negative energy balance?
- Previous health/fertility events
- Days after heat for accurate PG treatment
- Assists with diagnosis of PD- cows.

Herd performance reporting

In addition to daily task management the AfiFarm herd management SW is a powerful data analysis tool for a complete picture of herd performance. The AfiFarm SW allows analysis and monitoring of all herd aspects. Few examples presented:

- How does heifer management correlate with first lact and lifetime performance?

- How well is cow weight/condition being managed throughout lactation?
- How good is the health, fertility and longevity of the herd?
- Detailed fertility analysis to pinpoint strengths and weaknesses, e.g. heat spotting, conception rates, bulls, young cow's vs old cows, calving pattern, late calvers, returns to heat and non-return analysis.

Figure 4. Impact of heifer weights at calving on 0-60d milk production; SA Crossbred herd, Alexandria, E Cape 2024. Source: Dairy Junction herd performance data analysis.

Year	Av. weight after 1st calving (kg)	0-60d kg milk/cow 1st lact av.	0-60d 1st lact milk as % mature cows
2020	373	13.6	77%
2021	342	12.8	66%
2022	413	15.6	74%
2023	404	14.0	78%

Figure 5. Final pregnancy rate by lactation (source DJ herd performance analysis).

	No.	No. pregnant end of season	% pregnant end of season
1st lact	114	100	87.7%
2nd lact	86	72	83.7%
3rd to 5th lact	234	176	75.2%
6th lact+	144	102	70.8%

To identify problem cows in the breeding population and assess how good the longevity of the herd is.

New applications under development

Continuous efforts to develop new capabilities and applications, currently, under work:

- Calving applications - developing calving applications for grazing seasonal farming, such as early detection of calving cows and alerts for cows that required assistance.
- Dry matter intake (DMI) and Feed efficiency (FE) - adapting calibrating individual cow DMI of indoor cows' models (already in commercial use) to graze cows. Integration of DMI data into FE applications for improving farm profitability, breeding and genetic decision and methane emissions.

Figure 6. Breeding and genetic decisions based DMI and Feed efficiency data potential improve methane emiss.