



DeLaval online cell counter OCC
Ola Markusson
Engineering Manager, VMS

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DeLaval online cell counter OCC



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We produce and sell:

- milking equipment and
- related products (detergents, feed additives, liners etc)
- Approx 4200 people (+ dealers)
- Head quarters in Tumba, Sweden (close to Stockholm)
- Offering solutions world wide



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VMS 2007



New model launched in November 2006

For example:
Faster cleaning

- due to built in cleaning unit
- Improved working area
- due to new design
- Easier installation
- due to built in floor and hydraulic unit

But also launched with the OCC - as an option

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Cell counting yesterday

- After monthly milk sampling one can get individual cow SCC
- Take CMT measurement on suspected cows
- You can use the DCC to analyze the milk of fresh cows and suspected cows
- Or rely on a bulk tank SCC info from your dairy



Tradeoff between workload, accuracy and timing

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We believe in accurate and up to date data....

- The more accurate and precise data input, the better decisions are taken, the better the end results.
- Decisions need to be taken daily. Data need to be up to date.
- OCC data are as accurate as DCC data

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Today

We can offer full automatic cell counting for VMS:


- from every cow
- at every milking
- without the manual cumbersome work around

This gives the farmer:

- a cost effective way of udder health monitoring
- a way of finding problems before they spread

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DeLaval Online cell counter OCC



- What is an OCC?
- How does it work?
- How to use the data?
- What does it cost?

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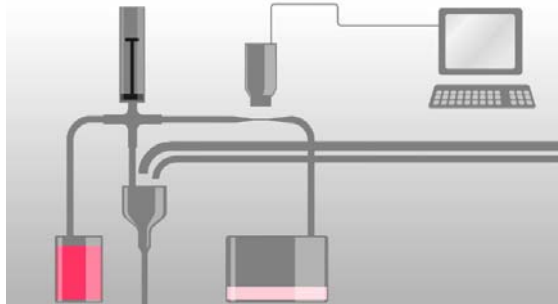
What is an OCC?



A stainless steel cabinet holding an automatic mini-lab, capable of measuring accurately the SCC of cow composite milk at every milking in VMS

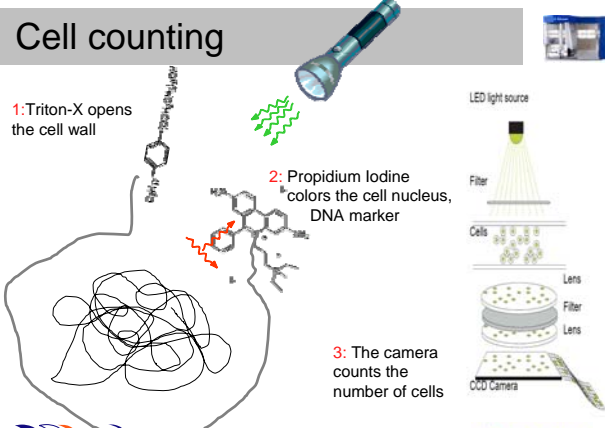
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OCC animation



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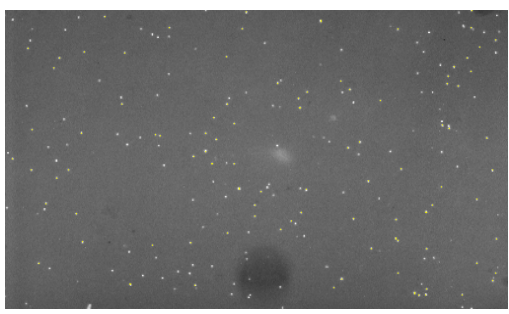
Cell counting



- 1: Triton-X opens the cell wall
- 2: Propidium Iodine colors the cell nucleus, DNA marker
- 3: The camera counts the number of cells

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'Fluorescent microscope', OCC image



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OCC features

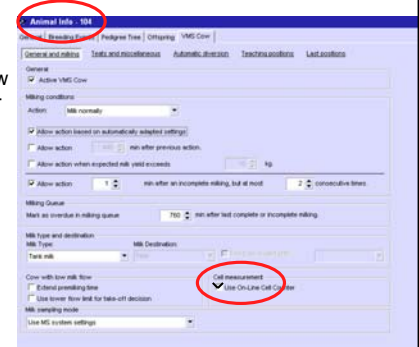
- Cell values presented on touch screen, 1 min after milk pumping
- In the PC report and Cow Monitoring
- Farmer can receive an alarm when SCC above certain level.
- Manual measurement on any milk sample possible (quarter, bulk tank, milk sample from your neighbor)

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Practical use

- Can turn SCC sampling on/off at cow level (one at a time or by batch edit)
- No sampling for 72h after calving



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OCC data in Cow monitoring

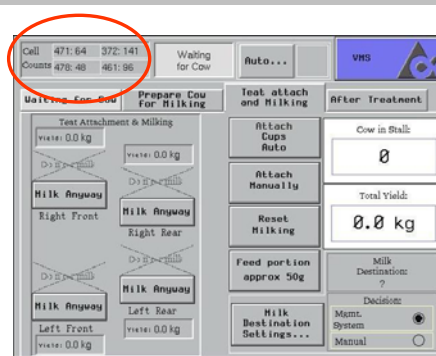
General		Cluster (Test level)				Litter				Conductivity				% of Eup. Test				Milling	
Animal Number	Milking Time	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
1220	2007-02-13	50	1.3	5.3	5.4	5.3	5.7	5.4	5.3	90	90	90	90	10.4	4				
1172	2007-02-13	40	2.3	4.3	3.9	4				106	90	100	90	10.4	4				
9388	2007-02-13	20	2.3	4.2															
3422	2007-02-13	150	1.2	4.7															
4180	2007-02-12	80	1.3	4.3															
471	2007-02-12	80	1.5	5.0															
545	2007-02-13	102	1.3	4.3															
1188	2007-02-12	82	1.3	4.8															
418	2007-02-12	176	1.9	4.8															
580	2007-02-12	176	1.9	4.7															
9004	2007-02-13	76	1.1	4.2															
9273	2007-02-13	100	1.7	4.8															
575	2007-02-13	10	1.3	4.3															
379	2007-02-12	100	1.2	5.4															
80	2007-02-12	100	1.8	4.8															
9004	2007-02-13	76	1.1	4.2															
826	2007-02-13	40	1.3	5.4															
587	2007-02-12	130	1.7	4.3															
455	2007-02-13	176	1.3	4.3															
1192	2007-02-13	90	1.2	4.2	4.5	4.5	5	93	101	100	75	4	10.3	7					
1196	2007-02-13	82	1.5	4.8	4.8	4.3	7.9	87	96	7	8.4	1							
1220	2007-02-13	50	1.3	5.4															
150		5.0	1.4	4.8	4.8	4.8													

- Increase counter in Cow monitoring if SCC is above 200,000 cells/ml
- CowMon sends notification if the SCC is above 500,000 cells/ml
- The range for the values above are 50,000 to 3,000,000 (both values)
- SCC shown in the total graph

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Default touch screen window



- Upper left corner: Vacuum level alternating with..
- Cow numbers of 4 last milked cows +
- Their SCC

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Reports for convenient follow up

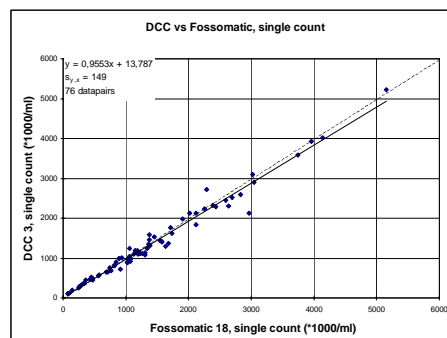
- Daily reports
- Weekly summary reports
- Group reports

Animal Number	Days in Milk	Lactation	Avg daily yield (l)	Avg OCC (7 days)	Peak OCC (7 days)
418	227	5	12.28	120	184
418	230	5	18.34	547	770
418	230	5	13.85	159	308
418	240	5	14.21	172	192
418	241	5	11.26	104	234
418	242	5	14.98	421	834
418	243	5	25.19	136	136
418	244	5	19.98	198	274
455	222	4	18.72	319	328
455	223	4	16.90	412	800
455	224	4	12.58	200	220
455	225	4	21.87	322	322
455	226	4	14.31	289	308
455	227	4	15.98	159	274
455	228	4	18.31	136	136
455	229	4	11.72	178	178
471	161	4	10.57	171	322
471	162	4	13.87	51	74
471	163	4	14.18	40	80
471	164	4	12.58	64	84
471	165	4	10.82	69	76
471	166	4	11.87	89	95
471	167	4	11.27	72	84

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OCC measuring "accuracy" equal to DCC and Fossomatic method from regular labs

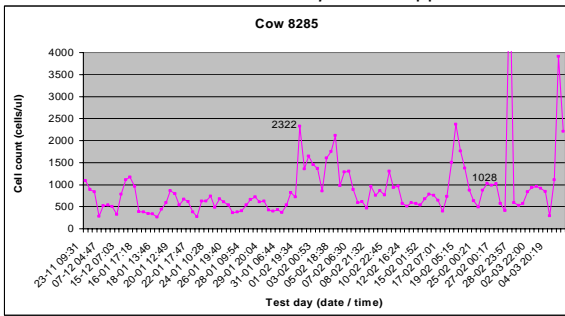


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Daily data is important for fast action

This case: Infected with *Streptococci* spp.



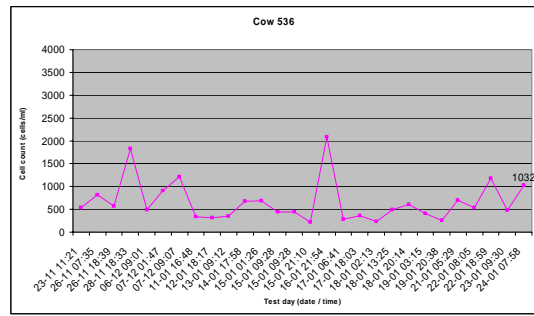
Age 2,4 Lact.no 1 DIM 151 Avg.SCC 885



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Infected with *Staphylococcus aureus*



Age 3,9 Lact.no 2 DIM 221 Avg.SCC 660



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What does it cost?



To buy: Approx €7400

To sample: Approx 3,4 € cents per sample
(excluding depreciation)



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DeLaval OCC



- VMS 2007 provides the possibility to get SCC from every cow at every milking
- OCCs are being produced and delivered today
- A tool to improve the udder health of your herd = higher production and premium payment

Note: The OCC makes the VMS 2007 an excellent research platform



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The challenge



- The challenge is to handle the information flow
 - Easier if showing data the farmer knows about.
- By creating strategies that can be adapted to local demand and definitions of deviations
 - Farmers will act upon deviations
 - High cell count is one such deviation.



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Cost and benefits for the farmer / year



	€
OCC depreciation & interest (10Y / 5%)	975
Running cost OCC / 150 milkings - tests p.d.	1 864
Total costs	2 839

Possible savings:	
SCC from 300K to 150K brings more milk from 70 cows	1 602
Premium (2%) for 150K milk when delivering to Arla	3 600
Less discarded milk	585
Lower replacement costs	2 337
Less cost for the monthly milk sampling (-SCC)	185
5 less mild mastitis cases	68
3 less severe mastitis cases	403
1 less fatal mastitis case	501
Total possible savings	9 281



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