

APPLICATION OF DIFFERENTIAL SOMATIC CELL COUNT ANALYTICAL TECHNOLOGY IN RAW MILK FOR PREVENTION OF MASTITIS

FOSS

DR. DANIEL SCHWARZ, FOSS, DENMARK

September 2020



ANALYTICS BEYOND MEASURE

ICAR VALIDATION

FIRST EVER MILK ANALYSERS WITH FULL INSTRUMENT VALIDATION BY ICAR

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ICAR Certified Milk Analysers



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Full instrument validation and interlaboratory study

The "Full instrument validation" is granted to those milk analysers that, based on the data provided after the laboratory tests, positively pass the requirements established by ICAR. The certification is valid for five years and, to date, the following milk meters have been granted with the "Full instrument validation":

Code	Name of the Milk Analyser	Manufacturer	Valid up to	Picture	Report	Certificate
09	Fossomatic 7	FOSS	May 2025		Report	Here
08	Fossomatic 7 DC	FOSS	April 2025		Here	Here
07	MilkoScan 7 RM	FOSS	April 2025		Here	Here

<https://www.icar.org/index.php/certifications/milk-analysis-laboratories-certifications/milk-analysers-icar-certified/icar-certified-milk-analysers/>



THE GLOBAL STANDARD
FOR LIVESTOCK DATA
Via Savoia 78, 00198, Rome, Italy

ICAR MILK ANALYSER CERTIFICATION

(Full instrument validation)

Fossomatic™ 7 DC by FOSS Analytical A/S for cow milk

Based on the data provided after the laboratory tests, ICAR certifies that the Fossomatic™ 7 DC granted the ICAR certification for the full instrument validation and interlaboratory study

Martin Burke
ICAR CE

Rome, 14 April 2020
Certificate number: 2020/2
Valid up-to: April 2025

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ICAR CERTIFICATION REPORT
MilkoScan™ 7 RM by Foss Analytical A/S
Version March, 2020

ICAR CERTIFICATION

Company name: FOSS Analytical A/S
Instrument name: **MilkoScan™ 7 RM**
Milk species: Cow Milk
Version March 2020

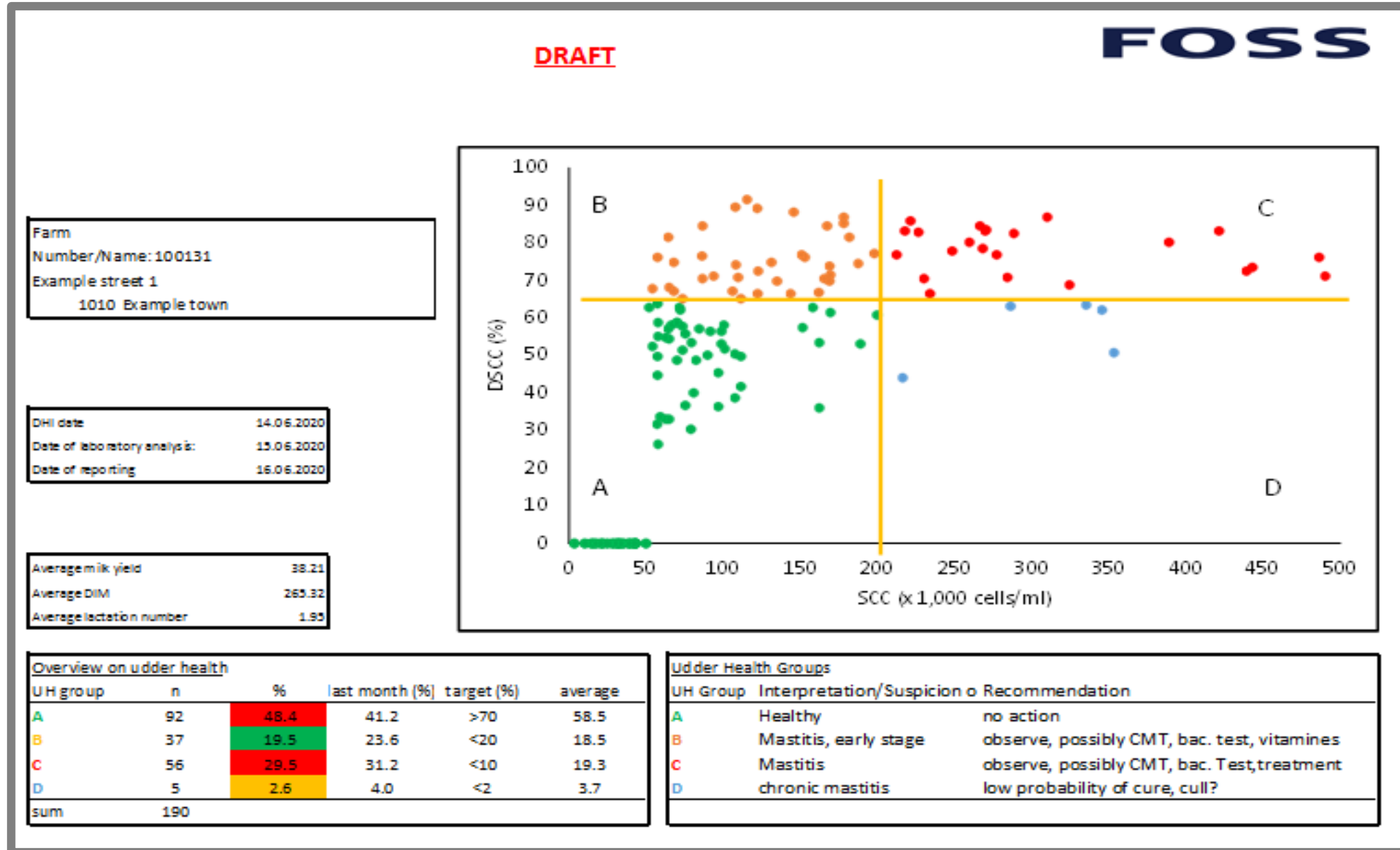
Author: Silvia Orlandini
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LETTERS BEYOND MEASURE

**DIFFERENTIAL SOMATIC CELL
COUNT: A NEW DSCC BASED
UDDER HEALTH MANAGEMENT
TOOL, INCLUDING EXPERIENCE
FROM THE FIELD**

NEW UDDER HEALTH REPORT – REAL LIFE EXAMPLE

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NEW UDDER HEALTH REPORT – REAL LIFE EXAMPLE

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Group A

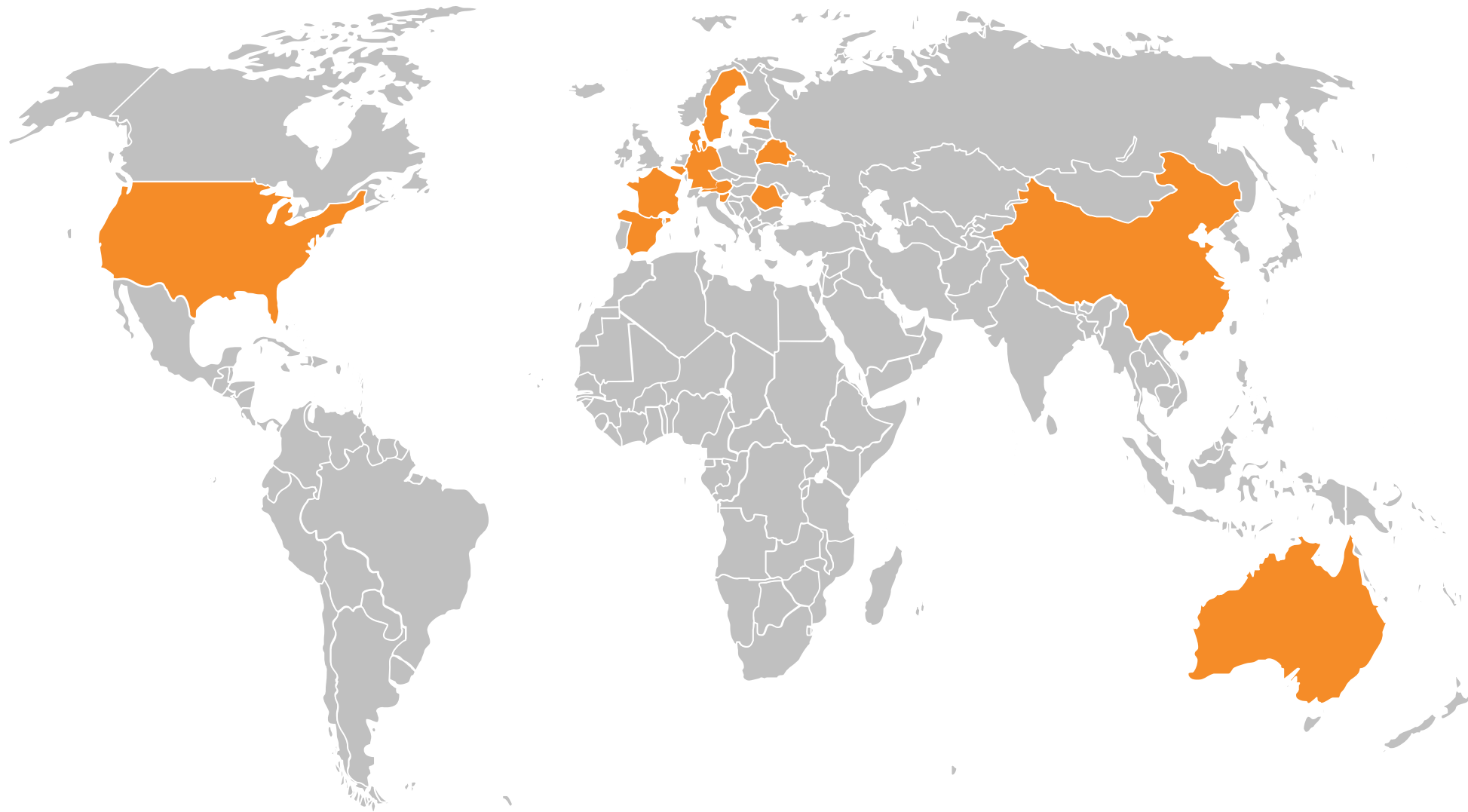
ear tag	name	number	parity	calving date	DIM	milk yield	SCC	DSCC	UH Group	Comment
103619271		0	836	5	21.07.2018	488	20.80	152	58	A
103619880		0	255	5	10.01.2019	315	21.80	200	61	A
103738152		0	964	5	17.06.2019	157	43.60	65	54	A
103891754		0	258	4	11.05.2019	194	54.80	99	56	A
103929949		0	336	4	24.09.2019	58	59.00	57	64	A
103992305		0	148	3	25.03.2019	241	54.60	68	55	A
104050079		0	136	3	15.06.2019	159	61.20	64	57	A
104098710		0	478	2	23.05.2019	182	57.00	52	63	A
104098711		0	59	2	08.01.2019	317	36.80	189	53	A
104098713		0	531	2	08.08.2019	105	60.00	57	45	A
104104542		0	159	3	12.06.2019	162	48.60	96	37	A
104109800		0	974	3	25.01.2019	300	38.40	107	39	A

Group B

ear tag	name	number	parity	calving date	DIM	milk yield	SCC	DSCC	UH Group	Comment
103891734		0	873	4	16.06.2019	158	51.40	168	74	B
103909968		0	345	4	15.07.2019	129	51.00	153	76	B

CLOSE COLLABORATION

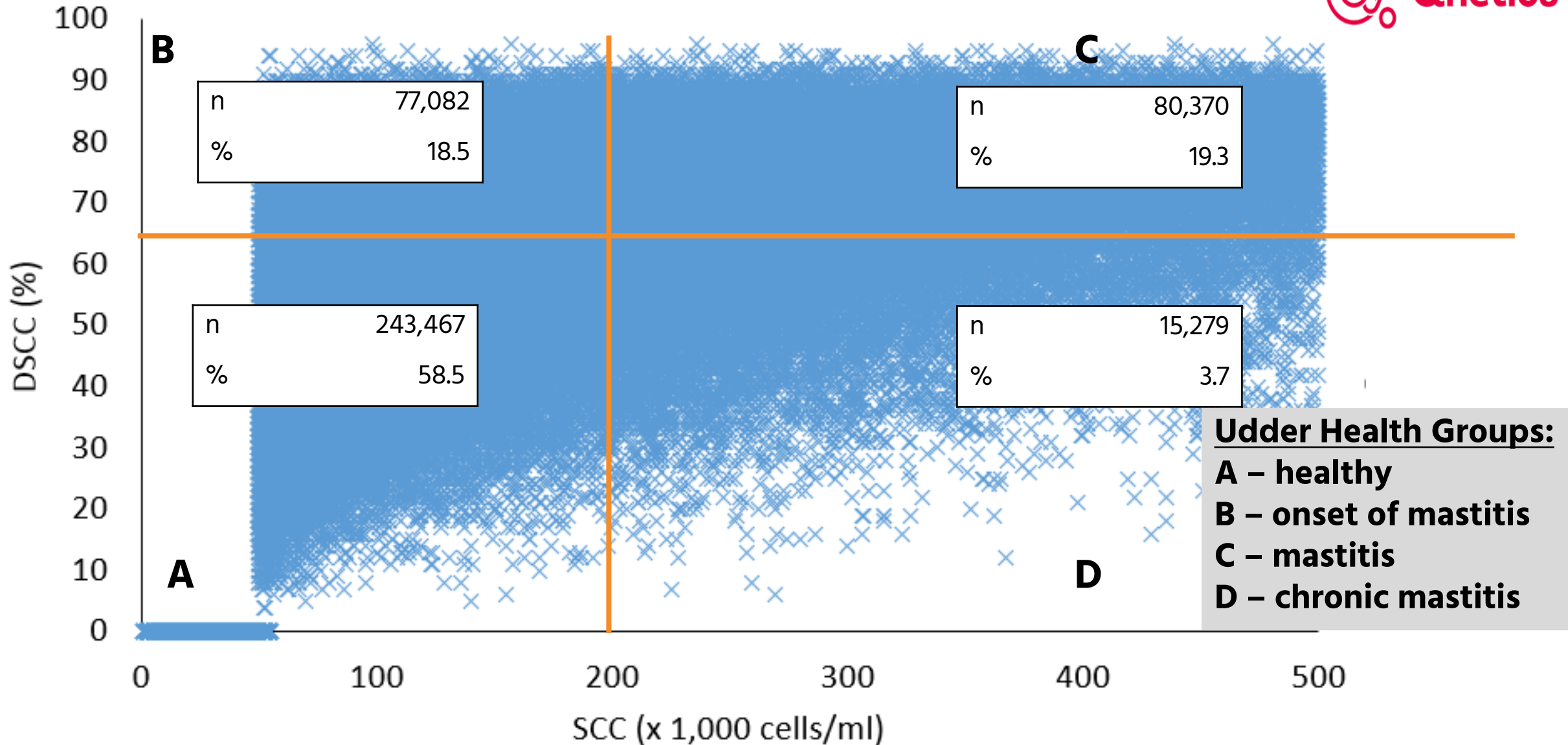
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ANALYTICS BEYOND MEASURE

→ Data from 1,200,000+ cows available so far

DISTRIBUTION OF TEST-DAYS – THURINGIA, GERMANY

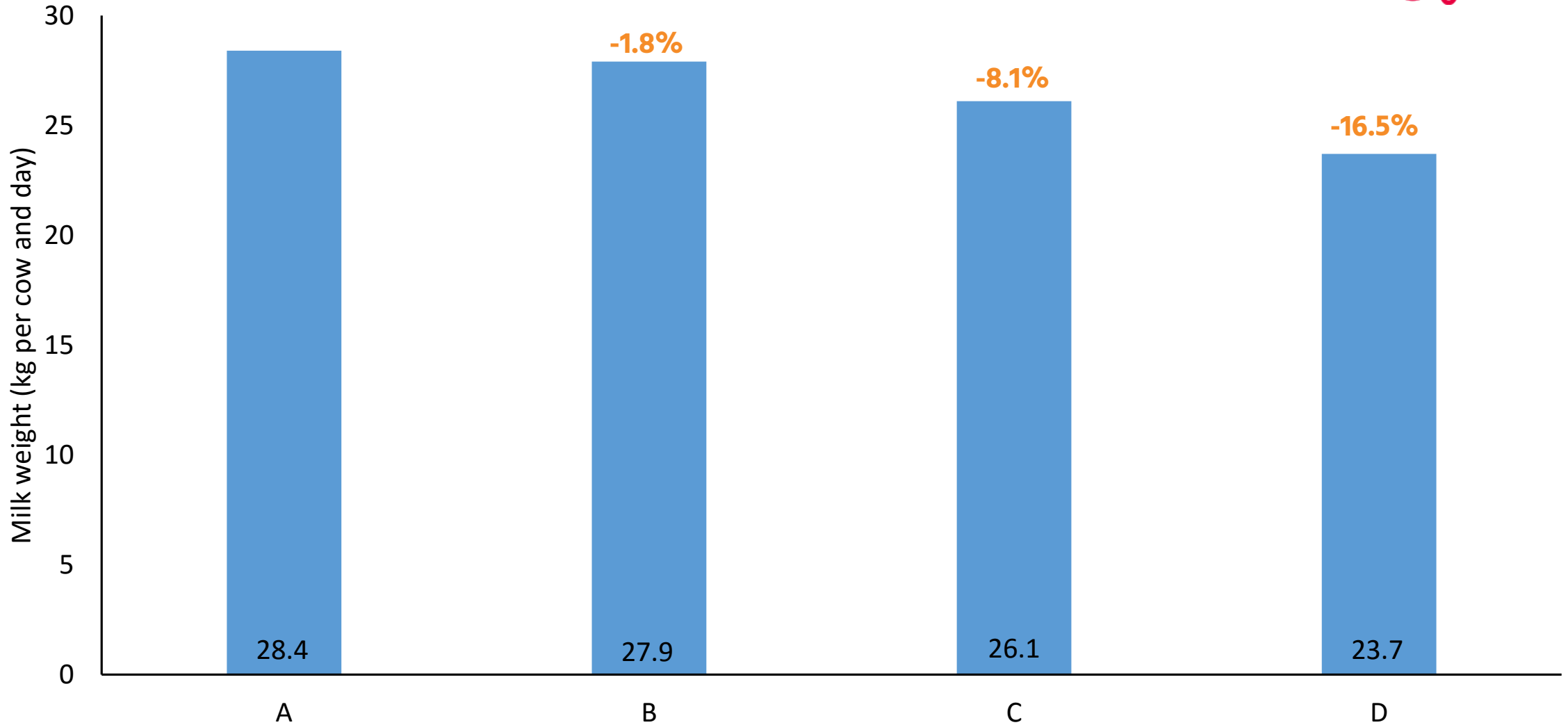


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IMPACT ON PERFORMANCE OF DAIRY COWS

MILK YIELD DEPENDING ON UDDER HEALTH GROUP

(CORRECTED USING LINEAR MIXED EFFECT MODELS)



ANALYTICS BEYOND MEASURE

Preliminary results, publication in progress

Udder Health Group

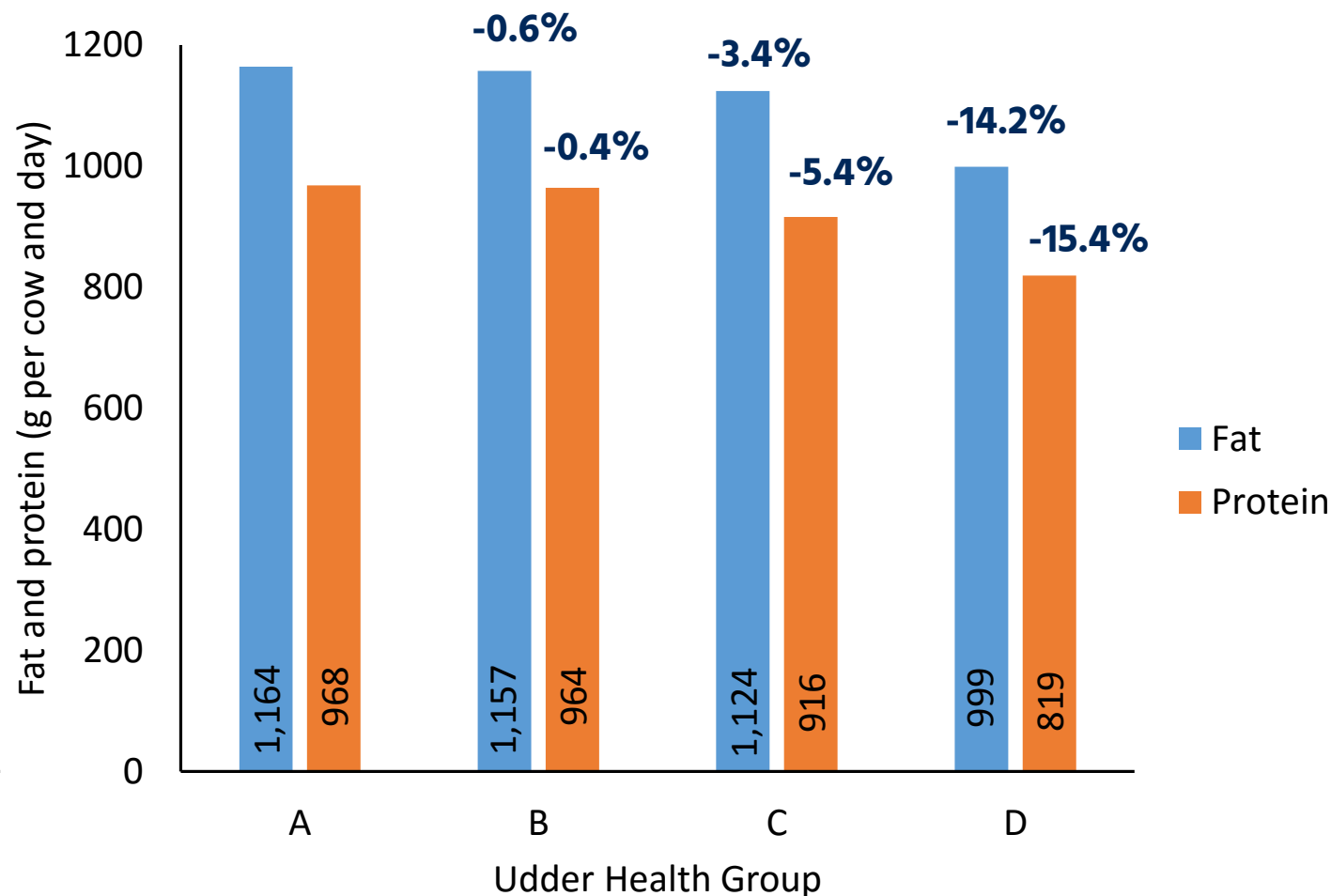
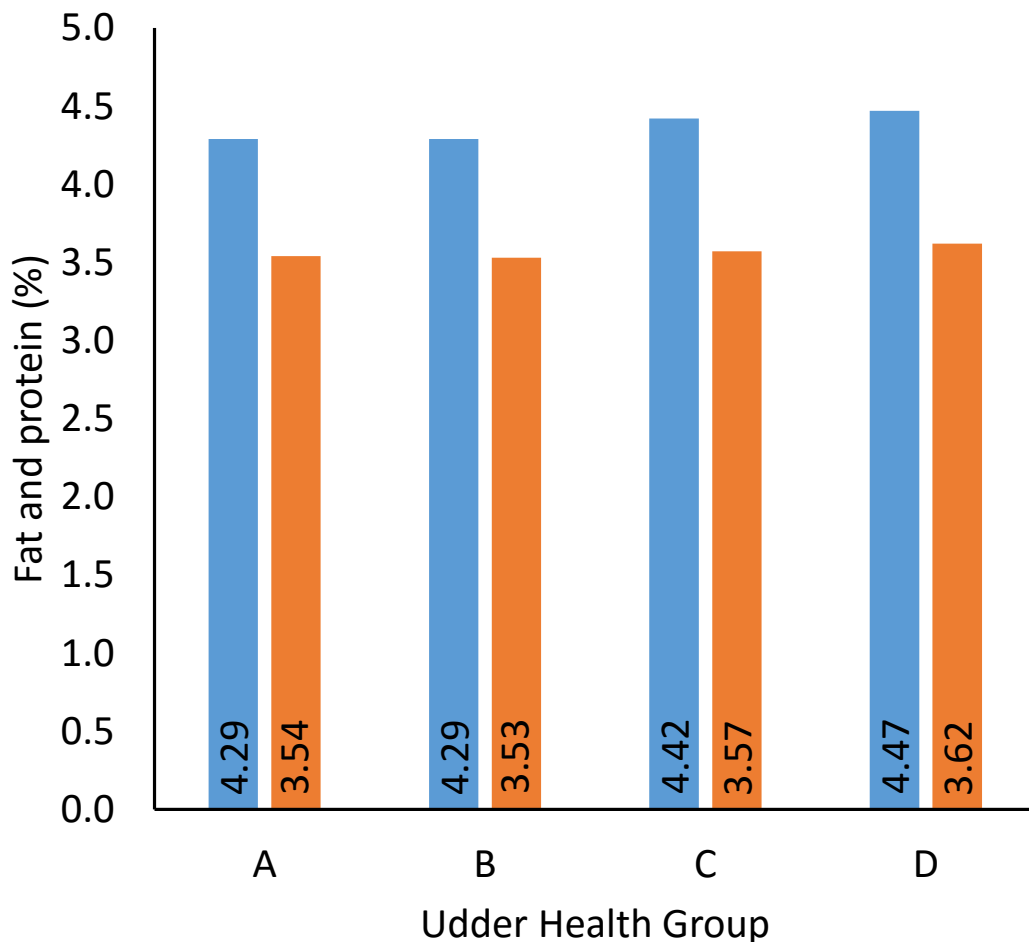
Fixed effects: DIM, parity, season, breed
Random effect: herd

FAT AND PROTEIN DEPENDING ON UDDER HEALTH GROUP

(CORRECTED USING LINEAR MIXED EFFECT MODELS)



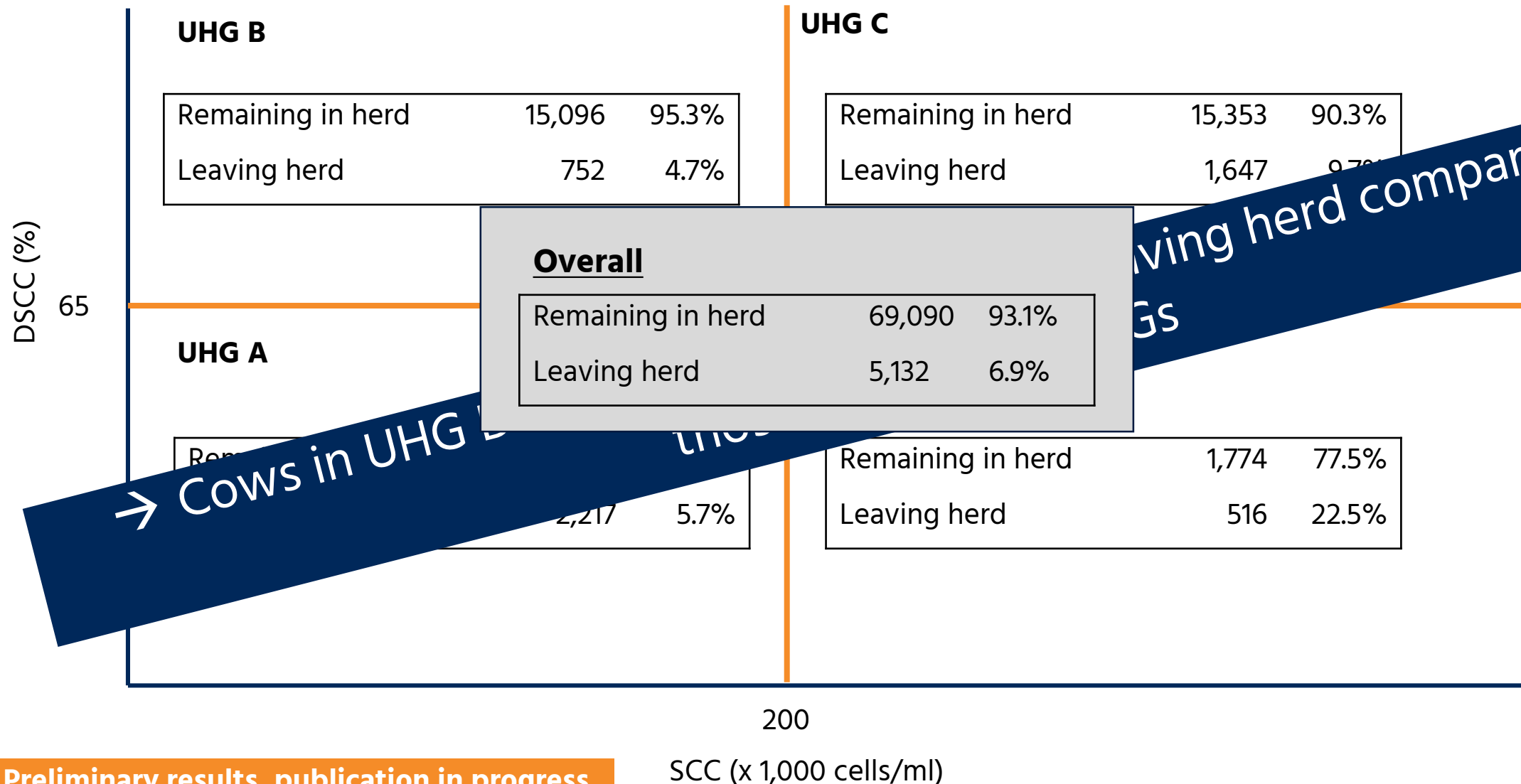
ANALYTICS BEYOND MEASURE



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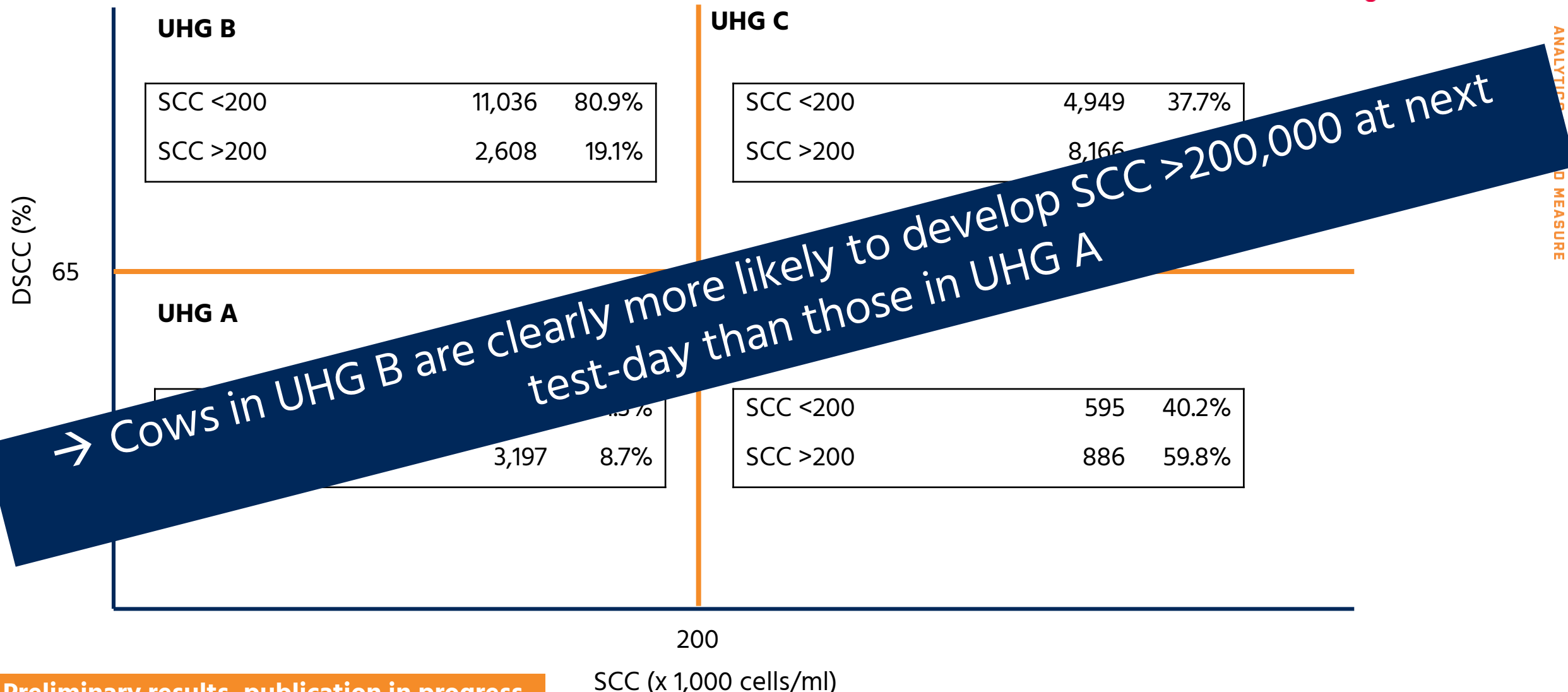
FUTURE DEVELOPMENT OF INDIVIDUAL COWS

REMAINING VS. LEAVING HERD



→ Cows in UHG A & B are leaving herd compared to UHG C

BELOW VS ABOVE 200K SCC AT NEXT TEST-DAY



ANALYTICS D MEASURE

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FARM BENCHMARKING

FARM BENCHMARKING



Farm ID	number of cows					percentage of cows			
	A	B	C	D	sum	A	B	C	D
.591	72	25	33	3	133	54.1	18.8	24.8	2.3
1785	88	15	28	4	135	65.2	11.1	20.7	3.0
.230	86	23	20	6	135	63.7	17.0	14.8	4.4
1820	110	10	11	5	136	80.9	7.4	8.1	3.7
1078	105	17	13	2	137	76.6	12.4	9.5	1.5
1788	70	17	40	11	138	50.7	12.3	29.0	8.0
1428	106	18	13	2	139	76.3	12.9	9.4	1.4
1789	94	13	27	6	140	67.1	9.3	19.3	4.3
.173	102	16	21	1	140	72.9	11.4	15.0	0.7
.833	99	17	19	5	140	70.7	12.1	13.6	3.6
1151	93	15	27	6	141	66.0	10.6	19.1	4.3
1651	86	18	26	12	142	60.6	12.7	18.3	8.5
1573	93	22	27	1	143	65.0	15.4	18.9	0.7
.389	104	20	19	3	146	71.2	13.7	13.0	2.1
1080	76	30	36	6	148	51.4	20.3	24.3	4.1
1371	101	26	23	5	155	65.2	16.8	14.8	3.2
1847	95	37	14	10	156	60.9	23.7	9.0	6.4

Remarks: Cut-offs used for grouping – SCC: 200,000 cells/ml and DSCC: 65%

AVAILABLE LITERATURE – MORE TO COME

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Differential somatic cell count—A novel method for routine mastitis screening in the frame of Dairy Herd Improvement testing programs

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Differential somatic cell count as an additional indicator for intramammary infections in dairy cows

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Evaluation of the new differential somatic cell count parameter as a rapid and inexpensive supplementary tool for udder health management through regular milk recording

Daniel Schwarz^{a,*}, Debora E. Santschi^b, Jean Durocher^b, Daniel M. Lefebvre^b

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Investigation of differential somatic cell count as a potential new supplementary indicator to somatic cell count for identification of intramammary infection in dairy cows at the end of the lactation period

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A MESSAGE TO TAKE HOME

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Mastitis is still the costliest disease in milk production



From Science to Practise: Different new possibilities to improve mastitis management



Clearly positive effects on udder health and farm economics using the new DSCC based udder health management tool



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