

QUALITY



Made in Germany



HL HAMBURGER LEISTUNGSFUTTER GMBH



Our solution: Wisan®

to more effectively utilization of raw materials:

refinement
process

Wisan®



- + no chemical additives
- + gentle refinement
- + innovative digestion method



Wisan[®]-44

Production process:

- Rape seed meal is treated in extrusion process.
- In order to avoid denaturation of protein, we use low Temperature, Steam and Pressure- Gently treatment
- **NO CHEMICAL** is going to be used during production (no formaldegind)
- After treatment is urea will be added and pelletised
- Production process provides some coating of added urea too.

Wisan® Treatment



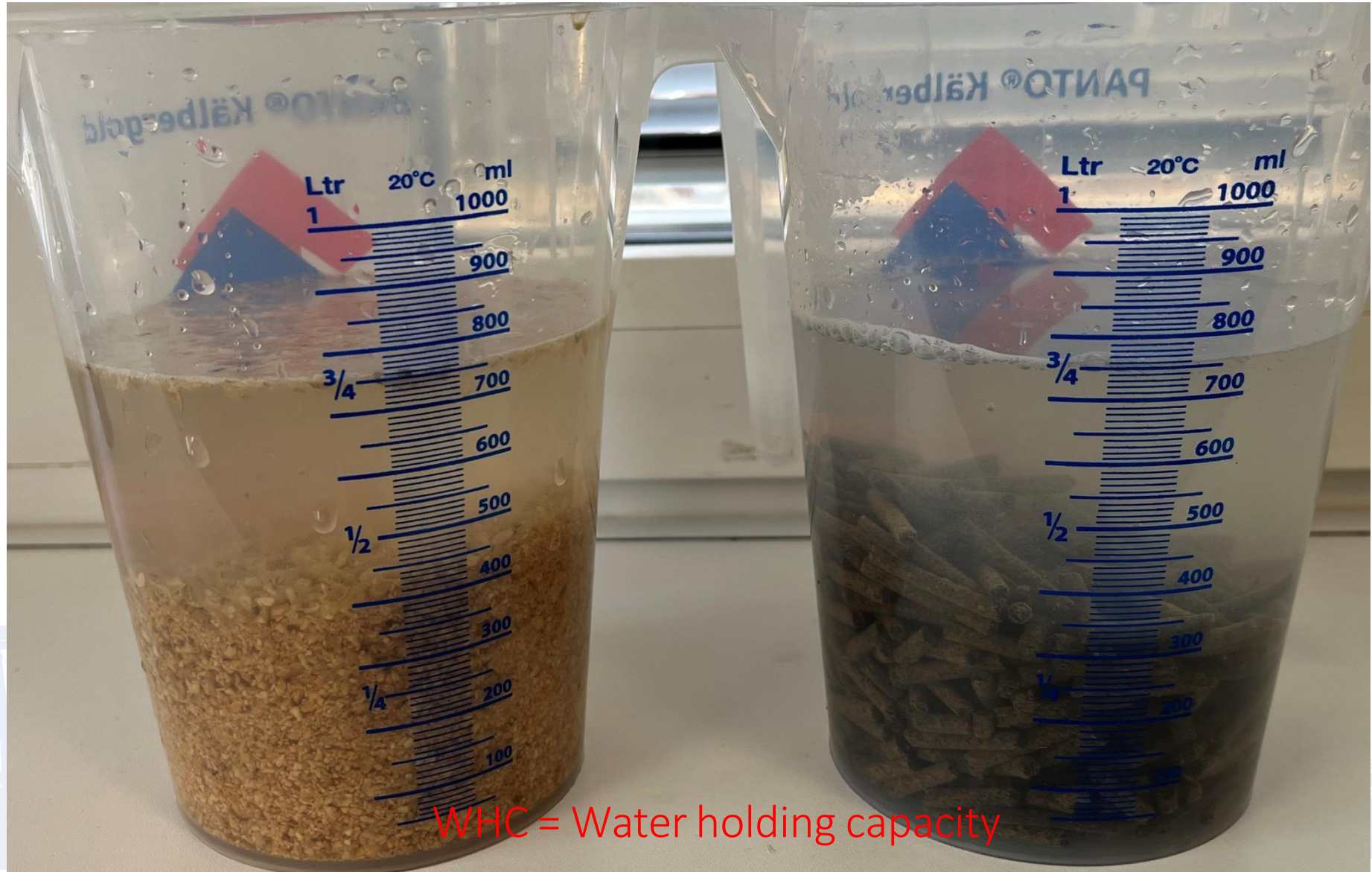
RSM



WHC = Water holding capacity

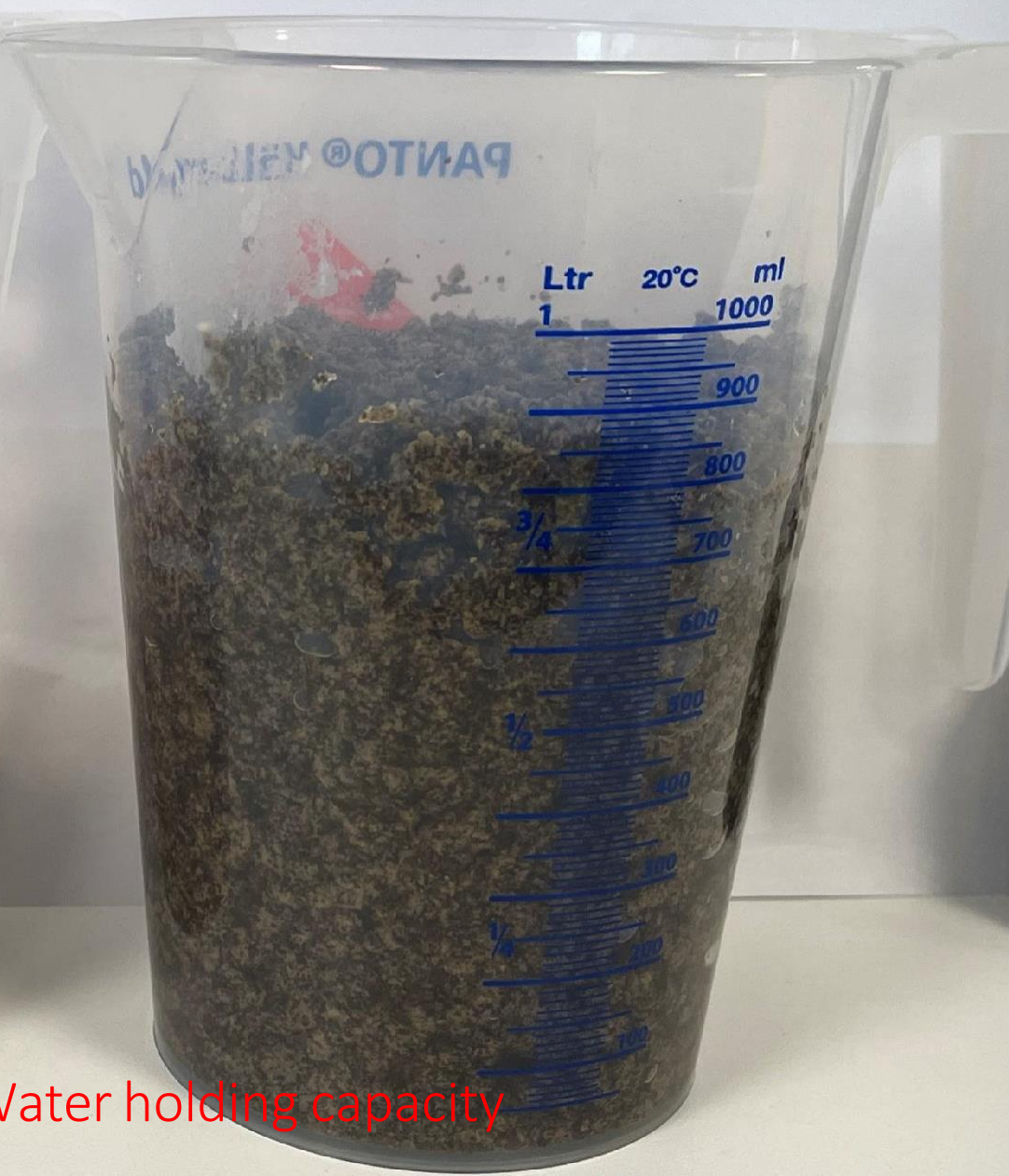
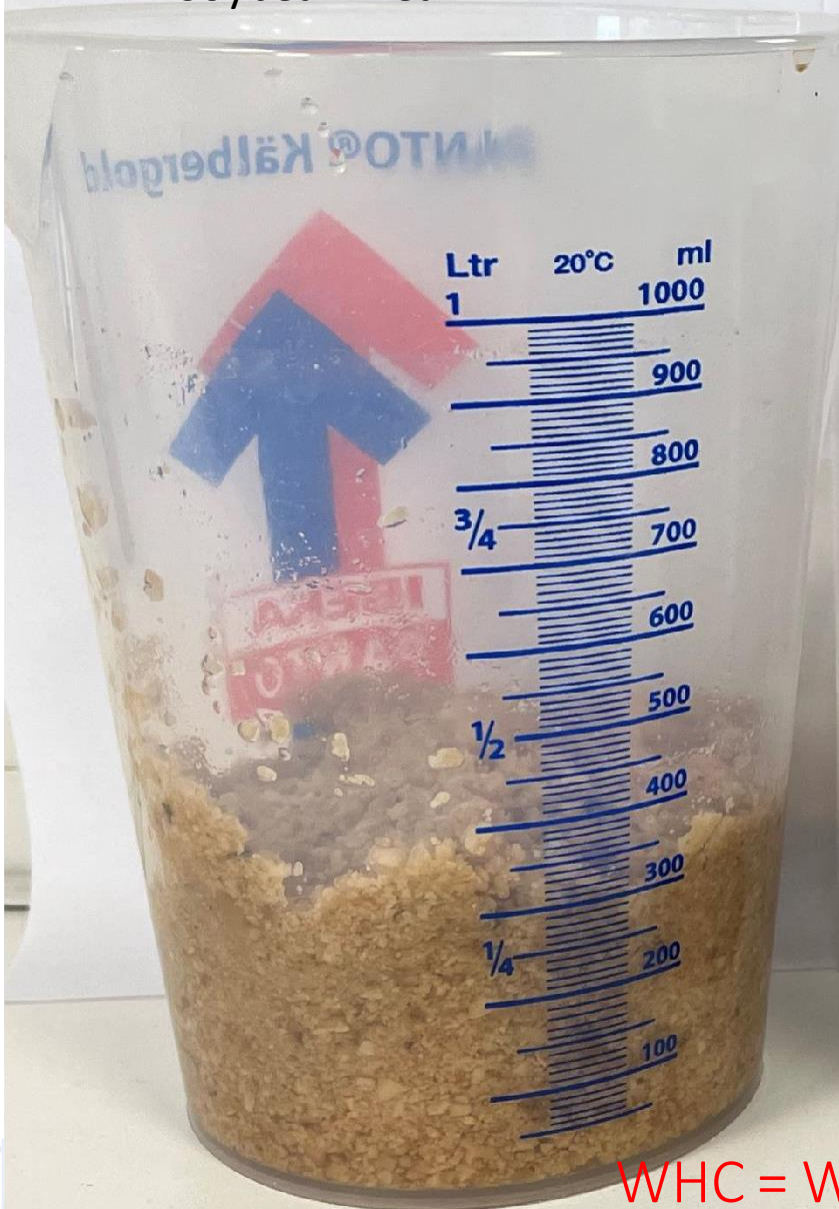
Soybean meal HP

WISAN 44



Soybean meal HP

WISAN 44



WHC = Water holding capacity

Wisan[®]-44

Ingredients	RSM	Wisan [®] 44	SMB 48
Energy MJ NEL	6,4	6,3	7,6
CP g	330	440	455
UDP g OM	105	273	159
UDP %	35	55	35
uCP g or. mass	220	345	253
RNB* g	19	15,2	32,3

RNB* Runimal Nitrogen Balance in Germany feeding System

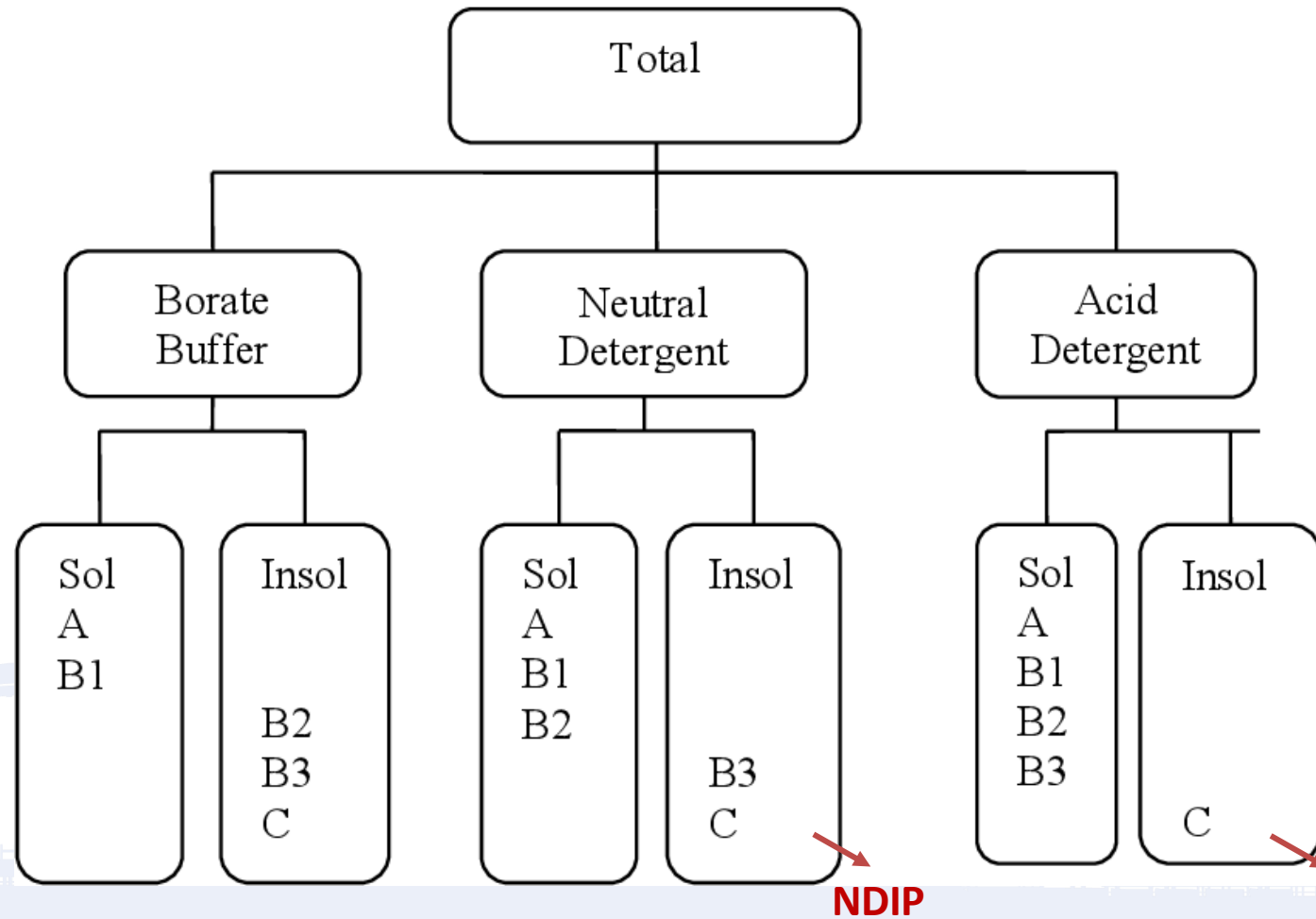
■ Cornell Net Carbohydrate and Protein System (CNCPS)

Table 1
Partition of nitrogen and protein fractions in feedstuffs

Fraction	Abbr.	Estimation or definition	Enzymatic Degradation	Classification ^a
Nonprotein N	NPN	Not precipitable	Not applicable	A
True protein	TP	Precipitate with tungstic acid		
True soluble protein	BSP	Buffer soluble but precipitable (TP-IP)	Fast	B ₁
Insoluble protein	IP	Insoluble in buffer	-	
Neutral detergent soluble protein	IP-NDIP	Difference between IP and protein insoluble in neutral detergent (ND)	Variable	B ₂
ND insoluble protein, but soluble in AD	NDIP-ADIP	Protein insoluble in ND but soluble in acid detergent (AD)	Variable to Slow	B ₃
Insoluble in acid detergent	ADIP or ADIN	Includes heat-damaged protein and nitrogen associated with lignin	Indigestible	C

^a According to Pichard and Van Soest, 1977, and Van Soest, 1994.

- Cornell Net Carbohydrate and Protein System (CNCPS)



Effect of feed processing on CNCPS Protein Fractions of Rapeseed



Rapeseed *not processed	A	B ₁	A + B ₁	B ₂	B ₃	C
1	15	47	62	21	8.2	7.9
2	16	47	63	24	4.9	7.8
3	15	46	61	26	6.3	7.6
4	17	42	59	24	9.4	7.7
5	15	44	59	24	9.8	6.9
Rapeseed *processed with chemicals	A	B ₁	A + B ₁	B ₂	B ₃	C
1	8.9	45	54	25	13	7.5
2	9.7	44	54	28	11	7.2
3	7.1	39	46	34	12	7.0
4	8.8	39	48	32	14	7.4
5	7.7	41	49	31	14	7.0

Effect of feed processing on CNCPS Protein Fractions of Rapeseed



RSM *different heating time	A + B ₁	B ₂	B ₃	C	CP
RSM 48	21	49	17	12	37
RSM 64	20	47	20	13	37
RSM 76	18	43	20	19	37
RSM 93	17	42	21	20	37
RSM over	16	51	21	22	37

*RSM = rapeseed meal

(Haese et al., 2022)

WISAN 44

38,2+2,4

48,1

6,2

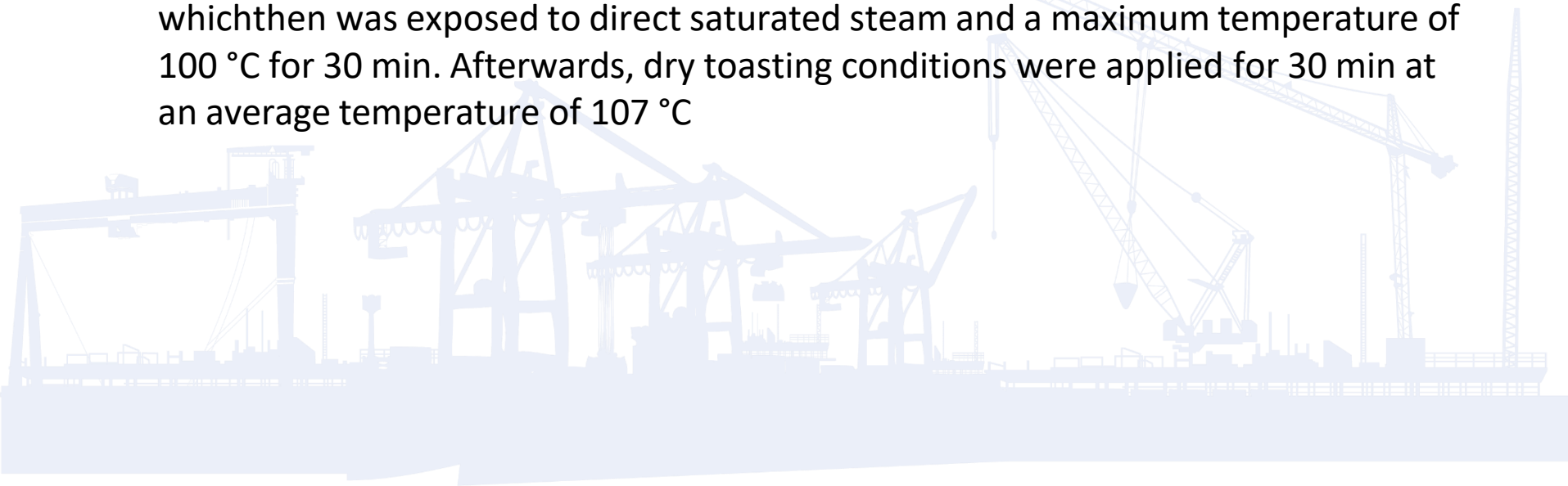
5,1

44

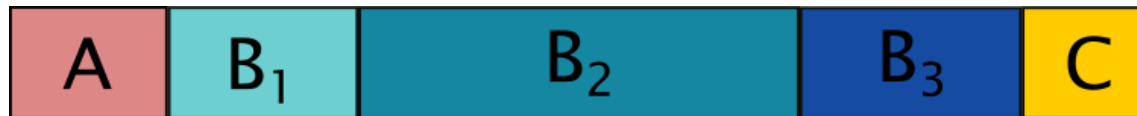
The residence time in the DT was 48 (RSM48), 64 (RSM64), 76 (RSM76), and 93 (RSM93) min at an average toasting temperature of 124 °C.

Furthermore, a fifth RSM with two additional heating steps in the DT (RSMover) was produced. For that purpose, another batch of rapeseed cake was produced from the same seed and again four RSM were prepared under similar processing conditions to those described above.

The four RSM from the second production batch were pooled to one RSM sample, which then was exposed to direct saturated steam and a maximum temperature of 100 °C for 30 min. Afterwards, dry toasting conditions were applied for 30 min at an average temperature of 107 °C



- Cornell Net Carbohydrate and Protein System (CNCPS)



Licitra et al. (1996)

(% of CP)

A = non-protein nitrogen

B₁ = true protein rapidly degradable in the rumen

B₂ = true protein with intermediate degradation rate in the rumen

B₃ = true protein with slow degradation rate in the rumen

C = unavailable or lignin-bound true protein

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HL Hamburger Leistungsfutter
GmbH
Konsul-Ritter-Str. 3
21079 Hamburg-Harburg

Debitor: 17874
Analysis number: 202351311
order number.: 1763200
arrival date: 15.09.2023
certification dat: 24.11.2023_10:47
person in charge: Frau Hotho
analysis period: 15.09.2023 - 24.11.2023

RESULT of ANALYSIS

number of test report: 1763200-20231124-104717

order data (customer information)

sample type: rapeseed meal
sample ID: 281254
sampling date: 14.09.2023
sampler: Brandt-Kost

trade name: Wisan 44 (enthält Harnstoff)
harvest year: 2023
storage place: Partie 25040
silage additives: no data

sensorical evaluation (LKS FMUAA 101:2023-01 not accredited)

brown color,
pellet form,

characteristic smell,

analytical results	unit	in kg feedstuff	in kg dry matter	reference value
fractions of crude protein				
dry matter	g	874	1000	
crude ash	g	67	76	
crude protein	g	444	507	
PNDF (protein bound to NDF)				
ADF	g	279	319	
	g	207	237	
pepsin insoluble protein	% of CP		9,3	
soluble Protein (SP)	% of CP		40,7	
A (NPN - non protein nitrogen)				
B1 (buffer soluble true protein)	% of CP		38,2	
B2 (buffer insoluble true protein)	% of CP		2,4	
B3 (true protein insoluble in neutral detergent)	% of CP		48,1	
C (true protein insoluble in acid detergent)	% of CP		6,2	
UDP 2 (undegraded dietary protein 2%/h)	% of CP		5,1	
UDP 5 (undegraded dietary protein 5%/h)	% of CP		40	
UDP 8 (undegraded dietary protein 8%/h)	% of CP		56	
	% of CP		62	

*Test Report
for Protein
Fraction
acc. CNCPS*



HL HAMBURGER
LEISTUNGSFUTTER GMBH



Test Report with Net Energy Lac and Usable Intestine Protein



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HL Hamburger Leistungsfutter GmbH
Konsul-Ritter-Str. 3
21079 Hamburg-Harburg

Debitor: 17874
ID-number: 202351311
order number.: 1763200
arrival date: 15.09.2023
certification date: 24.11.2023_10:46
person in charge: Frau Hotho
analysis period: 15.09.2023 - 24.11.2023

RESULT of ANALYSIS

number of test report: 1763200-20231124-104649

order data (customer information)

sample type: rapeseed meal
sample ID: 281254
sampling date: 14.09.2023
sampler: Brandt-Kost

trade name: Wisan 44 (enthält Harnstoff)
harvest year: 2023
storage place: Partie 25040
silage additives: no data

sensorical evaluation (LKS FMUAA 101:2023-01 not accredited)

brown color,
pellet form,

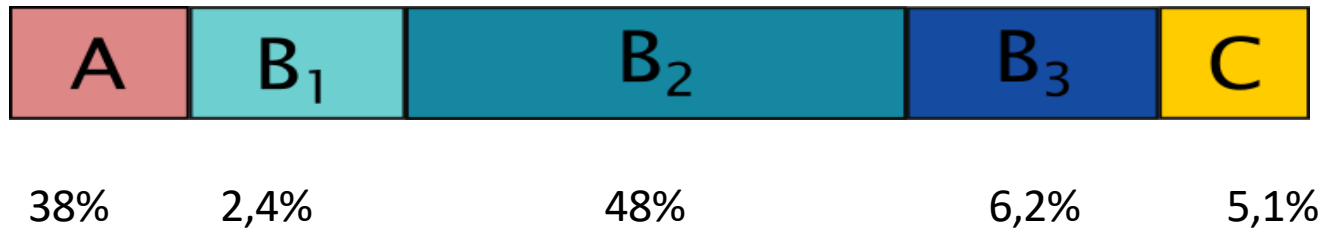
characteristic smell,

analytical results	unit	in kg feedstuff	in kg dry matter	reference value
dry matter	g	874	1000	
crude ash	g	67	76	
crude protein (CP)	g	444	507	
crude fibre	g	99	113	
ether extract	g	50	57	
sugar	g	86	98	

Energetic result	unit	in kg feedstuff	in kg dry matter	reference value
utilizable crude protein (uCP)	g	367	420	
rumen nitrogen balance (rNB)	g N	12,2	14,0	
net energy lactation (NEL)	MJ/kg	6,70	7,67	
metabolizable energy (ME) (cow)	MJ/kg	11,0	12,6	
metabolizable energy (ME) (pig)	MJ/kg	10,4	11,9	
metabolizable energy (ME) (poultry)	MJ/kg	9,7	11,1	

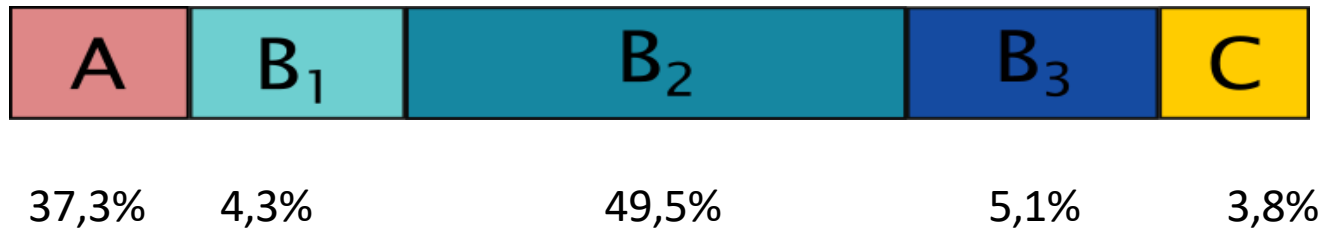
number of test report: 1763200-20231124-104649 • ID-number: 202351311 • sample type: rapeseed meal

1/2



A (NPN)	% d. RPr	38,2
B1 (pufferlösliches Reinprotein)	% d. RPr	2,4
B2 (puffer-unlösliches Reinprotein)	% d. RPr	48,1
B3 (zellwandgebundenes lösliches Reinprotein)	% d. RPr	6,2
C (zellwandgebundenes unlösliches Reinprotein)	% d. RPr	5,1
UDP 2	% d. RPr	40
UDP 5	% d. RPr	56
UDP 8	% d. RPr	62





A (NPN)	% d. RPr	37,3
B1 (pufferlösliches Reinprotein)	% d. RPr	4,3
B2 (puffer-unlösliches Reinprotein)	% d. RPr	49,5
B3 (zellwandgebundenes lösliches Reinprotein)	% d. RPr	5,1
C (zellwandgebundenes unlösliches Reinprotein)	% d. RPr	3,8
UDP 2	% d. RPr	49
UDP 5	% d. RPr	60
UDP 8	% d. RPr	63



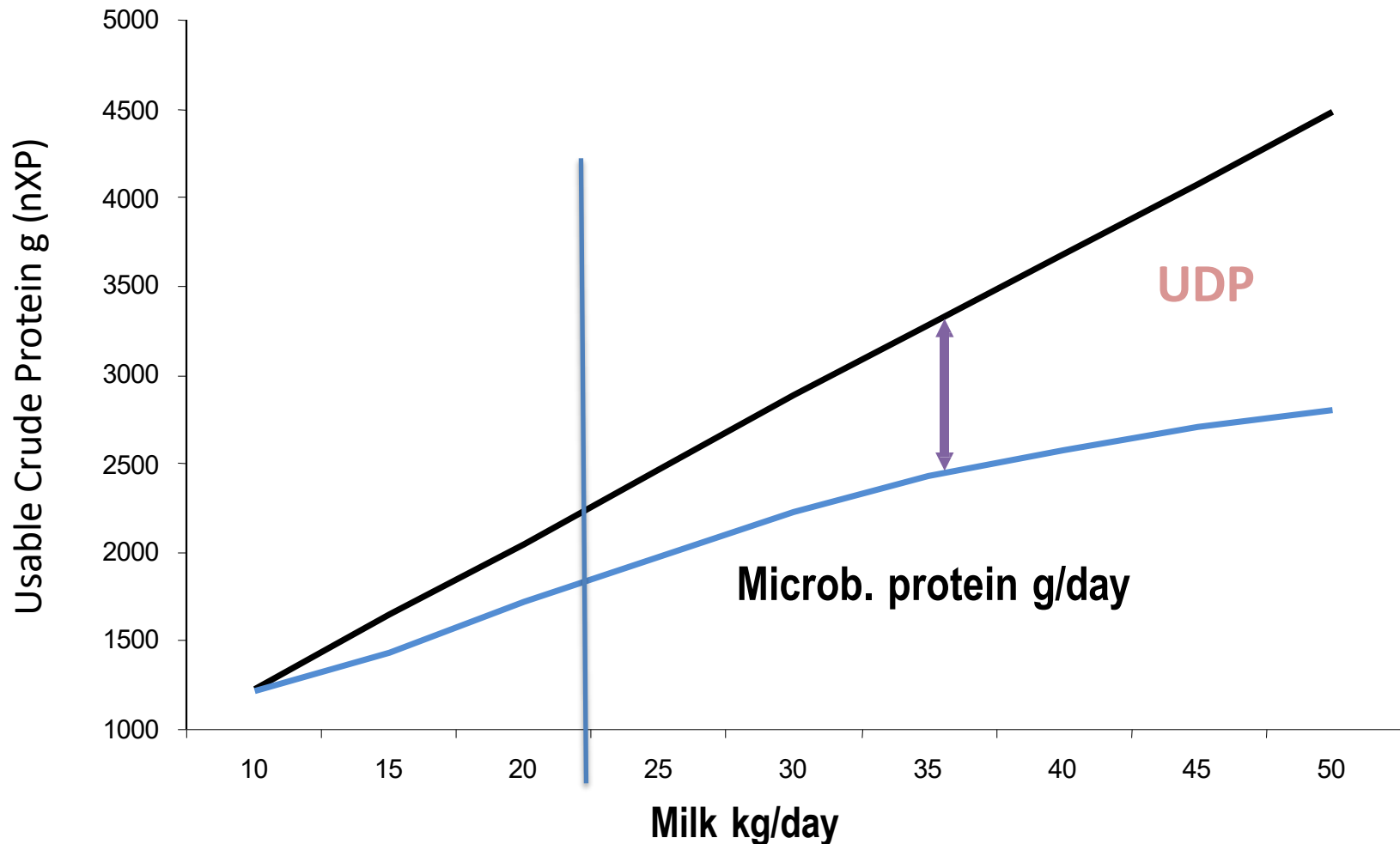
RUP alone does not matter a lot.

Synchronisation in the RUMEN, push production of Microbial Protein with combination of RUP is the first target.

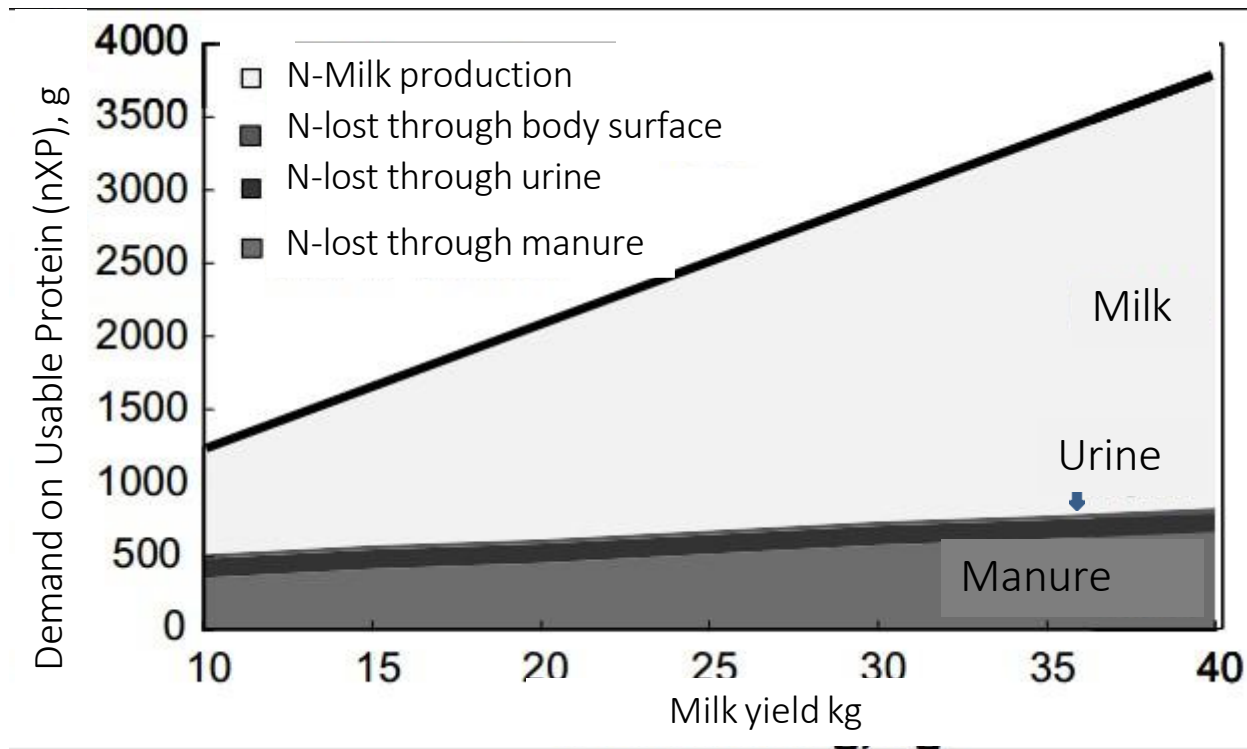
This is where WISAN 44 emphasises its advantage:

- **Improves Microbial Protein Production**
- **Improves RUP Rate of Total TMR**
- **Reduce Nitrogen lost**

High Milk Production requires higher Microbial Protein production and Higher RUP Rate



N-Lost and Demand on Usable Crude Protein (nXP)



Nitrogen Efficiency

- Maximization of the microbial functioning in the rumen;
- Minimization of the negative effects of nitrogen excretion into the environment.
- reduction feed costs

WISAN 44 adjusts Soy product based TMR's with by-pass Methionine

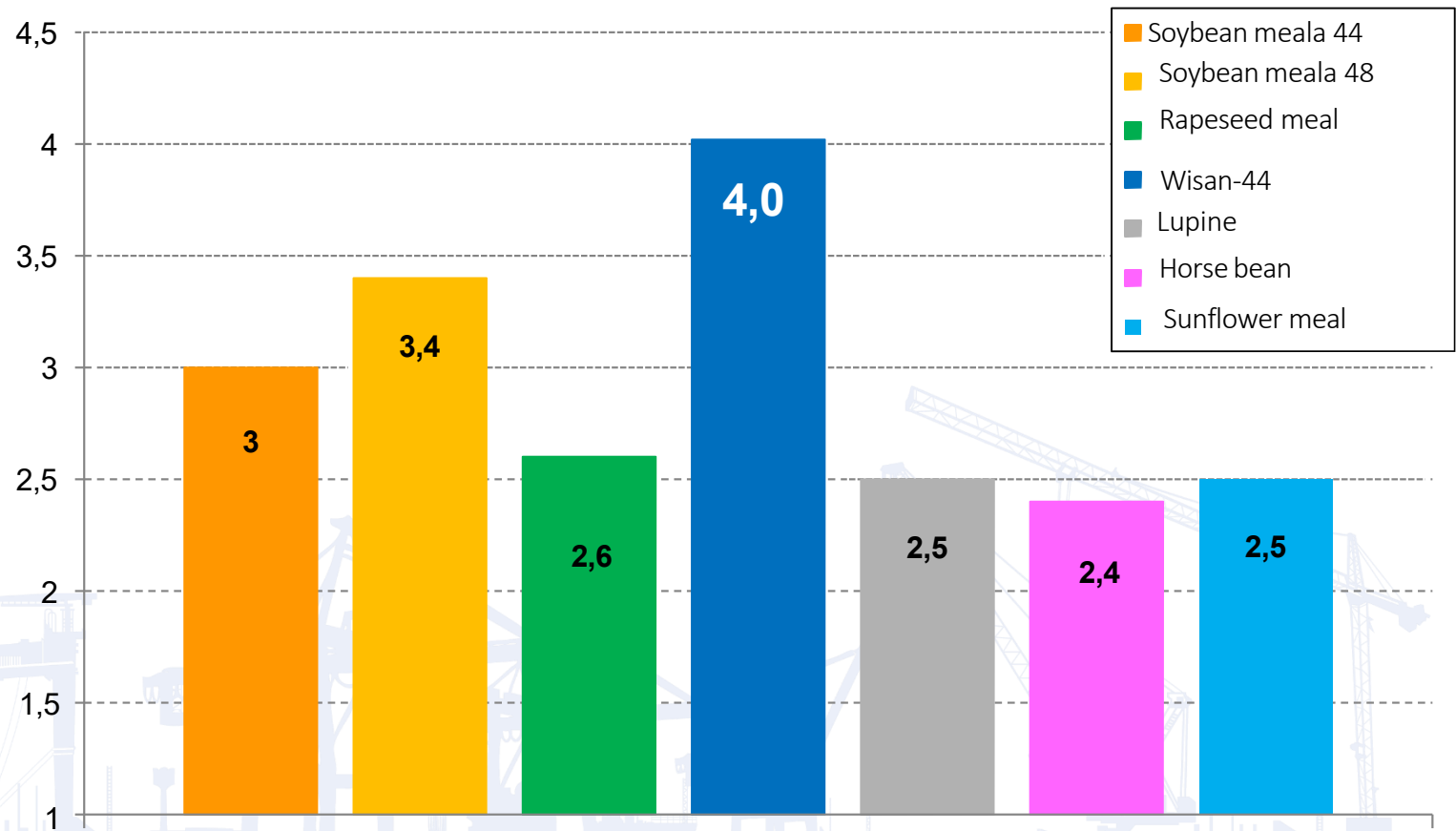
Amino Acids comparison

Essential Amino acids %	Milk-protein	Mikroben-protein
Lysine	8,3	7,9
Methionine	2,7	2,6
Arginin	3,6	5,1
Leucin	10,0	8,1
Histidin	2,7	2,0
Threonin	4,8	5,8
Phenylalanin	5,3	5,1
Valin	6,7	6,2

Amino Acids comparison

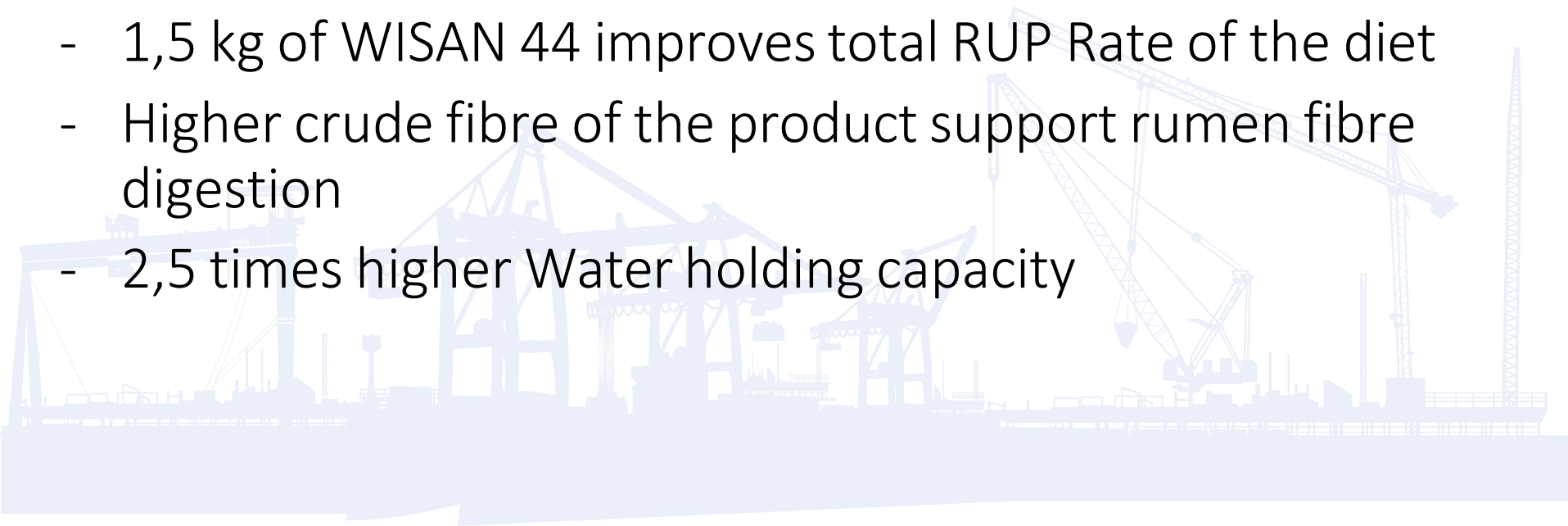
Essentielle Aminosäuren %	Milch-protein	Microb -protein	Soja	Raps
Lysin	8,3	7,9	6,1	4,7
Methionin	2,7	2,6	1,4	2,2
Arginin	3,6	5,1	7,4	6,2
Leucin	10,0	8,1	7,5	7,0
Histidin	2,7	2,0	2,6	2,6
Threonin	4,8	5,8	3,9	4,5
Phenylalanin	5,3	5,1	5,0	4,1
Valin	6,7	6,2	4,8	5,0
Lys/Meth Ratio	3,07	3,04	4,34	2,20

Comparison in Milk Production Efficiency by nXP



Advantages:

- Higher RUP (Rumen undegradable Protein) rate
- Safer handling with NPN source
- Best utilisation of nutrients in the rumen
- Higher share of microbial protein production
- Improvement of soy-based diets with by-pass Methionine
- 1,5 kg of WISAN 44 improves total RUP Rate of the diet
- Higher crude fibre of the product support rumen fibre digestion
- 2,5 times higher Water holding capacity



QUALITY



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