NutriForum25

BESTMIX

SOFTWARE feeding the future

TRENDS IN DYNAMIC FORMULATION

By Maika Willemsen

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DYNAMIC FORMULATION

INTRODUC

FROM DATA

Samples

Research

Models
animal, economic…

Legislation

Equations

Animal
performance figures

Ration calculation

Precision feeding

Customized products…

WHO IS INVOLVE

Samples

Research

Models
animal, economic…

Legislation

Equations

Animal
performance figures

Software solution

Ration calculation

Precision feeding

Customized products

…


Farmers


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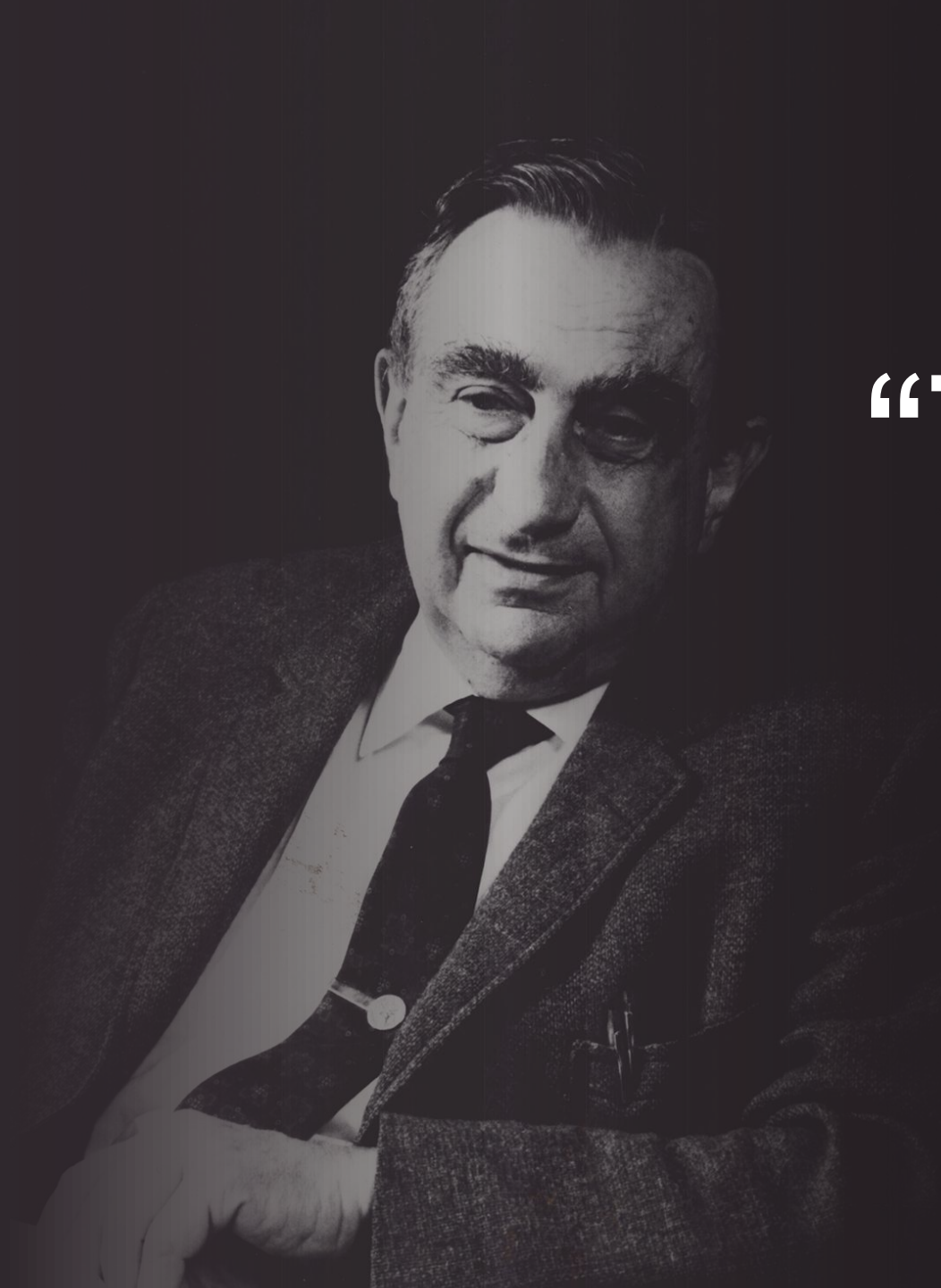
Consumers

NutriForum25

DYNAMIC FORMULATION

TRANSFORMING

RESEARCH INTO



“The science of today is the technology of tomorrow”

– Edward Teller

TRANS FORM RESEA RCH

- Short time to market with central, cloud-based system
- Include local insights in globally accepted industry standard animal models
- Use of enzymes and prebiotics in formulation and model their effect on the overall animal performance
- Apply the global/local standard of your choice

TRANSFORM RESEARCH

Innovation in animal modelling as key differentiator for your business

Include local insights in globally accepted industry standard animal models

	Dairy	Beef	Small ruminants	Swine	Poultry	Horse
CNCPS	x	x				
NRC	x	x	x	x	x	x
CVB	x	x	x	x	x	x
FiM	x					
INRA	x	x	x	x		
BR-Corte	x	x			x	
GfE	x	x				

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Rations | DLC_CNCPS_Mid - Dairy Lactating Cow C

Save and close | Save | Save as | Save concentrate... | Close | Refresh | Customer values | Optimize | Nutrient control | Parametrics | Material evaluation | Livestock feeding | Update concentrate | Post processing | Calculate | Result parameters | Item report | Overview report | Snapshot | Compare prices | Reference | Opteinics

Edit ration DLC_CNCPS_Mid - Dairy Lactating Cow CNCPS Mid | Site HQ *(Customer DAIRY FARM 1)*

General | Parameters | Composition | Consolidated composition | Internal constraints | Consolidated internal constraints | Consolidated external constraints | Loading sheet | Feeding sheet

Total weight : 45,9813 kg
Total weight DM : 22,0485 kg
Total price : 6,98 € (+0.13)
Milk Production : 30,0 kg
En Allow Milk : 32,41 kg
Prot Allow Milk : 34,75 kg
CNCPS Rumen pH : 6,46 pH
Days To Change CS : 240,13 days
DCAD1 : 0,00 meq/kg
Milk Fever Risk : 0,00 %
ME rum CNCPS : 56,41 Mcal
MP CNCPS : 2.259,88 g
Optimization status : Optimal

Composition

Code	Description	DM material	Mix	Use	Type	Minimum	Maximum	Weight (kg)	kg DM
A3027	Corn Silage Processed 40 DM 41 NDF Medium	40,00	☐	☑	%			32,3615	12,94...
A1025	Beet Pulp Wet 34 NFC	23,00	☐	☑	%		20,0000	4,7226	1,0862
D_LC...	Concentrate Dairy Cow	89,19	☐	☑	%		40,0000	3,8445	3,4290
A4041	Alfalfa Hay 17 CP 43 NDF 20 LNDF	90,00	☐	☑	%			2,6851	2,4166
A2027	Soybean Meal 47.5 Solvent	90,00	☐	☑	%			1,9078	1,7170
A2039	Urea 281 CP	99,00	☐	☑	%		1,0000	0,4598	0,4552

6 visible

Analysis

CNCPS655 - CNCPS Nutrient Selection Table - Lo

Total

Code	Description	Unit	Type	Use	Value	Minimum	Maximum	Target	Difference %	Difference abs	Cost/unit	From	Till
0010	DM	kg	Absolute	☑	22,05	22,05	22,05				0,86	21,58	22,16
0010	DM	%	On product	☑	47,95								
0300	Forage	%	On DM	☑	72,50	50,00	72,50				-0,23	72,50	72,50
174...	MP CNCPS	g	Absolute	☑	2.259,88	2.054,43	2.259,88	2.054,43	10,00	205,44	-0,01	2.24...	2.312,88
122...	ME rum CN...	Mcal	Absolute	☑	56,41	52,27	57,50	52,27	7,91	4,14			
286...	MP His CN...	g	Absolute	☑	57,91			47,76	21,24	10,14			
287...	MP Ile CNC...	g	Absolute	☑	117,33			97,41	20,45	19,92			
288...	MP Leu CN...	g	Absolute	☑	170,87			188,55	-9,38	-17,68			
291...	MP Phe CN...	g	Absolute	☑	112,31			104,78	7,19	7,53			
294...	MP Thr CN...	g	Absolute	☑	110,21			78,41	40,55	31,80			
297...	MP Val CNC...	g	Absolute	☑	126,26			110,47	14,29	15,79			
290...	MP Met CN...	g	Absolute	☑	49,12			49,68	-1,14	-0,56			
281...	MP Arg CN...	g	Absolute	☑	145,56			108,82	33,77	36,74			
295...	MP Trp CN...	g	Absolute	☑	32,87			29,40	11,80	3,47			
289...	MP Lys CN...	g	Absolute	☑	157,74			142,29	10,86	15,45			
4100	Ca Absorb	g	Absolute	☑	75,60	58,14	87,21	58,14	30,03	17,46			
4110	P Absorb	g	Absolute	☑	49,67	46,75	54,13	49,21	0,92	0,45			
4120	Mg Absorb	g	Absolute	☑	8,34	6,44	19,33	6,44	29,42	1,90			
4130	K Absorb	g	Absolute	☑	295,31	204,59	511,48	204,59	44,34	90,72			
4170	S Absorb	g	Absolute	☑	44,86	44,10	59,53	44,10	1,74	0,77			
4140	Na Absorb	g	Absolute	☑	52,52	45,55	136,65	45,55	15,31	6,97			
4150	Cl Absorb	g	Absolute	☑	64,70	48,89	66,00	48,89	32,34	15,81			
4630	Fe Absorb	mg	Absolute	☑	461,53			30,08	1.434,48	431,45			
4660	Zn Absorb	mg	Absolute	☑	187,76	146,94	293,88	146,94	27,78	40,82			
4600	Co Absorb	mg	Absolute	☑	4,85	4,85	9,70	4,85	-0,00	0,00	0,24	4,85	4,85
4620	I Absorb	mg	Absolute	☑	41,90	10,50	42,00	10,50	299,03	31,40			
4640	Mn Absorb	mg	Absolute	☑	9,02	2,34	9,37	2,34	284,92	6,68			
4650	Se Absorb	mg	Absolute	☑	7,37	6,61	9,92	6,61	11,46	0,76			
4610	Cu Absorb	mg	Absolute	☑	13,78	9,97	14,96	9,97	38,21	3,81			
3800	Vit-A Absor...	KIU	Absolute	☑	131,25	80,21	160,42	80,21	63,64	51,04			
3810	Vit-D Absor...	KIU	Absolute	☑	43,75	21,88	43,75	21,88	100,00	21,88	-0,04	43,75	43,75
3820	Vit-E Absor...	IU	Absolute	☑	875,00	875,00	1.750,00	583,33	50,00	291,67			

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BESTMIX® Recipe Management

Home | Main | Management | Procision

<All sites> | <All customers> | No dimension | Settings | Maika Willemsen

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Rations | DLC_NRC_Mid - Dairy Lactating Cow NRC

Save and close | Save | Save as | Save concentrate... | Close | Refresh | Optimize | Nutrient control | Parametrics | Material evaluation | Livestock feeding | Update concentrate | Post processing | Calculate | Result parameters | Item report | Overview report | Snapshot | Compare prices | Reference | Opteinics

Edit ration DLC_NRC_Mid - Dairy Lactating Cow NRC Mid | Site HQ

General | Parameters | Composition | Consolidated composition | Internal constraints | Consolidated internal constraints | Consolidated external constraints | Loading sheet

Total weight :	43,6106 kg	**En Allow Milk :**	36,68 kg
Total :	100,0000 %	**Prot Allow Milk :**	53,09 kg
Price list :	Dayprice current month	**Allowable Milk :**	36,68 kg
Total price :	6,50 € (+0.14)	**NE Total Bal NRC :**	4,6 Mcal
Optimization status :	Optimal	**MP Total Bal NRC :**	999 g
Batch weight :	1.000,00 kg	**ADG :**	0,05 kg/day
Price :	149,15 €/tonne (+1.19)	**Target Fat Yield :**	1,32 kg/day
DM Target :	21,53 kg	**Target Protein Yield :**	1,06 kg/day
Body Weight :	600,00 kg	**Income Over Feed Cost :**	11,27 $
Milk Production :	30,0 kg		
Milk Fat :	3,60 %		
Milk Protein :	2,90 %		
Days In Milk :	120 d		

Composition

Code	Description	DM material	Mix	Use	Type	Minimum	Maximum	Weight (kg)	kg DM
A3027	Corn Silage Processed 40 DM 41 NDF Medium	40,00	☐	☑	%			31,4523	12,58...
D_LC...	Concentrate Dairy Cow	89,19	☐	☑	%		40,0000	3,8445	3,4290
A1025	Beet Pulp Wet 34 NFC	23,00	☐	☑	%		20,0000	2,9685	0,6828
A4041	Alfalfa Hay 17 CP 43 NDF 20 LNDF	90,00	☐	☑	%			2,6708	2,4038
A2027	Soybean Meal 47.5 Solvent	90,00	☐	☑	%			2,3862	2,1476
A2039	Urea 281 CP	99,00	☐	☑	%		1,0000	0,2882	0,2853

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Analysis

NRC2001 - Dairy NRC2001

Total

Code	Description	Unit	Type	Value	Use	Minimum	Maximum	Target	Difference %	Lower limit	Upper limit	Differ
0010	DM	kg	Absolute	21,53	☑	21,53	21,53	21,53	0,00			
0010	DM	%	On product	49,37	☑							
0300	Forage	%	On DM	72,50	☑	50,00	72,50					
1280	NEl	Mcal	Absolute	35,45	☑			30,81	15,05			
1700	RDP	g	Absolute	2.274,54	☑			2.186,54	4,02			
1710	RUP	g	Absolute	1.961,01	☑			866,71	126,26			
1740	MP	g	Absolute	3.081,70	☑			2.082,49	47,98			
4100	Ca Absorb	g	Absolute	74,36	☑	58,14	87,21	60,18	23,57			
4110	P Absorb	g	Absolute	50,90	☑	46,75	54,13	49,73	2,35			
4120	Mg Absorb	g	Absolute	8,32	☑	6,44	19,33	6,32	31,59			
4130	K Absorb	g	Absolute	291,94	☑	204,59	511,48	199,13	46,61			
4140	Na Absorb	g	Absolute	45,55	☑	45,55	136,65	41,70	9,24			
4150	Cl Absorb	g	Absolute	59,08	☑	48,89	66,00	48,00	23,07			
4170	S Absorb	g	Absolute	45,33	☑	44,10	59,53	43,06	5,28			
4600	Co Absorb	mg	Absolute	4,85	☑	4,85	9,70	2,37	104,82			
4610	Cu Absorb	mg	Absolute	13,99	☑	9,97	14,96	9,26	51,05			
4620	I Absorb	mg	Absolute	41,90	☑	10,50	42,00	9,00	365,52			
4630	Fe Absorb	mg	Absolute	450,12	☑			30,00	1.400,41			
4640	Mn Absorb	mg	Absolute	8,85	☑	2,34	9,37	2,10	321,20			
4650	Se Absorb	mg	Absolute	7,35	☑	6,61	9,92	6,46	13,80			
4660	Zn Absorb	mg	Absolute	187,91	☑	146,94	293,88	147,00	27,83			
3800	Vit-A Absorb...	KIU	Absolute	131,25	☑	80,21	160,42	66,00	98,86			
3810	Vit-D Absorb...	KIU	Absolute	43,75	☑	21,88	43,75	18,00	143,06			
3820	Vit-E Absorb...	IU	Absolute	875,00	☑	875,00	1.750,00	480,00	82,29			
174...	MP CNCPS	g	Absolute	2.252,95	☑	2.048,14	2.252,95	2.048,14	10,00			
122...	ME rum CN...	Mcal	Absolute	56,00	☑	52,02	57,22	52,02	7,64			
286...	MP His CNC...	g	Absolute	58,07	☑			47,63	21,93			
287...	MP Ile CNCPS	g	Absolute	117,35	☑			97,22	20,70			
288...	MP Leu CNC...	g	Absolute	170,16	☑			188,07	-9,52			
291...	MP Phe CN...	g	Absolute	112,64	☑			104,51	7,78			
294...	MP Thr CNC...	g	Absolute	109,69	☑			78,17	40,33			
297...	MP Val CNC...	g	Absolute	125,59	☑			110,20	13,97			
290...	MP Met CN...	g	Absolute	48,58	☑			49,57	-2,00			
281...	MP Arg CNC...	g	Absolute	147,85	☑			108,34	36,47			
295...	MP Trp CNC...	g	Absolute	33,01	☑			29,32	12,59			

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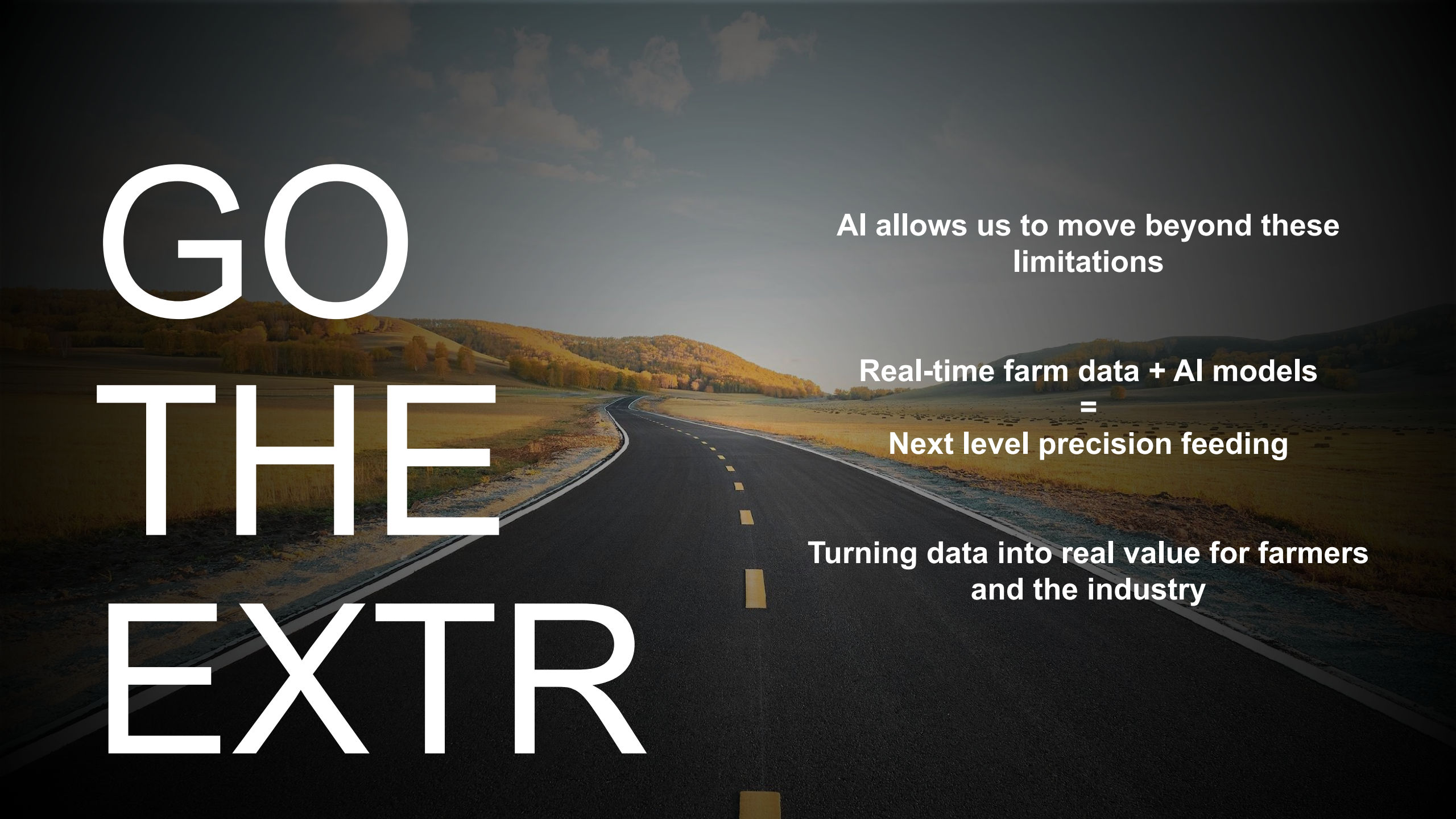
Connected to Feed And Ration Demo Master logged in as Maika Willemsen

TESTING THE

For years, we have relied on theoretical models developed by universities.

But these don't always reflect the complexity of real farm conditions…



AI allows us to move beyond these limitations

Real-time farm data + AI models
=
Next level precision feeding

Turning data into real value for farmers and the industry

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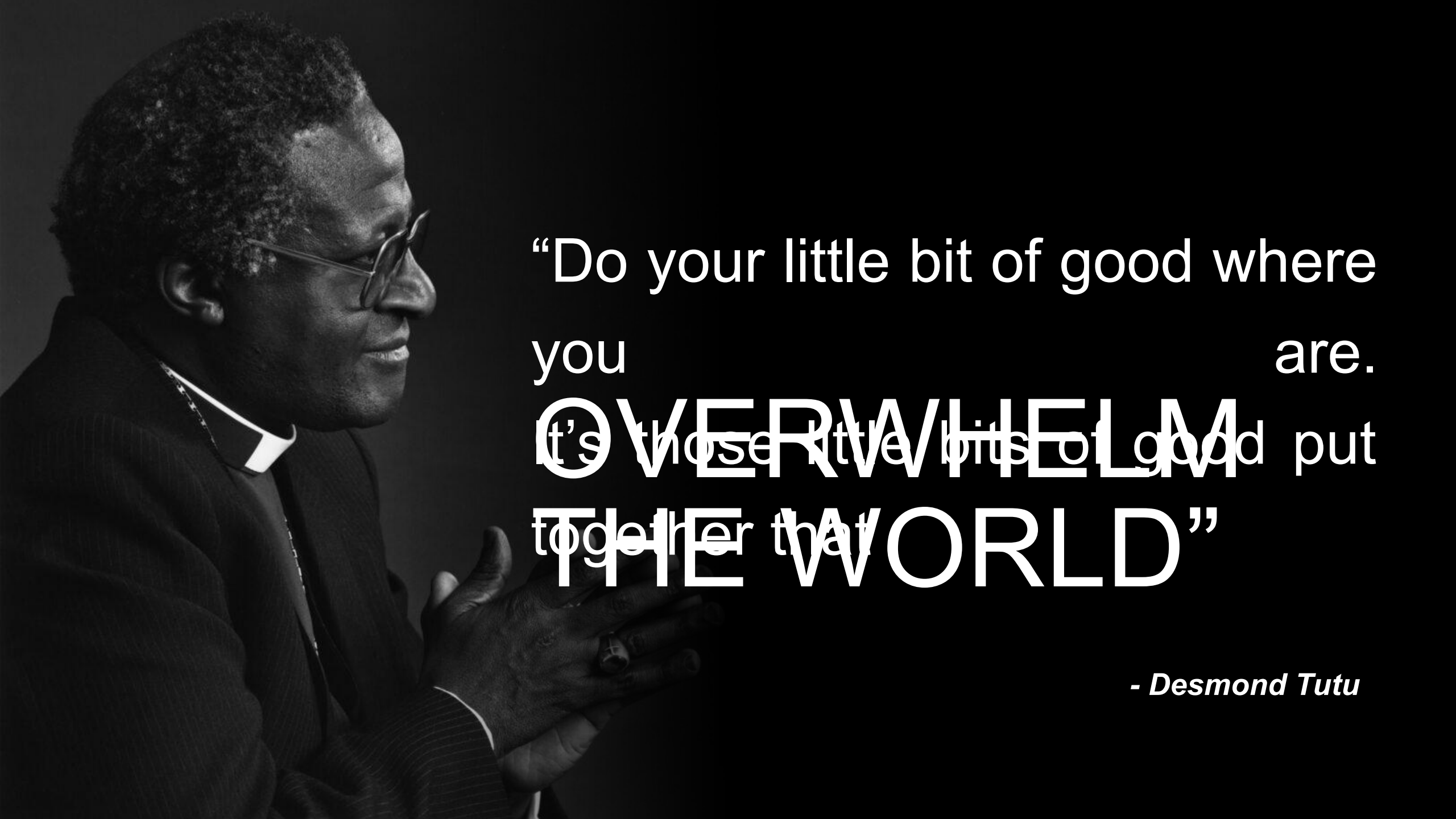
DYNAMIC FORMULATION

SUSTAINA

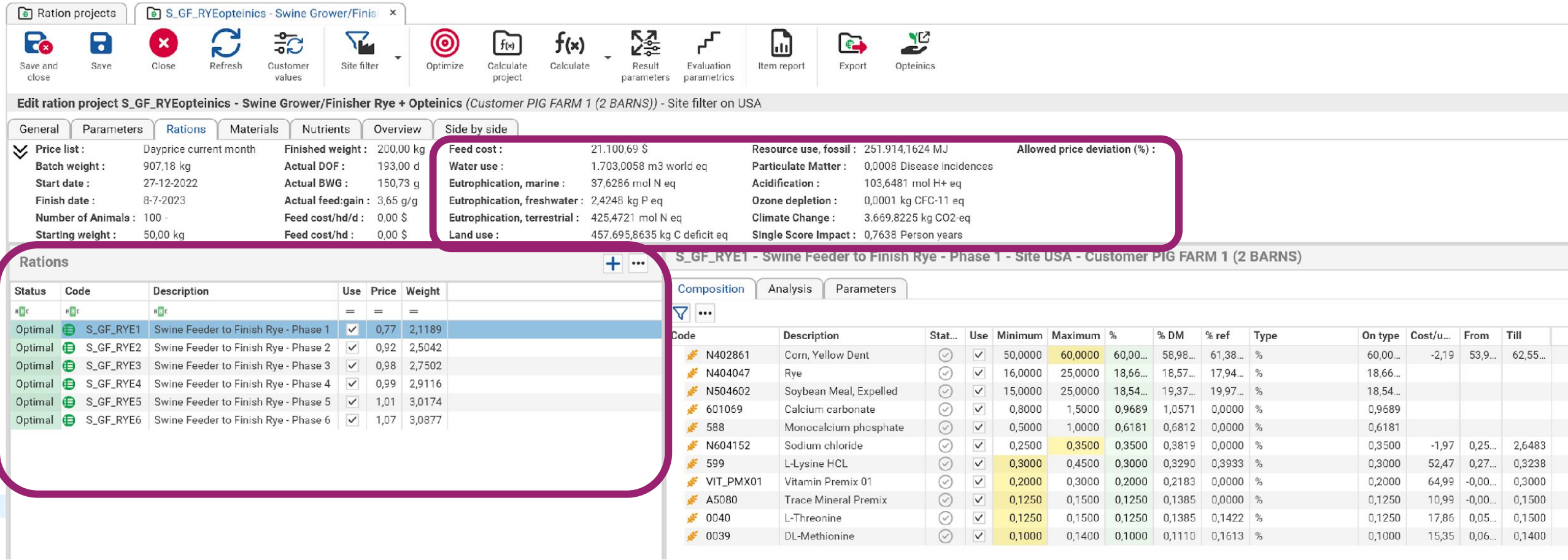

“Do your little bit of good where you are.
It’s those little bits of good put together that
OVERWHELM
THE WORLD”
- Desmond Tutu

HOW YOU DESIG

…Makes a difference for the environment

Feed production is a big contributor to environmental impact

CALCULATE ENVIRONMENTAL FOOTPRINT FOR A FEEDING PROGRAM



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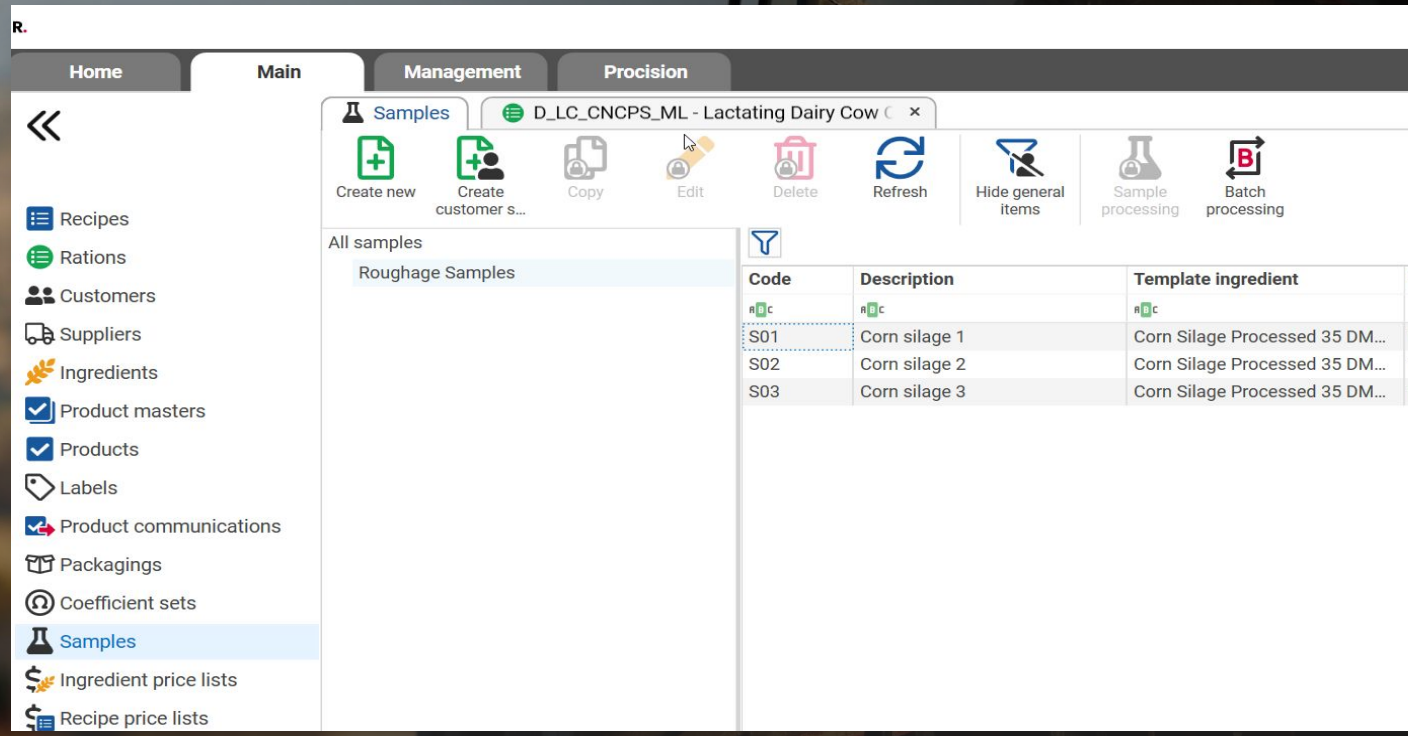
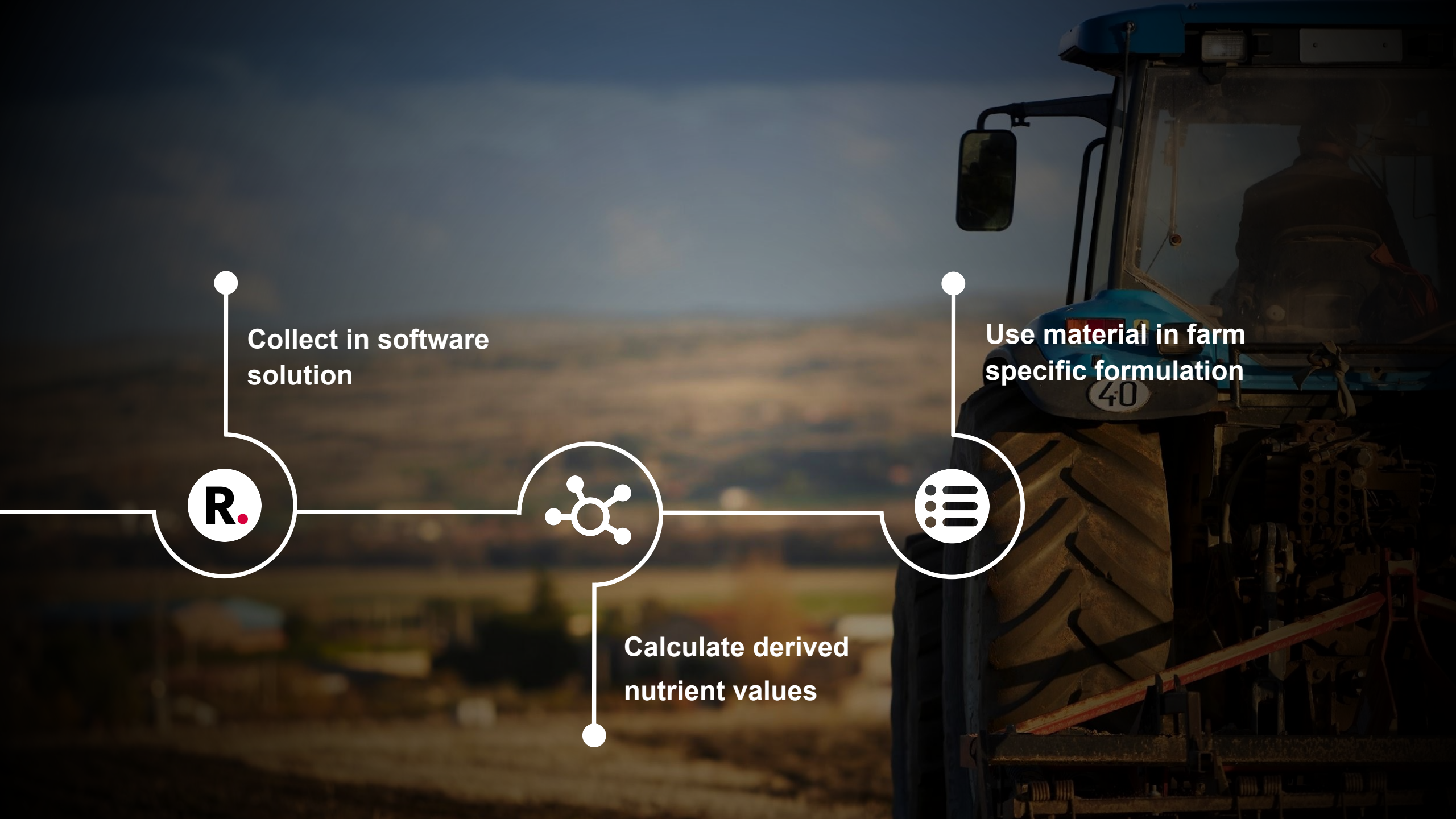
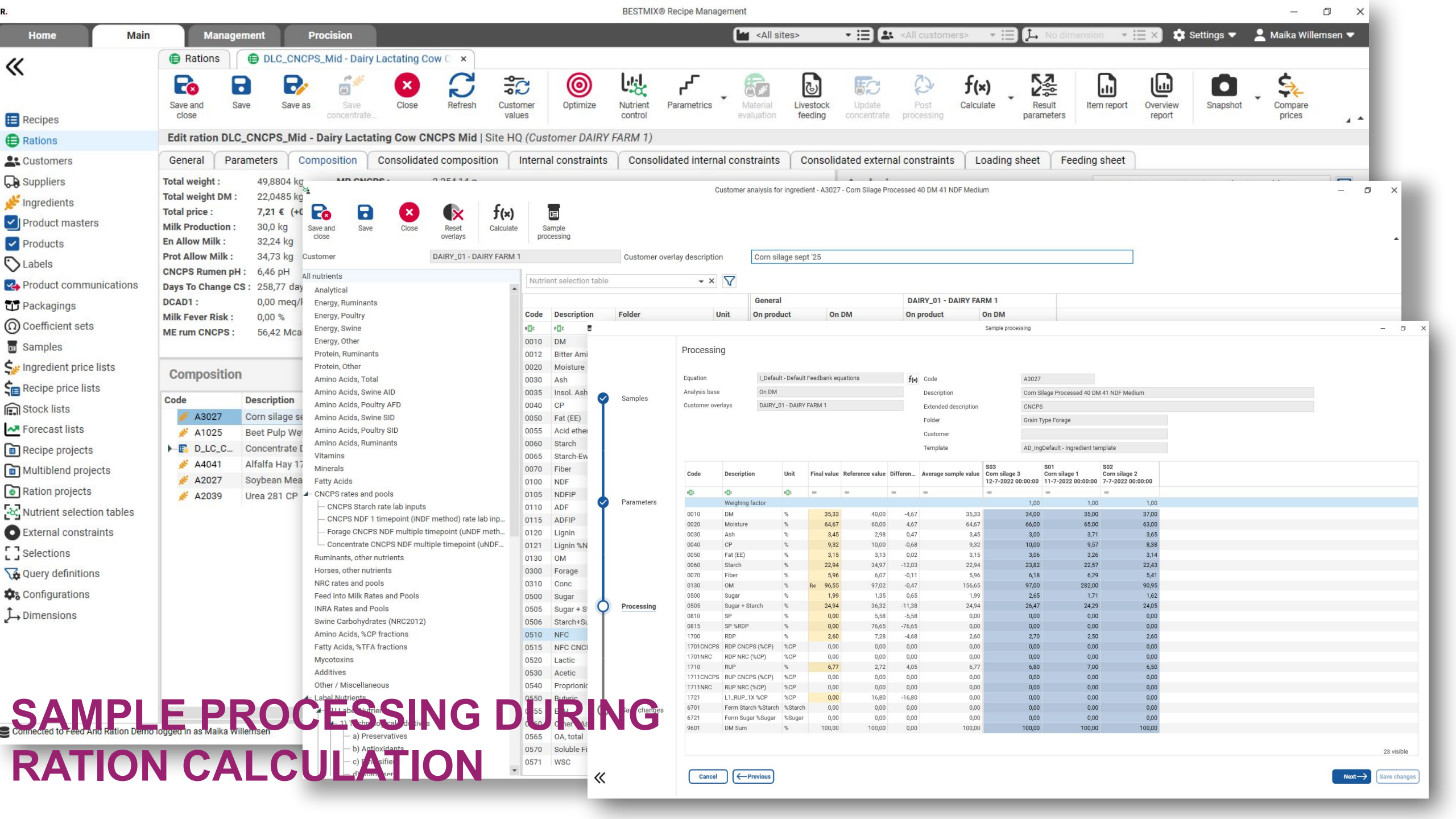
DYNAMIC FORMULATION CONNECT


CONNECT
FARM
DATA
WITH
Take sample at farm
Analyze nutritional values

Collect in software solution




Collect in software solution
Calculate derived nutrient values
Use material in farm specific formulation



SAMPLE PROCESSING DURING RATION CALCULATION

Edit ration DLC_CNCPS_Mid - Dairy Lactating Cow CNCPS Mid | Site HQ *(Customer DAIRY FARM 1)*

General | Parameters | Composition | Consolidated composition | Internal constraints | Consolidated internal constraints | Consolidated external constraints | Loading sheet | Feeding sheet

Total weight :	49,8804 kg	**MP CNCPS :**	2.254,14 g
Total weight DM :	22,0485 kg	**Optimization status :**	Optimal
Total price :	**7,21 € (+0.37)**		
Milk Production :	30,0 kg		
En Allow Milk :	32,24 kg		
Prot Allow Milk :	34,73 kg		
CNCPS Rumen pH :	6,46 pH		
Days To Change CS :	258,77 days		
DCAD1 :	0,00 meq/kg		
Milk Fever Risk :	0,00 %		
ME rum CNCPS :	56,42 Mcal		

Composition

Code	Description	Price	Mix	Use	Type	Minimum	Maximum	Weight (kg)	kg DM	C
A3027	Corn silage sept '25	70,00	☐	☑	%			36,6630	12,95...	
A1025	Beet Pulp Wet 34 NFC	275,58	☐	☑	%		20,0000	4,2017	0,9664	
D_LC_C...	Concentrate Dairy Cow	389,32	☐	☑	%		40,0000	3,8445	3,4290	
A4041	Alfalfa Hay 17 CP 43 NDF 20 LNDF	198,00	☐	☑	%			2,6744	2,4069	
A2027	Soybean Meal 47.5 Solvent	498,20	☐	☑	%			1,9980	1,7982	
A2039	Urea 281 CP	937,72	☐	☑	%		1,0000	0,4988	0,4938	

Analysis

CNCPS655 - CNCPS Nutrient Selection Table - Lo

Total

Code	Description	Unit	Type	Use	Value	Minimum	Maximum	Target	Differ
0010	DM	kg	Absolute	☑	22,049	f(x) 22,049	f(x) 22,049		
0010	DM	%	On product	☑	44,20				
0310	Conc	%	On product	☑	12,16				
0300	Forage	%	On product	☑	32,05				
0300	Forage	%	On DM	☑	72,50	50,00	72,50		
0040	CP	%	On product	☑	9,76				
0811	SP %CP	%CP	On product	☑	49,13				
0801	NPN %SP	%SP	On product	☑	12,76				
0841	ADIP %CP	%CP	On product	☑	7,43				
0831	NDIP %CP	%CP	On product	☑	16,06				
0500	Sugar	%	On product	☑	2,34				
0060	Starch	%	On product	☑	6,67				
0505	Sugar + Star...	%	On product	☑	9,01				
0110	ADF	%	On product	☑	9,71				
0590	aNDFom	%	On product	☑	15,45				
0580	peNDF	%	On product	☑	12,04				
0581	peNDF %NDF	%N...	On product	☑	73,46				
0121	Lignin %NDF	%N...	On product	☑	7,84				
0030	Ash	%	On product	☑	2,67				
0050	Fat (EE)	%	On product	☑	1,44				
0520	Lactic	%	On product	☑	1,54				
9500	Forage NDF	%	On product	☑	13,52				
9502	ForageNDF...	%BW	On product	☑	0,02				
0515	NFC CNCPS	%	On product	☑	16,68				
2101	MET %CP	%CP	On product	☑	1,53				
2091	LYS %CP	%CP	On product	☑	3,35				
2011	ARG %CP	%CP	On product	☑	2,92				
2141	THR %CP	%CP	On product	☑	3,50				

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DYNAMIC FORMULATION

PRECISION

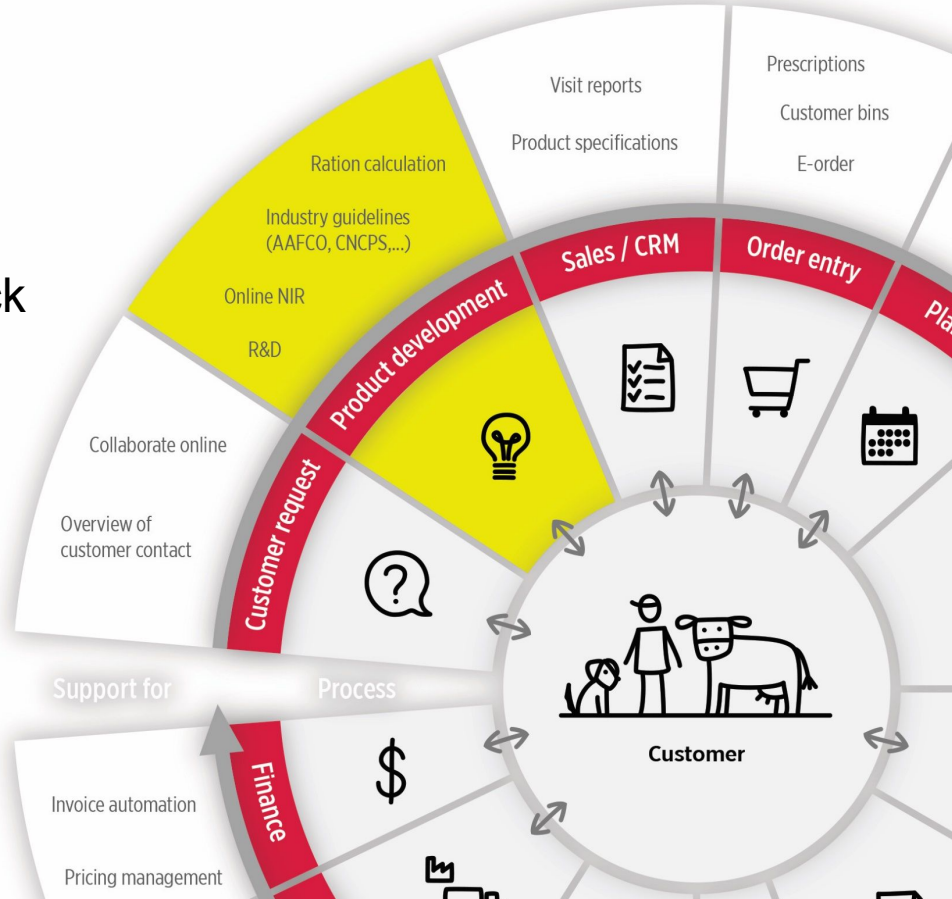
The cloud as a platform to gather all intel

KPI monitoring on farm

Prepare detailed advice per (group of) animal(s)

Organize your livestock

Ration advice tuned to the exact needs of the animal



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Customers | DAIRY_01 - DAIRY FARM 1

Save and close | Save | Close | Refresh | View cross references

Edit customer DAIRY_01 - DAIRY FARM 1

General | Contact info | Parameters | Locations | Animal groups | Livestock | Production parameters | Own materials | Shared users

Definition | Animals

1 - High lactation :	2 (2)
2 - Mid lactation :	3 (1)
3 - Low lactation :	1 (2)
4 - Dry cows :	0 (0)
Undefined :	0
Total :	6

IMPORT AND MONITOR ANIMAL PERFORMANCE FIGURES

Animal details

Import animals | Regroup

Per animal | Average per stage

Animal	Current stage	Previous stage	Milk Prod - kg	Milk Fat - %	Milk Protein - %	Days In Milk - d
BELLA	1 - High lactation	High lactation	42,0	3,50	3,00	80
BETTY	2 - Mid lactation	Mid lactation	30,0	3,50	3,00	150
ROSA	2 - Mid lactation	Low lactation	15,0	3,50	3,00	250
MILKA	2 - Mid lactation	Low lactation	22,0	3,50	3,00	190
JETTA	1 - High lactation	High lactation	37,0	3,50	3,00	40
5-7-2022 15:42:48	3 - Low lactation		15,0	3,50	3,00	240

Calculated result: per animal

- Configuration
- Customer
- Ration overview
- Settings
- Animals
- Calculated result
- Report preview

Show: Balanced materials and nutrients

				Parameters			Nutrients		Balanced materials
Result	Animal	Current stage	Total weight basis	Milk Prod - kg	Days In Milk - d	Lactation Number...	Target DM - kg	Result DM - kg	Concentrate Dairy...
	BELLA	High lactation	41,0806	42,0	80	3	24,94	24,94	5,3481
	JETTA	High lactation	41,0806	37,0	40	3	23,51	23,51	3,7184
	BETTY	Mid lactation	28,2398	30,0	150	3	21,51	21,51	4,6969
	ROSA	Mid lactation	27,9660	15,0	250	3	17,21	17,21	0,0000
	MILKA	Mid lactation	28,2398	22,0	190	3	19,22	19,22	2,0895
	5-7-2022 15:42:48	Low lactation	19,4690	15,0	240	3	16,84	16,84	4,2376

PERSONALIZED ADVICE PER ANIMAL

Cancel | Previous | Next

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SOFTWARE feeding the future

Questions?

Maika Willemsen

Product specialist Ration | Product Owner

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