

Three Become One

Piglet feeding program

A thick, light pink curved line that starts from the left edge, curves upwards and then downwards, ending at the right edge, spanning the bottom half of the slide.

Agenda

- * Aim of product renovation
- * Basis = nutrient balance
 - Energy, amino-acids, vitamins, minerals and traces
- * Ingredients
- * Health and immunity
 - Lactose, Immune globulins
 - Omega, Organic acids, Short chain fatty acids
- * Well balanced products

Demands in market

* Dealers and customers demands

Fair margins

Superior logistic service

- * Package easy to apply

Constant quality

- * Safe and Technological OK

Nutrition support

- * Knowledge mix : Bit from yourself, bit from Joosten

* Farmers and pigs demands

Reliable results

- * High palatability

Healthy piglets

No growth promoting additives

Well fitting with local ingredients

Well balanced feeds



Nutrients in balance

- * Nutrients predict reaction of animals
- * Cost ratio's complete feeds

Energy (Nett)	60 – 70 %
Protein (il. Dig. Amino acids)	20 – 30 %
Vitamins	2 – 3 %
Minerals (Dig. phosphor)	3 – 5 %
“Additives”	2 – 7 %

- * **Dutch tables and demands based on:**

- * Net Energy and dig. amino acids data for all ingredients
- * Well validated animal demands

Complete characterization of ingredients

	Starch energy	Lactose energy	Immune globulin	Omega	Mscfa	Protein quality	vP
Delac 3b _{ne}		++	++			+++	+
SkimPro 3b _{ne}		++				+	++
SuperPig 3b _{ne}		++	+	++	++	+	+
Corn	+++					--	
Wheat	+++					--	
Barley	+++					--	
Milk powder		++	++			+++	+
Fish meal				++		+++	++
Plasma			++			++	
Grain prod.	+					---	

Immunity and health

- * **Ability to keep infections out**

 - Healthy skin, healthy stomach

 - Needs vitamins, traces, acid stomach

 - Good management and hygiene

- * **Effective immune response**

 - Maternal immune globulins run out at week 4

 - Lymphocytes stimulate own immune globulins

 - Phagocytes destroy invaders

 - Requires extra trace elements (Zn, Cu, Beta glucans etc.)

- * **Moderate inflammation reaction**

 - Requires omega fatty acids

 - Requires glycogenic energy, extra amino acids

 - Requires extra Se, Vit E to avoid oxidation due to radicals

- * **Good recovery**

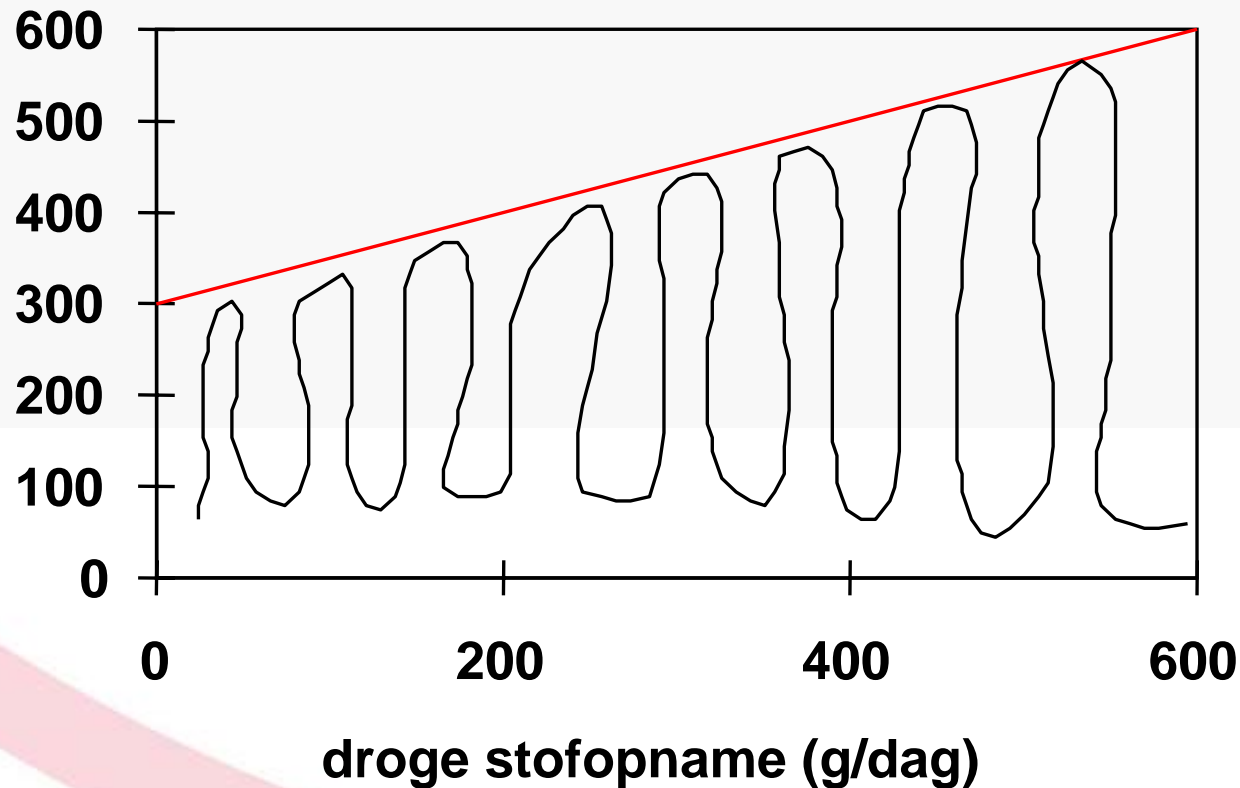
 - Development of villi requires

 - * High intake after weaning

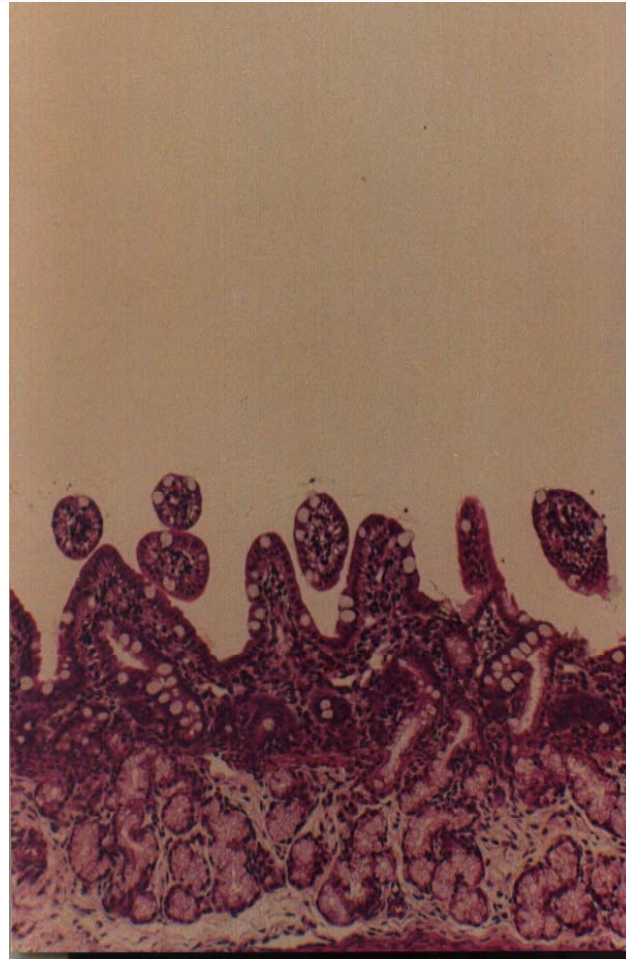
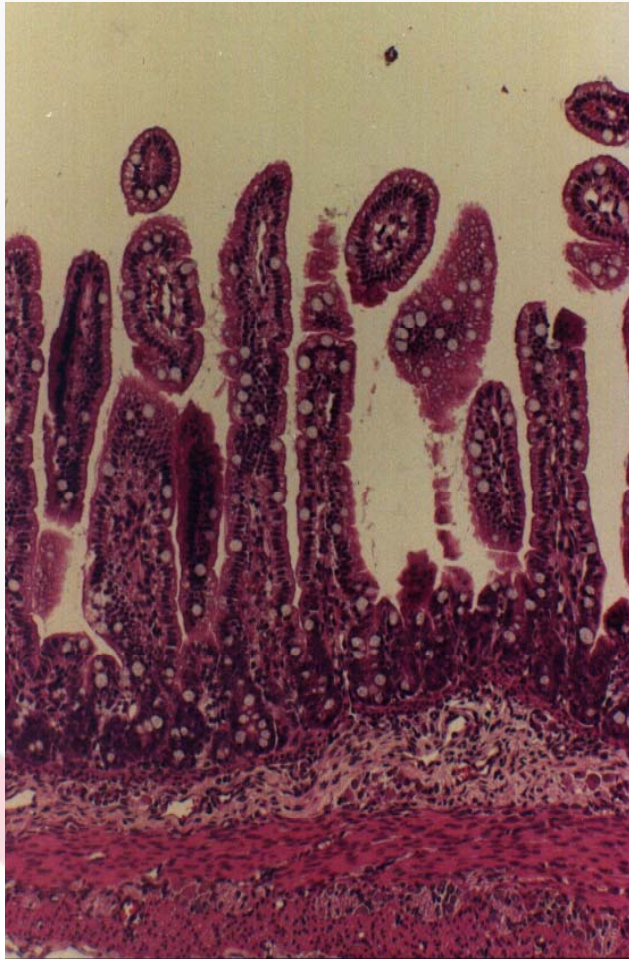
 - * Extra glutamic acid

Healthy villi due to high intake

vlokhogte micro meter



Healthy and destroyed villi

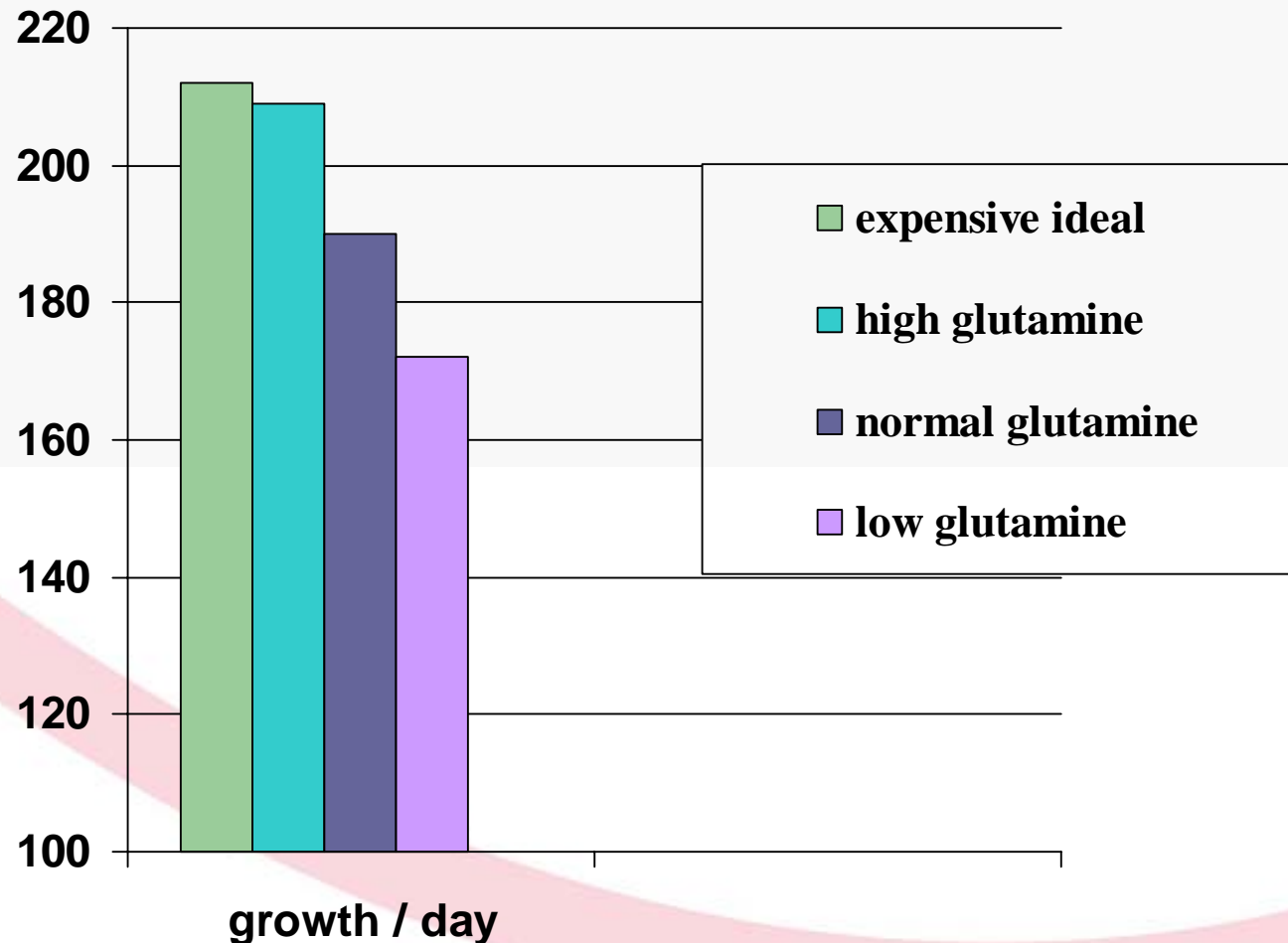


Low protein = more healthy !

Protein level	188	180	172
Diarrhoea days	22	10	4

Protein undigested in large intestines:
 Substrate for Entero's
 Production of toxic biogenic amines
 Production of toxins

More growth with glutamine after weaning



(1) Delac 3b_{ne}

- * Protein supplier
- * Digestibility > 95%
- * Health features
 - Carbohydrates
 - * Fast and medium digestible carbohydrates.
 - Amino acids
 - Immunoglobulins (milk protein)
 - Glutamines

Protein quality

	Milk products	Wheat	Fishmeal	Maize/ Corn	SBM	Piglet feed	Weaner feed	Delac 3b _{ne}	SuperPig 3b _{ne}	SkimPro 3b _{ne}
CP	350	111	563	85	430	180	185	370	300	240
Glu/CP	21	28,3	13	18,1	18	16,5	7	16,3		1
Lysine	27,2	3,1	42,8	2,5	26,5	10,975		39,5	24,3	15,7
Methionine	12,2	4,2	20,9	3,7	12,4	3,63		16,2	14,2	6
Fat	12	14	93	45	20	3,5			16,5	0,9
Lysine/CP	7,8	2,8	7,6	2,9	6,2			10,6	8,1	6,5
Ilysin/CP	7,4	2,1	6,8	1,8	5,3	5,2	5,4	9,3	7,4	5,9
II Methionine	3,2	3,1	3,7	3,4	2,4	3	3,1	3,8	4,1	5,22
vP	9,2	0,8	17,4	0,6	2,6	3	3,4	2,6	8	3,2
EW	1,19	1,11	1,07	1,22	0,91	1,08	1,1	1	1,37	0,66

Soya quality important

	SMP	Soya	JP Soya (processed)
Intake d 21-35	266	243	245
Growth d 21 -35	267	174	210
Conversion	1,07	1,43	1,15
Vilus length d28	315	204	265
Antigen soya d27	3,5	5,9	3,6
Skin thickness	0,7	2,4	1,5

Fine grinding: + digestion, allergens de-activated

Good toasting = ANF de-activated = better digestion

Lactose and plasma increase intake

% in feed	Contr	MSA	Lactose	Plasma
Potato protein	6	5	6	5,5
Fish meal	4,5	3	5,2	3,3
Milk protein	-	3	-	-
Lactose	-	-	7,5	-
Plasma	-	-	-	2
Intake 1-2	253	240	273	272
Growth	180	179	200	202
Fecal score	6,3	6,6	6,7	6,7

Lactose important for acid stomach

- * Lactose results in acid stomach
- * Acid stomach: better protein digestion
- * Treated starch : more acid stomach
- * Phosphates buffer = less acid stomach
- * Organic acids: acid stomach, kills bacteria

(2) SuperPig 3b_{ne}

- * Energy provider
- * Safe and high digestible fat source
- * Health features:
 - Carbohydrates
 - * Fast and medium digestible carbohydrates
 - Short and medium chained fatty acids
 - Omega 3 fatty acids

Fatty acids effect growth and immunity

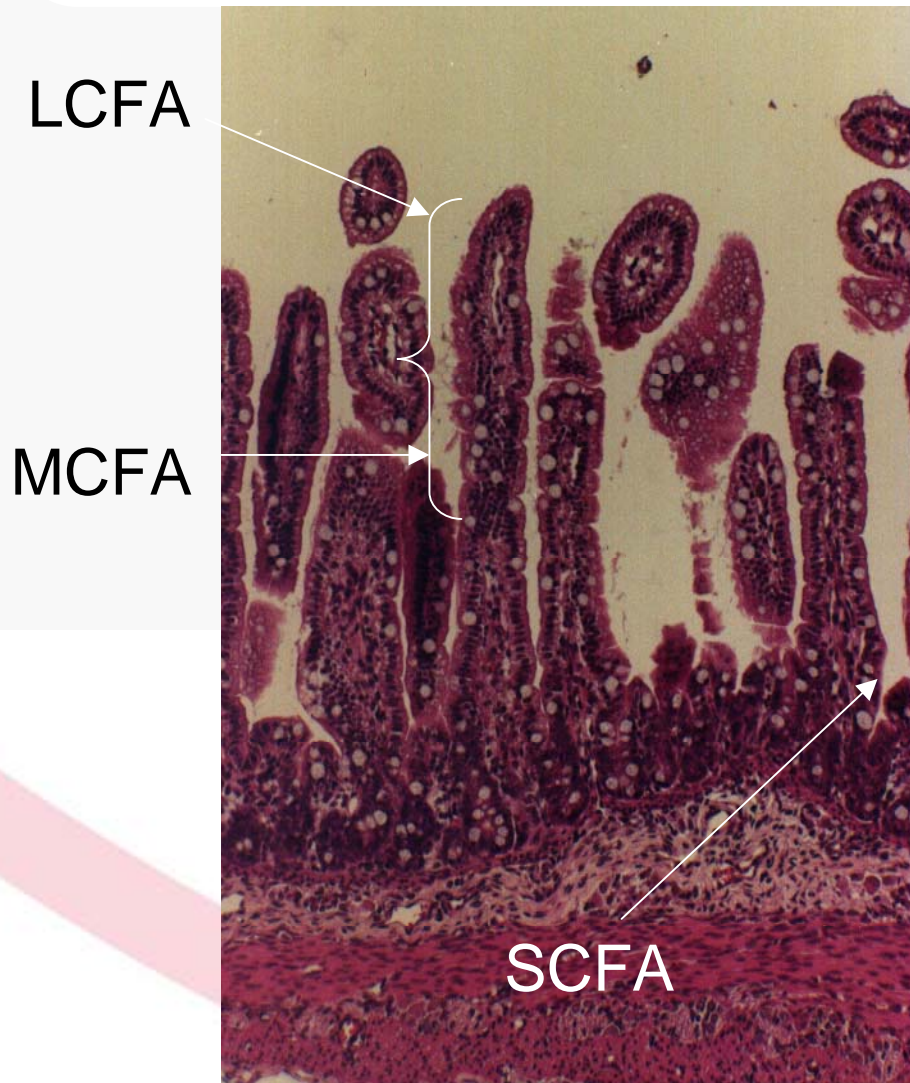
- * C16:0 and C 18:0 have poor digestion
- * Medium and Short chain fatty acids (MSCFA) digest good
Also in case of atrophy of villi reduce bacterial growth like E.Coli

Capronic acid	C 6:0 = 8
Caprylic acid	C 8:0 = 4
Caprinic acid	C 10:0= 2
Lauric acid	C 12:0= 1

	Soya-	Animal fat	MSCFA
Intake	319	320	344
Growth	220	228	255
Fecal score	6,5	6,5	7,2

- * Omega fatty acids
Optimize inflammation = better recovery and immunity

Healthy and destroyed villi



(3) SkimPro 3b_{ne}

Joosten
products

- * Protein quality
- * All necessary vitamins and minerals
- * Fytase is healthy P source Health features:
 - Fytase
 - Anti oxidants
 - Lactose
 - Phosphorus

SkimPro ^{3b}ne

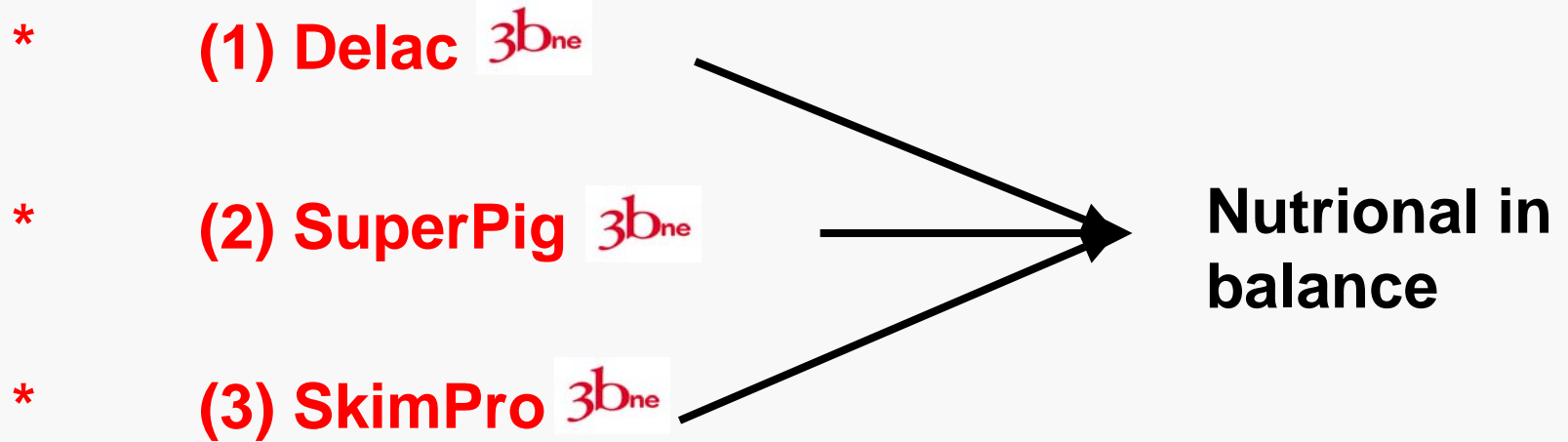
Safe levels vitamines and traces

	Requirement	Ingredients	Via Skimpro 5%
Zn	65	30	100
Cu	5	12	150
Mn	4	10	45
Co ppb			400
Se ppb	300	200	300
Vit A	2200	0	15.000
E	14	15	50
B12	22	8	25

Assembling feed = assembling knowledge and balancing nutrients

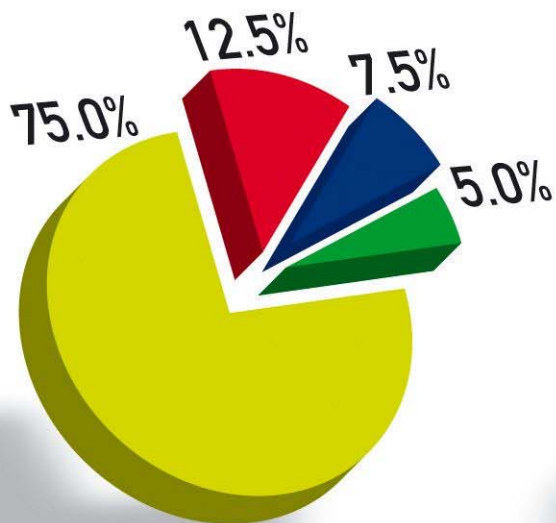
Local	Joosten	Nutrient	Health improver
Corn			Lactose
Wheat / Barley	SuperPig 3b _{ne}	Energy	Omega / MSCFA
Bye product	Delac 3b _{ne}		Lactose
			Immune globulins
Soya		Amino acids	Glutamine
Fishmeal			
			Lactose
	SkimPro 3b _{ne}	Vitamins	Fytase
		Traces	

Three become one

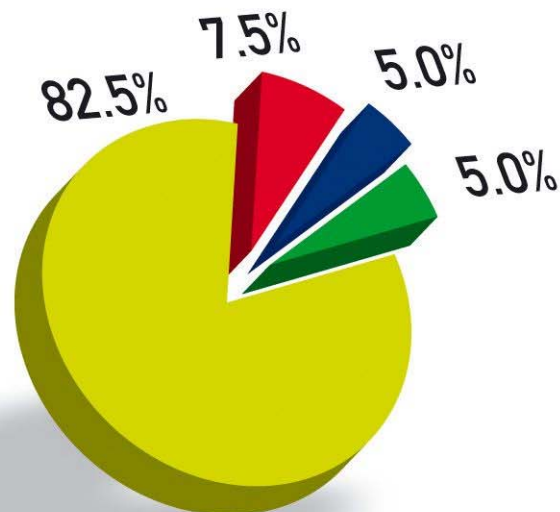


Well balanced piglet feed

Weaner Feed



Starter Feed



Local ingredients

Delac^{3b}

SuperPig^{3b}

SkimPro^{3b}

Basis frame work recepies

	Weaner -1 w +2	Piglet > 2 w weaned
EW	108	108
Ilys	10	9,2
Imeth	3,2	2,9
Ithr	5,6	5,2
Glutamin	30	28
Lactose	40	24
Milkprotein %	(+++++)	(++)
Short chained fatty acids	4,0	3,0
Omega	++	+
vP	3,4	3
Na	3	2,3
Max RE	185	180
SkimPro 3b _{ne}	5	4,8
SuperPig 3b _{ne}	6- 7,5	5-7
Delac 3b _{ne}	12,5	7,5 - 9

Health extra's

	Immuno globulin	Lactose	Omega	AA	Fytase	MSCFA	Antioxidants
Delac 3b _{ne}	+++	++		++			
SuperPig 3b _{ne}	+	++	+++			+++	
SkimPro 3b _{ne}	+	++			++		++
Dairy	++++	++					
Fish meal			+++				

Conclusions

Joosten renovates pig product line

Focus on: Safety and piglet health

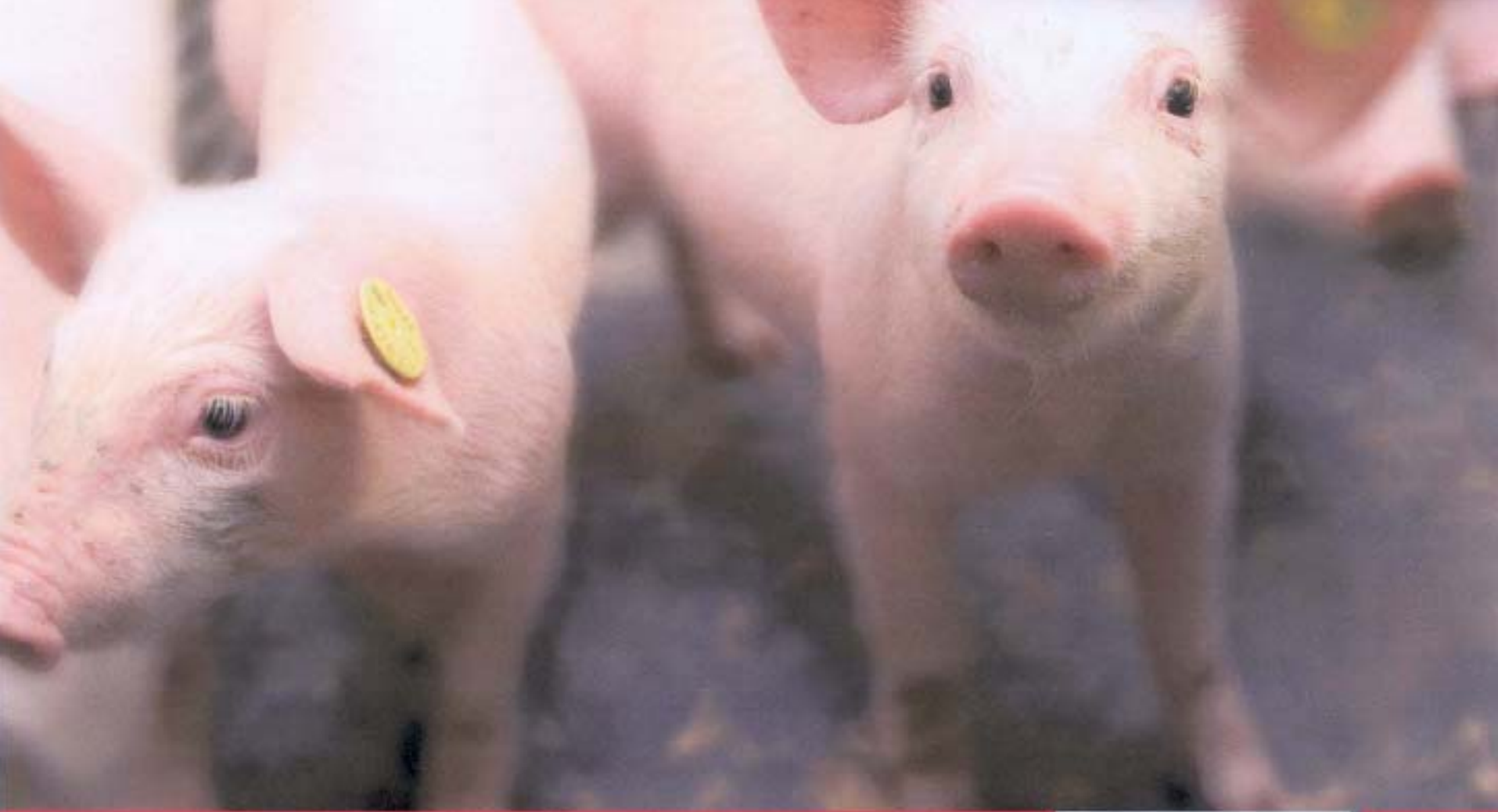
Value for money

Nutritional balance in total rations

Easy to work together local raw material to get an optimal mix

Inclusion rates:	SkimPro 3b _{ne}	4,8 – 5,0 %
	SuperPig 3b _{ne}	5,0 – 7,5 %
	Delac 3b _{ne}	7,5 – 12,5 %

A bit of yourself and a bit of Joosten



Joosten
products

We care for the little ones