

# PIGS

## FEEDING SCHEDULE

(second edition, revised and supplemented)



HACCP



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### Dear Customers,

We are pleased to present the second edition of **LNB Poland pig feeding schedule**, which you can apply on your farm. This edition has been revised and supplemented based on publications and most recent editions of the feeding standards for French, American, German, English, Spanish and Danish pigs.

**The revisions result from national research and observations carried out on pigs reared in Poland and in the Polish environmental conditions. Our thanks go to people working in R&D centres in Poland for making the results of this research available to us. We wish to extend our special thanks to professor Krzysztof Lipiński, whose comments have made a valuable contribution to this volume. When developing a new feeding schedule our priority was to adjust it to the genetic and environmental potential in your farms. We express our gratitude to all pig producers who have contributed to creating even better feeding solutions by sharing the results of their tests and observations.**

In the tables included below in this publication, you will find information on the content of nutritive components in different types of complete compound feeds as recommended by LNB Poland. Usually, the recommended content of nutritive components is shown in the column labelled **"optim."**, which ensures effective and economically justified pig production. In our recommendations we

have also specified the minimum levels of nutritive components that should be contained in complete compound feeds in order to achieve good productivity indicators (the **"min."** column). For calcium and phosphorus the recommended minimum levels may only be applied if phytase is added. The values specified in the **"max."** column are recommended to all those breeders who have in their stock highly fertile and prolific sows as well as growers and finishers with high meatiness levels and are therefore, focused on intense pig production.

In our recommendations we also specify the preferred content of total protein in the feeds. The said values should only be treated as minimum and maximum levels. The actual protein content should result from the need to satisfy the animals' demand for amino acids specified in the recommendations. Out of 20 amino acids contained in the feed proteins, pigs must be provided with 10 amino acids, the so-called essential amino acids, which are not produced by their bodies at all or produced in insufficient quantities to cover the pigs' needs. In practical feeding of growing pigs, this means that not only proper levels of lysine, methionine, cystine, threonine and tryptophan but also isoleucine must be provided in the feed. In the case of sows, valine is another amino acid limiting the biological value of protein.

Complete compound feeds can only be optimised on the basis of the demand for total amino acids. **How-**

**ever, a more precise method is to optimise the composition of the feeds taking into account digestible amino acids.** This applies particularly to situations in which compound feeds contain heat-treated materials, characterized by high content of fibre and/or anti-nutritive substances.

Another nutrient enabling compound feeds to be balanced more precisely is **net energy**. Maintaining a proper level of **net energy** with accordingly adjusted levels of different exogenous amino acids makes it possible to fully use the animals' predisposition to high weight gains, low feed consumption per kilogram of gained weight and maximized number of weaned piglets during one year.

Correct balancing of complete compound feeds for pigs does not only mean that the animals' need for different nutritive components should be satisfied but also that anti-nutritive substances contained in various feed materials should be properly taken into consideration. Therefore, in our publication we are presenting the recommended maximum percentages of different feed materials and feed additives available in Poland.

We are hoping that the information included in this publication will enable you to improve your farm productivity and economics, which we wish from deep down of our hearts.

### FEEDING SCHEDULE RECOMMENDED MAXIMUM PERCENTAGES OF FEED MATERIALS AND ADDITIVES CONTAINED IN COMPLETE COMPOUND FEEDS FOR PIGS (maximum content in %)

Numbers given in brackets represent recommended minimum share in a complete compound feed. Sample designations: (25) 40 – means a minimum of 25% and a maximum of 40%; (+) 4 – means that a given feed material should be included in the recipe, however, its total share should not exceed 4%.

FEED COMPONENTS AND ADDITIVES	TYPE OF COMPLETE COMPOUND FEED							
	Weaning prestarter until 14th day after weaning	Prestarter to ca. 20 kg of body weight	Starter 20-35kg	Grower 35-65kg	Finisher rom 65 kg	Lactating and late pregnant sows	Dry and early pregnant sows	Breeding gilts and young boars
Barley	(25) 40	(20) 50	(15) 50	(10) 50	50	40	50	(10) 45
Wheat	20	25	35	40	40	40	40	40
Wheat bran	5	7	10	10	15	15	20	15
Other bran (barley, rye, triticale)	0	0	2	4	7	5	10	5
Rye*	0	0	7,5	20	30*	10	20	15
Oats	0	5	10	15	20	15	20	15
Hull-less (dehulled) oats	5	10	15	20	20	20	20	20
Maize	(10) 40	(10) 40	(5) 30	20	20	30	20	20
Triticale*	0	3	10	30	40*	30	30	20
Dried green fodder (class E and I)	0	0	2	3	5	5	10	3
Sunflower extracted meal	0	0	5	10	15	10	15	10
Soybean extracted meal	10	15	25	25	30	30	30	25
Rapeseed extracted meal 00	0	0	5	8	12	3	5	3
Rape cake	0	0	4	6	10	3	5	3
Lupin	0	0	0	2	4	0	2	2
Peas	0	0	5	15	20	10	10	10
Field beans	0	0	0	5	7	2	5	5
Refined potato protein	(+) 4	(+) 4	3	2	2	3	3	2
Malt sprouts	0	0	2	4	7	6	10	4
Fodder chalk	1	1	1	1	1	1	1	1
Salt	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
EVO (Extra Value Oil)	(+) 3	(+) 4	(+) 4	4	3	(+) 4	2	4
Plant oil	3	4	4	4	3	4	2	4
Fish oil	3	4	4	3	2	3	2	3
Animal fat	1	2	3	4	4	4	2	3
Fish meal	(+) 8	(+) 10	(+) 5	2,5	2	3	2	3
Whey	15	15	10					
Blood plasma proteins	5	4				(0,5) 1,0	(0,5) 1,0	
Red blood cells	1	2	2	2	2	2	1	2
Molasses	2	2	3	5	5	5	5	5
Flaxseed	(+) 2,5	(+) 3	3	3	3	4	4	3
Yeast	2	2	2	3	3	3	2	2
Dry beet pulp (not molassed)	5	5	5	5	5	5	25	5
Dried distiller grains (DDGS)	0	5	10	15	20	15	15	10
Sorghum**	0	0	5	10	20	15	20	10
Extruded cereals	(10) 35	(5) 25						
Acidifiers/preservatives	(0,8) 2,0	(0,5) 1,5	(0,3) 1,0	1,0	1,0	1,0	0,5	1,0

\* - the share of triticale and bran of these cereals in the feed may be increased by 60% towards the end of fattening provided that they are "botanically" clean and provided that an appropriate share of supplementary compound feed is used (containing xylanase-based feed enzyme).

\*\* - the share of sorghum may be increased by ca. 5% in each group provided that it is sorghum of low tannin content, the share should be decreased by 5% if the tannin content is high.

RECOMMENDED CONTENT OF SELECTED NUTRITIVE COMPONENTS IN 1 KG OF COMPLETE COMPOUND FEEDS FOR PIGS - LNB POLAND Sp. z o.o. FEEDING SCHEDULE



Compound feed name Intended for – body weight (kg)	TYPE OF COMPLETE COMPOUND FEED																	
	Prestarter from 3/7 days old until weaning			Weaning Prestarter from weaning until 14th day after weaning			Prestarter up to ca. 20 kg*			Starter from 20 to 35 kg**			Grower from 35 to 65 kg			Finisher from 65 kg to the end of fattening (105 kg)		
	min.	optim.	max.	min.	optim.	max.	min.	optim.	max.	min.	optim.	max.	min.	optim.	max.	min.	optim.	max.
<b>Nutritive components:</b>																		
Net energy, kcal/kg	2350	2550	2700	2300	2400	2500	2300	2400	2500	2280	2340	2400	2280	2340	2400	2185	2340	2400
Metabolised energy MJ/kg	13.70	14.80	15.70	13.40	14.00	14.50	13.40	14.00	14.50	13.25	13.60	14.00	13.15	13.60	14.00	12.70	13.60	14.00
Crude protein %	18.00	20.50	22.00	17.00	18.00	19.00	17.50	18.00	19.00	16.00	17.00	18.00	15.00	16.00	17.00	13.00	14.00	15.00
Crude fat %	3.00	8.00	<12.00	3.00	5.00	<7.0	3.00	5.00	<6.5	2.00	4.00	<6.5	2.00	4.00	<6.5	2.00	3.00	<6.5
Crude fibre %	>1.00	<2.5	<3.50	<2.50	<3.5	<4.50	>2.50	<4.0	<4.50	>2.50	<4.5	<5.00	>2.50	<4.5	<6.00	>3.00	<5.0	<6.50
Starch + lactose %	>38.00																	
Lactose %	6.00	16.00	16.00	2.00	4.00	6.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lysine %	1.40	1.60	1.70	1.20	1.40	1.45	1.15	1.25	1.35	1.07	1.15	1.20	0.93	0.98	1.03	0.78	0.82	0.84
Methionine %	0.44	0.52	0.55	0.39	0.45	0.46	0.36	0.39	0.42	0.32	0.36	0.36	0.26	0.30	0.31	0.24	0.25	0.26
Methionine + Cystine %	0.84	0.96	1.02	0.72	0.84	0.87	0.69	0.75	0.81	0.64	0.69	0.72	0.56	0.59	0.62	0.47	0.50	0.51
Threonine %	0.91	1.04	1.10	0.78	0.91	0.95	0.75	0.81	0.88	0.71	0.76	0.79	0.61	0.65	0.68	0.52	0.55	0.57
Tryptophan %	0.25	0.29	0.32	0.22	0.25	0.28	0.23	0.25	0.27	0.21	0.21	0.23	0.18	0.19	0.20	0.15	0.16	0.16
Isoleucine %	0.77	0.88	0.93	0.66	0.77	0.80	0.67	0.72	0.78	0.62	0.67	0.70	0.54	0.57	0.60	0.45	0.48	0.49
Digestible lysine***	1.20	1.40	1.50	1.05	1.20	1.25	1.00	1.05	1.15	0.91	0.98	1.07	0.84	0.87	0.91	0.70	0.74	0.77
Digestible methionine***	0.37	0.43	0.46	0.33	0.38	0.40	0.31	0.33	0.36	0.28	0.30	0.32	0.25	0.27	0.28	0.21	0.23	0.24
Digestible methionine + cystine***	0.72	0.84	0.90	0.63	0.72	0.75	0.60	0.63	0.69	0.55	0.59	0.64	0.50	0.52	0.55	0.42	0.45	0.47
Digestible threonine***	0.75	0.88	0.97	0.66	0.76	0.80	0.65	0.68	0.75	0.60	0.65	0.71	0.55	0.57	0.60	0.47	0.50	0.52
Digestible tryptophan***	0.22	0.26	0.28	0.19	0.23	0.24	0.20	0.21	0.23	0.17	0.19	0.21	0.16	0.17	0.18	0.13	0.14	0.15
Digestible isoleucine***	0.69	0.81	0.87	0.61	0.70	0.72	0.58	0.61	0.66	0.53	0.57	0.62	0.48	0.50	0.53	0.41	0.43	0.45
Total calcium***	0.70	0.75	0.80	0.70	0.75	0.80	0.75	0.80	0.85	0.70	0.75	0.80	0.65	0.70	0.75	0.50	0.55	0.60
Total phosphorus***	0.50	0.56	0.60	0.46	0.50	0.54	0.46	0.50	0.54	0.46	0.50	0.54	0.42	0.46	0.50	0.35	0.40	0.45
Digestible phosphorus	0.34	0.36	0.45	0.37	0.39	0.45	0.35	0.36	0.40	0.30	0.33	0.40	0.23	0.24	0.35	0.20	0.22	0.30
Sodium %	0.20	0.25	0.35	0.20	0.25	0.35	0.20	0.20	0.30	0.15	0.20	0.25	0.15	0.20	0.25	0.12	0.15	0.25
Chlorine %	0.20	0.40	0.50	0.20	0.40	0.50	0.20	0.40	0.50	0.15	0.20	0.30	0.15	0.20	0.30	0.15	0.20	0.30
Potassium %	0.25	0.30	0.35	0.25	0.30	0.35	0.25	0.30	0.35	0.25	0.30	0.35	0.25	0.30	0.35	0.25	0.30	0.35
Magnesium %	0.01	0.05	0.20	0.01	0.05	0.20	0.01	0.05	0.20	0.01	0.05	0.20	0.01	0.05	0.20	0.01	0.05	0.20
Vitamin A j.m.	15 000	20 000	20 000	15 000	20 000	20 000	15 000	20 000	20 000	12 000	13 500	15 000	6 000	10 000	12 500	4 000	6 000	10 000
Vitamin B3 j.m.	1 200	2 000	2 000	1 200	2 000	2 000	1 200	2 000	2 000	1 200	2 000	2 000	1 200	2 000	2 000	500	1 000	1 600
Vitamin E mg	60	140	250	60	140	200	60	140	200	40	60	150	35	50	150	20	40	100
DL-alpha-tocopherol mg	55	125	225	55	125	180	55	125	180	36	55	136	32	45	136	18	36	90
Vitamin K <sub>1</sub> mg	1.00	3.00	6.00	1.00	3.00	6.00	1.00	3.00	6.00	1.00	2.00	5.00	1.00	1.50	5.00	0.80	1.00	5.00
Vitamin B <sub>1</sub> mg	1.50	2.50	3.00	1.50	2.50	3.00	1.50	2.50	3.00	1.00	1.50	3.00	1.00	1.50	2.00	1.00	1.20	1.50
Vitamin B <sub>2</sub> mg	4.00	6.00	8.00	4.00	6.00	8.00	4.00	6.00	8.00	4.00	6.00	8.00	3.00	5.00	8.00	2.00	3.00	6.00
Vitamin B <sub>6</sub> mg	2.00	5.00	6.00	2.00	5.00	6.00	2.00	5.00	6.00	1.00	3.00	6.00	1.00	3.00	6.00	0.70	2.00	3.00
Vitamin B <sub>12</sub> mcg	20.00	50.00	60.00	20.00	50.00	60.00	20.00	50.00	60.00	20.00	30.00	50.00	15.00	20.00	30.00	10.00	15.00	25.00
Vitamin C mg	0.00	200.00	500.00	0.00	200.00	500.00	0.00	200.00	500.00	0.00	100.00	200.00	0.00	0.00	100.00	0.00	0.00	100.00
Nicotinic acid (niacin) mg	20.00	40.00	40.00	20.00	40.00	40.00	20.00	40.00	40.00	15.00	22.50	40.00	15.00	17.50	25.00	10.00	15.00	20.00
Pantothenic acid (B5) mg	8.00	20.00	60.00	8.00	20.00	60.00	8.00	20.00	60.00	10.00	12.50	30.00	10.00	12.50	30.00	6.00	8.00	30.00
Biotin mcg	50.00	200.00	250.00	50.00	200.00	250.00	50.00	200.00	250.00	30.00	100.00	200	30.00	40.00	120.00	0.00	20.00	100.00
Choline chloride mg	200	600	1000	200	600	800	200	600	800	200	400	500	100	300	400	100	250	350
Folic acid mg	0.50	4.00	6.00	0.50	4.00	6.00	0.50	4.00	6.00	0.50	2.00	4.00	0.50	0.50	1.50	0.40	0.50	1.50
Iron**** mg	80.00	150.00	200.00	80.00	150.00	200.00	80.00	150.00	200.00	80.00	120.00	150.00	75.00	100.00	150.00	50.00	80.00	120.00
Manganese**** mg	40.00	60.00	80.00	40.00	60.00	80.00	40.00	60.00	80.00	40.00	50.00	70.00	30.00	40.00	50.00	20.00	30.00	45.00
Copper**** mg	20.00	160.00	160.00	20.00	160.00	160.00	20.00	160.00	160.00	20.00	160.00	160.00	6.00	20.00	20.00	6.00	20.00	20.00
Zinc**** mg	100.00	140.00	140.00	100.00	140.00	140.00	100.00	140.00	140.00	75.00	140.00	140.00	75.00	100.00	120.00	40.00	60.00	100.00
Iodine mg	0.50	1.20	2.00	0.50	1.20	2.00	0.50	1.20	2.00	0.40	1.00	1.20	0.40	0.50	1.50	0.20	0.30	1.20
Cobalt mg	0.40	0.60	1.50	0.40	0.60	1.50	0.40	0.60	1.00	0.40	0.60	1.00	0.30	0.50	0.70	0.20	0.40	0.60
Selenium mg	0.20	0.30	0.40	0.20	0.30	0.40	0.20	0.30	0.40	0.20	0.30	0.40	0.20	0.30	0.40	0.10	0.30	0.40
Recommended profile Lys:Met:Met-Cys:Thr:Ty:Iso	100:31:160:65:20:58																	
Recommended profile Lys:Met:Met-Cys:Thr:Ty:Iso	100:30:60:66:19:58																	
Recommended profile Lys:Met:Met-Cys:Thr:Ty:Iso	100:30:60:66:19:58																	

\* - For mealiness levels of vitamins and microelements, quantities added by means of premixes  
 \*\* - For mealiness below 55%, the feed should be administered until 25 kg body weight is reached  
 \*\*\* - For mealiness over 55%, the feed should be administered until 45 kg of body weight is reached (from 12h week of life on the level of copper in the complete compound feed may not exceed 25 mg/kg)  
 \*\*\*\* - Standardized digestible amino acids  
 \*\*\*\*\* - Minimum values for Ca and P apply to feeds in which these elements are introduced in organic form

RECOMMENDED CONTENT OF SELECTED NUTRITIVE COMPONENTS IN 1 KG OF COMPLETE COMPOUND FEEDS FOR PIGS - LNB POLAND Sp. z o.o. FEEDING SCHEDULE

Compound feed name Intended purpose:	TYPE OF COMPLETE COMPOUND FEED												Young breeding boars and herd boars from ca. 55 kg body weight								
	Early pregnant sows				Late pregnant and lactating sows				Breeding gilts from ca. 45 kg body weight				min.			optim.			max.		
	Meas. unit	min.*	optim.	max.	min.	optim.	max.	min.	optim.**	max.***	min.	optim.	max.	min.	optim.	max.					
Net energy	kcal/kg	2050	2100	2210	2250	2280	2400	2050	2100	2300	2050	2100	2200	2050	2200	2250					
Metabolized energy	MJ/kg	11.90	12.20	12.85	13.10	13.25	13.95	11.90	12.20	12.85	11.90	12.20	12.80	11.90	12.80	13.10					
Crude protein	%	11.50	12.50	14.50	15.00	16.00	18.00	15.00	16.00	17.00	15.00	16.00	17.00	15.00	17.00	18.00					
Crude fat	%	2.0	3.0	6.0	2.00	4.00	<7.0	2.0	2.5	6.0	>3.50	6.00	2.0	2.5	6.0	6.00					
Crude fibre	%	>5.00	7.00	<10.00	>3.50	4.50	<7.50	>3.50	4.50	<7.50	>3.50	4.50	>2.50	5.00	<6.00	<6.00					
Starch	%	>28.00	>28.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00	>34.00					
Lysine	%	0.54	0.58	0.67	0.87	0.94	1.00	0.87	0.94	0.95	0.72	0.75	0.83	0.93	1.00	1.00					
Methionine	%	0.17	0.19	0.21	0.26	0.28	0.30	0.26	0.28	0.31	0.23	0.24	0.25	0.33	0.38	0.38					
Methionine + Cystine	%	0.35	0.37	0.44	0.52	0.56	0.60	0.52	0.56	0.59	0.45	0.47	0.50	0.65	0.75	0.75					
Threonine	%	0.38	0.41	0.47	0.58	0.63	0.67	0.58	0.63	0.67	0.50	0.53	0.50	0.61	0.61	0.61					
Tryptophan	%	0.10	0.12	0.13	0.16	0.18	0.19	0.16	0.18	0.18	0.14	0.14	0.15	0.19	0.20	0.20					
Valine	%	0.40	0.43	0.50	0.74	0.80	0.85	0.74	0.80	0.86	0.54	0.56	0.68	0.77	0.83	0.83					
Digestible lysine****	%	0.36	0.38	0.40	0.64	0.76	0.88	0.64	0.76	0.86	0.57	0.63	0.66	0.74	0.84	0.84					
Digestible methionine****	%	0.12	0.12	0.13	0.19	0.23	0.26	0.19	0.23	0.28	0.18	0.20	0.22	0.25	0.29	0.29					
Digestible methionine + cystine****	%	0.23	0.25	0.26	0.38	0.46	0.53	0.38	0.46	0.53	0.35	0.39	0.42	0.48	0.54	0.54					
Digestible threonine****	%	0.25	0.27	0.28	0.43	0.51	0.59	0.43	0.51	0.60	0.40	0.44	0.46	0.51	0.58	0.58					
Digestible tryptophan****	%	0.07	0.08	0.09	0.12	0.14	0.17	0.12	0.14	0.16	0.11	0.12	0.11	0.13	0.15	0.15					
Digestible valine****	%	0.27	0.28	0.30	0.54	0.65	0.75	0.54	0.65	0.75	0.43	0.47	0.65	0.74	0.84	0.84					
Total calcium****	%	0.65	0.70	0.80	0.80	0.90	1.05	0.80	0.90	0.95	0.70	0.80	0.90	0.90	1.00	1.00					
Total phosphorus****	%	0.38	0.50	0.70	0.48	0.55	0.70	0.48	0.55	0.65	0.50	0.55	0.60	0.60	0.70	0.70					
Digestible phosphorus****	%	0.21	0.25	0.35	0.30	0.35	0.45	0.30	0.35	0.45	0.30	0.40	0.30	0.35	0.40	0.40					
Sodium	%	0.15	0.15	0.20	0.20	0.20	0.30	0.20	0.20	0.25	0.30	0.20	0.15	0.20	0.20	0.30					
Chlorine	%	0.20	0.25	0.25	0.20	0.25	0.30	0.20	0.25	0.30	0.13	0.20	0.13	0.15	0.20	0.20					
Potassium	%	0.20	0.25	0.30	0.20	0.25	0.30	0.20	0.25	0.30	0.20	0.25	0.20	0.25	0.30	0.30					
Magnesium	%	0.02	0.04	0.20	0.02	0.04	0.20	0.02	0.04	0.20	0.02	0.04	0.02	0.04	0.20	0.20					
Vitamin A	I.U.	8 000	10 000	15 000	10 000	12 000	15 000	10 000	10 000	15 000	10 000	11 500	10 000	12 500	15 000	15 000					
Vitamin D <sub>3</sub>	I.U.	1 000	1 800	2 000	1 000	2 000	2 000	1 000	2 000	2 000	1 000	2 000	1 000	2 000	2 000	2 000					
Vitamin E	mg	30	70	100	30	120	150	30	50	100	30	50	100	150	200	200					
DL-alpha-tocopherol	mg	27	63	90	27	110	135	27	45	90	27	45	27	135	180	180					
Vitamin K <sub>3</sub>	mg	0.50	3.00	5.00	1.00	2.00	5.00	1.00	2.00	3.00	1.00	2.00	1.00	2.00	3.00	3.00					
Vitamin B <sub>1</sub>	mg	0.50	1.50	2.50	1.00	2.00	2.50	1.00	2.00	2.50	1.00	2.00	1.00	2.00	2.50	2.50					
Vitamin B <sub>2</sub>	mg	2.00	4.00	6.00	3.50	5.00	6.00	3.00	4.00	6.00	3.00	4.00	3.00	4.00	6.00	6.00					
Vitamin B <sub>6</sub>	mg	1.00	3.00	5.00	1.00	4.00	5.00	1.00	3.00	5.00	1.00	3.00	1.00	2.00	5.00	5.00					
Vitamin B <sub>12</sub>	mcg	15.00	25.00	40.00	15.00	30.00	50.00	15.00	20.00	50.00	15.00	20.00	15.00	20.00	50.00	50.00					
Vitamin C	mg	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00	200.00	300.00	300.00					
Nicotinic acid (niacin)	mg	15.00	20.00	40.00	20.00	25.00	40.00	20.00	25.00	40.00	20.00	25.00	20.00	25.00	30.00	30.00					
Pantothenic acid (B5)	mg	10.00	16.00	25.00	10.00	16.00	25.00	10.00	16.00	25.00	10.00	16.00	10.00	15.00	20.00	20.00					
Biotin	mcg	100.00	200.00	400.00	100.00	200.00	300.00	100.00	200.00	400.00	100.00	200.00	200.00	300.00	400.00	400.00					
Choline chloride	mg	200	400	600	200	500	600	200	400	600	200	400	200	400	600	600					
Folic acid	mg	1.00	2.50	4.00	1.00	3.00	5.00	1.00	3.00	5.00	1.00	3.00	1.00	2.00	4.00	4.00					
Iron****	mg	80.00	100.00	125.00	80.00	125.00	150.00	80.00	125.00	150.00	80.00	125.00	80.00	125.00	150.00	150.00					
Manganese****	mg	20.00	40.00	60.00	30.00	50.00	70.00	30.00	50.00	70.00	30.00	50.00	30.00	40.00	70.00	70.00					
Copper****	mg	5.00	15.00	20.00	5.00	20.00	20.00	5.00	20.00	20.00	5.00	20.00	5.00	20.00	20.00	20.00					
Zinc****	mg	65.00	100.00	140.00	75.00	120.00	140.00	75.00	120.00	140.00	75.00	120.00	100.00	140.00	140.00	140.00					
Iodine	mg	0.50	1.00	2.00	0.50	1.00	2.00	0.50	1.00	2.00	0.50	1.00	0.50	1.00	1.50	1.50					
Cobalt	mg	0.00	0.50	1.00	0.00	0.50	1.00	0.00	0.50	1.00	0.20	0.50	0.20	0.50	1.00	1.00					
Selenium	mg	0.20	0.30	0.40	0.20	0.35	0.40	0.20	0.35	0.40	0.20	0.30	0.20	0.30	0.40	0.40					
Recommended profile Lys:Met+Met+Cys:Thr:Try:Val			100:32:65:70:20:75		100:30:60:67:19:85		100:32:62:70:19:75		100:32:62:70:19:75		100:35:70:65:19:83		100:35:70:65:19:83		100:35:70:65:19:83		100:35:70:65:19:83				

Recommended levels of vitamins and microelements pertain to quantities added by the means of premixes

\* - Recommended levels of exogenic amino acids for primigravidas should fall within the values between optim. and max.

\*\* - If animals eat their fill

\*\*\* - If the feed is dosed

\*\*\*\* - Standardized digestible amino acids

\*\*\*\*\* - Minimum values for Ca and P apply to feed with phytase

\*\*\*\*\* - Minimum values for Fe, Cu, Zn and Mn apply to feed in which these elements are introduced in organic form

