



PIGS

FEEDING SCHEDULE



HACCP



Dear Customers,

We are pleased to present to you the **LNB Poland pig feeding schedule**, which you can apply on your farm. The starting materials for the development of the schedule were recommendations included in feeding standards for Polish, Dutch, German, English, Spanish, French and American pigs.

When developing the schedule, we also used extensive experience gained by **LNB International Feed B.V.**, our sister company. A significant impact on the preparation of a new system of pig feeding was made by the research works conducted in our own **Research and Development Centre, Laboratory, and close cooperation of our Technologists with Pig Producers. Detailed solutions were developed on the basis of the Polish research, carried out on pigs bred in Poland, in the Polish environment. In the process of developing our new pig feeding schedule, our priority was to tailor it to the genetic and environmental potential of your breeding farms.**

We would like to thank all pig breeders who submitted to us the results of tests and observations and thus contributed to the development of even better feeding solutions.

In the tables included below in this publication, you will find information about the content of nutritive components in different types of full-ration feed mixes, as recommended by LNB Poland. Usually, the recommended content of nutritive components is given in the column labelled “**optim.**”, which ensures effective and economically justified pig production. In our recommendations we also specified the minimum levels of nutritive components that should be contained in full-ration feed mixes in order to achieve good productivity indicators (the “**min.**” column). The value specified in the “**max.**” column is recommended to all those breeders who have in their stock highly fertile and prolific sows and fatteners with high meatiness and are, therefore, focused on intensive pig production.

In our recommendations we also specify the preferred content of total protein in feed mixes. The values given in the tables should only be regarded as approximate, as the level of total protein included in feed mixes should result from the need to satisfy the animals' demand for amino acids. Out of 20 amino acids contained in feed mix proteins, pigs must be provided with 10 amino acids, the so-called essential amino acids which are not produced by the organism at all or are synthesized 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 must be supplied in a feed mix, but also isoleucine must be provided. In the case of sows, another amino acid limiting the biological value of protein is valine.

Full-ration feed mixes can be optimised only on the basis of the need for general amino acids. However, **a more precise method is to optimise the composition of feed mixes taking into account digestible amino acids.** This applies particularly to situations in which feed mixes contain heat-treated materials, characterized by a high content of fibre and/or anti-nutritive substances. Another feed mix component that makes it possible to balance feed mixes 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 maximization of the number of weaned piglets during one year.

Correct balancing of full-ration feed mixes 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 will also contribute to our satisfaction.

RECOMMENDED MAXIMUM PERCENTAGES OF FEED MATERIALS AND ADDITIVES CONTAINED IN FULL-RATION FEED MIXES FOR PIGS (maximum content in %)

Numbers given in brackets represent recommended minimum share in a full-ration feed mix.

Sample designations:

(25) 40 – means a minimum of 15% and a maximum of 40%

(+) 4 – means that a given feed material should be included in the recipe, however its total share may not exceed 4%.

FEED COMPONENTS AND ADDITIVES	TYPE OF FULL-RATION FEED MIX							
	Weaning prestarter until 14th day after weaning	Prestarter (to ca. 20 kg of body weight)	Starter 20-35kg	Grower 35-65kg	Finisher from 65kg	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	30	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	15	20	15
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
Horse bean	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
Plant oil	4	4	4	4	3	4	2	4
Fish oil	4	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	3						
Red blood cells	1	2						
Molasses	2	2	3	5	5	5	5	5
Linseed	(+) 2,5	(+) 3	3	3	3	4	4	3
Yeast	2	2	2	3	3	3	2	2
Dry beet pulp	5	5	5	5	5	5	25	5
Extruded cereals	(10) 35	(5) 25						
Acidifiers	(0,8) 2,0	(0,5) 1,5	(0,3) 1,0	1,0	1,0	1,0		1,0

* - the share of rye, triticale and bran □
botanically “pure” □

RECOMMENDED CONTENT OF SELECTED NUTRITIVE COMPONENTS IN 1 KG OF FULL-RATION FEED MIXES FOR PIGS – LNB POLAND PIG FEEDING SCHEDULE

Name of mix Intended use – age (days)	Unit of measu- rement	TYPE OF FULL-RATION FEED MIX																	
		Pre-prestarter from 3 rd day of life until 2 days before weaning			Weaning prestarter from 2 days before weaning until 14 th day after weaning			Prestarter to ca. 20 kg*			Starter from 20 kg to 35 kg**			Grower from 35 kg to 65 kg			Finisher from 65 kg until the end of fat- tening (105 kg)		
		min.	optym.	maks.	min.	optym.	maks.	min.	optym.	maks.	min.	optym.	maks.	min.	optym.	maks.	min.	optym.	maks.
Nutritive components:																			
Net energy	kcal/kg	2350	2550	2650	2280	2350	2450	2250	2300	2350	2185	2280	2300	2150	2260	2280	2130	2185	2250
Metabolic energy	MJ/kg	13,70	14,80	15,40	13,25	13,70	14,25	13,10	13,50	13,70	12,70	13,25	13,50	12,50	13,15	13,25	12,40	12,70	13,10
Crude protein	%	18,00	20,50	22,00	16,00	17,00	18,00	17,00	17,50	18,00	16,00	17,00	18,00	15,00	16,00	17,00	13,00	14,50	15,00
Crude fat	%	3,00	8,00	<12,00	3,00	5,00	<7,0	3,00	4,00	<6,5	2,00	3,50	<6,5	2,00	3,00	<6,5	2,00	2,50	<6,5
Crude fibre	%	>1,00	<2,50	<3,50	>2,50	<3,50	<4,50	>2,50	<4,00	<4,50	>2,50	<4,50	<5,00	>2,50	<4,50	<6,00	>3,00	<5,00	<6,50
Starch + lactose	%	>38,00			>38,00			>38,00			>36,00			>34,00					
Lactose	%	3,00	6,00	12,00	2,00	2,50	4,00	0,00	0,00	2,00	-	-	-	-	-	-	-	-	-
Lysine	%	1,10	1,40	1,70	1,10	1,20	1,40	1,10	1,15	1,20	0,95	1,07	1,20	0,83	0,93	0,98	0,72	0,78	0,85
Methionine	%	0,32	0,46	0,55	0,32	0,40	0,46	0,32	0,36	0,38	0,28	0,35	0,36	0,27	0,29	0,31	0,22	0,24	0,27
Methionine + cystine	%	0,64	0,85	1,02	0,64	0,74	0,87	0,64	0,70	0,75	0,58	0,65	0,68	0,56	0,56	0,61	0,43	0,47	0,53
Threonine	%	0,70	0,92	1,10	0,70	0,80	0,95	0,70	0,74	0,83	0,62	0,69	0,73	0,53	0,59	0,64	0,47	0,50	0,55
Tryptophan	%	0,20	0,27	0,34	0,20	0,24	0,29	0,20	0,22	0,24	0,18	0,21	0,22	0,17	0,19	0,21	0,14	0,15	0,15
Isoleucine	%	0,66	0,83	0,93	0,66	0,68	0,80	0,66	0,68	0,70	0,56	0,64	0,70	0,50	0,54	0,60	0,40	0,45	0,53
Digestible lysine***	%	0,94	1,20	1,50	0,94	1,05	1,25	0,93	1,00	1,05	0,78	0,88	0,92	0,68	0,76	0,88	0,57	0,62	0,76
Digestible methionine***	%	0,30	0,40	0,46	0,30	0,35	0,40	0,30	0,31	0,34	0,26	0,29	0,30	0,22	0,25	0,29	0,18	0,20	0,25
Digestible methionine+cystine***	%	0,55	0,73	0,90	0,55	0,62	0,67	0,56	0,61	0,64	0,47	0,53	0,56	0,41	0,46	0,53	0,34	0,37	0,46
Digestible threonine***	%	0,54	0,77	0,97	0,54	0,69	0,81	0,54	0,63	0,68	0,45	0,51	0,55	0,39	0,44	0,52	0,33	0,36	0,44
Digestible tryptophan***	%	0,17	0,22	0,28	0,17	0,20	0,24	0,18	0,19	0,20	0,15	0,17	0,18	0,13	0,15	0,17	0,11	0,12	0,15
Total calcium****	%	0,70	0,75	0,90	0,70	0,75	0,90	0,75	0,80	0,95	0,70	0,75	0,80	0,55	0,60	0,75	0,50	0,55	0,70
Total phosphorus****	%	0,50	0,56	0,85	0,56	0,60	0,80	0,60	0,60	0,80	0,53	0,60	0,70	0,50	0,52	0,65	0,45	0,50	0,60
Digestible phosphorus	%	0,34	0,36	0,45	0,37	0,37	0,45	0,35	0,36	0,45	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	0,20	0,40	0,50	0,20	0,40	0,50	0,15	0,20	0,30
Vitamin A	j.m.	15000	20000	20000	15000	20000	20000	15000	20000	20000	12000	13500	15000	6000	10000	12500	4000	6000	10000
Vitamin D ₃	j.m.	1200	2000	2000	1200	2000	2000	1200	2000	2000	1200	2000	2000	1200	2000	2000	500	1000	1600
Vitamin E	mg	60,00	140,00	250,00	60,00	140,00	200,00	60,00	140,00	200,00	40,00	60,00	150	35,00	50,00	150,00	20,00	40,00	100,00
Vitamin K ₃	mg	1,00	3,00	4,00	1,00	3,00	4,00	1,00	3,00	4,00	1,00	2,00	3,00	1,00	1,50	2,00	0,80	1,00	1,50
Vitamin B ₁	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 ₂	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 ₆	mg	2,00	5,00	6,00	2,00	5,00	6,00	1,50	4,00	6,00	1,00	3,00	6,00	1,00	3,00	5,00	0,70	2,00	3,00
Vitamin B ₁₂	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	100,00	200,00	-	-	-	-	-	-	-	-	-
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	mg	8,00	20,00	30,00	8,00	20,00	20,00	8,00	20,00	20,00	10,00	12,50	20,00	10,00	12,50	15,00	6,00	8,00	10,00
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	2,00	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	0,70	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	0,35	0,40	0,20	0,30	0,40	0,10	0,30	0,40

Recommended vitamin and microelement contents apply to the quantities added via premixes

* - in the case of meatiness exceeding 55%, we recommend prolonging the use of the mix to 25 kg of body weight

** - in the case of meatiness exceeding 55%, we recommend prolonging the use of th

*** - amino acids digestible up to the end of the small intestine

**** - minimum values of Ca and P content apply to feed mixes containing phytase

RECOMMENDED CONTENT OF SELECTED NUTRITIVE COMPONENTS IN 1 KG OF FULL-RATION FEED MIXES FOR PIGS – LNB POLAND PIG FEEDING SCHEDULE

TYPE OF FULL-RATION FEED MIX

Name of feed mix: Intended use:	Measur- ement unit	Dry and early pregnant sows				Lactating and late pregnant sows				Breeding gilts from ca. 45 kg of body weight				Young breeding boars and herd boars from ca. 55 kg of body weight			
		min.*	optym.	maks.		min.	optym.	maks.		min.	optym.**	maks.***		min.	optym.	maks.	
Nutritive components:																	
Net energy	kcal/kg	2000	2050	2200	2200	2200	2250	2350	2350	2050	2100	2200	2050	2200	2250		
Metabolic energy	MJ/kg	11,60	11,90	12,80	12,80	12,80	13,10	13,50	13,50	11,90	12,90	12,80	11,90	12,80	13,10		
Crude protein	%	12,00	13,00	15,00	15,00	15,00	16,00	18,00	18,00	15,00	16,00	17,00	15,00	17,00	18,00		
Crude fat	%	2,0	2,5	4,0	2,00	2,00	4,00	<7,0	<7,0	2,0	2,5	6,0	2,0	2,5	6,0		
Crude fibre	%	>5,00	7,00	<10,00	>3,50	>3,50	4,50	<7,50	<7,50	>3,50	6,00	<7,00	>2,50	5,00	<6,00		
Skrobia	%		>28,00		>34,00	>34,00					>34,00			>34,00			
Lysine	%	0,50	0,61	0,75	0,83	0,87	0,87	0,95	0,95	0,72	0,75	0,95	0,83	0,93	1,05		
Methionine	%	0,15	0,19	0,25	0,24	0,28	0,28	0,30	0,30	0,24	0,29	0,29	0,24	0,33	0,38		
Methionine + cystine	%	0,35	0,40	0,47	0,48	0,54	0,54	0,60	0,60	0,48	0,56	0,58	0,48	0,65	0,75		
Theonine	%	0,39	0,42	0,50	0,55	0,58	0,58	0,65	0,65	0,55	0,58	0,62	0,55	0,57	0,65		
Tryptophan	%	0,10	0,12	0,15	0,15	0,16	0,16	0,18	0,18	0,14	0,16	0,20	0,15	0,19	0,22		
Valine	%	0,33	0,40	0,50	0,68	0,75	0,75	0,80	0,80	0,62	0,64	0,77	0,68	0,77	0,88		
Digestible lysine****	%	0,40	0,47	0,58	0,66	0,70	0,70	0,80	0,80	0,57	0,60	0,85	0,66	0,74	0,84		
Digestible methionine****	%	0,13	0,15	0,19	0,22	0,24	0,24	0,25	0,25	0,19	0,20	0,27	0,22	0,25	0,29		
Digestible methionine + cysti- ne****	%	0,26	0,30	0,37	0,42	0,45	0,45	0,50	0,50	0,36	0,38	0,53	0,42	0,47	0,54		
Digestible threonine****	%	0,25	0,29	0,36	0,40	0,42	0,42	0,50	0,50	0,34	0,36	0,51	0,40	0,44	0,50		
Digestible tryptophan****	%	0,08	0,09	0,11	0,12	0,13	0,13	0,15	0,15	0,09	0,10	0,12	0,10	0,12	0,14		
Total calcium****	%	0,70	0,75	0,90	0,90	0,95	0,95	1,05	1,05	0,70	0,75	0,90	0,70	0,80	0,90		
Total phosphorus****	%	0,40	0,50	0,60	0,55	0,65	0,65	0,70	0,70	0,50	0,55	0,65	0,50	0,60	0,70		
Digestible phosphorus	%	0,25	0,28	0,35	0,35	0,40	0,40	0,45	0,45	0,27	0,30	0,40	0,30	0,35	0,40		
Sodium	%	0,15	0,15	0,20	0,20	0,20	0,20	0,30	0,30	0,15	0,20	0,25	0,15	0,20	0,30		
Chlorine	%	0,15	0,15	0,15	0,15	0,15	0,15	0,20	0,20	0,13	0,15	0,20	0,13	0,15	0,20		
Vitamin A	j.m.	8000	10000	13500	10000	12000	12000	13500	13500	10000	11500	13500	10000	12500	13500		
Vitamin D ₃	j.m.	1000	1800	2000	1000	2000	2000	2000	2000	1000	2000	2000	1000	2000	2000		
Vitamin E	mg	30,00	70,00	100,00	30,00	80,00	80,00	100,00	100,00	30,00	50,00	100,00	30,00	80,00	150,00		
Vitamin K ₃	mg	0,50	2,00	2,50	1,00	2,00	2,00	3,00	3,00	1,00	2,00	3,00	1,00	2,00	3,00		
Vitamin B ₁	mg	0,50	1,50	2,50	1,00	2,00	2,00	2,50	2,50	1,00	2,00	2,50	1,00	2,00	2,50		
Vitamin B ₂	mg	2,00	4,00	6,00	3,50	5,00	5,00	6,00	6,00	3,00	6,00	6,00	3,00	6,00	6,00		
Vitamin B ₆	mg	1,00	3,00	5,00	1,00	4,00	4,00	5,00	5,00	1,00	1,50	5,00	1,00	1,50	5,00		
Vitamin B ₁₂	mcg	15,00	25,00	40,00	15,00	30,00	30,00	50,00	50,00	15,00	20,00	50,00	15,00	20,00	50,00		
Nicotinic acid (niacin)	mg	15,00	20,00	25,00	20,00	25,00	25,00	30,00	30,00	20,00	25,00	30,00	20,00	25,00	30,00		
Pantothenic acid	mg	10,00	16,00	20,00	10,00	16,00	16,00	20,00	20,00	10,00	15,00	20,00	10,00	15,00	20,00		
Biotin	mcg	100,00	200,00	300,00	100,00	200,00	200,00	300,00	300,00	100,00	200,00	300,00	100,00	200,00	300,00		
Choline chloride	mg	200	500	600	200	500	500	600	600	200	400	600	200	400	600		
Folic acid	mg	1,00	2,50	4,00	1,00	3,00	3,00	5,00	5,00	1,00	2,00	4,00	0,80	2,00	4,00		
Iron	mg	80,00	125,00	150,00	80,00	125,00	125,00	150,00	150,00	80,00	125,00	150,00	80,00	125,00	150,00		
Manganese	mg	20,00	40,00	50,00	30,00	50,00	50,00	70,00	70,00	30,00	40,00	70,00	30,00	40,00	70,00		
Copper	mg	15,00	20,00	20,00	15,00	20,00	20,00	20,00	20,00	10,00	20,00	20,00	10,00	20,00	20,00		
Zinc	mg	65,00	100,00	140,00	75,00	120,00	120,00	140,00	140,00	75,00	75,00	140,00	100,00	140,00	140,00		
Iodine	mg	0,50	1,00	1,50	0,50	1,00	1,00	1,50	1,50	0,50	1,00	1,50	0,50	1,00	1,50		
Cobalt	mg	0,20	0,50	1,00	0,20	0,50	0,50	1,00	1,00	0,20	0,50	1,00	0,20	0,50	1,00		
Selenium	mg	0,20	0,25	0,40	0,20	0,35	0,35	0,40	0,40	0,20	0,30	0,40	0,20	0,30	0,40		

Recommended vitamin and microelement contents apply to the quantities added via premixes

* - levels of exogenous amino acids recommended to primiparous sows should be between optimum and maximum values

** - in the case of ad libitum feeding

*** - in the case of dosed feeding

**** - amino acids digestible up to the end of the small intestine

***** - minimum values for Ca and P content apply to feed mixes containing phytase