BROILER

308

Nutrition Specifications

2014

ROSS

An Aviagen Brand

Introduction

Nutrition specifications for broilers are given in the following tables for a range of production and market situations across the world:

As-Hatched	≤ 1.60 kg (3.50 lb) live weight	Table 1
As-Hatched	1.70 – 2.40 kg (3.75 – 5.30 lb) live weight	Table 2
As-Hatched	2.50 – 3.00 kg (5.50 – 6.60 lb) live weight	Table 3
As-Hatched	3.10 – 3.50 kg (6.85 – 7.70 lb) live weight	Table 4
As-Hatched	3.60 – 4.00 kg (7.95 – 8.80 lb) live weight	Table 5

Modifications may need to be made for specific market conditions. Factors to be considered are:

- Final product - live bird or portioned products - and meat product values.
- The supply and price of feed ingredients.
- Age and live weight at processing.
- Yield and carcass quality.
- Market requirements for skin color, shelf-life, etc.
- Use of sex-separate growing.

The most appropriate diet will be designed to either minimize cost for live bird production or maximize margin over feeding cost for portioned products required by the processing plant. For optimal portions margin, increased dietary amino acid density may be cost-effective.

The local Aviagen® Nutrition Service Manager or Technical Service Manager should be consulted for more specialized situations and for advice on local markets.

Contents

Table 1

Nutrition Specifications for As-Hatched Broilers - Target Live Weight ≤1.60 kg (3.50 lb).

		Starter		Grower		Finisher	
Age Fed	days	0 - 10		11 - 24		25 - market	
Energy	kcal	3000		3100		3200	
	MJ	12.55		12.97		13.39	
AMINO ACIDS		**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**
Lysine	%	1.44	1.28	1.29	1.15	1.19	1.06
Methionine + Cystine	%	1.08	0.95	0.99	0.87	0.94	0.83
Methionine	%	0.56	0.51	0.51	0.47	0.48	0.45
Threonine	%	0.97	0.86	0.88	0.77	0.81	0.71
Valine	%	1.10	0.96	1.00	0.87	0.93	0.81
Isoleucine	%	0.97	0.86	0.89	0.78	0.83	0.73
Arginine	%	1.52	1.37	1.37	1.23	1.26	1.13
Tryptophan	%	0.23	0.20	0.21	0.18	0.19	0.17
Leucine	%	1.58	1.41	1.42	1.27	1.31	1.17
Crude Protein[2]	%	23.0		21.5		20.0	
MINERALS							
Calcium	%	0.96		0.87		0.81	
Available Phosphorus	%	0.480		0.435		0.405	
Magnesium	%	0.05 - 0.50		0.05 - 0.50		0.05 - 0.50	
Sodium	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.20	
Chloride	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.23	
Potassium	%	0.40 - 1.00		0.40 - 0.90		0.40 - 0.90	
ADDED TRACE MINERALS PER KG							
Copper	mg	16		16		16	
Iodine	mg	1.25		1.25		1.25	
Iron	mg	20		20		20	
Manganese	mg	120		120		120	
Selenium	mg	0.30		0.30		0.30	
Zinc	mg	110		110		110	
ADDED VITAMINS PER KG		**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**
Vitamin A	IU	13,000	12,000	11,000	10,000	10,000	9000
Vitamin D3	IU	5000	5000	4500	4500	4000	4000
Vitamin E	IU	80	80	65	65	55	55
Vitamin K (Menadione)	mg	3.2	3.2	3.0	3.0	2.2	2.2
Thiamin (B1)	mg	3.2	3.2	2.5	2.5	2.2	2.2
Riboflavin (B2)	mg	8.6	8.6	6.5	6.5	5.4	5.4
Niacin	mg	60	65	55	60	40	45
Pantothenic Acid	mg	17	20	15	18	13	15
Pyridoxine (B6)	mg	5.4	4.3	4.3	3.2	3.2	2.2
Biotin	mg	0.30	0.22	0.25	0.18	0.20	0.15
Folic Acid	mg	2.20	2.20	1.90	1.90	1.60	1.60
Vitamin B12	mg	0.017	0.017	0.017	0.017	0.011	0.011
MINIMUM SPECIFICATION							
Choline per kg	mg	1700		1600		1550	
Linoleic Acid	%	1.25		1.20		1.00	

Digest[1] = Digestible

Crude Protein[2] = Formulation priority is to meet the recommended minimum essential amino acid levels. These crude protein levels are not requirements *per se*, but instead are levels which will likely occur when achieving the aforementioned essential amino acid minimums.

NOTES: *These feed specifications should be used as a guide. They require adjustment for local conditions and markets. A withdrawal feed should be fed to meet local requirements for drug withdrawal times. This can be formulated to the same standards as the final feed listed above.*

Table 2

Nutrition Specifications for As-Hatched Broilers - Target Live Weight 1.70 - 2.40 kg (3.75 - 5.30 lb).

		Starter		Grower		Finisher	
Age Fed	days	0 - 10		11 - 24		25 - market	
Energy	kcal	3000		3100		3200	
	MJ	12.55		12.97		13.39	
AMINO ACIDS		**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**
Lysine	%	1.44	1.28	1.29	1.15	1.16	1.03
Methionine + Cystine	%	1.08	0.95	0.99	0.87	0.91	0.80
Methionine	%	0.56	0.51	0.51	0.47	0.47	0.43
Threonine	%	0.97	0.86	0.88	0.77	0.78	0.69
Valine	%	1.10	0.96	1.00	0.87	0.90	0.78
Isoleucine	%	0.97	0.86	0.89	0.78	0.81	0.71
Arginine	%	1.52	1.37	1.37	1.23	1.22	1.10
Tryptophan	%	0.23	0.20	0.21	0.18	0.19	0.16
Leucine	%	1.58	1.41	1.42	1.27	1.27	1.13
Crude Protein[2]	%	23.0		21.5		19.5	
MINERALS							
Calcium	%	0.96		0.87		0.79	
Available Phosphorus	%	0.480		0.435		0.395	
Magnesium	%	0.05 - 0.50		0.05 - 0.50		0.05 - 0.50	
Sodium	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.20	
Chloride	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.23	
Potassium	%	0.40 - 1.00		0.40 - 0.90		0.40 - 0.90	
ADDED TRACE MINERALS PER KG							
Copper	mg	16		16		16	
Iodine	mg	1.25		1.25		1.25	
Iron	mg	20		20		20	
Manganese	mg	120		120		120	
Selenium	mg	0.30		0.30		0.30	
Zinc	mg	110		110		110	
ADDED VITAMINS PER KG		**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**
Vitamin A	IU	13,000	12,000	11,000	10,000	10,000	9000
Vitamin D3	IU	5000	5000	4500	4500	4000	4000
Vitamin E	IU	80	80	65	65	55	55
Vitamin K (Menadione)	mg	3.2	3.2	3.0	3.0	2.2	2.2
Thiamin (B1)	mg	3.2	3.2	2.5	2.5	2.2	2.2
Riboflavin (B2)	mg	8.6	8.6	6.5	6.5	5.4	5.4
Niacin	mg	60	65	55	60	40	45
Pantothenic Acid	mg	17	20	15	18	13	15
Pyridoxine (B6)	mg	5.4	4.3	4.3	3.2	3.2	2.2
Biotin	mg	0.30	0.22	0.25	0.18	0.20	0.15
Folic Acid	mg	2.20	2.20	1.90	1.90	1.60	1.60
Vitamin B12	mg	0.017	0.017	0.017	0.017	0.011	0.011
MINIMUM SPECIFICATION							
Choline per kg	mg	1700		1600		1500	
Linoleic Acid	%	1.25		1.20		1.00	

Digest[1] = Digestible

Crude Protein[2] = Formulation priority is to meet the recommended minimum essential amino acid levels. These crude protein levels are not requirements *per se*, but instead are levels which will likely occur when achieving the aforementioned essential amino acid minimums.

NOTES: *These feed specifications should be used as a guide. They require adjustment for local conditions and markets. A withdrawal feed should be fed to meet local requirements for drug withdrawal times. This can be formulated to the same standards as the final feed listed above.*

Table 3

Nutrition Specifications for As-Hatched Broilers - Target Live Weight 2.50 - 3.00 kg (5.50 - 6.60 lb).

		Starter		Grower		Finisher 1		Finisher 2	
Age Fed	days	0 - 10		11 - 24		25 - 39		40 - market	
Energy	kcal	3000		3100		3200		3200	
	MJ	12.55		12.97		13.39		13.39	
AMINO ACIDS		**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**
Lysine	%	1.44	1.28	1.29	1.15	1.15	1.02	1.08	0.96
Methionine + Cystine	%	1.08	0.95	0.99	0.87	0.90	0.80	0.85	0.75
Methionine	%	0.56	0.51	0.51	0.47	0.47	0.43	0.44	0.40
Threonine	%	0.97	0.86	0.88	0.77	0.78	0.68	0.73	0.64
Valine	%	1.10	0.96	1.00	0.87	0.89	0.78	0.84	0.73
Isoleucine	%	0.97	0.86	0.89	0.78	0.80	0.70	0.75	0.66
Arginine	%	1.52	1.37	1.37	1.23	1.21	1.09	1.14	1.03
Tryptophan	%	0.23	0.20	0.21	0.18	0.18	0.16	0.17	0.15
Leucine	%	1.58	1.41	1.42	1.27	1.26	1.12	1.19	1.06
Crude Protein[2]	%	23.0		21.5		19.5		18.3	
MINERALS									
Calcium	%	0.96		0.87		0.78		0.75	
Available Phosphorus	%	0.480		0.435		0.390		0.375	
Magnesium	%	0.05 - 0.50		0.05 - 0.50		0.05 - 0.50		0.05 - 0.50	
Sodium	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.20		0.16 - 0.20	
Chloride	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.23		0.16 - 0.23	
Potassium	%	0.40 - 1.00		0.40 - 0.90		0.40 - 0.90		0.40 - 0.90	
ADDED TRACE MINERALS PER KG									
Copper	mg	16		16		16		16	
Iodine	mg	1.25		1.25		1.25		1.25	
Iron	mg	20		20		20		20	
Manganese	mg	120		120		120		120	
Selenium	mg	0.30		0.30		0.30		0.30	
Zinc	mg	110		110		110		110	
ADDED VITAMINS PER KG		**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**
Vitamin A	IU	13,000	12,000	11,000	10,000	10,000	9000	10,000	9000
Vitamin D3	IU	5000	5000	4500	4500	4000	4000	4000	4000
Vitamin E	IU	80	80	65	65	55	55	55	55
Vitamin K (Menadione)	mg	3.2	3.2	3.0	3.0	2.2	2.2	2.2	2.2
Thiamin (B1)	mg	3.2	3.2	2.5	2.5	2.2	2.2	2.2	2.2
Riboflavin (B2)	mg	8.6	8.6	6.5	6.5	5.4	5.4	5.4	5.4
Niacin	mg	60	65	55	60	40	45	40	45
Pantothenic Acid	mg	17	20	15	18	13	15	13	15
Pyridoxine (B6)	mg	5.4	4.3	4.3	3.2	3.2	2.2	3.2	2.2
Biotin	mg	0.30	0.22	0.25	0.18	0.20	0.15	0.20	0.15
Folic Acid	mg	2.20	2.20	1.90	1.90	1.60	1.60	1.60	1.60
Vitamin B12	mg	0.017	0.017	0.017	0.017	0.011	0.011	0.011	0.011
MINIMUM SPECIFICATION									
Choline per kg	mg	1700		1600		1500		1450	
Linoleic Acid	%	1.25		1.20		1.00		1.00	

Digest[1] = Digestible

Crude Protein[2] = Formulation priority is to meet the recommended minimum essential amino acid levels. These crude protein levels are not requirements *per se*, but instead are levels which will likely occur when achieving the aforementioned essential amino acid minimums.

NOTES: *These feed specifications should be used as a guide. They require adjustment for local conditions and markets. A withdrawal feed should be fed to meet local requirements for drug withdrawal times. This can be formulated to the same standards as the final feed listed above.*

Table 4

Nutrition Specifications for As-Hatched Broilers - Target Live Weight 3.10 - 3.50 kg (6.85 - 7.70 lb).

		Starter		Grower		Finisher 1		Finisher 2		Finisher 3	
Age Fed	days	0 - 10		11 - 24		25 - 39		40 - 46		47 - market	
Energy	kcal	3000		3100		3200		3225		3225	
	MJ	12.55		12.97		13.39		13.49		13.49	
AMINO ACIDS		**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**
Lysine	%	1.44	1.28	1.29	1.15	1.15	1.02	1.08	0.96	1.04	0.93
Methionine + Cystine	%	1.08	0.95	0.99	0.87	0.90	0.80	0.85	0.75	0.82	0.73
Methionine	%	0.56	0.51	0.51	0.47	0.47	0.43	0.44	0.40	0.42	0.39
Threonine	%	0.97	0.86	0.88	0.77	0.78	0.68	0.73	0.64	0.71	0.62
Valine	%	1.10	0.96	1.00	0.87	0.89	0.78	0.86	0.75	0.83	0.73
Isoleucine	%	0.97	0.86	0.89	0.78	0.80	0.70	0.75	0.66	0.73	0.64
Arginine	%	1.52	1.37	1.37	1.23	1.21	1.09	1.15	1.04	1.12	1.00
Tryptophan	%	0.23	0.20	0.21	0.18	0.18	0.16	0.17	0.15	0.17	0.15
Leucine	%	1.58	1.41	1.42	1.27	1.26	1.12	1.19	1.06	1.15	1.02
Crude Protein[2]	%	23.0		21.5		19.5		18.0		17.5	
MINERALS											
Calcium	%	0.96		0.87		0.78		0.74		0.73	
Available Phosphorus	%	0.480		0.435		0.390		0.370		0.365	
Magnesium	%	0.05 - 0.50		0.05 - 0.50		0.05 - 0.50		0.05 - 0.50		0.05 - 0.50	
Sodium	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.20		0.16 - 0.20		0.16 - 0.20	
Chloride	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.23		0.16 - 0.23		0.16 - 0.23	
Potassium	%	0.40 - 1.00		0.40 - 0.90		0.40 - 0.90		0.40 - 0.90		0.40 - 0.90	
ADDED TRACE MINERALS PER KG											
Copper	mg	16		16		16		16		16	
Iodine	mg	1.25		1.25		1.25		1.25		1.25	
Iron	mg	20		20		20		20		20	
Manganese	mg	120		120		120		120		120	
Selenium	mg	0.30		0.30		0.30		0.30		0.30	
Zinc	mg	110		110		110		110		110	
ADDED VITAMINS PER KG		**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**
Vitamin A	IU	13,000	12,000	11,000	10,000	10,000	9000	10,000	9000	10,000	9000
Vitamin D3	IU	5000	5000	4500	4500	4000	4000	4000	4000	4000	4000
Vitamin E	IU	80	80	65	65	55	55	55	55	55	55
Vitamin K (Menadione)	mg	3.2	3.2	3.0	3.0	2.2	2.2	2.2	2.2	2.2	2.2
Thiamin (B1)	mg	3.2	3.2	2.5	2.5	2.2	2.2	2.2	2.2	2.2	2.2
Riboflavin (B2)	mg	8.6	8.6	6.5	6.5	5.4	5.4	5.4	5.4	5.4	5.4
Niacin	mg	60	65	55	60	40	45	40	45	40	45
Pantothenic Acid	mg	17	20	15	18	13	15	13	15	13	15
Pyridoxine (B6)	mg	5.4	4.3	4.3	3.2	3.2	2.2	3.2	2.2	3.2	2.2
Biotin	mg	0.30	0.22	0.25	0.18	0.20	0.15	0.20	0.15	0.20	0.15
Folic Acid	mg	2.20	2.20	1.90	1.90	1.60	1.60	1.60	1.60	1.60	1.60
Vitamin B12	mg	0.017	0.017	0.017	0.017	0.011	0.011	0.011	0.011	0.011	0.011
MINIMUM SPECIFICATION											
Choline per kg	mg	1700		1600		1500		1450		1400	
Linoleic Acid	%	1.25		1.20		1.00		1.00		1.00	

Digest[1] = Digestible

Crude Protein[2] = Formulation priority is to meet the recommended minimum essential amino acid levels. These crude protein levels are not requirements *per se*, but instead are levels which will likely occur when achieving the aforementioned essential amino acid minimums.

NOTES: *These feed specifications should be used as a guide. They require adjustment for local conditions and markets. A withdrawal feed should be fed to meet local requirements for drug withdrawal times. This can be formulated to the same standards as the final feed listed above.*

Table 5

Nutrition Specifications for As-Hatched Broilers - Target Live Weight 3.60 - 4.00 kg (7.95 - 8.80 lb).

		Starter		Grower		Finisher 1		Finisher 2		Finisher 3	
Age Fed	days	0 - 10		11 - 24		25 - 39		40 - 51		52 - market	
Energy	kcal	3000		3100		3200		3225		3225	
	MJ	12.55		12.97		13.39		13.49		13.49	
AMINO ACIDS		**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**	**Total**	**Digest[1]**
Lysine	%	1.44	1.28	1.29	1.15	1.15	1.02	1.07	0.95	1.02	0.91
Methionine + Cystine	%	1.08	0.95	0.99	0.87	0.90	0.80	0.84	0.74	0.81	0.71
Methionine	%	0.56	0.51	0.51	0.47	0.47	0.43	0.43	0.40	0.42	0.38
Threonine	%	0.97	0.86	0.88	0.77	0.78	0.68	0.72	0.64	0.69	0.61
Valine	%	1.10	0.96	1.00	0.87	0.89	0.78	0.85	0.74	0.82	0.71
Isoleucine	%	0.97	0.86	0.89	0.78	0.80	0.70	0.74	0.66	0.71	0.63
Arginine	%	1.52	1.37	1.37	1.23	1.21	1.09	1.14	1.03	1.09	0.98
Tryptophan	%	0.23	0.20	0.21	0.18	0.18	0.16	0.17	0.15	0.16	0.15
Leucine	%	1.58	1.41	1.42	1.27	1.26	1.12	1.17	1.05	1.12	1.00
Crude Protein[2]	%	23.0		21.5		19.5		18.0		17.0	
MINERALS											
Calcium	%	0.96		0.87		0.78		0.74		0.72	
Available Phosphorus	%	0.480		0.435		0.390		0.370		0.360	
Magnesium	%	0.05 - 0.50		0.05 - 0.50		0.05 - 0.50		0.05 - 0.50		0.05 - 0.50	
Sodium	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.20		0.16 - 0.20		0.16 - 0.20	
Chloride	%	0.16 - 0.23		0.16 - 0.23		0.16 - 0.23		0.16 - 0.23		0.16 - 0.23	
Potassium	%	0.40 - 1.00		0.40 - 0.90		0.40 - 0.90		0.40 - 0.90		0.40 - 0.90	
ADDED TRACE MINERALS PER KG											
Copper	mg	16		16		16		16		16	
Iodine	mg	1.25		1.25		1.25		1.25		1.25	
Iron	mg	20		20		20		20		20	
Manganese	mg	120		120		120		120		120	
Selenium	mg	0.30		0.30		0.30		0.30		0.30	
Zinc	mg	110		110		110		110		110	
ADDED VITAMINS PER KG		**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**	**Wheat based feed**	**Maize based feed**
Vitamin A	IU	13,000	12,000	11,000	10,000	10,000	9000	10,000	9000	10,000	9000
Vitamin D3	IU	5000	5000	4500	4500	4000	4000	4000	4000	4000	4000
Vitamin E	IU	80	80	65	65	55	55	55	55	55	55
Vitamin K (Menadione)	mg	3.2	3.2	3.0	3.0	2.2	2.2	2.2	2.2	2.2	2.2
Thiamin (B1)	mg	3.2	3.2	2.5	2.5	2.2	2.2	2.2	2.2	2.2	2.2
Riboflavin (B2)	mg	8.6	8.6	6.5	6.5	5.4	5.4	5.4	5.4	5.4	5.4
Niacin	mg	60	65	55	60	40	45	40	45	40	45
Pantothenic Acid	mg	17	20	15	18	13	15	13	15	13	15
Pyridoxine (B6)	mg	5.4	4.3	4.3	3.2	3.2	2.2	3.2	2.2	3.2	2.2
Biotin	mg	0.30	0.22	0.25	0.18	0.20	0.15	0.20	0.15	0.20	0.15
Folic Acid	mg	2.20	2.20	1.90	1.90	1.60	1.60	1.60	1.60	1.60	1.60
Vitamin B12	mg	0.017	0.017	0.017	0.017	0.011	0.011	0.011	0.011	0.011	0.011
MINIMUM SPECIFICATION											
Choline per kg	mg	1700		1600		1500		1450		1400	
Linoleic Acid	%	1.25		1.20		1.00		1.00		1.00	

Digest[1] = Digestible

Crude Protein[2] = Formulation priority is to meet the recommended minimum essential amino acid levels. These crude protein levels are not requirements *per se*, but instead are levels which will likely occur when achieving the aforementioned essential amino acid minimums.

NOTES: *These feed specifications should be used as a guide. They require adjustment for local conditions and markets. A withdrawal feed should be fed to meet local requirements for drug withdrawal times. This can be formulated to the same standards as the final feed listed above.*

Notes

Aviagen®

www.aviagen.com

Every attempt has been made to ensure the accuracy and relevance of the information presented. However, Aviagen accepts no liability for the consequences of using the information for the management of chickens.

For further information on the management of Ross® stock, please contact your local Technical Service Manager or the Technical Services Department.

0814-AVNR-035