

Table S1. Raw nutrient concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | ASH (g/kg) | CFAT (g/kg) | CP (g/kg) | CF (g/kg) | NFE (g/kg) | Starch (g/kg) |
|-------------------------|----|---------------------------|--------------------------|-----------------------------|---------------------------|-----------------------------|-----------------------------|
| Starter feed | 11 | 76.44 (69.73 - 109.41) | 57.54 (48.73 - 75.8) | 281.42 (255.73 - 301.58) | 37.83 (25.31 - 43.22) | 426.86 (393.86 - 460.91) | 273.61 (247.35 - 318.94) |
| Phase 1 | 11 | 71.35 (63.29 - 83.66) | 53.17 (44.48 - 69.72) | 268.13 (230.45 - 288.84) | 38.44 (29.01 - 61.26) | 448.94 (438.05 - 487.37) | 296.92 (284.28 - 340.87) |
| Phase 2 | 10 | 65.76 (61.50 - 73.07) | 49.11 (44.05 - 58.34) | 237.96 (207.40 - 252.26) | 40.66 (36.34 - 44.53) | 486.57 (472.95 - 504.93) | 346.82 (327.94 - 365.37) |
| Phase 3 | 10 | 59.18 (56.09 - 62.33) | 43.73 (40.11 - 48.59) | 176.63 (158.56 - 187.09) | 40.28 (36.08 - 46.42) | 560.07 (544.43 - 581.71) | 417.67 (403.87 - 440) |
| Final fattening feed | 10 | 57.49 (47.83 - 64.75) | 42.00 (34.59 - 60.95) | 155.18 (145.85 - 166.78) | 38.32 (34.73 - 41.78) | 587.14 (567.77 - 601.02) | 440.12 (411.66 - 461.05) |
| Oat | 5 | 26.33 (24.09 - 28.41) | 43.29 (34.73 - 60.84) | 97.42 (82.77 - 113.55) | 99.19 (87.22 - 118.39) | 613.62 (602.78 - 620.25) | 398.59 (351.21 - 427.65) |
| Wheat | 1 | 15.35 | 21.02 | 92.20 | 25.62 | 725.51 | 607.20 |

ASH: crude ash; CF: crude fiber; CFAT: crude fat; CP: crude protein; DM: dry matter; NFE: nitrogen-free extracts.

Table S2. Raw nutrient, energy, and amino acid concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | SU (g/kg) | AMEn (kcal/kg) | (MJ/kg) | MET (g/kg) | MET + CYS (g/kg) |
|-------------------------|----|--------------------------|-----------------------------------|--------------------------|-----------------------|------------------------|
| Starter feed | 11 | 36.94 (30.14 - 46.83) | 2,718.07 (2,612.97 – 2,799.27) | 11.38 (10.94 - 11.72) | 5.16 (4.15 - 6.15) | 9.50 (8.35 - 10.59) |
| Phase 1 | 11 | 36.66 (31.34 - 44.73) | 2,722.84 (2,665.52 – 2,782.55) | 11.40 (11.16 - 11.65) | 5.08 (3.27 - 5.80) | 9.28 (6.77 - 10.96) |
| Phase 2 | 10 | 38.71 (34.13 - 42.45) | 2,784.94 (2,718.07 – 2,870.93) | 11.66 (11.38 - 12.02) | 4.27 (3.63 - 4.91) | 8.15 (6.92 - 9.44) |
| Phase 3 | 10 | 40.70 (37.78 - 43.71) | 2,804.05 (2,761.06 – 2,856.60) | 11.74 (11.56 - 11.96) | 3.28 (2.71 - 4.26) | 6.52 (5.51 - 7.6) |
| Final fattening feed | 10 | 39.71 (37.22 - 42.68) | 2,794.50 (2,694.18 – 2,873.32) | 11.70 (11.28 - 12.03) | 2.41 (1.92 - 3.27) | 5.29 (4.44 - 6.26) |
| Oat | 5 | 11.51 (10.95 - 12.20) | 2,335.91 (2,073.18 – 2,548.49) | 9.78 (8.68 - 10.67) | 1.85 (1.57 - 2.27) | 4.65 (4.03 - 5.00) |
| Wheat | 1 | 28.84 | 3,035.73 | 12.71 | 1.84 | 3.92 |

AMEn: apparent metabolizable energy corrected by nitrogen; CYS: cysteine; DM: dry matter; MET: methionine; SU: sugar.

Table S3. Amino acid concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | LYS (g/kg) | THR (g/kg) | CYS (g/kg) | ASP (mg/kg) | SER (mg/kg) | GLU (mg/kg) |
|----------------------|----|--------------------------|-------------------------|-----------------------|--------------------------|--------------------------|--------------------------|
| Starter feed | 11 | 14.94 (13.52 - 16.06) | 11.42 (9.85 – 15.60) | 4.34 (3.96 – 4.96) | 26.97 (23.73 – 28.95) | 14.11 (12.45 – 16.35) | 54.03 (50.98 – 58.86) |
| Phase 1 | 11 | 13.81 (11.86 - 15.02) | 10.51 (8.14 – 11.55) | 4.20 (3.50 – 5.17) | 25.11 (22.36 -27.92) | 13.58 (11.28 – 15.98) | 52.81 (43.37 – 57.48) |
| Phase 2 | 10 | 12.29 (11.63 - 13.12) | 9.12 (7.45 – 10.17) | 3.88 (3.04 – 4.58) | 22.65 (19.67 – 25.18) | 11.88 (10.47 – 12.85) | 48.69 (43.85 – 53.55) |
| Phase 3 | 10 | 8.97 (7.55 - 10.24) | 6.66 (5.16 – 7.55) | 3.24 (2.69 – 3.63) | 16.89 (14.57 – 18.73) | 8.68 (7.40 – 10.05) | 38.98 (35.36 – 43.80) |
| Final fattening feed | 10 | 7.55 (6.82 - 8.68) | 5.48 (4.65 – 5.90) | 2.88 (2.49 – 3.36) | 14.13 (12.74 – 16.41) | 7.40 (6.80 – 8.14) | 36.53 (32.21 – 40.24) |
| Oat | 5 | 4.16 (3.62 - 4.85) | 3.58 (2.95 – 4.06) | 2.81 (2.44 – 3.06) | 8.07 (7.03 – 9.28) | 4.70 (4.00 – 5.33) | 21.18 (18.57 – 24.18) |
| Wheat | 1 | 2.85 | 3.32 | 2.08 | 5.02 | 4.30 | 26.20 |

ASP: aspartic acid; GLU: glutamic acid; DM: dry matter; LYS: lysine; SER: serine; THR: threonine.

Table S4. Amino acid concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | GLY (mg/kg) | ALA (mg/kg) | VAL (mg/kg) | ISO (mg/kg) | LEU (mg/kg) | TYR (mg/kg) |
|----------------------|----|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|
| Starter feed | 11 | 13.16 (11.77 – 15.31) | 15.27 (13.56 – 16.83) | 14.16 (12.74 – 15.68) | 12.09 (10.79 – 12.98) | 25.54 (23.05 – 29.11) | 10.29 (9.17 – 11.73) |
| Phase 1 | 11 | 12.61 (10.50 – 14.46) | 14.88 (10.79 – 16.75) | 13.41 (11.09 – 15.31) | 11.34 (9.57 – 12.42) | 24.76 (17.89 – 28.31) | 9.79 (8.02 – 11.17) |
| Phase 2 | 10 | 10.91 (9.83 – 11.63) | 12.23 (10.18 – 13.22) | 11.81 (10.18 – 12.74) | 10.00 (8.57 – 10.96) | 20.74 (15.70 – 22.96) | 9.16 (6.40 – 12.70) |
| Phase 3 | 10 | 8.31 (7.18 – 8.91) | 8.04 (6.88 – 8.88) | 8.81 (7.79 – 9.66) | 7.40 (6.41 – 8.11) | 13.67 (11.89 – 15.12) | 5.44 (2.80 – 6.49) |
| Final fattening feed | 10 | 7.05 (6.63 – 7.71) | 6.77 (6.44 – 7.34) | 7.39 (6.87 – 8.17) | 6.20 (5.73 – 6.91) | 11.39 (10.51 – 12.50) | 4.90 (4.48 – 5.66) |
| Oat | 5 | 5.08 (4.39 – 5.90) | 4.77 (4.08 – 5.53) | 5.11 (4.56 – 6.00) | 3.57 (3.13 – 4.23) | 7.13 (6.19 – 8.24) | 3.16 (2.75 – 3.80) |
| Wheat | 1 | 3.94 | 3.69 | 4.13 | 3.15 | 6.04 | 3.09 |

ALA: alanine; DM: dry matter; GLY: glycine; ISO: isoleucine; LEU: leucine; TYR: tyrosine; VAL: valine.

Table S5. Amino acid concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | PHE (mg/kg) | HIS (mg/kg) | ARG (mg/kg) | PRO (mg/kg) | OH-Proline (mg/kg) | TAU (mg/kg) |
|----------------------|----|--------------------------|-----------------------|--------------------------|--------------------------|-----------------------|----------------|
| Starter feed | 11 | 14.31 (12.84 – 15.87) | 6.39 (5.82 – 6.80) | 16.72 (14.97 – 17.46) | 17.16 (15.61 – 21.98) | 0 (0 – 0) | 0 (0 – 0) |
| Phase 1 | 11 | 13.51 (11.28 – 15.21) | 6.11 (5.53 – 6.57) | 16.06 (14.55 – 17.42) | 16.86 (12.74 – 20.41) | 0 (0 – 0) | 0 (0 – 0) |
| Phase 2 | 10 | 11.23 (8.79 – 13.32) | 5.40 (4.89 – 5.90) | 14.60 (13.71 – 15.92) | 14.80 (12.50 – 16.95) | 0 (0 – 0) | 0 (0 – 0) |
| Phase 3 | 10 | 8.60 (7.51 – 9.43) | 4.23 (3.84 – 4.70) | 11.55 (10.60 – 12.39) | 11.25 (9.61 – 12.07) | 0 (0 – 0) | 0 (0 – 0) |
| Final fattening feed | 10 | 7.32 (6.73 – 8.20) | 3.76 (3.55 – 4.10) | 10.46 (9.80 – 11.92) | 9.97 (8.97 – 11.63) | 0 (0 – 0) | 0 (0 – 0) |
| Oat | 5 | 4.76 (4.17 – 5.59) | 2.09 (1.81 – 2.51) | 6.52 (5.61 – 7.87) | 5.10 (4.41 – 5.78) | 0 (0 – 0) | 0 (0 – 0) |
| Wheat | 1 | 4.08 | 2.12 | 4.64 | 8.18 | 0 | 0 |

ARG: arginine; DM: dry matter; HIS: histidine; PHE: phenylalanine; PRO: proline; TAU: taurine.

Table S6. Bulk and trace element concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | Ca (g/kg) | P (g/kg) | Ca:P ratio | Zn (mg/kg) | Mn (mg/kg) | Se (mg/kg) |
|-------------------------|----|--------------------------|------------------------|-----------------------|-----------------------------|-----------------------------|------------------------|
| Starter feed | 11 | 14.39 (10.65 - 24.83) | 9.63 (8.10 - 15.98) | 1.49 (1.31 - 1.70) | 153.93 (125.85 - 303.48) | 141.56 (108.55 - 278.75) | 0.91 (0.32 - 1.59) |
| Phase 1 | 11 | 13.29 (11.57 - 16.87) | 8.73 (7.44 - 10.12) | 1.53 (1.26 - 1.73) | 137.56 (125.99 - 158.67) | 113.88 (83.15 - 141.65) | 0.93 (0.32 - 1.32) |
| Phase 2 | 10 | 12.15 (10.58 - 15.31) | 7.76 (7.04 - 8.53) | 1.56 (1.35 - 1.81) | 128.39 (117.66 - 146.83) | 110.41 (82.13 - 127.10) | 0.71 (0.40 - 0.99) |
| Phase 3 | 10 | 11.01 (10.04 - 12.34) | 6.97 (6.47 - 7.51) | 1.58 (1.45 - 1.91) | 126.84 (105.13 - 145.68) | 108.26 (86.73 - 138.08) | 0.71 (0.33 - 0.99) |
| Final fattening feed | 10 | 10.98 (7.42 - 12.50) | 6.82 (6.32 - 7.01) | 1.61 (1.17 - 1.82) | 120.80 (91.58 - 133.81) | 111.72 (79.25 - 152.1) | 0.63 (0.34 - 0.92) |
| Oat | 5 | 1.02 (0.54 - 1.55) | 3.54 (3.22 - 3.76) | 0.29 (0.15 - 0.41) | 22.88 (17.19 - 29.77) | 25.07 (12.33 - 33.77) | 0.08 (0.01 - 0.178) |
| Wheat | 1 | 0.99 | 2.79 | 0.35 | 21.90 | 23.08 | 0.05 |

Ca: calcium; DM: dry matter; Mn: manganese; P: phosphorus; Se: selenium; Zn: zinc.

Table S7. Vitamin concentrations in feed samples (mean, minimum - maximum) referred to 88% DM.

| Feed sample | N | Vitamin D ₃ (IE/kg) | Vitamin E (mg/kg) |
|----------------------|----|-----------------------------------|---------------------------|
| Starter feed | 11 | 3858.00 (2742.00 - 5841.00) | 52.09 (41.36 - 109.41) |
| Phase 1 | 11 | 3340.45 (2272.00 - 4240.00) | 46.82 (40.94 - 56.30) |
| Phase 2 | 10 | 3472.80 (2200.00 - 4371.00) | 45.75 (32.95 - 54.82) |
| Phase 3 | 10 | 3632.50 (2059.00 - 4420.00) | 47.59 (40.78 - 51.87) |
| Final fattening feed | 10 | 3673.10 (2914.00 - 4335.00) | 44.26 (38.86 - 50.16) |
| Oat | 5 | < 880 | 10.68 (7.67 - 12.92) |
| Wheat | 1 | < 880 | 12.81 |

DM: dry matter.

Table S8. Raw nutrient and energy concentrations in feed samples: Actual supply during recommendation periods of the Society of Nutrition Physiology [31] referred to 88% DM or MJ AMEn; A = mean (minimum - maximum), B = recommendation [31,53] ¹.

| Phase | N | CP | | AMEn | | CP | CF |
|-------|---|--------|-----------------------------|-----------------------------------|--------------------------|--------------------------|--------------------------|
| | | (g/kg) | (kcal/kg) | (MJ/kg) | (g/MJ) ¹ | (g/kg) ¹ | (g/kg) ¹ |
| 0 | A | 10 | 278.33 (261.42 - 292.16) | 2,720.45 (2,672.69 – 2,773.00) | 11.39 (11.19 - 11.61) | 24.45 (22.80 - 25.80) | 37.61 (29.71 - 43.22) |
| | B | | 253.00 | | 11.20 - 11.70 | 22.20 | 35.00 |
| 1 | A | 10 | 265.24 (249.27 - 284.99) | 2,732.40 (2,665.52 – 2,782.55) | 11.44 (11.16 - 11.65) | 23.57 (21.58 - 24.95) | 36.93 (31.1 - 42.4) |
| | B | | 238.00 | | 11.50 - 12.00 | 20.50 | 35.00 |
| 2 | A | 10 | 243.97 (214.73 - 261.09) | 2,773.00 (2,708.51 – 2,858.99) | 11.61 (11.34 - 11.97) | 21.20 (18.25 - 23.05) | 40.75 (35.42 - 52.54) |
| | B | | 237.00 | | 11.80 - 12.30 | 20.40 | 40.00 – 45.00 |
| 3 | A | 10 | 188.11 (170.43 - 203.26) | 2,796.89 (2,744.34 – 2,844.65) | 11.71 (11.49 - 11.91) | 16.93 (14.59 - 20.17) | 41.08 (36.18 - 50.80) |
| | B | | 210.00 | | 12.30 - 12.80 | 17.50 | 40.00 – 45.00 |
| 4 | A | 10 | 162.66 (153.09 - 176.56) | 2,794.50 (2,694.18 – 2,839.88) | 11.70 (11.28 - 11.89) | 14.95 (13.00 - 24.31) | 39.15 (36.28 - 42.91) |
| | B | | 154.00 | | 12.80 - 13.20 | 12.50 | 40.00 – 45.00 |
| 5 | A | 10 | 155.18 (145.85 - 166.78) | 2,794.50 (2,694.18 – 2,873.32) | 11.70 (11.28 - 12.03) | 14.25 (12.31 - 23.48) | 38.32 (34.73 - 41.78) |
| | B | | - | | 12.80 - 13.20 | - | - |

AMEn: apparent metabolizable energy corrected by nitrogen; CF: crude fiber; CP: crude protein, DM: dry matter.

Table S9. Amino acid concentrations in feed samples: Actual supply during recommendation periods of the Society of Nutrition Physiology [31] referred to 88% DM or MJ AMEn; A = mean (minimum - maximum), B = recommendation [31,53] ¹.

| Phase | | N | THR (g/kg) | THR (g/MJ AMEn) ¹ | MET (g/kg) | MET (g/MJ AMEn) ¹ | MET + CYS (g/kg) | MET + CYS (g/MJ AMEn) ¹ | LYS (g/kg) |
|-------|---|----|-------------------------|---------------------------------|-----------------------|---------------------------------|------------------------|---------------------------------------|--------------------------|
| 0 | A | 10 | 11.24 (9.85 - 13.86) | 0.99 (0.85 - 1.21) | 5.28 (4.56 - 5.97) | 0.46 (0.39 - 0.52) | 9.60 (8.69 - 10.38) | 0.84 (0.75 - 0.91) | 14.66 (13.82 - 15.65) |
| | B | | 9.30 | 0.86 | 5.70 | 0.48 | 8.40 | 0.76 | 17.00 |
| 1 | A | 10 | 10.49 (9.44 - 11.59) | 0.92 (0.82 - 1.02) | 5.08 (3.84 - 5.80) | 0.44 (0.33 - 0.50) | 9.28 (7.79 - 10.96) | 0.81 (0.67 - 0.95) | 13.93 (12.66 - 15.13) |
| | B | | 9.00 | 0.79 | 5.60 | 0.44 | 8.50 | 0.71 | 16.20 |
| 2 | A | 10 | 9.31 (7.82 - 10.42) | 0.80 (0.67 - 0.92) | 4.35 (3.69 - 5.03) | 0.37 (0.32 - 0.44) | 8.29 (6.93 - 9.57) | 0.72 (0.61 - 0.83) | 12.57 (11.73 - 13.43) |
| | B | | 8.60 | 0.78 | 5.50 | 0.41 | 8.40 | 0.68 | 15.50 |
| 3 | A | 10 | 7.13 (6.19 - 7.81) | 0.61 (0.53 - 0.67) | 3.43 (3.07 - 4.33) | 0.32 (0.26 - 0.56) | 6.79 (6.06 - 7.74) | 0.58 (0.51 - 0.66) | 9.61 (8.21 - 10.69) |
| | B | | 8.20 | 0.74 | 5.20 | 0.39 | 8.20 | 0.67 | 14.60 |
| 4 | A | 10 | 5.87 (5.20 - 6.77) | 0.50 (0.44 - 0.58) | 2.67 (2.02 - 3.80) | 0.43 (0.17 - 2.23) | 5.67 (4.99 - 6.97) | 0.48 (0.42 - 0.60) | 8.10 (7.24 - 9.77) |
| | B | | 6.30 | 0.58 | 3.90 | 0.32 | 6.40 | 0.56 | 11.40 |
| 5 | A | 10 | 5.48 (4.65 - 5.90) | 0.47 (0.39 - 0.49) | 2.41 (1.92 - 3.27) | 0.41 (0.16 - 2.23) | 5.29 (4.44 - 6.25) | 0.45 (0.38 - 0.54) | 7.55 (6.82 - 8.68) |

AMEn: apparent metabolizable energy corrected by nitrogen; CYS: cysteine; DM: dry matter; LYS: lysine; MET: methionine; THR: threonine.

Table S10. Amino acid concentrations in feed samples: Actual supply during recommendation periods of the Society of Nutrition Physiology [31] referred to 88% DM or MJ AMEn; A = mean (minimum - maximum), B = recommendation [31,53] ¹.

| Phase | | N | LYS (g/MJ AMEn) ¹ | ARG (g/kg) | VAL (g/kg) | ISO (g/kg) | LEU (g/kg) | PHE (g/kg) | HIS (g/kg) |
|-------|---|----|---------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------|
| 0 | A | 10 | 1.29 (1.21 - 1.37) | 16.49 (15.27 - 17.46) | 14.02 (13.07 - 15.53) | 11.89 (11.03 - 12.76) | 25.53 (23.41 - 28.7) | 14.12 (13.14 - 15.61) | 6.30 (5.90 - 6.80) |
| | B | | 1.41 | 14.90 | 11.10 | 9.40 | 18.20 | 10.50 | 5.50 |
| 1 | A | 10 | 1.22 (1.09 - 1.33) | 16.04 (15.17 - 16.86) | 13.50 (12.15 - 15.35) | 11.37 (10.70 - 12.48) | 24.80 (21.64 - 28.38) | 13.58 (12.19 - 15.28) | 6.12 (5.75 - 6.52) |
| | B | | 1.36 | 14.60 | 10.80 | 9.10 | 17.30 | 9.90 | 5.60 |
| 2 | A | 10 | 1.31 (1.00 - 3.42) | 14.93 (13.75 - 15.91) | 12.08 (10.61 - 13.02) | 10.24 (8.96 - 11.07) | 21.48 (16.76 - 23.58) | 11.56 (9.02 - 13.42) | 5.55 (5.07 - 5.94) |
| | B | | 1.29 | 14.20 | 10.40 | 8.90 | 16.50 | 9.30 | 5.50 |
| 3 | A | 10 | 0.82 (0.71 - 0.90) | 12.17 (10.91 - 13.22) | 9.38 (8.47 - 10.18) | 7.88 (6.89 - 8.75) | 15.61 (12.85 - 20.78) | 9.07 (8.11 - 10.18) | 4.45 (4.04 - 4.84) |
| | B | | 1.16 | 13.50 | 9.80 | 8.60 | 15.60 | 8.50 | 5.40 |
| 4 | A | 10 | 0.69 (0.61 - 0.82) | 10.92 (10.27 - 11.99) | 7.95 (7.48 - 9.17) | 6.66 (6.20 - 7.69) | 12.38 (11.43 - 14.4) | 7.82 (7.30 - 9.02) | 3.95 (3.78 - 4.37) |
| | B | | 0.88 | 10.40 | 7.60 | 6.80 | 12.10 | 6.40 | 4.20 |
| 5 | A | 10 | 0.65 (0.58 - 0.75) | 10.46 (9.80 - 11.92) | 7.39 (6.87 - 8.17) | 6.20 (5.73 - 6.91) | 11.39 (10.51 - 12.50) | 7.32 (6.73 - 8.20) | 3.76 (3.55 - 4.10) |

ARG: arginine; DM: dry matter; HIS: histidine; ISO: isoleucine; LEU: leucine; LYS: lysine; PHE: phenylalanine; VAL: valine.

Table S11. Bulk and trace element concentrations in feed samples: Actual supply during recommendation periods of the Society of Nutrition Physiology [31] referred to 88% DM; A = mean (minimum - maximum), B = recommendation [31].

| Phase | N | Ca (g/kg) | P (g/kg) | Ca:P ratio | Zn (mg/kg) | Mn (mg/kg) | Se (mg/kg) |
|-------|---|--------------------------------|------------------------|-----------------------|-----------------------------|-----------------------------|-----------------------|
| 0 | A | 10 13.97 (11.02 - 17.47) | 9.20 (8.11 - 11.02) | 1.52 (1.36 - 1.69) | 144.39 (125.85 - 196.28) | 129.55 (100.39 - 170.73) | 0.92 (0.32 - 1.15) |
| | B | 13.00 | 10.00 | 1.30* | 44.00 | 52.80 | 0.18 |
| 1 | A | 10 13.22 (10.98 - 16.42) | 8.70 (7.77 - 9.67) | 1.53 (1.28 - 1.71) | 135.52 (130.05 - 148.90) | 115.39 (83.15 - 144.25) | 0.89 (0.36 - 1.27) |
| | B | 13.00 | 10.00 | 1.30* | 44.00 | 52.80 | 0.18 |
| 2 | A | 10 12.39 (11.03 - 15.51) | 8.03 (7.48 - 8.73) | 1.55 (1.36 - 1.78) | 131.90 (122.73 - 144.02) | 112.21 (88.88 - 134.89) | 0.75 (0.37 - 1.09) |
| | B | 11.00 | 9.00 | 1.22* | 35.20 | 44.00 | 0.18 |
| 3 | A | 10 11.35 (10.10 - 13.16) | 7.13 (6.65 - 7.91) | 1.59 (1.45 - 1.87) | 126.72 (105.13 - 144.00) | 109.18 (86.73 - 128.38) | 0.72 (0.36 - 0.96) |
| | B | 9.00 | 6.00 | 1.50* | 35.20 | 44.00 | 0.18 |
| 4 | A | 10 11.29 (10.19 - 12.50) | 6.86 (6.42 - 7.33) | 1.64 (1.51 - 1.82) | 124.71 (112.38 - 133.81) | 113.45 (93.36 - 152.10) | 0.64 (0.33 - 0.88) |
| | B | 7.00 | 5.00 | 1.40* | 35.20 | 44.00 | 0.18 |
| 5 | A | 10 11.04 (7.42 - 12.5) | 6.82 (6.32 - 7.01) | 1.61 (1.17 - 1.82) | 120.45 (91.58 - 133.81) | 111.72 (79.25 - 152.10) | 0.63 (0.34 - 0.92) |
| | B | - | - | - | 35.20 | 44.00 | 0.18 |

* calculated from the recommended Ca and P concentrations (GfE, 2004); Ca: calcium; DM: dry matter; Mn: manganese; P: phosphorus; Se: selenium; Zn: zinc.

Table S12. Vitamin concentrations in feed samples: Actual supply during recommendation periods of the Society of Nutrition Physiology [31] referred to 88% DM; A = mean (minimum - maximum), B = recommendation [31].

| Phase | | N | Vitamin D ₃ (IE/kg) | Vitamin E (mg/kg) |
|-------|---|----|-----------------------------------|--------------------------|
| 0 | A | 10 | 3,550.53 (2,854.18 – 4,542.79) | 48.73 (41.07 - 68.97) |
| | B | | 1,320.00 | 13.20 |
| 1 | A | 10 | 3,343.68 (2,272.00 – 4,273.64) | 45.22 (40.94 - 49.06) |
| | B | | 968.00 | 13.20 |
| 2 | A | 10 | 3,494.18 (2,215.38 – 4,285.82) | 45.96 (34.35 - 53.13) |
| | B | | 968.00 | 13.20 |
| 3 | A | 10 | 3,539.70 (2,518.41 – 4,192.86) | 47.13 (38.27 - 51.69) |
| | B | | 968.00 | 8.80 |
| 4 | A | 10 | 3526.01 (2,385.73 – 4,066.43) | 45.67 (40.47 - 50.16) |
| | B | | 968.00 | 8.80 |
| 5 | A | 10 | 3,673.10 (2,914.00 – 4,732.00) | 44.26 (38.86 - 50.16) |
| | B | | 968.00 | 8.80 |

DM: dry matter.