**Supplemental Table 1.** Basal diet composition and nutrient levels in the experiment (%, as-fed basis).

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| --- | --- | --- | --- |
| Ingredients | Contents | Chemical composition (%) | Contents |
| Corn | 46.40 | Moisture2 | 11.83 |
| Soybean meal | 20.00 | Crude protein2 | 23.30 |
| Extruded soybean | 10.00 | Crude lipid2 | 8.06 |
| Fish meal | 10.00 | Crude fiber2 | 3.86 |
| Whey powder | 5.00 | Ash2 | 8.97 |
| Soybean oil | 4.00 | Nitrogen-free extract3 | 42.67 |
| L-Lysine | 0.50 | Carbohydrate4 | 46.53 |
| DL-Methionine | 0.05 | Gross energy2, kJ/g dry matter | 20.63 |
| L-Threonine | 0.05 |  |  |
| Premix1 | 4.00 |  |  |
| Total | 100.00 |  |  |

1The premix provided the following per kg of diet: vitamin A, 9600 IU; vitamin D3, 3,200 IU; vitamin E, 20mg; vitamin K3, 0.6 mg; vitamin B1, 1.6 mg; vitamin B2, 2.4 mg; vitamin B6, 1.2 mg; vitamin B12, 0.02 mg; niacin, 20 mg; pantothenic acid, 12 mg; folic acid, 0.6 mg; biotin, 0.08 mg; choline chloride, 500 mg; Fe (from ferrous sulfate), 120 mg; Cu (from copper sulfate), 60 mg; Mn (from manganese sulfate), 12 mg; Zn (from zinc sulfate), 100 mg; I (from calcium iodate), 0.4 mg; Se (from sodium selenite), 0.3 mg.

2These value were measured.

3Nitrogen-free extract = 100 – (moisture + crude protein + crude lipid +crude fber + ash).

4Carbohydrate = nitrogen-free extract + crude fiber.