



가



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가

가

Park(1998)

가

가 가

가

가

Nakhom Pathom

가

2003 128 28

58

7%,

11.21%, 8% , 가 (Bushman, Chung (1988) 1998). (dehulled soybean meal) (non-dehulled soybean meal) 가 6.3%

1.

Item	Treatments			
	T1	T2	T3	T4
	30	30	30	30
	3	3	3	3
	90	90	90	90
360				
1) T1:	(ME 3,265kcal/kg)	(ME 3,265kcal/kg)	(ME 3,265kcal/kg)	(ME 3,265kcal/kg)
T2:	(ME 3,265kcal/kg)	(ME 2,940kcal/kg)	(ME 3,265kcal/kg)	(ME 2,940kcal/kg)
T3:	(ME 3,265kcal/kg)	(ME 2,940kcal/kg)	(ME 3,265kcal/kg)	(ME 2,940kcal/kg)
T4:	(ME 3,265kcal/kg)	(ME 2,940kcal/kg)	(ME 3,265kcal/kg)	(ME 2,940kcal/kg)

2.

Treat.	25 ~ 80g(12)	80 ~ 100g(6)
T1	■ → (ME: 3,265kcal/kg)	■ → (ME: 3,265kcal/kg)
T2	■ → (ME: 3,265kcal/kg)	■ → (ME: 2,940kcal/kg)
T3	■ → (ME: 3,265kcal/kg)	■ → (ME: 3,265kcal/kg)
T4	■ → (ME: 3,265kcal/kg)	■ → (ME: 2,940kcal/kg)

가 , ,

(3,265kcal/kg) , 4
 T1 T2
 1. T3 T4
 . 2
 2005 3 25 2005 7 17 [(80kg)- (100kg)]
 1
 가 (77±1) T1 T3 ME
 (25±0.3kg) 3,265kcal/kg T2 T4 ME
 (Berkshire) 360 1 2,940cal/kg
 . 30 3 3, 4
 , (96± .
 2kg) . ,
 () ,
 , 2 . 250cm, 500cm
 1 [(25kg)- (80kg)] . ,
 (ME) 1 ,
 3.

Ingredients	A ¹	B ¹
Corn	55.955	56.158
SBM(44%), S/America	-	13.629
SBM(48%), USA	12.701	-
Animal Fat(Korea)	3.000	3.167
Other [§]	28.344	27.046
Total	100.000	100.000
Chemical Composition ³		
ME(kcal/kg)	3,265	3,265
Protein(%)	16.00	16.00
Lysine(%)	0.90	0.90
Methionine(%)	0.26	0.26
Calcium(%)	0.73	0.50
Phosphorus(%)	0.56	0.57

1) A: ; B:

2) include wheat, lupin kernel, wheat milling, rapeseed meal, palm kernel meal, molasses, limestone, TCP, salt, lysine, methionine, choline, vitamin mix and mineral mix

3) Calculated value

4.

Ingredients	B ¹	C ¹
Corn	56.158	33.478
Rice Bran	-	1.704
SBM(44%), S/America	13.629	8.328
SBM(48%), USA	-	-
Animal Fat(Korea)	3.167	1.500
Others ²	27.046	54.990
Total	100.000	100.000
Chemical Composition³		
ME(kcal/kg)	3,265	2,940
Protein(%)	16.00	16.00
Lysine(%)	0.90	0.90
Methionine(%)	0.26	0.26
Calcium(%)	0.50	0.87
Phosphorus(%)	0.57	0.67

- 1) B: , ME 3,265 kcal/kg; C: , ME 2,940 kcal/kg
 2) include wheat, lupin kernel, wheat milling, rapeseed meal, palm kernel meal, molasses, limestone, TCP, salt, lysine, methionine, choline, vitamin mix and mineral mix
 3) Calculated value

4)

2.

5)

1) (10), 2
 (21) (26
)

3.

2)

(VET abc, France, 2002)

3)

(Express Plus, Bayer USA, 2002) BUN, creatine kinase, LDH(lactate

가 , ,

dehydrogenase), HDL, LDL, triglycerides 6.

SAS(1999)

4. GLM(general linear model)

가 (182±1)

1. 가.

(ME) (3,265 kcal/kg) A

5. B (T1, T2) (T3, T4)

24 (, longissimus dorsi muscle) 가 (, , ,), pH, 가

5.

Item	A ¹⁾	B ²⁾
	T1, T2 average	T3, T4 average
(kg)	25.37	25.36
21 (kg)	80.86	79.48
(kg)	55.49	54.12
(kg/day)	0.730	0.712
(kg/day)	2.215	2.223
(feed/gain)	3.036	3.123
(gain/feed)	0.330	0.321

1) A - (ME 3,265kcal/kg).
2) B - (ME 3,265kcal/kg).

가

가.

T1 T3
(ME가 3,265kcal/kg B
T2 T4 2,940kcal/kg C

6 7

B (, ME 가
3,265kcal/kg) (T1, T3)가 C T1 가
(, ME :
2,940kcal/kg) (T2, T4) 가

T4

6.

Item	B ¹⁾		C ²⁾	
	T1, T3 (average)		T2, T4 (average)	
(kg)	81.66	80.34	80.05	78.62
	(80.86)		(79.48)	
26 (kg)	98.67	96.50	97.33	95.33
	(97.09)		(96.33)	
(kg)	17.01	16.16	17.28	16.71
	(16.59)		(17.00)	
(kg/day)	0.610	0.590	0.620	0.600
	(0.600)		(0.610)	
(kg/day)	1.950	1.890	1.910	1.880
	(1.920)		(1.900)	
(feed/gain)	3.197	3.203	3.081	3.133
	(3.200)		(3.107)	
(gain/feed)	0.313	0.312	0.325	0.319
	(0.312)		(0.322)	

1) B - (ME 3,265kcal/kg).

2) C - (ME 2,940kcal/kg).

7.

Item	Treatment ¹⁾			
	T1 (A B)	T2 (A C)	T3 (B B)	T4 (B C)
(kg)	25.24±0.15	25.50±0.17	25.30±0.14	25.42±0.18
(kg)	98.67±0.45 ^a	97.33±0.44 ^{ab}	95.50±0.4 ^a	95.33±0.38 ^a
(kg)	73.43±0.36 ^a	71.83±0.28 ^a	71.20±0.34 ^a	69.91±0.18 ^a
(kg/day)	0.700±0.007	0.680±0.012	0.680±0.009	0.670±0.011
(kg/day)	2.130±0.012	2.140±0.013	2.130±0.014	2.140±0.012
(feed/gain)	3.040±0.007	3.150±0.005	3.130±0.008	3.190±0.006
(gain/feed)	0.329±0.004	0.318±0.006	0.319±0.010	0.313±0.011

- 1) T1: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T2: (ME 3,265kcal/kg) (ME 2,940kcal/kg)
 T3: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T4: (ME 3,265kcal/kg) (ME 2,940kcal/kg)

2) Means±S.D.

a~b Means in the same row with different superscripts differ significantly(P<0.05).

2.

(triglycerides, mg/dℓ) T2 가가
(P<0.05). 가

가

8

(total cholesterol, mg/dℓ)

8.

Item		Treatment ¹⁾			
		T1	T2	T3	T4
	mg/dℓ	141.00±0.7 ^a	131.50±0.7 ^a	140.25±0.9 ^a	137.40±0.5 ^a
Triglycerides	mg/dℓ	98.00±0.7 ^a	91.50±0.7 ^a	97.00±0.8 ^a	93.73±0.7 ^a
BUN ²⁾	mg/dℓ	24.70±0.5 ^a	24.70±0.5 ^a	34.58±0.6 ^a	28.34±0.6 ^a

- 1) T1: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T2: (ME 3,265kcal/kg) (ME 2,940kcal/kg)
 T3: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T4: (ME 3,265kcal/kg) (ME 2,940kcal/kg)

2) BUN : Blood Urea Nitrogen

5) Means±S.D.

a~b Means in the same row with different superscripts differ significantly(P<0.05).

9.

Item	Treatment ¹⁾			
	T1	T2	T3	T4
(%)	74.80±0.12 ²	76.42±0.31 ^{1a}	75.49±0.24 ^{1b}	74.51±0.34 ^{1c}
(mm)	22.33±0.82 ²	19.17±0.41 ^{1a}	23.83±0.41 ^{1a}	21.17±0.75 ^{1b}
(B:C:D, %)	30:50:20	38:50:12	32:51:17	33:50:17

1) T1: (ME 3,265kcal/kg) T2: (ME 3,265kcal/kg) T3: (ME 3,265kcal/kg) T4: (ME 3,265kcal/kg)
 T2: (ME 2,940kcal/kg) (ME 2,940kcal/kg)
 T3: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T4: (ME 3,265kcal/kg) (ME 2,940kcal/kg)

2) Means±S.D.

a~b Means in the same row with different superscripts differ significantly(P<0.05).

3. (lightness) L* (redness)
 T2 가 , T4 가
 (P<0.05), 가 a* , T4 가
 (P<0.05), 가 (yellowness) b* T2
 . L* T1 가
 . a* , T4 가 . b* T2
 4. 가
 (, 5.
 , ,)
 (pH, , 가) 가 . 가

10.

Item	A ¹⁾	B ²⁾
	T1, T2 average	T3, T4 average
(kg)	55.49	54.12
(kg)	170.555	171.135
(won/pig)	57,307	57,502
(won/ kg)	1,034	1,063

1) A - (ME 3,265kcal/kg).
 2) B - (ME 3,265kcal/kg).

가 , ,

11.

Item	B ¹⁾		C ²⁾	
	T1, T3 (average)		T2, T4 (average)	
(kg)	17.01	16.16	17.28	16.71
	(16.59)		(17.00)	
(kg)	68.250	66.150	66.850	65.800
	(67.200)		(66.325)	
(won/pig)	22,932	22,226	22,462	22,109
	(22,579)		(22,286)	
(won/ kg)	1,348	1,375	1,300	1,323
	(1,362)		(1,312)	

1) B - (ME 3,265kcal/kg).
 2) C - (ME 2,940kcal/kg).

8,400 /25kg(336 /kg) , 가 가.
 가 가 . 가.
 ()
 2005 7 17 (T1, T2)
 가(4,037 /kg) . 가 (T3,
 T4)



12.

Item	Treatment [†]			
	T1 (A B)	T2 (A C)	T3 (B B)	T4 (B C)
(kg)	73.43±0.36 ^a	71.83±0.28 ^b	71.20±0.34 ^b	69.91±0.18 ^b
(kg)	237.650	238.560	236.320	237.900
(won/pig)	79,850	80,156	79,404	79,934
(won/ kg)	1,087	1,116	1,115	1,143

1) T1: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T2: (ME 3,265kcal/kg) (ME 2,940kcal/kg)
 T3: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T4: (ME 3,265kcal/kg) (ME 2,940kcal/kg)

2) Means±S.D.

a~b Means in the same row with different superscripts differ significantly(P<0.05).

13.

Item	Treatment [†]			
	T1	T2	T3	T4
(kg)	98.67	97.33	96.50	95.33
(kg)	73.81	74.38	72.85	71.03
(%)	74.80	76.42	75.49	74.51
(won/pig)	79,850	80,156	79,404	79,934
가(won/pig)	297,951	300,270	294,086	286,749
kg	1,082	1,078	1,090	1,125
(won/ kg)				

1) T1: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T2: (ME 3,265kcal/kg) (ME 2,940kcal/kg)
 T3: (ME 3,265kcal/kg) (ME 3,265kcal/kg)
 T4: (ME 3,265kcal/kg) (ME 2,940kcal/kg)

2) Means±S.D.

a~b Means in the same row with different superscripts differ significantly(P<0.05).

가 0.34% 2.73% . B (, ME
 3,265kcal/kg) (T1, T3)가 C
 (, ME:
 가 2,940kcal/kg) (T2, T4)

1) 가 3.81%

가 , ,

2) -

가

(P<0.05),

B

가

(P<0.05),

T1(A B)

가

가

(P<0.05).

가

가

T2 (A C)

2.60%

4.90%,

T3, T4

2.51% - 4.90%

4.18%

가

T2(A C)

kg

가

T1(A B)

0.37%

T3, T4

1.10 -

4.18%

가

T4(B C)

kg

가

T1(A B)

가가

kg

가

T2(A C)

가

가

, T2