

1

表1. 試驗處理

Table 1. Experimental treatments

Treatments	Nutrient	0~4 wks-old	5~8 wks-old	9~20 wks-old
(1) High nutrition density diet containing animal feedstuff (HA)	ME, kcal/kg	3200	3000	3000
	CP, %	23	20	17
	ME/CP	139	150	176
(2) High nutrition density diet containing vegetable feedstuff (HV)	Ca, %	0.95	0.90	0.85
	Avail. P, %	0.46	0.36	0.30
	Sulphur amino acid, %	0.94	0.82	0.70
(3) Low nutrition density diet containing animal feedstuff (LA)	ME, kcal/kg	3000	2800	3000
	CP, %	20	17	17
	ME/CP	150	165	176
(4) Low nutrition density diet containing vegetable feedstuff diet (LV)	Ca, %	0.90	0.85	0.85
	Avail. P, %	0.42	0.32	0.30
	Sulphur amino acid, %	0.82	0.70	0.70

2

表 2. 試驗飼糧組成 (0~4 週齡)

Table 2. The composition of the experimental diets (0~4 weeks of age)

Ingredients (%)	Treatments			
	HA	HV	LA	LV
Corn, yellow	47.00	42.00	58.30	55.30
Soybean meal, 44%	37.25	45.50	31.60	36.66
Fish meal, 65%	5.00	—	3.00	—
Soybean oil	7.70	8.80	4.00	4.50
Limestone, pulverized	0.85	0.87	0.80	0.82
Dicalcium phosphate	1.10	1.70	1.20	1.60
Vitamin premix ^a	0.30	0.30	0.30	0.30
Mineral premix ^b	0.20	0.20	0.20	0.20
DL-Methionine	0.20	0.23	0.20	0.22
Choline chloride, 50%	0.10	0.10	0.10	0.10
Iodized salt	0.30	0.30	0.30	0.30
Total	100.00	100.00	100.00	100.00
Calculated value				
Cost, NT\$/kg	9.65	9.14	8.54	8.21
Crude protein, %	23.04	23.01	20.15	20.15
ME, kcal/kg	3200	3199	3017	3005
Calcium, %	0.95	0.95	0.90	0.90

Avail. phosphorus,%	0.46	0.46	0.42	0.42
Sulfur amino acid, %	0.95	0.95	0.86	0.86
Analyzed value				
Crude protein,%	23.77	23.64	20.91	20.79
Calcium, %	0.92	0.94	0.87	0.86
Total phosphorus, %	0.76	0.75	0.67	0.64

a. Vitamins supplementation per kg of diet
 vitamin A, 10,000 IU; vitamin D₃, 1,000 IU; vitamin E, 25 IU; vitamin K, 3mg; thiamin, 3 mg; riboflavin, 5 mg; pyridoxine, 3 mg; vitamin B₁₂, 0.03 mg; Ca-pantothenate, 10 mg; niacin, 50 mg; biotin (1.0%), 0.1 mg; folic acid, 3 mg.

b. Minerals supplementation per kg of diet
 Mn, 60 mg (MnSO₄H₂O); Zn, 60 mg (ZnO); Cu, 5 mg (Cu₂SO₄·5H₂O); Fe, 70 mg (FeSO₄·7H₂O); Se, 0.1 mg (Na₂SeO₃).

表 3. 試驗飼糧組成 (5~8 週齡)

Table 3. The composition of the experimental diets (5~8 weeks of age)

Ingredients (%)	Treatments			
	HA	HV	LA	LV
Corn, yellow	58.35	56.80	66.00	64.90
Soybean meal, 44%	32.00	36.00	23.07	26.00
Fish meal, 65%	3.00	—	2.00	—
Wheat bran	—	—	5.00	5.00
Soybean oil	3.80	4.00	1.00	1.00
Limestone, pulverized	1.00	1.06	0.90	0.95
Dicalcium phosphate	0.80	1.06	1.00	1.10
Vitamin premix ^a	0.30	0.30	0.30	0.30
Mineral premix ^b	0.20	0.20	0.20	0.20
DL-Methionine	0.15	0.18	0.13	0.15
Choline chloride, 50%	0.10	0.10	0.10	0.10
Iodized salt	0.30	0.30	0.30	0.30
Total	100.00	100.00	100.00	100.00
Calculated value				
Cost, NT\$/kg	8.44	8.04	7.50	7.20
Crude protein, %	20.13	20.03	17.15	17.06
ME, kcal/kg	3016	2997	2813	2799
Calcium, %	0.90	0.90	0.85	0.85
Avail. phosphorus, %	0.36	0.36	0.32	0.32
Sulfur amino acid, %	0.82	0.82	0.70	0.70
Analyzed value				
Crude protein, %	20.02	20.17	17.34	17.22
Calcium, %	0.87	0.92	0.83	0.87
Total phosphorus, %	0.57	0.56	0.50	0.47

a. Vitamins supplementation per kg of diet

vitamin A, 10,000 IU; vitamin D₃, 1,000 IU; vitamin E, 25 IU; vitamin K, 3mg; thiamin, 3 mg; riboflavin, 5 mg; pyridoxine, 3 mg; vitamin B₁₂, 0.03 mg; Ca-pantothenate, 10 mg; niacin, 50 mg; biotin (1.0%), 0.1 mg; folic acid, 3 mg.

b. Minerals supplementation per kg of diet

Mn, 60 mg (MnSO₄H₂O); Zn, 60 mg (ZnO); Cu, 5 mg (Cu₂SO₄·5H₂O); Fe, 70 mg (FeSO₄·7H₂O); Se, 0.1 mg (Na₂SeO₃).

表 4. 試驗飼糧組成 (9~20 週齡)

Table 4. The composition of the experimental diets (9~20 weeks of age)

Ingredients (%)	Treatments			
	HA	HV	LA	LV
Corn, yellow	58.00	57.50	58.00	57.50
Soybean meal, 44%	22.30	25.50	22.30	25.50
Fish meal, 65%	2.00	—	2.00	—
Wheat bran	5.00	4.00	5.00	4.00
Alfalfa meal	5.00	5.00	5.00	5.00
Soybean oil	5.00	5.00	5.00	5.00
Limestone, pulverized	1.00	1.05	1.00	1.05
Dicalcium phosphate	0.65	0.88	0.65	0.88
Vitamin premix ^a	0.30	0.30	0.30	0.30
Mineral premix ^b	0.20	0.20	0.20	0.20
DL-Methionine	0.15	0.17	0.15	0.17
Choline chloride, 50%	0.10	0.10	0.10	0.10
Iodized salt	0.30	0.30	0.30	0.30
Total	100.00	100.00	100.00	100.00
Calculated value				
Cost, NT\$/kg	7.82	7.57	7.82	7.57
Crude protein,%	17.09	17.01	17.09	17.01
ME, kcal/kg	3017	3008	3017	3008
Calcium, %	0.85	0.85	0.85	0.85
Avail. phosphorus,%	0.30	0.30	0.30	0.30
Sulfur amino acid, %	0.70	0.70	0.70	0.70
Analyzed value				
Crude protein,%	17.20	16.98	17.24	17.01
Calcium, %	0.87	0.79	0.89	0.81
Total phosphorus, %	0.54	0.51	0.57	0.55

a. Vitamins supplementation per kg of diet

vitamin A, 10,000 IU; vitamin D₃, 1,000 IU; vitamin E, 25 IU; vitamin K, 3mg; thiamin, 3 mg; riboflavin, 5 mg; pyridoxine, 3 mg; vitamin B₁₂, 0.03 mg; Ca-pantothenate, 10 mg; niacin, 50 mg; biotin (1.0%), 0.1 mg; folic acid, 3 mg.

b. Minerals supplementation per kg of diet

Mn, 60 mg (MnSO₄H₂O); Zn, 60 mg (ZnO); Cu, 5 mg (Cu₂SO₄·5H₂O); Fe, 70 mg (FeSO₄·7H₂O); Se, 0.1 mg (Na₂SeO₃).

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表 5. 植物性飼料原料飼糧對 0~四週齡土雞生長性狀之影響

Table 5. Effect of vegetable diet on the growth performance of Taiwan native chicken at 0 ~ 4 weeks of age

Items	Treatments				S.E.
	HA	HV	LA	LV	
Body weight gain, g					
Male	296.10 ^a	279.81 ^b	274.48 ^b	198.43 ^c	4.40
Female	264.63 ^a	257.33 ^a	261.04 ^a	183.07 ^b	3.98
Mean	280.36 ^a	268.57 ^b	267.76 ^b	190.75 ^c	1.82
Feed conversion, feed/gain					
Male	1.86 ^c	1.97 ^{bc}	2.09 ^b	2.44 ^a	0.04
Female	1.83 ^c	1.86 ^c	1.99 ^b	2.45 ^a	0.02
Mean	1.85 ^c	1.92 ^c	2.04 ^b	2.45 ^a	0.03
Feed intake, g/bird/day					
Male	19.69 ^a	19.71 ^a	20.45 ^a	17.30 ^b	0.04
Female	17.35 ^b	17.14 ^b	18.51 ^a	16.05 ^c	0.17
Mean	18.52 ^a	18.42 ^a	19.48 ^a	16.67 ^b	0.51

^{a, b, c} Means within the same row with different superscripts differ significantly (P<0.05).

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表 6. 植物性飼料原料飼糧對五~八週齡土雞生長性狀之影響

Table 6. Effect of vegetable diet on the growth performance of Taiwan native chicken at 5 ~ 8 weeks of age

Items	Treatments				S.E.
	HA	HV	LA	LV	
Body weight gain, g					
Male	394.47 ^a	389.20 ^a	375.46 ^a	345.60 ^b	9.68
Female	320.36 ^a	291.79 ^b	282.24 ^b	281.36 ^b	7.14
Mean	357.41 ^a	340.49 ^{ab}	328.85 ^{bc}	313.48 ^c	6.76
Feed conversion, feed/gain					
Male	2.92 ^c	3.17 ^{bc}	3.27 ^b	3.09 ^a	0.04
Female	3.08 ^b	3.20 ^b	3.46 ^a	3.38 ^a	0.05
Mean	3.00 ^b	3.19 ^{ab}	3.37 ^a	3.23 ^{ab}	0.09
Feed intake, g/bird/day					
Male	41.17	44.12	43.97	38.11	1.86
Female	35.26	33.35	34.88	33.93	0.57
Mean	38.26	38.73	39.73	36.02	1.97

^{a, b, c} Means within the same row with different superscripts differ significantly (P<0.05).

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表 7. 植物性飼料原料飼糧對九~十二週齡土雞生長性狀之影響

Table 7. Effect of vegetable diet on the growth performance of Taiwan native chicken at 9 ~ 12 weeks of age

Items	Treatments				S.E.
	HA	HV	LA	LV	
Body weight gain, g					
Male	444.50 ^a	426.91 ^{ab}	411.78 ^{bc}	387.33 ^c	9.59
Female	308.85	304.85	302.21	296.27	5.30
Mean	376.48 ^a	364.24 ^{ab}	355.17 ^{ab}	342.41 ^b	10.30
Feed conversion, feed/gain					
Male	4.29	4.24	4.41	4.62	0.16
Female	4.38 ^b	4.44 ^b	4.21 ^b	5.14 ^a	0.21
Mean	4.33	4.34	4.31	4.88	0.18
Feed intake, g/bird/day					
Male	66.68 ^a	64.65 ^{ab}	64.56 ^{ab}	63.08 ^b	0.89
Female	69.53 ^a	67.69 ^a	61.91 ^b	54.39 ^c	0.69
Mean	68.10 ^a	66.17 ^a	63.24 ^b	58.74 ^c	0.81

^{a, b, c} Means within the same row with different superscripts differ significantly (P<0.05).

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表 8. 植物性飼料原料飼糧對十三~十六週齡土雞生長性狀之影響

Table 8. Effect of vegetable diet on the growth performance of Taiwan native chicken at 13 ~ 16 weeks of age

Items	Treatments				S.E.
	HA	HV	LA	LV	
Body weight gain, g					
Male	556.00	570.21	569.42	559.20	12.24
Female	364.61 ^b	389.69 ^a	391.94 ^a	370.21 ^b	3.08
Mean	462.09	476.10	478.52	460.65	11.86
Feed conversion, feed/gain					
Male	4.67	4.46	4.49	4.72	0.19
Female	5.35 ^b	5.42 ^b	5.12 ^b	5.79 ^a	0.11
Mean	4.84	4.98	4.86	5.26	0.25
Feed intake, g/bird/day					
Male	89.95 ^b	90.92 ^{ab}	90.90 ^{ab}	93.87 ^a	1.13
Female	69.40 ^c	75.29 ^a	71.53 ^b	76.29 ^a	0.69
Mean	79.68	83.09	81.21	85.08	3.49

^{a, b, c} Means within the same row with different superscripts differ significantly (P<0.05).

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表 9. 植物性飼料原料飼糧對十七~十八週齡土雞生長性狀之影響

Table 9. Effect of vegetable diet on the growth performance of Taiwan native chicken at 17 ~ 18 weeks of age

Items	Treatments				S.E.
	HA	HV	LA	LV	
Body weight gain, g					
Male	98.68 ^c	143.20 ^b	155.15 ^b	217.35 ^a	5.01
Female	143.06 ^c	168.09 ^a	169.29 ^a	158.46 ^b	1.83
Mean	123.74 ^b	159.04 ^a	161.17 ^a	182.04 ^a	7.87
Feed conversion, feed/gain					
Male	6.84	6.46	6.08	5.15	0.37
Female	6.62 ^b	6.15 ^c	6.07 ^c	7.02 ^a	0.14
Mean	6.71	6.26	6.11	6.08	0.41
Feed intake, g/bird/day					
Male	45.74 ^c	64.13 ^b	66.60 ^b	79.33 ^a	1.45
Female	67.54 ^c	73.84 ^b	72.67 ^b	78.55 ^a	0.70
Mean	56.64 ^c	68.98 ^b	69.37 ^b	79.94 ^a	2.75

^{a, b, c} Means within the same row with different superscripts differ significantly (P<0.05).

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表 10. 植物性飼料原料飼糧對十九~二十週齡土雞生長性狀之影響

Table 10. Effect of vegetable diet on the growth performance of Taiwan native chicken at 19 ~ 20 weeks of age

Items	Treatments				S.E.
	HA	HV	LA	LV	
Body weight gain, g					
Male	151.29 ^b	157.92 ^b	215.95 ^a	137.69 ^b	15.83
Female	127.84 ^c	110.65 ^c	167.96 ^b	202.60 ^a	8.09
Mean	136.81 ^c	139.25 ^b	191.74 ^a	172.92 ^{ab}	12.21
Feed conversion, feed/gain					
Male	6.28	6.34	7.57	7.02	0.47
Female	6.79	7.36	6.76	6.24	0.43
Mean	6.52	6.81	7.16	6.68	0.76
Feed intake, g/bird/day					
Male	67.11 ^c	71.28 ^b	88.08 ^a	67.57 ^c	0.78
Female	61.82 ^b	54.61 ^c	72.39 ^a	79.16 ^a	1.64
Mean	64.46 ^b	62.89 ^b	80.69 ^a	73.36 ^a	2.86

^{a, b, c} Means within the same row with different superscripts differ significantly (P<0.05).

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表 11. 體增重成本分析

Table 11. The cost analysis of body weight gain

	HA		HV		LA		LV	
0-4 wk		Body weight gain cost		Body weight gain cost		Body weight gain cost		Body weight gain cost
Body weight gain, ♂	296.10	5.31	279.81	5.04	274.48	4.90	198.43	3.98
Body weight gain, ♀	264.63	4.67	257.33	4.37	261.04	4.44	183.07	3.68
Feed efficiency, ♂	1.86		1.97		2.09		2.44	
Feed efficiency, ♀	1.83		1.86		1.99		2.45	
Feed price	9.65		9.14		8.54		8.21	
5-8 wk								
Body weight gain, ♂	394.47	9.72	389.2	9.92	375.46	9.21	345.6	7.69
Body weight gain, ♀	320.36	8.33	291.79	7.51	282.24	7.32	281.36	6.85
Feed efficiency, ♂	2.92		3.17		3.27		3.09	
Feed efficiency, ♀	3.08		3.2		3.46		3.38	
Feed price	8.44		8.04		7.5		7.2	
9-12 wk								
Body weight gain, ♂	444.50	14.91	426.91	13.70	411.78	14.20	387.33	13.55
Body weight gain, ♀	308.85	10.58	304.85	10.25	302.21	9.95	296.27	11.53
Feed efficiency, ♂	4.29		4.24		4.41		4.62	
Feed efficiency, ♀	4.38		4.44		4.21		5.14	
Feed price	7.82		7.57		7.82		7.57	
13-16 wk								
Body weight gain, ♂	556.00	20.30	570.21	19.25	569.42	19.99	559.2	19.98
Body weight gain, ♀	364.61	15.25	389.69	15.99	391.94	15.69	370.21	16.23
Feed efficiency, ♂	4.67		4.46		4.49		4.72	
Feed efficiency, ♀	5.35		5.42		5.12		5.79	
Feed price	7.82		7.57		7.82		7.57	
17-18 wk								
Body weight gain, ♂	98.68	5.28	143.2	7.00	155.15	7.38	217.35	8.47
Body weight gain, ♀	143.06	7.41	168.09	7.83	169.29	8.04	158.46	8.42
Feed efficiency, ♂	6.84		6.46		6.08		5.15	
Feed efficiency, ♀	6.62		6.15		6.07		7.02	
Feed price	7.82		7.57		7.82		7.57	
19-20 wk								
Body weight gain, ♂	151.29	7.43	157.92	7.58	215.95	12.78	137.69	7.32
Body weight gain, ♀	127.84	6.79	110.65	6.16	167.96	8.88	202.6	9.57
Feed efficiency, ♂	6.28		6.34		7.57		7.02	
Feed efficiency, ♀	6.79		7.36		6.76		6.24	
Feed price	7.82		7.57		7.82		7.57	
Total body weight gain, ♂	2385.54		2394.16		2414.02		2232.93	
Total body weight gain, ♀	1529.35		1522.4		1574.68		1491.97	
Total cost, ♂		62.96		62.49		68.46		60.98
Total cost, ♀		53.03		52.11		54.32		56.27
Body weight gain cos/kg, ♂		26.39		26.10		28.36		27.31
Body weight gain cos/kg, ♀		34.67		34.23		34.49		37.72

