

DUCK BREEDING IN VENEZUELA¹

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The relevance of research on duck breeding to Venezuelan Agriculture is considered and the results of a number of experiments are reviewed. The breeds used were Khaki Campbell, Pekin and Pekino. Average figures for % of fertile eggs was 91.2, for % of eggs incubated 62.7 and % hatched 57.2. The results of studies on the protein and energy requirements of ducks are also presented. The results indicate that efficiency of egg production varied considerably with protein levels of 16, 18, 20 and 22% and energy values of 2,300 and 2,600 kcal ME/kg feed. Efficiency of feed conversion was improved at the higher energy level.

Key words: Ducks, breeding, protein, and energy requirements.

The domestic duck (*Anas boschas*) is well known to small farmers throughout Venezuela, but few farmers keep ducks and geese on a commercial scale. However in restaurants, Venezuelan gourmets show a preference for duck meat. It is difficult to obtain precise information on the degree of commercial exploitation from the official statistics but imported duck can frequently be found in supermarkets in the cities. Ducks were introduced to the poultry section in the Facultad de Agronomia de la Universidad Central de Venezuela in 1961, with the objective of studying their productivity in an attempt to diversify the national poultry industry by stimulating farmers into sensible breeding of this bird and thus contribute to the development and improvement of local production. At present we are relying on Khaki Campbell ducks whose adult females weigh 1,500g and Pekin whose females weigh 3,200g. Even though they are not as efficient as broilers, they have a rapid rate of growth and attain more or less the same weight in the same time, producing a tastier meat, as well as being excellent egg producers. In fact the price per kilo for ducks is double that for chickens.

Reproductive characteristics: The males in our breeding areas show a great vitality which is reflected in a fertility percentage greater than 90%. In the Annual Report of the Poultry Section for 1978, data on the incubation of eggs stored for seven days and using one male per ten females was as follows: eggs incubated 7559; fertile eggs 6879; hatched 4325. This gave a fertility of 91.24%, incubation of 62.71% and hatched 57.22%. The values for the percentage hatched could be increased by shortening the storage period together with adequate washing and disinfecting of the eggs. (Table 1).

Breeding: Batches of ducklings can be raised using systems similar to those for chickens, however, the number of ducklings per pen or infrared lamp should be lower. It is necessary to pay particular attention to the drinking bowls since ducklings tend to congregate around these and thus it is better to remove them at night during the first two or three days to avoid deaths from chills.

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Table 1:
A comparison of the efficiency of three varieties of ducks 1978

Breed	Fertilized (%)	Incubated (%)	Hatched (%)*
Pekin	90.00	59.26	53.33
Pekino	92.68	53.95	50.00
Khaki**	74.16	76.06	56.41

*Eggs stored for 7 days

**Ducks in the second year of production

Ducklings of our breeds fed with commercial feeds and kept in wooden pens with floors of plastic netting (3/4"), each pen having four divisions of 1 x 1.2m with 15 ducklings per division, gained weight as shown in Table 2.

It is interesting to note that in the Poultry Section we have not vaccinated, or treated any batch of ducks and the only deaths have been due to accidents or predators.

Table 2:
Pattern of growth of the varieties Pekin, Pekino & Khaki Campbell

Breed	Weeks						
	1	2	3	4	5	6	7
a) Average weights of the females, g*							
Pekin	107.1	243.1	450.1	729.9	1006.3	1290.0	1616.7
Pekino	96.7	240.8	436.9	683.6	979.1	1271.7	1586.7
Khaki	85.6	178.5	386.2	585.1	804.3	1025.0	1113.3
b) Average weight of the males, g**							
Pekin	113.3	283.3	476.8	758.4	1038.7	1413.3	1701.7
Pekino	95.1	294.2	505.4	777.0	1087.1	1414.3	1657.1
Khaki	75.0	214.9	395.7	594.4	813.0	1053.3	1213.3

*2 replicates of 15 females

**2 replicates of 15 males

Egg Production: Ducks are excellent egg producers as shown by Khaki Campbells in two experiments which were carried out, with the aim of determining protein and energy requirements in our tropical conditions, In the first experiment, 320 Khaki Campbell ducks were fed rations of 15 and 17% protein with energy levels of 2,000; 2,300; 2,600 and 2,900 kcal of metabolizable energy (ME) per kg of feed. In this experiment the ducks fed 17% protein were heavier and laid heavier eggs but were less efficient feed converters than those fed rations with high energy levels (Table 3).

Table 3:

The effect of protein and energy [fuel: in the ration on body body weight, egg production, egg weight and food conversion efficiency of Khaki Campbell ducks (Expt. 1)

Ration		Body weight (g)	Egg Production %	Egg weight (g)	Feed conversion efficiency (kg feed/kg egg)
Protein %	ME (kcal/kg)				
15	2000	1449 bc*	71.15c	63.89a	3.13c
15	2300	1445	76.68	62.55b	3.03
15	2600	1417d	73.43	61.62	3.04
15	2900	1384e	70.64c	60.44d	3.01
17	2000	1502a	77.36	64.60	3.01
17	2300	1465bc	75.19	63.84	2.91b
17	2600	1471b	78.28a	64.09a	2.73a
17	2900	1436d	76.32	63.07	2.73a

*Values in the same column with different subscripts are significantly different (Duncan's range test) at $P < 0.05$

In the second experiment 270 Khaki Campbell ducks were fed eight rations: 4 with 2,300 kcal ME/kg feed, with protein levels of 16, 18, 20 and 22% and the other 4 with 2,600 kcal ME/kg feed with the same protein levels, for ten periods of 28 days. The ducks fed rations of 2,300 kcal ME/kg feed were heavier, laid fewer but heavier eggs than those fed rations of 2,600 kcal ME/kg feed. Body weight and egg weight increased with the level of protein in the ration, but production did not (Table 4).

These results indicate that the efficiency of egg production was greatly influenced by the levels of energy and protein in the rations, under our conditions. Our experiments were conducted in covered pens with access to a patio, the feed being given in the covered parts and water in the patio. Ducks, unlike hens, lay at night, and by keeping them under cover with good management the eggs can be collected first thing in the morning.

Table 4:

The effect of protein and energy level in the ration on body weight, egg production and egg weight of Khaki Campbell ducks (Expt 2.)

Protein %	Ration		Body weight (g)	Egg Production %	Egg weight (g)
	ME (kcal/kg)				
16	2300		1410de	71.52de	57.72
18	2300		1479ab	68.63	58.28
20	2300		1480ab	71.98	58.55
22	2300		1486a	73.36cd	59.82
16	2600		1401e	76.50bc	55.32d
18	2600		1437cd	75.83b	56.69f
20	2600		1460bc	80.93	58.85
22	2600		1467ab	77.30b	59.06

* Values in the same column with different subscripts are significantly different (Duncan's range test) at $P < 0.05$

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