BENHA UNIVERSITY
FACULTY OF VETERINARY MEDICINE
BENHA VETERINARY MEDICAL JOURNAL

EFFECT OF LITTER MATERIALS ON BROILER BEHAVIOR AND PERFORMANCE

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A B S T R A C T

This study was conducted to evaluate the effect of the litter type (wheat straw, wood shavings and sugarcane bagasse) on broiler behavior (feeding, drinking, resting, feather preening, dust bathing and agonistic behaviors) and performance (body weight, weight gain, relative growth rate, feed consumption, feed conversion and mortality). The birds reared on different litter materials showed no significant differences in the broiler behavior (feeding, drinking, resting, feather preening, dust bathing and agonistic behaviors) and performance (body weight, weight gain, relative growth rate, feed consumption, feed conversion and mortality). There were significant differences in the percentage of moisture content, total bacterial counts and mold population counts of different litter materials; these differences did not adversely affect the bird performance. It is concluded that sugarcane bagasse is potentially as useful as the other materials and would be cheaper than either.

KEY WORDS: Behavior, Broiler, Litter, Performance.

(BVMJ-23 [1]: 142-149, 2012**)**

1. INTRODUCTION

Behavior is a part of an animals' interaction with its environment and it means of using available resources. Behavioral data have supplemented the evaluation of welfare and contributed to explain the more traditional data on production, health and economy [28]. Under intensive housing, the deep litter system was traditionally found suitable for broiler production. The rapid development of the poultry industry has resulted in an increase in the demand for poultry litter material. Cost of litter is therefore becoming an increasingly important item in the cost of chicken production. Among the different types of litter materials used in poultry production, wood shavings are most commonly used. The effect of different types of litter material depends on the physical and microbiological characters of the materials used. Sugarcane bagasse was investigated as a potential source of litter materials due to its availability at a low cost [10]. Assessment of the materials was based on behavior and broiler performance (body weight, weight gain, relative growth rate, feed consumption, feed conversion and mortality). The performance of different behavioral patterns (feeding, drinking, resting, feather preening, dust bathing and agonistic behaviors) in birds reared on different litter materials did not influenced by the type of litter [3, 13]. The standing and lying behaviors were not affected significantly by litter type and there was a significant difference in feeding, drinking, preening, dust bathing and sitting behaviors on the different beddings [27]. The litter type had no significant effect on the broiler performance (body weight, weight gain, feed consumption, feed

conversion and mortality) [11, 23]. On the contrary, the type of litter had a significant effect on body weight and feed consumption [1, 27]. The weight gain and feed conversion were significantly influenced by the type of litter [4, 18]. Although there were physical and chemical differences between different litter materials, these differences did not adversely affect the bird performance [20].
The objective of this study was to investigate the effect of the litter materials on broiler behavior (feeding, drinking, resting, feather preening, dust bathing and agonistic behaviors) and performance (body weight, weight gain, relative growth rate, feed consumption, feed conversion and mortality).

2. MATERIAL AND METHODS

This study was conducted at the Department of Animal Hygiene, Behavior and Management, Faculty of Veterinary Medicine, Benha University, Egypt through the period from September to November 2010.

2.1. *Experimental birds and management*:

Two hundred day old broiler chicks of the Dokki-4 breed obtained from "EL-Azab Hatcheries Company, EL-Fayoum, Egypt" were brooded together in one compartment of the house during the first two weeks of age. Chicks were reared in well ventilated house and the temperature was maintained on 33±1°C, and gradually decreased every 3 days by 1°C eventually to a constant temperature of 20±1°C. Continuous light regime 23L:1D was implemented. Feed was provided ad libitum. The chicks were fed on a starter ration at the form of crumble containing about 24% crude protein up to 4 weeks of age. There after they were given a grower ration at the form of pellet containing about 22% crude protein until the end of experiment. At two weeks of age, 150 chicks were selected randomly from the main flock then divided into 3 groups; each group consists of 50 chicks with stocking density of 10bird/m2. Chicks were reared on 3 different litter materials (wheat straw, wood shavings and sugarcane bagasse) thorough 3 to 10 weeks of age. The litter was placed on the floor to a thickness of 10 cm. Some behavioral patterns were recorded as: feeding, drinking, resting, feather preening, dust bathing and agonistic behaviors at different ages. Direct observations of bird's behavior used scanning technique. Productive performance (body weight, weight gain, relative growth rate, feed consumption, feed conversion and mortality) were recorded throughout the experiment. The litter samples were taken to determine the moisture content, total bacterial count and mold population counts.

2.2. *Measurements*:

2.2.1. *Behavioral observations*:

Direct observations of bird's behaviors were done by using scanning technique according to [14]. Behavioral observations were performed as follow: each group was observed three times a day (20 min/time) (8.00-10.00 A.M, 12.00-2.00 P.M and 3.00-5.00 P.M) for three days weekly at circularly determined time from 8 A.M to 5 P.M for recording the different behavioral patterns. The observer stood directly in front of the pen and waited five minutes before recording to avoid any disturbance in the behaviors.

2.2.2. *Live bird performance*:

2.2.2.1. *Live body weights*.

2.2.2.2. *Body weight gain*.

The body weight gain between two successive weeks was individually calculated according to the following formula: Body weight gain (g) = $W_2 - W_1$
Where: W_1= Body weight at the beginning of the week. W_2= Body weight at the end of the week.

2.2.2.3. *Relative growth rate*.

It was calculated according to the following formula **[7]**.

$$\text{Relative Growth Rate (RGR)} = \frac{W1-W2}{½\,(W2+W1)} \times 100$$

Where: W1= Body weight at the beginning of the week. W2 = Body weight at the end of the week.

2.2.2.4. Feed consumption (FC).

2.2.2.5. Feed conversion ratio (FCR).

It was calculated by dividing the amount of feed consumed in grams (by a chick) during the week by the weight gain in grams (of the same chick) during the same week according to the following formula [19].

$$\text{FCR} = \frac{\text{Feed intake (g)/bird/week}}{\text{Body weight gain (g)/bird/week}}$$

2.2.3. *Mortality rate*.

It was calculated according to the following formula:

$$\text{Mortality rate (\%)} = \frac{I-E}{I} \times 100$$

Where I= Initial number of the birds and E= number of the live birds at the end of experimental period.

2.3. *Litter materials characters.*

2.3.1. *Litter sampling*.

From each of the three different litter groups a composite sample of litter was collected from five different locations of each pen prior to the arrival of the chicks (day zero) and every two weeks throughout the experiment. The five locations of each pen included the four corners and the center according to [15].

2.3.2. *Litter moisture content*.

It was determined as follow: 100 g of each litter sample was placed in a drying oven at 60 °C for 48 hours and then weighed after cooled according to [29].

2.3.3. *Litter microbiology*.

2.3.3.1. *Total bacterial counts*.

It was carried out according to pour-plate method described by [9] as follow: 1g was taken from each litter treatment and placed in a sterile tube containing 9 ml sterile physiological saline, then 10 fold serial dilutions up to 10-12 were aseptically prepared. 1ml from each dilution was aseptically transferred into sterile Petri dish (2 dishes were used for each dilution). 10 ml of plate count agar melted and cooled to 45-50°C were aseptically poured into each Petri dish and mixed carefully in horizontal position. After solidification, the plates were incubated at 37°C for 24 hr. Plates having from 30-300 colonies were counted. Total bacterial count in one gram of litter sample was obtained by multiplying the average number of colonies in both respective plates by the respective reverse of dilution.

2.3.3.2. *Mold population counts*.

From the previously prepared 10 fold dilutions, one ml quantities were transferred into duplicates sterile Petri dish. Ten ml of melted sterile Sabouraud's dextrose agar at 40°C were aseptically poured into each dish. After thorough mixing, the inoculated plates were allowed to solidify and incubated at 25°C for 3-5 days in the dark. The plates were examined to estimate the mold count. The total mold count per gram of sample was then calculated and recorded.

2.4. *Statistical analysis*.

Data were collected, arranged and then analyzed statistically using the computer programs SPSS/PC+ "version 16" [26]. The collected data were introduced on the computer through SPSS/PC+ program by the researcher.

3. RESULTS AND DISCUSSION

3.1. *Broiler behavior*:

The performance of different behavioral patterns (feeding, drinking, resting, feather preening, dust bathing and agonistic behaviors) in birds reared on different litter materials did not influenced by the litter type (Table 1). These results agreed with earlier findings [3, 13] and contradicted previous authors [27] who stated that a significant difference in feeding, drinking, preening and dust bathing behaviors on the different beddings.

Table 1 Effect of litter materials on broiler behavior

Item	Litter groups		
	Wheat straw	Wood shavings	Sugarcane bagasse
Feeding behavior	68.03±1.46[a]	69.01±1.59[a]	67.24±1.96[a]
Drinking behavior	60.64±1.68[a]	61.66±1.67[a]	60.33±1.94[a]
Resting behavior	35.51±1.27[a]	36.64±1.01[a]	34.49±1.07[a]
preening behavior	22.21±1.70[a]	21.60±1.67[a]	20.95±1.30[a]
Dust bathing behavior	8.62±1.09[a]	9.80±0.76[a]	8.01±0.83[a]
Agonistic behavior	10.24±1.22[a]	9.60±1.41[a]	8.26±1.25[a]

Means (±S.E.) with the same letter in each row are not significantly different ($p \leq 0.05$).

3.2. *Broiler performance*:

3.2.1. *Body weight*:

The analysis of variance for the effect of the litter type on the broiler body weight was non-significant (Table 2). It is clear that at the end of the 10th week of rearing period of the birds the highest mean of body weight was recorded in the birds reared on wood shavings (1227.0 g), followed by those reared on wheat straw (1202.0 g) while, the lowest one was given by those reared on sugarcane bagasse (1199.5 g). The results agreed with those of earlier reports [11, 23]. Contradicted results were obtained by others [1, 27] who found that the type of litter had a significant effect on body weight.

3.2.2. *Weight gain*:

The analysis of variance for the effect of the litter type on the broiler weight gain was non-significant (Table 2). It is clear that the highest mean of body weight gain was recorded in the birds reared on wood shavings (131.44 g), followed by those reared on wheat straw (128.94 g) while, the lowest one was given by those reared on sugarcane bagasse (128.50 g). The results agreed with those of previous studies [11, 23]. Contradicted results were obtained by earlier studies [4, 18] who stated that the type of litter had a significant effect on weight gain.

3.2.3. *Relative growth rate*:

The analysis of variance for the effect of the litter type on the relative growth rate was non-significant (Table 2). It is clear that the relative growth rate was recorded in the birds reared on wheat straw (24.19%), wood shavings (24.35%) and sugarcane bagasse (24.09%). The results agreed with those of previous studies [8, 16]. Contradicted results were obtained in earlier report [2] who stated that the growth of bird was significantly affected by litter type.

3.2.4. *Feed consumption*:

The analysis of variance for the effect of the litter type on the feed consumption was non-significant (Table 2). It is clear that the feed consumption was recorded in the birds reared on wheat straw (514.80 g), wood shavings (519.57 g) and sugarcane bagasse (521.57 g). The results agreed with those of [11, 23]. Contradicted results were obtained by earlier studies [1, 27] who stated that the type of litter had a significant effect on feed consumption.

3.2.5. *Feed conversion ratio*:

The analysis of variance for the effect of the litter type on the feed conversion ratio was non-significant (Table 2). It is clear that the feed conversion ratio was recorded in the birds reared on wheat straw (3.99 g feed/g gain), wood shavings (3.95 g feed/g gain) and sugarcane bagasse (4.06 g feed/g gain). The results agreed with those of earlier studies [11, 23]. Contradicted results were obtained by previous authors [9, 18] who stated that the feed conversion was significantly influenced by the type of litter.

3.2.6. *Mortality rate*:
The analysis of variance for the effect of the litter type on the mortality rate was non-significant (Table 2). It is clear that the mortality rate was recorded in the birds reared on wheat straw (3.33%), wood shavings (3.05%) and sugarcane bagasse (2.77%). The results agreed with those obtained by others [1, 11, 23].

Table 2 Effect of litter materials on broiler performance

Item	Litter groups		
	Wheat straw	Wood shavings	Sugarcane bagasse
Initial body weight at 2wk	170.50±4.17[a]	171.00±4.13[a]	171.50±4.71[a]
Final body weight at 10wk	1202.0±43.00[a]	1227.0±43.22[a]	1199.5±43.10[a]
Weight gain (g)	128.94±16.59[a]	131.44±16.62[a]	128.50±16.42[a]
Relative growth rate	24.19±3.74[a]	24.35±3.72[a]	24.09±3.81[a]
Feed consumption	514.80±59.88[a]	519.57±58.41[a]	521.57±72.82[a]
Feed conversion ratio	3.99±1.07[a]	3.95±1.00[a]	4.06±1.47[a]
Mortality rate %	3.33±0.48[a]	3.05±0.73[a]	2.77±0.74[a]

Means (±S.E.) with the same letter in each row are not significantly different ($p \leq 0.05$).

3.3. *Litter materials characters*:

3.3.1. *Litter moisture contents*:
The moisture content percentage in different litter materials was significant at different litter ages (Table 3). It is clear that, at zero day litter age the highest moisture content % was recorded in sugarcane bagasse (22.79%), followed by wheat straw (15.90%) while, the lowest one was recorded in wood shavings (10.76%). Similar results were obtained by [5, 17, 25]. Different sources and kinds of litter have different moisture content. These differences may be due to that each type of litter generally has unique physical characteristics as reported by earlier authors [6]. It is clear that in all litter groups, with advancing age of litter, the % of moisture content increased gradually from the initial values and the highest moisture content % recorded in each litter material at 8 weeks litter age. This gradual increase in the % of moisture content in all litter materials depended on increased waste deposition and respiration in growing birds rather than on the nature of the litter material as reported in previous studies [6, 21]. The highest moisture content % was recorded in sugarcane bagasse at 8 weeks of litter age (36.94%), followed by wheat straw (34.53%) while, the lowest one was recorded in wood shavings (30.58%). Similar results were obtained by previous author [24].

3.3.2. *Total bacterial counts*:
The total bacterial counts in different litter materials were significant at different litter ages (Table 3). It is clear that, the highest mean of T.B.C. was recorded in wheat straw at zero day of litter age (4.69 log/g), followed by sugarcane bagasse (4.57 log/g) while, the lowest one was recorded in wood shavings (3.83 log/g). It is clear that in all litter groups, with advancing age of litter the T.B.C. increased progressively and the highest count in all litter groups was recorded at 4 weeks of litter age. The highest mean of T.B.C. was recorded in wheat straw at 4 weeks of litter age (9.95 log/g), followed by sugarcane bagasse (9.77 log/g) while, the lowest one was recorded in wood shavings (9.25 log/g). Similar results were obtained by earlier studies [20, 25]. It is clear that with advancing litter age beyond 4 weeks the T.B.C. in all litter groups decline slightly and remain constant when the age of litter ranged from 6-8 weeks. This decline in the T.B.C. in all litter groups may be due to changing in litter ammonia level or compaction and resulting lower oxygen levels as reported by previous author [21]. The presence of a greater concentration of lignin in wood shaving reduced the ability

to use wood shaving as a substrate for microbial growth [12].

3.3.3. *Mold population counts*:
The total bacterial counts in different litter materials were significant at different litter ages (Table 3). It is clear that, the highest mean of the mold population count was recorded in sugarcane bagasse at zero day of litter age (4.15 log/g), followed by wheat straw (3.95 log/g) while, the lowest one was recorded in wood shavings (3.44 log/g). Similar results were obtained by earlier authors [20, 22]. It is clear that in all litter groups, with advancing age of litter the mold population count increased progressively and the highest count in all litter groups was recorded at 6 weeks of litter age. The highest mean of the mold population count was recorded in sugarcane bagasse at 6 weeks of litter age (10.5 log/g), followed by wheat straw (10.2 log/g) while, the lowest one was recorded in wood shavings (10.0 log/g). The differences in the mold population count between different litter materials may be due to difference in the moisture and ammonia content in different litter materials leading to difference in the mold population count. Similar results were reported by earlier author [25]. It is clear that with advancing litter age beyond 6 weeks the mold population count in all litter groups decline slightly at 8 weeks of litter age. This decline in the mold population count in all litter groups may be due to changing in litter ammonia level or compaction and resulting lower oxygen levels as reported by previous author [21].

Table 3 Physical properties and microbiological characters of the litter materials

Litter material	Age of litter (week)				
	Zero	2 weeks	4 weeks	6 weeks	8 weeks
	---------- Litter moisture content (%) ----------				
Wheat straw	15.9±0.04^{b}	17.8±0.12^{b}	22.6± 0.21^{b}	27.8±0.04^{b}	34.5±0.14^{b}
Wood shavings	10.7±0.13^{c}	14.5±0.22^{c}	20.5± 0.21^{c}	26.5±0.19^{c}	30.5±0.22^{c}
Sugarcane bagasse	22.7±0.07^{a}	24.4±0.13^{a}	27.7± 0.23^{a}	31.5± 0.33^{a}	36.9±0.42^{a}
	---------- Total bacterial counts (log/g) ----------				
Wheat straw	4.69±0.26^{a}	7.56±0.13^{b}	9.95±0.22^{a}	9.15±0.19^{b}	8.85±0.20^{a}
Wood shavings	3.83±0.19^{b}	6.83±0.11^{c}	9.25±0.20^{c}	9.16±0.29^{b}	8.76±0.31^{b}
Sugarcane bagasse	4.57±0.18^{a}	7.85±0.21^{a}	9.77±0.28^{b}	9.25±0.30^{a}	8.54±0.32^{c}
	---------- Mold population counts (log/g) ----------				
Wheat straw	3.95± .22^{b}	6.84±0.14^{b}	9.76±0.17^{b}	10.25±0.45^{b}	9.84±0.12^{b}
Wood shavings	3.44±0.12^{c}	6.15±0.22^{c}	9.53±0.18^{c}	10.07±0.38^{c}	9.76±0.27^{c}
Sugarcane bagasse	4.15±0.19^{a}	8.24±0.23^{a}	10.35±0.42^{a}	10.53±0.14^{a}	9.94±0.29^{a}

Means (±S.E.) with the same letter in each row are not significantly different ($p \leq 0.05$).

5. REFERENCES

1. Abreu, V.M.N., Abreu, P.G., Coldebella, A., Jaenisch, F.R.F. and Silva, V.S. 2011. Evaluation of litter material and ventilation systems in poultry production: I. overall performance. *R. Bras. Zootec.* **40**: 1364-1371.
2. Adebayo, I.A., Awoniyi, T.A.M. and Akenroye, A.H. 2009. Growth performance and meat wholesomeness of broiler chickens reared on different type of litter materials. J. Food Agric. Environ. **7**: 209-213.
3. Anisuzzaman, M. and Chowdhury, S.D. 1996. Use of four types of litter for rearing broilers. *Br. Poult. Sci.* **37**: 541-545.
4. Asaniyan, E.K., Agbede, J.O. and Laseinde, E.A.O. 2006. Comparative influence of sand and wood shavings litters replacement frequency on the performance of broiler chickens. *J. Anim. Vet. Adv.* **5**: 1080-1087.
5. Atencio, J.L., Fernandez, J.A., Gernat, A.G. and Murillo, J.G. 2010. Effect of

pine wood shavings, rice hulls and river bed sand on broiler productivity when used as a litter sources. *Int. J. Poult. Sci.* **9**: 240-243.
6. Brake, J.D., Boyle, C.R., Chamblee, T.N., Schultz, C.D. and Peebles, E.D. 1992. Evaluation of the chemical and physical properties of hard wood bark used as a broiler litter material. *Poult. Sci.* **71**: 467-472.
7. Broody, S. 1945. Bioenergetics and growth. Reinhold Pub Crop N.Y., U.S.A.
8. Chamblee, T.N. and Yeatman, J.B. 2003. Evaluation of rice hull ash as broiler litter. *J. Appl. Poult. Res.* **12**: 424-427.
9. Cruick Shank, R., Dugid, J.R., Mormion, B.P. and Swain, R.H. 1975. Medical Microbiology. 12th Ed. Churchill Livingston, Edinburgh.
10. Davasgaium, M.M., Boodoo, A.A., Lafouette, J.A., Sukudeep, N. and Seebaluck, B.D. 1998. Use of bagasse as a potential source of litter material for broiler production. Proceedings of the Second Annual Meeting of Agricultural Scientist, Mauritius. Pp. 135-138.
11. Davis, J.D., Purswell, J.L., Columbus, E.P. and Kiess, A.S. 2010. Evaluation of Chopped Switchgrass as a Litter Material. *Int. J. Poult. Sci.* **9**: 39-42.
12. Duqueza, M.C. 1996. Evaluation of nitrogen Bioavailability Indices for poultry wastes. M.V.Sc., Auburn, University.
13. El-Laithy, S.M.M. 2003. Effect of some managerial factors on turkey performance and behaviour. Ph. D. Thesis, Fac. Vet. Med., Zagazig Univ., Egypt.
14. Fraser, A.F. and Broom, D.M. 1990. Farm animal behaviour and welfare. 3rd Ed., Bailliere Tindall.
15. Hester, P.Y., Daniel, L.C. and Bryan, T.A. 1997. The applicability of particle board residue as litter material for male turkeys. *Poult. Sci.* **76**: 248-255.
16. Huang, Y., Yoo, J. S., Kim, Y. H., Wang, J., Chen, Y. J., Cho, J. H. and Kim, I. H. 2009. Effect of bedding types and different nutrient densities on growth performance, visceral organ weight, and blood characteristics in broiler chickens. *J. Appl. Poult. Res.* **18**: 1-7.
17. Kaur, D., Nagra, S.S., Kaur, P. and Singh, Y. 2010. Evaluation of alternate litter for broiler chicks. *Indian J. Poult. Sci.* **45**: 376-378.
18. Khosravinia, H. and Abbasi, M. 2006. Performance of broiler chickens on different litter materials under heat stress condition. *Indian J. Poult. Sci.* **41**: 49-53.
19. Lambert, W.V., Ellis, N.R., Block, W.H. and Titus, H.W. 1936. The role of nutrition in genetics. *Amer. Res. Soc. Anim. Prod.* **29**:236.
20. Lien, R.J., Conner, D.E. and Bilgili, S.F. 1992. The use of recycled paper chips as litter material for rearing broiler chickens. *Poult. Sci.* **71**: 81-87.
21. Lien, R.J., Hess, J.B., Conner, D.E., Wood, C.W. and Shelby, R.A. 1998. Peanut hulls as a litter source for broiler breeder replacement pullets. *Poult. Sci.* **77**: 41-46.
22. Malone, G.W., Tilmon, H.D. and Taylor, R.W. 1990. Evaluation of kenaf core for broiler litter. *Poult. Sci.* **69**: 2064-2067.
23. Mendes, A.S., Paixao, S.J., Restelatto, R., Reffatti, R., Possenti, J.C., Moura, D.J., Morello, G.M.Z. and Carvalho, T.M.R. 2011. Effects of initial body weight and litter material on broiler production. *Rev. Bras. Cienc. Avic.* **13**: 165-170.
24. Monira, K.N., Islam, M.A., Alam, M.J. and Wahid, M.A. 2003. Effect of litter materials on broiler performance and evaluation of manurial value of used litter in late autumn. *Asian Aust. J. Anim. Sci.* **16**: 555-557.
25. Shakila, S. and Naidu, M.A. 1998. A study on the performance of the broiler on different litter materials. *Indian Vet. J.* **78**: 705-707.
26. SPSS 2004. Statistical Package for Social Sciences. Release 16.0.1 version. SPSS Inc.
27. Toghyani, M., Gheisari, A., Modaresi, M., Tabeidian, S.A. and Mehdi Toghyani, M. 2010. Effect of different litter material on performance and behavior of broiler chickens. *Appl. Anim. Behav. Sci.* **122**: 48-52.
28. Wegner, R.M. 1992. Analysis of the research into alternative systems in: CARTER, H. & CARTER, V. (Eds). (Brussels, European Conference Group on the Protection of Farm Animals). Pp. 45-55.
29. Willis, W.L., Murray, C. and Talbott, C. 1997. Evaluation of leaves as a litter material. *Poult. Sci.* **76**: 1138-1140.

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[2] قسم الصحه وسلوكيات ورعاية الحيوان– كلية الطب البيطرى– جامعة الاسكندرية

الملخص العربى

أجريت هذه الدراسة في كلية الطب البيطري، جامعة بنها، خلال الفترة من سبتمبر إلى نوفمبر 2010. تم اجراء التجربة على بدارى التسمين من سلالة دقى–4 و تم الحصول عليها من مشروع العزب للتفريخ التابع لمحافظة الفيوم على ثلاثة أنواع مختلفة من الفرشة (تبن القمح و نشارة الخشب و مصاصة القصب) خلال الفترة من 2 – 10 أسابيع من عمر الطيور. وجد أن أداء السلوكيات المختلفة (سلوك التغذية و الشرب و سلوك الراحة و تطمير الريش و الحمام الترابى و السلوك العدوانى) فى الطيور التى تم تربيتها على أنواع مختلفة من الفرشة لم يتأثر بنوع الفرشة. لم تسجل فروق معنوية فى حدوث سلوك التغذية و الشرب و سلوك الراحة و تطمير الريش و الحمام الترابى و السلوك العدوانى بين الطيور التى تم تربيتها على أنواع الفرشة المختلفة خلال الفترة من 2 – 10 أسابيع من عمر الطيور. لم تسجل فروق معنوية فى متوسط وزن الجسم بين الطيور التى تم رعايتها على أنواع من الفرشة المختلفة حيث أعطت المجموعة التى تم تربيتها على نشارة الخشب أعلى متوسط وزن حى عمر 10 أسابيع (1227 جرام/ طائر) بينما أعطت الطيور التى تم تربيتها على مصاصة القصب أقل متوسط وزن حى (1199 جرام/ طائر) أما التى ربيت على تبن القمح أعطت (1202 جرام/ طائر). لم تسجل فروق معنوية فى متوسط الزيادة المكتسبة فى وزن الجسم و معدل النمو و الكمية الكلية لإستهلاك العلف و معامل التحويل الغذائى و نسبة النفوق بين الطيور التى تم رعايتها على أنواع من الفرشة المختلفة. سجلت فروق معنوية فى نسبة محتوى الرطوبة و العدد الكلى البكتيرى و العدد الكلى للفطريات بين النشارة و التبن و مصاصة القصب خلال فترات التجربة المختلفة. بالرغم من وجود إختلافات فى الصفات الفيزيائية و الميكروبيولوجية بين أنواع الفرشة المختلفة الا أن هذه الإختلافات لم تؤثر سلبيا على إنتاجية و أداء الطيور.

(مجلة بنها للعلوم الطبية البيطرية: عدد 23 (1)، يونيو 2012: 142– 149)