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Egypt. J. Anim. prod. Vol. 13, No. 2, pp. 87–97 (1973)

Effect of different Mangerial Conditions on Costs and Returns of Brooding Chickens

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USING different methods of brooding, the broiler house brooding gave the best returns in the two hatches, except the Fayoumi, where results were better for battery+ floor brooding in the second season of rearing, than all other treatments. The Fayoumi gave the least returns of the three breeds in most of the comparisons.

When pellet versus mash feeding was considered, best results were for pellet feeding in the two feeding seasons of rearing. Considering different breeds, the Plymouth was better with pellet feeding in December hatch, giving 70% higher returns over April hatch, while the New Hampshire was about 15% better only. Returns for pellet feeding in pounds were 14.75 and 19.80 for New Hampshire and Plymouth Rock in December hatch, while they were 12 and 11.55 for the two breeds in April hatch. Returns were 9.95 and 10.10 for mash feeding in December hatch and 12.40 pounds and 10.70 for April hatch of New Hampshire and Plymouth respectively.

The economics of the brooding stage is important for poultry raisers. Such information is greatly needed for practical evaluation and adoption under our conditions . In this study different methods of housing and feeding were tried and their economical background were investigated.

Materials and Methods

(*A*) Thirty six hundred chickens hatched in December and April from Fayoumi, New Hampshire and White Plymouth Rocks, were equally divided into four groups under four systems of brooding. The first started with the brooding houses for three weeks. Then moved to the broiler house until twelve weeks. The second started for three weeks in batteries moved to the brooding houses for five weeks then transferred to the broiler house for finishing. The third system used the broiler through the whole period, while the fourth system used batteries until twelve weeks of age. The birds were started on standard starting ration and were finished for four weeks on finishing rations.

(*B*) Sixteen hundred chicks were hatched in December and April from New Hampshire and White Plymouth Rocks and were divided over two methods of feeding. The first was pellets while the other was mash, but both ingredients of mash and pellets were of the same chemichal composition. Starting ration were used for eight weeks, then finishing ration was used for the

last four weeks. Some economichal copmarisons and calculations were made according to local prices when the experiment was made in Egyptian currency as follows :

1. Feed costs = 32 Egyptian pounds per ton of feed.

2. 2 Egyptian pounds for each 100 chicks for Fayoumi.

   3 Egyptian pounds for each 100 chicks for White Plymouth Rock and New Hampshire.

   As for chick costs :

3. Labour cost = 20 Egyptian pounds per month for expert.

   10 Egyptian pounds per month for the assistant.

   4 Egyptian pounds per month of the labourer.

4. Electrcity cost = 1.3 piasters /Kwt.

5. Selling price for birds = 25 piasters for one kg of live weight in the farm.

The formula prescribed by economists for evaluating the economics of treatments used was as follows :

Return (1) = Value of production (2) — Production costs (3).

Where : 1. Return (value added) = 2 — 3

        or = gross income + depreciatin of housing and equipments + labour.

    2. Value of production (meat + manure, value).

    3. Production essentials = costs of chicks + litter + fuel + electricity.

Results and Discussion

The differences between the value of production and productions essentials, were better for chicks hatched in December than those hatched in April, Tables 1, 2, 3.

The over all differences obtained for the three breeds in the two seasons of brooding were 94.40 pounds for December hatch, while were 82.35 pounds for the April hatch for each group of 1800 chicks reared in every hatch.

The differences obtained when floor brooding in the broiler house was from hatch up to market age was better for the December or the April hatch when compared with other methods of housing. The broiler house chicks gave a total return of almost 36.0 pounds, where the other housing treatment gave a total return almost 28.15 pounds. The broiler house brooding was followed by floor + broiler house brooding, being 29.4 pounds. The least returns was when battery brooding was used for three weeks being 29.0 pounds for the chicks of the first season of rearing. Results in the second season of rearing were in the same order, 28.20 for floor brooding in the broiler house and 27.85 for battery + floor brooding. It can be said that battery brooding was the least in the April hatch, being 26.30 Pounds.

Fayoumi chicks showed that the least returns to be 40.20 pounds, followed by the New Hampshire, being 74.95 pounds, while the highest total returns were for the Plymouth giving 81.6 pounds. Similar results with respect to the effect of season was observed by Moustafa (1963), who found that with the advanced of the hatching date in the season, the total returns from chicks reared for meat production were reduced.

Studying the economics for pellet versus mash feeding, it would be observed that pellet feeding gave the best returns for the two seasons of brooding (54.60 and 46.65 pounds) for pellet and mash feeding respectively. Also it is noticed that pellet feeding for the December hatch was better than that of April hatch, giving a total return of 34.55 pounds respectively for the two seasons, (Table 4 and 5). The Plymouth was better than the New Hampshire in the first season of brooding. Figures were 19.8 and 14.75 pounds for pellet and mash feeding for Plymouth, while being 9.95 and 12.00 pounds for the New Hampshire for pellet and mash feeding in the same season. Results obtained for the April hatch assured that the Plymouth was less adapted for local environment, profit was less in the April hatch for the two methods of feeding, with about 40% for pellet feeding and 15% for mash feeding, while differences of environment for the New Hampshire were not noticed.

In most of the cases, Fayoumi did not cover the costs of production of one kilogram of meat (Table 6). The other two breeds can cover the cost of production of one kilogram of meat and gave suitable profits. The least costs of producing a kilogram of meat was observed when the broiler house was used for brooding and pellets were used for feeding.

The costs of feeding was almost 50% from the total costs of production while it is generally agreed in most of studies that feed costs is about 66.75% from the total costs. This may be due to the fact that the ration used in this study was of low costs due to its relatively low nutritional value. The increasing of the nutritional value of the ration is important to increase the returns in meat production (Table 7).

References

Moustafa, M.B. El-Din, (1963). Adaptability of some foreign breeds of chickens and their crosses under Egyptian environmental conditions. *M. Sc., Thesis, Cairo University.*

TABLE 1. Costs of production in Egyptian pounds for Fayoumi, New Hampshire, and White Plymouth Rock breeds in the housing experiments for the two seasons (December and April)

Treatment and breed	Price of 200 chicks in pounds	First season of rearing (Dec.)						Second season of rearing (April)					
		Number of marketed	Total kilo of meat	Kilo of food consumed	Food costs in pounds	Miscelleneous costs in pounds	Total costs in pounds	Number of marketed	Total kilo of meat	Kilo of feed consumed	Food costs in pounds	Miscelleneous costs in pounds	Total costs in pounds
1. Floor (0) + broiler house (3)													
Fayoumi	4	180	112	495	15.8	13	32.8	150	101	473	15.1	12	31.1
New Hampshire	6	144	143	496	15.9	13	34.9	146	144	520	16.6	12	34.6
White Plymouth R.	6	115	139	518	16.6	13	35.9	144	145	554	17.7	12	35.7
2. Battery (0) + floor (3) + broiler house(8)													
Fayoumi	4	179	106	513	16.4	13	33.4	163	122	523	16.7	12	32.7
New Hampshire	6	162	151	527	16.9	13	35.9	157	127	462	16.8	12	32.8
White Plymouth R.	6	159	161	383	18.7	13	37.7	148	126	460	14.7	12	32.7
3. Broiler (0)													
Fayoumi	4	149	99	426	13.6	13	30.6						
New Hampshire	6	144	140	456	14.9	13	33.9						
White Plymouth R.	6	159	195	564	21.2	13	40.9						
4. Battery (0)													
Fayoumi	4							154	122	584	18.7	10.5	31.2
New Hampshire	6							160	134	454	14.5	10.5	31.0
White Plymouth R.	6							170	148	495	15.8	10.5	32.3

TABLE 2. Returns in Egyptian Pound for the Fayoumi, New Hampshire and White Plymouth Rock breeds, reared under different housing methods (December Hatch).

Treatment and breed	Production essentials (B)							Value production						Return A—B in E.P.
	Total feed consumed Kg	Total feed costs (1) E.P.	Chick costs (2) E.P.	Litter costs (3) E.P.	Electricity cost (4) E.P.	Fuel cost (5) E.P.	Total (B) 1+2+3+4+5 E.P.	No. of birds marketed	Average market weight Kg	Total meat marketed Kg	Meat price (1) E.P.	Manure price (2) E.P.	Total (A) 1+2 E.P.	
1. Floor (0) + broiler house (8)														
Fayoumi	495	15.8	4	1.5	4.6	0.9	26.8	180	0.622	112	28.00	6 0	34.00	7.20
New Hampshire	496	15.9	6	1.5	4.6	0.9	28.9	144	0.993	143	35.75	6 0	41.75	12.85
White Plymouth Rock	518	16.6	6	1.5	4.6	0.9	29.6	115	1.213	139	34.75	4.2	38.95	9.35
2. Battery (0) + floor breeding (3) + broiler house (8)														
Fayoumi	523	16.7	4	1.5	4.6	0.9	27.7	179	0.591	106	26.50	6 0	32.50	4.80
New Hampshire	527	16.9	6	1.5	4.6	0.9	29.9	162	0.932	151	37.25	4.1	41.35	11.45
White Plymouth Rock	583	18.7	6	1.5	4.6	0.9	31.7	159	1.015	161	40.25	4.2	44.45	12.75
3. Broiler house (0)														
Fayoumi	426	13.6	4	1.5	4.6	0.9	24.6	149	0.666	99	24.75	6 0	30.75	6.15
New Hampshire	465	14.9	6	1.5	4.6	0.9	27.9	144	0.969	140	35.00	4.1	39.10	11.10
White Plymouth Rock	664	21.2	6	1.5	4.6	0.9	34.2	159	1.227	195	48.75	4.2	52.95	1.875

TABLE 3. Return in Egyptian Pounds for the Fayoumi, New Hampshire and White Plymouth Rock breeds reared under different housing methods (April Hatch).

Treatment and breed	Production essentials (B)							Value production (A)						Return (A–B)
	Total feed consumed Kg	Total feed costs (1)	Chick costs (2)	Litter costs (3)	Electricity costs (4)	Fuel costs (5)	Total (B) 1+2+3+4+5	No. of birds marketed	Average market weight	Total meat marketed	Meat price (1)	Manure price (2)	Total (A) 1+2	
1. Floor (0) + broiler house (8)														
Fayoumi	473	15.1	4	1.5	3.6	0.9	25.1	150	0.793	101	25.25	6.0	31.15	6.15
New Hampshire	520	16.6	6	1.5	3.6	0.9	28.6	146	0.837	144	36.0	4.1	40.10	11.50
White Ply. Rock	554	17.7	6	1.5	3.6	0.9	29.7	144	0.872	145	36.25	4.2	40.25	10.55
2. Battery (0) + floor (3) + broiler house (8)														
Fayoumi	523	16.7	4	1.5	3.6	0.9	26.7	163	0.748	122	30.50	6.0	36.50	9.80
New Hampshire	462	14.8	6	1.5	3.6	0.9	26.8	157	0.806	127	31.75	4.1	35.85	9.05
White Ply. Rock	460	14.7	6	1.5	3.6	0.9	26.7	148	0.851	126	31.50	44.2	35.70	9.00
3. Battery (0)														
Fayoumi	514	16.4	4	1.5	3.6	0.9	24.9	154	0.676	122	30.50	0.50	31.00	6.10
New Hampshire	454	14.5	6	1.5	3.6	0.9	25.0	160	0.983	134	33.50	0.50	34.00	9.00
White Ply. Rock	495	15.8	6	1.5	3.6	0.9	26.3	170	1.007	148	37.00	0.50	37.50	1.20

TABLE 4. Return in Egyptian Pounds for the New Hampshire and White Plymouth Rock in pellet versus mash experiments in the two seasons of rearing.

Treatment and breed	Production essntials (B)							Value of production						
	Total feed consumed Kg	Total feed costs (1)	Chick costs (2)	Litter costs (3)	Electricity costs (4)	Fuel costs (5)	Total (B) 1+2+3+4+5	No. of birds marketed	Average weight marketed	Total meat marketed	Meat price (1)	Manure price (2)	Total (A) 1+2	Return (A—B)
1. Pellet feeding (December Hatch)														
New Hampshire	488	15.6	6	1.5	4.6	0.9	28.6	174	0.894	153	38.25	4.1	43.35	14.75
White Ply. Rock	513	16.4	6	1.5	4.6	0.9	29.4	179	0.894	180	45.00	4.2	49.20	19.80
(April Hatch)														
New Hampshire	471	15.1	6	1.5	4.6	0.9	28.1	159	0.949	144	36.00	4.2	40.10	12.00
White Ply. Rock	482	15.4	6	1.5	4.6	0.9	28.4	158	0.903	143	35.75	4.2	39.93	11.55
2. Mash feeding (December Hatch)														
New Hampshire	425	13.6	6	1.5	3.6	0.9	25.6	169	0.738	125	31.25	4.3	35.55	9.55
White Ply. Rock	432	13.8	6	1.5	3.6	0.9	25.8	175	0.721	125	31.50	4.4	36.90	10.10
(April Hatch)														
New Hampshire	450	14.4	6	1.5	3.6	0.9	26.4	158	0.807	138	34.50	4.3	38.80	12.40
White Ply. Rock	538	17.2	6	1.5	3.6	0.9	29.2	156	0.852	142	35.50	.4	39.90	10.07

TABLE 5.—Costs of production in Egyptian Pounds of the New Hampshire and the White Plymouth Rock in pellet versus mash feeding experiments.

Treatment and breeds	Price of 200 chicks	First seasons of rearing						Second season of rearing					
		Number of marketed	Total Kilo of meat	kilo of feed consumed	Food costs in pounds	Miscellaneous costs in pounds	Total costs in pounds	Number of marketed	Total Kilo of meat	kilo of feed consumed	Food costs in pounds	Miscellaneous pounds	Total costs in pounds
1. *Pellet feeding*													
New Hampshire	6	174	153	488	15.6	13	34.6	159	144	471	15.1	11.1	32.65
White Ply. Rock	6	179	180	513	16.4	13	35.4	158	143	482	15.4	11.25	32.65
2. *Mash feeding* :													
New Hampshire	6	169	125	425	13.6	13	32.6	158	138	450	14.4	11.25	31.65
White Ply. Rock	6	175	126	432	13.8	13	29.8	156	142	538	17.2	11.25	34.45

TABLE 6. Cost of one kilogram of meat produced of every breed in the two experiments for the two seasons of rearing in each treatment.

Treatment and breed	First season			Second season		
	Kilo of meat	Total costs	Costs per kilo	Kilo of meat	Total costs	Costs per kilo
Experiment — 1						
1. *Floor, broiler house brooding*						
Fayoumi . . .	112	32.8	0.293	101	31.1	0.308
New Hamp. . .	143	34.9	0.244	144	34.6	0.240
White P.R. . . .	139	35.6	0.256	145	35.7	0.246
2. *Battery, floor, broiler house brooding*						
Fayoumi	106	33.6	0.315	122	32.7	0.271
New Hamp.. . .	151	35.9	0.234	127	32.8	0.258
White P.R. . .	161	37.7	0.234	126	32.7	0.259
3. *Broiler house brooding*						
Fayoumi	99	30.6	0.309	—	—	—
New Hamp.. . .	140	33.9	0.242	—	—	—
White P.R. . .	195	40.9	0.209	—	—	—
4. *Battery brooding :*						
Fayoumi	—	—	—	122	32.9	0.266
New Hamp.. . .	—	—	—	134	31.0	0.231
White P.R. . .	—	—	—	148	32.3	0.219
Experiment — 2						
1. *Pellet feeding :*						
New Hamp.. . .	153	35.3	0.230	144	32.65	0.225
White P.R. . .	160	36.1	0.221	143	32.65	0.228
2. *Mash feeding*						
New Hamp. . .	125	32.2	0.266	138	31.65	0.240
White P.R. . .	120	33.4	0.264	142	34.45	0.242

TABLE 7. Percentage of each of the different cost items from the total cost of production at 12 weeks of age for the two seasons of rearing.

| Experiment and breed | First season of rearing | | | | | | | | Second season of rearing | | | | | | | |
	Chicks	Litter	Feed	Heat	Labour	Depreciation Hous.	Equip.	Total	Chicks	Litter	Feed	Heat	Labour	Depreciation Hous.	Equip.	Total
Experent-1																
Fayoumi	12.8	4.8	45.8	16.0	12.8	6.4	1.5	100	12.8	4.8	50.1	11.5	12.8	6.4	1.6	100
New Hamp.. . .	16.2	4.2	47.8	14.0	11.2	5.6	4.1	100	17.4	5.1	46.7	10.8	12.7	5.8	1.5	100
White Plym, . .	15.2	3.4	50.1	13.4	10.6	5.3	1.3	100	17.4	4.0	49.2	10.8	11.3	5.8	1.5	100
Experiment-2																
New Hamp. . . .	17.5	4.3	44.7	14.6	11.6	5.8	1.5	100	18.4	4.6	46.9	11.3	12.2	6.1	1.5	100
White Plym. . . .	17.2	4.8	45.5	14.4	11.5	5.7	1.4	100	17.6	4.3	48.0	10.9	11.9	5.9	1.5	100

تأثير طُرق الرعاية المختلفة في فترة الحضانة على التكاليف
والعائد في الكتاكيت

جمال عبد الرحمن قمر و احمد فتحى الدفراوى و محمد عبد الغنى محمود
ومحمود عبده خير الدين

كلية الزراعة ـ جامعة القاهرة ـ الجيزة

أجريت هذه الدراسة لمقارنة انتاج البدارى تحت معاملات مختلفة من حيث :

١ ـ نوع مسكن الحضانة (حضانة أرضية أساسا أو بطاريات ثم أرض
أو بطــــايات) .

٢ ـ شكل العلف (عليقة ناعمة أو مكعبات) .

مع اتخاذ العائد كأساس للمقارنة .

استخدم فى التجربة الخاصة بالمسكن ٣٦٠٠ كتكوت وفى التجربة الثانية
١٨٠٠ كتكوت . من كل من الفيومى والبلايموث والنيوهامبشير خلال تجربتين
فرخت أولاها فى ديسمبر والاخرى فى أبريل واستخدمت أعداد متساوية من
الانواع داخل كل تجربة .

ووجد فيما يختص بالموسم أن العائد من الفيومى بالجنيهـــات المصرية
١٨ جنيها و١٥٠ مليما كان بينما كان ٣٥ جنيها و٤٥٠ سليما للنيوهامبشير ٤٠ جنيها
و٨٥٠ مليما للبلايموث وذلك للكتاكيت المفرخة فى ديسمبر بينما كانت الارقم
على الترتيب ٢٢ر٠٥٠ ، ٢٩ر٥٥٠ ، ٣٠ر٧٥٠ فى الكتاكيت الفاقسة فى شهر
أبريل .

وفيما يتعلق بطرق الحضانة ـ عموما كان أحسن دخل محققا من استخدام
التحضين فى بيوت البدارى لكلا السلالتين الاجنبيتين فى موسمى التحضين بينما
كانت المعاملة بالبطاريات + التحضين الارضى فى موسم أبريل أفضل المعاملات
فى الفيومى .

وفيما يتعلق بشكل مادة العلف ـ كان أحسن دخل محقق عنو استخدام
العليقة المكعبات خلال موسمى التحصين وكانت النتائج بالنسبة للبلايموث
الابيض متفرقة بدرجة واضحة عن النيوهامبشير فقد كانت الزيادة فى العائد
٧٠٪ عنها فى استخدام العليقة الناعمة فى موسم ديسمبر بينما الفرق فى العائد
لم يتجاوز ٩٪ فى موسم التفريخ الثانى . وأعطيت التغذية على مكعبـــات
١٩ جنيها و ٨٠٠ مليما فى مقابل ١٠ جنيها و١٠٠ مليما للتغذية على العليقة
الناعمة لذى موسم ديسمبر فى مقابل ١١جنيها و٥٥٠ مليما ، ١جنيها و٧٥٠مليما
لموسم التفريخ الثانى بنفس الترتيب السابق وبالنسبة للنيوهامشير كانت
النتائج ١٤ جنيها و٧٥٠ مليما كعائد للتغذية على مكعبات بموسم ديسمبر مقابل
٩ جنيهات و٩٥٠ مليما للتغذيةعلى العليقة الناعمة فى الموسم فى مقابل ١٢جنيها،
١٢ جنيها و٤٠٠ مليما للتغذية على مكعبات وناعم فى موسم أبريل ومن ذلك
يتضح أن مجاوبة البلايموث للتغذية على مكعبات كانت واضحة فى موسم
التفريخ الاول عنها فى الموسم الثانى .