SUMMARY

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The present study was carried out at the Poultry Research Station belonging to Animal Production Department , Faculty of Agriculture , Zagazig University , Benha Branch during the period from December , 1990 to Junuary , 1993 . The chemical analysis was carried out at the laboratories belonging to the Animal Health Research Institute , Agricultural Research Center , Ministry of Agriculture , Dokki , Giza , Egypt .

The aim of this study was to evaluate the Fayoumi and Dandarawi breeds for their physiological characteristics related to productive efficiency compared with t he R.I.R breed as a foreign breed . In addition , it was also aimed to find out the possibility of improving meat yield from the two local breeds of chickens (Fayoumi and Dandarawi) by modifing their thyroid activity that is considered to be involved in energy metabolism which in return affectes the productive capacity .

Experimental hypo - and hyper thyroid function was carried out by treating incubated eggs (first experiment) , hatched chicks (second experiment) or incubated eggs and hatched chicks (third experiment) with either Goitrogenic material (Neo-Mercazole) or Thyroid preparation (Eltorxin) , respectively .

Results obtained could be summerized as follows :

The first experiment :

1 - Treating incubated eggs with either Eltorxin or Neo - Mercazole obviously decreased hatchability percent and increased the rate of embryonic mortality with greater rate in case of Eltroxin treatment than in case of Neo - Mercazole treatment . This was quite true in all breeds applied . In addition , the rate of embryonic mortality was greately higher during the late stage of incubating Neo - Mercazole treated eggs .

2 - Variation in body weight estimations and various body measurements applied were

highly significant due to bird's breed, sex and treatment applied .

3 - Rhode Island Red (R.I.R.) birds showed higher body weight average allover the whole period of estimation . In addition , higher breast width and keel and shank length averages were also observed in R.I.R. . The lowest averages were found in Dandarawis . While Fayoumi birds showed intermediate average between the two mentioned breeds .

4 - Neo - Mercazole increased all body measurements averages while Eltroxin decreased these averages when compared with controls . Simelar results were obtained testing the effect of various treatment on average body weight . This was quite true at all intervals except at the 4 th , 16 th and 20 th weeks of bird's age hatched from untreated eggs that had the highest average of body weight . Eltroxin treated eggs almost hatched to chicks of the lowest body weight average .

5 - Male birds had the higher average of body weight and measurements than females.

6 - Relative growth rate average was higher in Fayoumi bird's during 0 - 4 weeks of age , in R.I.R. during the periods from 8 - 12 and 16 - 20 weeks and in Dandarawi during the period from 4 - 8 weeks of age .

7 - Control birds showed the highest relative growth rate average during the periods from 0 - 4, 8 - 12 and 12 - 16 weeks of birds age . While birds hatched from eggs treated with Neo - Mercazole and those hatched from eggs treated with Eltroxin showed the highest relative growth rate average during the period from 4 - 8 and 16 - 20 weeks of age , respectively .

8 - Significant variations were found in absolute weight of blood , feather , edible and inedible meat , carcass and giblets due to bird's breed . However, significant variations due to birds breed were found in relative feathers and giblets weight only .

9 - Treatment applied had no significant effect on carcass parameters except blood and feathers absolute weight and relative feathers weight .

10 - Males showed better carcass quality and less eviscerating losses than female birds .

11 - Significant breed variations were found in serum blood total proteins and calcium only .

12 - Treatment applied showed significant effect on both serum total proteins and total lipids only .

13 - Female birds had significant serum total proteins , total lipids and calcium content when compered with male birds .

14 - Thyroid absolute and relative weights showed insignificant variations due to treatment applied . While variation in thyroid absolute weight was significant due to bird's breed and sex .

15 - Significant breed variations were found in number of glandular follicles per microscopic field , outer and inner diameters and follicular epithelial cell height too .

16 - Treatment applied had significant effect on follicular epithelial cell height only. Cell height in control higher than either Eltroxin group or Neo - Mercazole group, which decrease in late more than first .

17 - Female birds had significant follicular epithelial cell height when compered with male birds . While male birds had significant outer and inner follicular diameters when compered with femal birds .

The second experiment :

1 - Variation in body weight estimations and various body measurements applied were highly significant due to bird's breed, sex and treatment .

2 - Fayoumi birds showed higher body weight average allover the whole period of estimation . In addition, higher breast width and keel and shank length averages were also observed in Fayoumis than Dandarawi .

3 - Neo - Mercazole increased body weight and all body measurements averages while Eltroxin decreased these averages when compered with controls . This was quite true at all intervals except at the 4 th weeks of bird's age at which untreated birds had the higher average of body weight . Eltroxin treated birds almost had low body weight average .

4 - Males had the higher average of body weight and body measurements than females .

5 - Relative growth rate average was higher in Fayoumis during 0 - 4 weeks and 4-8 week of age , in Dandarawis during 8 - 12 , 12 - 16 and 16 - 20 weeks of age .

6 - Higher relative growth rate average were observed during the periods from 0 - 4 and 16 - 20 weeks of birds agein controls , during the period from 4 - 8 and 12 - 16 weeks of age in Neo - Mercazole treated birds and during the period from 8 - 12 weeks of age in Eltroxin treated ones .

7 - Breed significant variations were found in absolute weight of blood , edible and inedible meat , carcass and giblets . However significant variations due to birds breed were found in relative giblets weight only .

8 - Males showed better carcass quality and less eviscerating losses than female birds .

9 - Significant breed variation in serum blood calcium content was only observed . Dandarawi showed higher average than Fayoumi breed .

10 - Treatments applied showed significant effect on serum total lipids only . Treating birds with Eltroxin lowered total lipids values in their blood serum . While Neo - Mercazole treatment increased serum total lipids average .

11 - Females had significant serum glucose , total protein , total lipids and calcium content when compered with males .

12 - Thyroid absolute and relative weights showed insignificant variations due to treatment applied . While variations in thyroid absolute and reltive weight was significant

due to birds sex only .

13 - Significant breed variations were found in follicular epithelial cell height only. Fayoumi breed had higher average than Dandarawi breed .

14 - Treatment applied had significant effect on follicular epithelial cell height only. Average cell height in control higher than either Eltroxin group or Neo-Mercazole group which decrease in late more than first .

15 - Female birds had significant average number of follicles per microscopic field when compered with male birds . While male birds had significant average follicular epithelial cell height when compered with female birds .

The third experiment :

1 - Treating incubated eggs and hatched chicks with either Eltorxin or Neo-Mercazole obviously decreased hatchability percent and increased the rate of embryonic mortality with greater rate in case o f Eltroxin treatment than in case of Neo- Mercazole treatment . In addition , the rate of embryonic mortality was greately higher during the late stage of incubating Neo - Mercazole treated eggs .

2 - Variation in body weight was highly significant due to bird's breed and sex and treatment applied .

3 - Rhode Island Red (R.I.R.) birds showed higher body weight average allover the whole period of estimation .

4 - Higher body weight averages were observed at 8 $\underline{th}$, 12 $\underline{th}$, 16 $\underline{th}$ and 20 $\underline{th}$ weeks of age treated with Eltroxin , at 4 $\underline{th}$ week in birds hatched from eggs treated with Neo - Mercazole and at hatch in controls .

5 - Male birds always had the higher average of body weight than females .

6 - Relative growth rate average was higher in Fayoumi bird's during 0 - 4 weeks of age , during the periods from 8 - 12 and12 - 16 and 16 - 20 weeks of R.I.R's age .

7 - Birds hatched from eggs treated with Neo - Mercazole showed the high relative weight average during the periods from 0 - 8 , 8 - 12 weeks of birds age . While birds hatched from eggs treated with Eltroxin showed the high relative weight average during the period from 12 - 16 and 16 - 20 weeks of age .

8 -Breed significant variations were found in absolute weight s of blood , feathers , edible and inedible meat , carcass and giblets .

9 - Treatment applied had no significant effect on various carcass parameters .

10 - Males showed better carcass quality and less eviscerating losses than females .

11 - Significant variations in serum blood total proteins , total lipids and calcium contents only . R.I.R. birds showed higher averages than Fayoumi ones .

12 - Treatments applied showed significant effect on serum total lipids only .

13 - Female bird had significant serum glucose , total proteins , total lipids and calcium contents when compered with male birds .

14 - Thyroid absolute and relative weights showed insignificant variations due to treatment applied . While variations in thyroid absolute weight was significant due to birds breed and sex .

15 - Significant breed variations were found in number of glandular follicles per microscopic field and outer and inner follicular diameters . Fayoumi breed had higher number of glandular follicles than R.I.R. birds . While R.I.R. breed had higher outer and inner follicular diameters than Fayoumi breed .

16 - Female birds had significant number o f glandular follicles per microscopic field when compered with male birds . While male birds had significant outer and inner follicular diameters when compered with female birds .