على علائق بها 0.5 كجم بريمالاك لكل طن علف اقل مستوى للفوسفور الغير عضوي عند عمر 51 يوم.

- كان للمستويات المستخدمة تاثير معنوى على محتوى البلازما من البروتينات الكلية والجلوبيولين والليبيدات الكلية وحمض البوليك والكالسيوم عند عمر 28 و 51 يوم. بينما اظهرت المستويات المختلفة تاثير معنوى على انزيمات الكبد عند 28 يوم من العمر فقط.

بصفة عامة يمكن ان نوصي باستخدام البريمالاك ، البيواكشن أو الزنك باستراسين بمستوى 0.5 كجم لكل طن علف في علائق بدارى التسمين وذلك للحصول على اعلى عائد اقتصادي.

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5- SUMMARY

This study was carried out at the Poultry Research Farm, belonging to Animal Production Department, Faculty of Agriculture, Benha University. Through September and November 2003.

The present study was aimed to evaluate the effect of probiotics Primalac (as a source of live (viable) naturally occurring microorganisms), Bioaction (consists of bacterial, fungi an digestive enzymes and contains a natural source of protein, minerals and vitamins) and Zinc bacitracin (as a poly peptide compound complex with stable zinc) as feed additives on productive and physiological activities of broilers.

A total number of 702 unsexed one day-old Hubbard broiler chicks of a nearly similar initial live body weight were

used in this study. Birds were randomly divided into three groups of 216 chicks each. Chicks of the first, second and third groups were fed basal diet supplemented with feed additives of either Primalac, Bioaction or Zinc bacitracin. Chicks of each group were subdivided into four subgroups each of 54 chicks. Chicks of each subgroup received basal diet with 0.5, 1.0, 1.5 and 2.0 kg/ton ration of either Primalac, Bio action or Zinc bacitracin, respectively. The thirteen subgroup was fed basal diet only and considered as control group. The experimental chicks were raised under similar conditions of management, vaccination, heating and lightening.

Chicks were individually weighed to the nearest (g) at the first day and at weekly intervals thereafter throughout the experimental period (lasting 7 weeks.). Weight gain between two successive weeks were individually calculated.

Fed consumed by all chicks of each treatment was daily recorded, averaged and expressed in gram per chick during the periods from (0 – 4, 4 – 7 and 0 – 7) weeks of chicks age. Feed conversion then calculated as a ratio between feed consumption and body weight gain. Economic efficiency and performance index were also calculated. Slaughter and carcass quality were measured at 51 day of chicks age.

Plasma total protein, albumin, globulin, A/G ratio, total lipids, cholesterol, AST, ALT, uric acid, creatinine, calcium and inorganic phosphorus were determined at 28 and 51 days of age.

The results obtained could be summarized as follows:
1- Productive performance:

1- Body weight

- Chicks fed diets containing probiotic (Primalac and Bioaction), significantly increased body weight when compared with chicks fed diets containing Zinc bacitracin at all period of experimental.
- Analysis of variance revealed highly significant effects due to treatments applied and supplemented levels and the interaction between them on the average body weight at all period of estimation.
- Birds fed 1.0 kg Primalac and 0.5 kg Bioaction/ton ration had the highest averages of body weight at the 4^{th} and 7^{th} weeks of age, when compared with other levels of different treatments.

2- Body weight gain:

-Chicks fed 1.0 kg Primalac and 0.5 kg Bioaction/ton ration showed the highest average of body weight gain at the periods form (0 – 4) wk to (0 – 7) wk of age.

-Birds fed diet containing Primalac showed the highest body weight gain averages at the period form (0 – 7) wk of chicks age followed by those fed Bioaction, then by those fed Zinc bacitracin.

-Analysis of variance showed that variation in body weight gain due of different levels, treatments applied and the interaction between them were found to be of highly significant effect at all periods of estimation.

3- Feed consumption and Feed conversion:

- Chicks fed ration containing Bioaction or Primalac significantly decreased feed consumption during the

period from (0 – 7) wks of age. When compared with Zinc bacitracin group.

- Analysis of variance showed that variation in feed consumption due to treatments applied and supplemented levels was highly significant effect at the periods from (0 - 4) and (0 – 7) wks of age.
- Chicks fed diet supplemented with 0.5 kg Bioaction/ton ration had the lowest average of feed consumption followed by those fed diet with 1.0 kg Primalac/ton ration at the period from (0 – 7) wks. When compared with other groups.
- The best averages of feed conversion during the all periods were found in chicks fed Primalac when compared with those fed Bioaction, Zinc bacitracin and control groups, respectively.
- Chicks fed 1.0 kg Primalac and 0.5 kg Bioaction/ton ration had the better average of feed conversion during the period from (0 – 7) wks.

4- Economical efficiency and performance index:

- Chicks received Primalac in their diet had the higher performance index at the 7^{th} week of chicks age followed by those fed Bio action.
- Chicks fed Primalac had the highest average of economical efficiency all over the experimental period fallowed by those fed Bioaction, them by those fed Zinc bacitracin.

- Feeding chicks on diet supplemented with 0.5 kg / ton ration of either Primalac, Bioaction or Zinc bacitracin, respectively increased economical efficiency when compared with other levels of different treatments applied.

5- Carcass characteristics:

-Adding biological additives increased significantly absolute and proportional weights of eviscerated weight, edible parts and total edible meat compared with those given un-supplemented control diet.

-Chicks fed diet with Bio action had the highest average of absolute and proportional weights of eviscerated weight, giblets parts and total edible meat followed by those fed Primalac in absolute and proportional weights of eviscerated weight and total edible meat, when compared with Zinc bacitracin and control groups.

-Chicks receiving diets with 0.5 and 1.5 kg Bio action or 1.0 kg Primalac / ton ration significantly increased total edible meat.

6- Mortality rate:

- Mortality rate decreased in chicks fed Bioaction and Primalac, respectively compared with Zinc bacitracin and control groups.

7- Blood plasma parameters:

- Significant variations were found in plasma total protein, albumin, globulin, A/G ratio, total lipids, cholesterol,

GOT, GPT, uric acid and plasma Calcium at 28 and 51 day of age due to treatments applied.

- Chicks fed diets containing Primalac and Bioaction had the highest averages of plasma total protein and globulin.
- Chicks fed diets containing Zinc bacitracin had the highest average of plasma albumin, and A/G ratio.
- Feeding chicks diets with Primalac decreased averages of plasma total lipids and cholesterol.
- Chicks fed 1.0 kg Primalac or 0.5 kg Bioaction / ton ration had the lowest averages of plasma total lipids and cholesterol at 28 and 51 day of age.
- Chicks fed diet with Zinc bacitracin and Bioaction had the highest averages of AST and ALT at 28 and 51 day of chicks age.
- The highest values of AST and ALT were observed for chicks of unsupplemented diet at 28 and 51 day of age, chicks fed 1.5 kg / ton diet Zinc bacitracin had the highest average of AST at 51 day of age only/
- Feeding chicks diet containing Zinc bacitracin had the lowest average of plasma creatinine and the highest average of plasma uric acid compared with those fed diet with Bioaction and Primalac.
- Chicks fed 0.5 kg Bioaction and 1.0 kg Primalac / ton ration significantly decreased plasma uric acid at 28 and 51 day of age.

- Chicks fed Zinc bacitracin showed the highest averages of plasma calcium and inorganic phosphorus level followed by those fed Bioaction and Primalac.
- Chicks fed 0.5 kg Zinc bacitracin significantly increased plasma calcium level. However, feeding chicks diet containing 0.5 kg Primalac / ton ration showed the lowest average of plasma inorganic phosphorus at 51 day of chicks age.

Significant variation in plasma total protein, globulin, total lipids, uric acid, and plasma calcium were found due to supplemented levels at 28 and 51 days of age, while, significant variation in plasma AST and ALT were found due to supplemented levels at 28 day of age only.

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