

# Comparative Study on the Effects of Albac, Fermecto and Grow-For as Growth Promoters on the Performance of Broilers

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## ABSTRACT

The effect of growth promoters *viz.*, albac, fermecto and grow-for, was studied on 120 day-old Hubbard broiler chicks. No difference was found in feed intake and weight gain of the birds fed rations supplemented or without supplementation with growth promoters. However, the birds on ration containing growth promoters utilized their feed more efficiently than the control group. The best feed efficiency was recorded in grow-for (2.06) followed by fermecto (2.13), albac (2.22) and control (2.42). Supplementation of the growth promoters in the rations exhibited 1.11, 2.38 and 2.85% more dressed weight in albac, fermecto and grow-for respectively than those of control. However, the values were statistically non-significant. Similarly, the relative weights (gram organ weight per 100g body weight) of giblets (heart, liver, gizzard) did not show any effect due to the presence of growth promoters in the diets. The profit rate was also higher in the treatment groups than control.

**Key Words:** Growth promoter; Broiler

## INTRODUCTION

Poultry industry has developed significantly during the last two decades and has played a pivotal role in the economy of the country. Although it has contributed a lot in abridging the gap between supply and demand of animal protein through eggs and meat, yet the availability of animal protein has been reported to 16.63g per capita as against the recommended allowance of 27.4g (Anonymous, 1996). Thus there is a dire need to exploit the productive potential of farm animals including poultry in order to meet the animal protein shortage for ever increasing population of Pakistan.

Under the present circumstances, poultry can prove a better choice for solving the protein shortage problem because of its rapid growth and shorter generation interval. However, the farmers have failed to attain the optimum growth performance because of unfavourable environment, unhygienic conditions, nutritional imbalances, improper disease control as well as high cost of modern technology to provide standard environmental conditions.

Quality and quantity of feed play a significant role in determining the economic viability and feasibility of poultry enterprise. The use of growth promoters as feed additives has shown to improve the feed efficiency, ensuring healthy growth of birds, thereby enhancing the profitability of the broilers (Ahmad, 1995). A number of growth promoters are

available in the market with a lot of claims regarding their prophylactic action against diseases and growth stimulating properties. Therefore, a project was initiated to compare the efficiency of commercially available growth promoters namely albac, fermecto and grow-for on the performance of broiler chicks.

## MATERIALS AND METHODS

One hundred twenty, day-old "Hubbard" broiler chicks were purchased from a local hatchery and randomly divided into twelve experimental units of ten chicks each. Three units (replicates) were allotted randomly to each of the treatments *i.e.* A, B, C and D. All the experimental units were maintained on deep litter system in individual pens (3x4 sq.ft.), under the similar conditions of temperature, humidity, light and ventilation. Group A served as control whereas B, C and D contained albac (25g/50kg) fermecto (100g/50kg) and grow-for (12.5g/50kg), separately in starter (0-4 weeks) and in finisher ration (5-7 weeks).

The data on initial body weight, weekly feed consumption and body weight were recorded to calculate weight gain and efficiency of feed utilization. Mortality record was also maintained through out the experimental period. Whereas the data collected on the production cost of the broilers, were used to find out the commercial viability of the growth promoter.

At the end of experiment two birds from each replicate were picked up randomly and slaughtered for

carcass characteristics (dressing percentage and abdominal fat) and giblet weight (heart, liver and gizzard). The weight of the carcass was recorded and dressing percentage was calculated on the basis of dressed meat including giblet and skin. The economics of the production cost of broilers was calculated on the basis of current prices of the feed and broiler meat.

## STATISTICAL ANALYSIS

The data on weekly weight gain, feed consumption, feed efficiency per bird basis in each experimental unit/replicate were recorded and analyzed for variation between the treatments by Analysis of Variance Technique and the means were compared using Duncan's Multiple Range (Steel & Torrie, 1980) test. Similarly data on carcass characteristics and giblet weight were also analyzed using the same technique.

## RESULTS AND DISCUSSION

The birds using rations supplemented with albac, fermecto and grow-for consumed slightly more feed than the birds fed ration without any supplementation of the growth promoter (Table I). However, the differences were found to be statistically non-

growth promoters in broiler had also been reported by various scientists (Waldroup *et al.*, 1990, Nissen *et al.*, 1994; Maiolino *et al.*, 1990). The difference in weight gain results may be due to the difference in type of growth promoter used when compared with the present study.

Although the results on feed consumption and weight gain were not significantly different due to the use of growth promoters than the control group yet the birds using ration supplemented with albac, fermecto, and grow-for, utilized their feed significantly more efficiently, with FCR values 2.22, 2.13, and 2.06, respectively. The better efficiency of feed utilization may be due to absorption of the nutrients. Similar findings had also been reported by Choi and Ryu (1987), Kralik *et al.* (1988), who observed better feed efficiency when the rations were supplemented with growth promoters. However, the results of the study are not in line with the findings of Smith and Teeter (1987), Lee *et al.* (1993), Nissen *et al.* (1994) who reported no difference in the efficiency of feed utilization. These contrary findings may be due to the difference in the forms of growth promoter used in the present study.

The birds using rations supplemented with albac, fermecto and grow-for gained 1.11, 2.38 and 2.85 percent more dressed weight respectively (Table II)

**Table I. Performance of broiler chicks fed ration containing different growth promoters**

Treatments	Control	Albac	Fermecto	Grow-for	SE
No. of birds	30	30	30	30	-
Experimental period (Days)	49	49	49	49	-
Initial Weight (g)	43	44	44	43	-
Final Weight (g)	1852	1926	1949	2048	-
Feed consumption (g/bird)	4199	4264	4236	4340	104.7
Weight gain (g/bird)	1809	1882	1905	2005	0.90
Feed efficiency (g feed/g gain)	2.42 <sup>a</sup>	2.22 <sup>a</sup>	2.13 <sup>bc</sup>	2.06 <sup>c</sup>	0.03

Values within a row, with different superscripts are significantly different ( $P < 0.05$ )

significant. Non-significant differences in feed intake of the birds fed rations supplemented with antibiotics and growth promoters had also been reported in certain other studies (Babu *et al.*, 1986; Lee *et al.*, 1993).

The weight gain of the birds showed similar trend as that of feed consumption. Although non-significant but slightly higher weight gain of the birds may be due to better uptake of the nutrients in the ration because growth promoter may increase absorption (Jane-William, and Fuller, 1971) due to thinning of the villi of intestinal tract. Increase in weight gain due to use of

than those on control. However, the dressing percentage was non-significant among all the groups A, B, C, and D. The present results are in line with the finding of Kralik *et al.* (1988) and Fritz *et al.* (1989) who observed that feed additives had non-significant effect on dressing percentage.

Relative weights of heart, liver and gizzard were calculated on the basis of per 100g body weight. The birds fed ration supplemented with albac, fermecto, and grow-for showed 7.8, 5.4 and 2.8 percent more giblet (heart, liver, gizzard) weight respectively than

**Table II. Dressing percentage and relative weight (g/100g body weight) of heart, liver, gizzard, abdominal fat of broiler fed ration containing different growth promoters**

Description	Control	Albac	Fermecto	Grow-for	S.E.
Heart	0.47	0.47	0.45	0.46	0.58
Liver	2.41	2.31	2.48	2.26	0.16
Gizzard	1.73	1.60	1.64	1.63	0.16
Abdominal fat	1.19	1.10	1.21	0.98	3.07
Dressing (%)	66.23	67.01	67.94	68.22	0.66

those on control. However, the differences were found to be non-significant. The results are compatible with those observed by Ehdaib *et al.* (1981), who reported non-significant effect on giblets weight while supplementing broiler diets with Virginiamycin and Erythromycin as growth promoters. The results of present study are also in accordance with the finding of Haq (1987), who reported non-significant increase in giblet weight by supplementing broiler diets with Furazole, Gallamycin and Erythro F-Z as growth promoters in broiler rations than control group.

also reported similar results. Proudfoot and Hulan (1986), Sreenivasaiyah *et al.* (1986) and Kiiskinen (1987) reported non-significant effect on the reduction of mortality due to feed additives. Whereas, the finding of Rajmane and Patil (1990) are in the favour of present study who observed significant reduction in the mortality due to feed additives.

The birds reared on rations containing albac, fermecto and grow-for gained Rs. 0.8, 1.2 and 6.3, respectively (Table III) more than those fed rations without supplementation of growth promoters. This profit amounted to be 3.40, 4.90, and 20.67% higher due to the supplementation of albac, fermecto and grow-for. The economic appraisal results indicated that the use of growth promoters may fetch more profit when added to the broiler rations.

The variable studied in this experiment were not sufficient enough to justify the equivocal claim of better feed utilization due to the supplementation of feed in the ration. Rather the reasons of better efficiency of feed utilization would have been more clear if digestibility of protein and carbohydrates would have been studied. So effect on the digestibility of nutrients (protein, carbohydrates, fats) is still a question, to be addressed.

**Table III. Data showing economic appraisal of various treatments**

Particulars	Control	Albac	Fermecto	Grow-for
Cost per chick (Rs.)	11.00	11.00	11.00	11.00
Feed Consumption (g)	4199	4264	4326	4340
Feed cost/bird (Rs.)	37.37	38.37	38.93	39.06
Cost of growth promoters (Rs.)	-	0.36	1.55	0.18
Miscellaneous cost/bird	5.00	5.00	5.00	5.00
Total cost/broiler (Rs.)	53.37	54.73	56.48	55.24
Sale price/broiler (Rs.)	77.83	79.98	82.13	86.00
Net profit/broiler (Rs.)	24.46	25.25	25.65	30.76

Note: The economics was calculated excluding the cost of labour.

Bougon *et al.* (1985) noted that the weight of abdominal fat and fat percentage in carcass differed little among groups. It was also observed by Leeson (1991) that carcass had less abdominal fat. The results were also in line with Lee *et al.* (1993) that abdominal fat pad decreased with supplementary antibiotics or probiotics.

Supplementation of the growth promoters in the ration exhibited some positive effect in controlling the mortality of the birds. The results are in line with the findings of Dost (1985) who reported that Flavomycin supplementation at the rate of 30 gm/ton feed significantly reduced mortality. Sharma *et al.* (1986)

## REFERENCES

- Ahmad, F., 1995. Effect of feed additives on the performance of broilers. M.Sc. Thesis, Deptt. of Poultry Husbandry, Univ. Agir., Faisalabad.
- Anonymous, 1996. Economic Survey, Government of Pakistan, Finance Division, Economic Advisors Wing, Islamabad.
- Babu, M., R. Praba-Karan, V. Sundarazu and P. Kothadaraman, 1986. Effect of antibiotic potentiation with terephthalic acid on broiler performance. *Cheiron Poult. Res.*, (India) 15: 10-2 (*Poult. Abst.* 13: 35; 1987).
- Bougon, M. and R.L. Hospitalier, 1985. Effect of efrotomycin on performance and quality of chickens. *Station experimentale d. Aviculture*, (France) 25: 61-4.

- Choi, J.H. and K.S. Ryu, 1987. Responses of broilers to dietary zinc bacitracin at two different planes of nutrition. *Brit. Poul. Sci.*, 28: 113–8.
- Dost, G., 1985. Efficiency of flavomycin over 20 years (beginning 1962, end 1981) with broilers. *Arhiv fir Geflugelkunde*, (G.F.R.) 49: 73–80.
- Ehdaib, M.A.M., M.R. Chaudry, M. Fahimullah and A.R. Barque, 1981. Effect of different growth stimulants on the fleshing characteristics of broilers. *J. Anim. Sci. Pak.*, 6: 53–9.
- Frits, A., A. Schleicher, L. Jarsonz and D. Jamroz, 1989. Mixtures supplemented with new variety rapeseed meals. Flavomycin or Tylosin in broiler chicken feeding. *Zeszyty naukowe Akademii Reoniczy We Wroclawiu, Zoootechnika*, 31: 67–7
- Haq, A., 1987. Effect of Furazol, Gallamycin and Erythro F–Z as feed additives on the weight gain, feed consumption and efficiency of broiler chicks. *Pak. Vet. J.*, 7: 155–8.
- Jane-William, D.J. and R. Fuller, 1971. Physiology and Biochemistry of domestic fowl. (Bell, D.J. and B.M. Freeman. 1971). Vol. 5. Academic Press, London.
- Kiiskinen, T., 1987. Comparison of feed additives Avotan and Albac in broiler diets. *Ann. Agri. Fenniae*, 26: 145–9.
- Kralik, G., B. Mandic and B. Popovic, 1988. Results of application of growth promoters in production of chicken meat. *Zbornik Radova, Institute Za Stocarstvo, Novi Sad*, No. 17–18: 185–91 (*Poult. Abst.*, 17: 2706; 1991).
- Lee, S.J., S.S. Kim, O.S. Suh, J.C. Na, S.H. Lee and S.B. Chung, 1993. Effect of dietary antibiotics and probiotics on the performance of broilers. *RDA. J. Agri. Sci. Livestock*, 35: 539–48.
- Leeson, S., 1991. The need for growth promoting compounds in poultry meat production. *J. Agri. Enviorn. Ethic.*, 4: 89–9.
- Maiolino, R., A. Fioretti, L.F. Menna and C.D.I. Meo, 1990. Research on the efficacy of probiotics in diets for broiler chickens. *Rivista di Avicoltura*, (Italy) 59: 81–4.
- Nissen, S., J.C. Fuller, J. Sell, P.R. Ferket and D.V. Rives, 1994. The effect of B-hydroxy-B-methylbutyrate on mortality, and carcass qualities of broiler chickens. *Poult. Sci.*, 73: 137–55.
- Proudfoot, F.G., and H.W. Hulan, 1986. The Response of Male Chicken Broilers to Use of Lincomycin as a Growth Promotant Administered via either the Feed or Drinking Water. Annual Report 1986, pp: 169–70. Research Branch Agr. Canada, Dep. Physiology and Management, Research Station kentiville, N.S. Canada (*Poult. Abst.*, 15: 797;1989).
- Rajmane, B.V. and A.T. Patil, 1990. Comparative efficacy of different water soluble medicant in broilers. *Poult. Adv.*, 23: 37–42.
- Sharama, M.L., M.L. Kansal and J.S. Lehphonani, 1986. Efficiency of some homeopathic feed additives for commercial broilers. *Indian J. Anim. Prod. Manag.*, 2: 30–4.
- Smith, M.O. and R.G. Teeter, 1987. Efficacy of Narasin, Roxarsone and Bacitracin Combinations in the diet of broiler chickens. *Anim. Sci. Res. Report. Oklahoma Agricultural Experimental Station No. MP–119 Oklahoma State Univ. Stilwater, OK 74078, USA*, pp: 184–7.
- Sreenivasaiiah, P.V., K.S.P. Kumar and B.S. Ramappa, 1986. Effect of incorporation of Zinc Bacitracin in broiler rations. *Indian J. Anim Sci.*, 56: 449–52.
- Steel, R.G.D. and Torrie, 1980. Principles and Procedures of Statistics. McGraw Hill, Koga Kusha Ltd., Tokyo, Japan.
- Waldroup, P.W., A.L. Izat, R.A. Primo, P.F. Twining, J.A. Herbert, J.H. Tranimell, R.V. Fell and J. S Crawford, 1990. The effect of Zinc Bacitracin and Roxarsone on the performance of broiler chicken when fed in combination with Narasine. *Poul. Sci.*, 69: 898–901.

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