Effects of Different Levels of Full Fat Safflower Seed on Performance of 21-42 Days Old Broiler Chickens

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Abstract

This study was conducted to evaluate the effects of different dietary levels of full fat safflower seed (0, 5, 10, 15 and 20% of diet) on performance, carcass characteristics and selected blood metabolites of broiler chickens from Arbor Acres Plus strain. The experiment was designed with 350 commercial one-day-old male broiler chickens using completely randomized design with 5 dietary treatments and 5 replications. Prior to the study, a commercial starter diet was fed to broiler chickens for 3 weeks. On day 21 of age 14 birds were allocated to each experimental unit (1.5×1.5 m floor pen). Experimental diets for the five treatments were prepared to be iso-caloric and iso-nitrogenous. Broiler chickens were provided with feed and water *ad libitum*. Data on weight gain, feed consumption and feed efficiency were recorded weekly basis. At the end of the experiment (42 days of age) one bird from each replication was selected randomly, blood sample was collected and the birds were slaughtered to determine carcass parameters. Inclusion of full fat safflower seed in experimental diets, did not significantly affect weight gain, feed consumption and feed efficiency. Breast yield, thighs, empty gastrointestinal tract, liver, gizzard and abdominal fat pad percentages to live weight were not affected by dietary treatments. Serum triglyceride was numerically decreased as the full fat safflower seed was increased in the diets. 20% full fat safflower seed diet significantly decreased total serum cholesterol in compare to control group but other levels had no significant difference with control group. In conclusion, feeding different levels of full fat safflower seed did not show any negative effect on performance, carcass characteristics and blood metabolites of broiler chickens.

Keywords: Broiler chicken, Full fat safflower seed, Blood metabolites, Performance

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Effects of Zeolite (Clinoptelolite) on Performance Characteristics of Commercial Laying Hens

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Abstract

A 70-days experiment was conducted to investigate the effects of natural zeolite (clinoptelolite) on the performance of commercial laying hens. 288 Hy-Line W36 strain laying hens (50 weeks old) were allotted to 6 dietary treatments including basal diet as control and basal diet supplemented with 1, 2, 3, 4 and 5% zeolite that were fed *ad-libitum* throughout the experiment. Experimental diets for the 6 treatments were prepared to be iso-caloric and iso-nitrogenous. A completely randomized design with six treatments, eight replicates of six birds per replicate was used at this experiment. Daily feed intake (DFI), feed conversion ratio (FCR), egg production, egg weight, egg white quality, eggshell quality (thickness and percentage) and body weight changes were measured during the experiment. Results of this experiment showed that DFI, FCR, egg production and egg abnormality were not significantly (P>0.05) affected by zeolite supplementation. Zeolite supplementation significantly increased egg weight, eggshell thickness and live body weight gain of the hens. Dietary zeolite significantly decreased haugh unit of the eggs. In conclusion, natural zeolite significantly improved egg weight and eggshell quality, decreased haugh unit and live weight gain, and had no significant effects on other parameters.

Keywords: Zeolite, Clinoptelolite, Performance, Laying hen

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Determination of Metabolizable Eenergy, Protein Quality and Chemical Composition of Blood Meal for Broiler Chickens and Adult Leghorn Rosters

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Abstract

Three experiments were conducted to study metabolizable energy, protein quality and chemical composition of four blood meal (BM) samples from local animal rendering plant during 20 days sampling. All experiments were designed in a completely randomized design. The result of first experiment showed that chemical composition averages of BM samples were: DM, 88.43; CP, 77.03; EE, 1.12; Ash, 5.01; Ca, 0.46; P, 0.37 percent. CP and DM percentage of BM samples were significantly different from NRC, 1994. Mean gross energy of the samples was 4193 Kcal/kg. Protein efficiency ratio (PER) and Net protein ratio (NPR) were assessed using an experiment including 6 treatments, 4 replicates and 7 Ross male broiler chickens in each replicate. PER and NPR varied between 1.21 to 1.38, and 2.18 to 2.41 among BM samples, respectively. PER and NPR values were significantly lower than that of corresponding values in fish meal. In second experiment, the BM samples were substituted at 5 and 10 percent of corn-based diet and nitrogen corrected apparent metabolizable energy (AMEn) was evaluated in adult roosters with total excreta collection assay. AMEn values did not show significant difference among BM samples at tow substitution levels, 5 and 10 % of corn based diet. AMEn values varied from 2504 to 2573 kcal/kg. In third experiment, nitrogen corrected true metabolizable energy (TMEn) was determined by Sibbald's precision-fed assay. This experiment included 5 treatments and 6 replicates in each replicate. Means of TMEn was 2895 kcal/kg in the BM samples that there was not significant difference among BM samples.

Keywords: Blood meal, Protein quality, Metabolizable energy, Poultry

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Productive Performance of Broiler Chicks Fed Irradiated Diet

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Abstract

The aim of this study was to determine feasibility of Gamma irradiation in broiler chicks' diet and scrutiny of productive performance of broiler due to gamma irradiated diets. There were 256 broiler chicks (male and female) from Arian strain. Experiment was statistically analyzed using balanced complete randomized design with four factors (including four irradiation doses: 0, 6.7, 7.7 and 8.7 Kilogray) and four replicates in each treatment. The results showed that there were significant ($P \leq 0.05$) difference in body weight gain and feed intake between control and irradiated groups. There was no significant ($P > 0.05$) difference in feed conversion ratio (FCR) between irradiated and control groups. Statistical comparison for mortality rate indicated that there was no significant ($P > 0.05$) difference between irradiated and control groups.

Keywords: Broiler chicks, Gamma irradiation, Performance, Feed intake, Body weight gain, Feed conversion ratio, Durability

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Effect of Different Levels of Surplus Date on Performance, Egg Quality and Blood Parameters in Laying Hens

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Abstract

One hundred forty-four 26-wk-old white Hy-Line layers (W-36) were fed commercial diets containing 0, 1.5, 3 and 5% surplus date for three period of 28 days each to study the effects of dietary surplus date on hen performance (egg production, egg weight, egg mass, feed intake, feed conversion ratio 'FCR' and body weight gain) and egg quality parameters (Haugh unit score, yolk colour index, yolk index, egg shape, shell weight, shell thickness and density). The yolk of eggs extracted and cholesterol content were determined on one egg of each replicate hens in each period. Blood samples were collected in non-heparin zed tubes from six hens in each treatment through brachial vein at the end of experiment. Serum was separated after 8-10 hrs and was stored at –20 ^{o}C for subsequent analysis.

Hen performance (egg production, egg mass, feed intake, FCR and weight gain) and egg quality parameters (Haugh unit score, yolk colour index, yolk index, egg shape, shell weight, shell thickness and density) were not significantly different among treatments (P>0.05); However in all traits, the control group had numerically lower value, except egg weight that was significantly increased with supplementation of surplus date in diet. The dietary surplus date did not significantly affect egg cholesterol, ND and IBD titre, but the serum cholesterol was significantly reduced in hens fed diets contained 5% surplus date. This study suggested that the surplus date may be used up to 5% in the diet of laying hens to reduce blood cholesterol without any significant adverse effect on performance.

Keywords: Surplus date, Hen, Cholesterol, Egg quality, Performance

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The Effect of Divergent Selection on 4-wk BW on the Shape of Growth Curve in Japanese Quail

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Abstract

The current study was conducted to investigate the effect of short-term divergent selection on the shape growth curve in different lines of Japanese quail. The Quail lines utilized in this study were two divergently selected for high (HW) and low (LW) 4-wk body weight during 7 generation and also a control line (C). The Richard function parameters were used to describe growth curves of different lines. The weight at hatch was approximately similar among lines (8.08 g, 7.55 g and 8.76 g for HW, LW and C line respectively). The results of current study indicated that the selected lines (HW & LW) were immediately diverged from the C line after hatch. Sexes within each line had no difference in average growth rate, age and body weight at inflection point and adult body weight. However significant differences were found in the growth curve parameters among lines. The results of current study indicated that short term divergent selection for 4-wk BW in Japanese quail can change the growth pattern and the carcass compartments of the selected birds. Therefore to avoid undesirable side effects due to selection in Japanese quails it is recommended to consider the growth pattern changes of the selected birds in the breeding programs.

Keywords: Divergent selection, Japanese quail, Body weight, Growth curve, Richards function

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Effects of Increasing Prepartum Dietary Protein Level Using Poultry by-Product Meal on Productive Performance and Health of Multiparous Holstein Dairy Cows

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Abstract

The aim of this study was to compare the effects of two levels of crude protein using poultry by-product meals (PBPM) fed during late gestation on the performance, blood metabolites, and colostrum composition of Holstein dairy cows. Sixteen multiparous cows 26±6 d before expected calving were assigned randomly to two treatments containing 1) 14% and 2) 16% crude protein. The cow's BCS was 3.56 ± 0.5 on average, at the beginning of the trial. Yields of milk, protein, lactose, fat, and SNF were not affected by prepartum dietary CP level. Colostrum composition (fat, CP and Total solids), blood metabolites (Ca, Glucose, Total protein, Albumin, Globulin and Urea N), and metabolic diseases incidence were not influenced by prepartum dietary CP level. There was no significant difference between treatments in body weight and BCS changes. As expected, blood urea N before calving was higher in the cows fed 16% CP diets. Serum cholesterol during prepartum and postpartum periods was significantly decreased as the CP increased in the diet. In general, although postpartum glucose level increased in cows which received 16% CP in the diet, it seems that no other obvious advantages over feeding the 14% CP diet are apparent. So feeding this last diet is recommended to close up cows.

Keywords: Crude protein, Close up, Multiparous, Poultry by-product meal

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The Effect of Whole Cottonseed on Performance, Carcass Efficiency and Intestinal Morphology of Fattening Arabi Male Lambs

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Abstract

This study was conducted to determine the effects of feeding different levels of whole cottonseed (0, 5, 10 and 15 % WSC) on dry matter intake (DMI), live weight gain and feed conversion ratio (FCR), carcass Efficiency and small intestinal morphology of Arabi finishing lambs. Thirty-six Arabi male lambs (29.8 ± 1.6 kg) were allocated to 4 groups according to a completely randomized design. The diets were fed ad-libitum in form of total mixed ration (TMR) for 70 days. At days of 70 all lambs were slaughtered. After that carcass data were collected. FCR significantly reduced in 5, 10 and 15 % WSC feeding in comparison to 0 % (6.06, 5.28, 5.39 Vs. 6.39, respectively). Furthermore average daily gain was increased significantly by WSC supplementation ($p<0.05$). The best results for carcass weight and dressing percentage variables was obtained for using in 10% WSC. Villous morphology was affected positively by diets and place of sampling in small intestine. In sum up WSC was consumed well by fattening Arabi lambs and best result was resulted from 10 % WSC.

Keywords*: Whole cottonseed, Performance, Carcass efficiency, Small intestine morphology, Arabi lambs

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Genetic Characterization of Two Iranian Turkoman Horse Populations from Turkoman Sahra and Turkoman Jergelan Regions Using Microsatellite Markers

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Abstract

This study compares diversity patterns of five microsatellite (SSR) markers in two Iranian native horse populations (Turkoman sahra and Turkoman Jergelan) to infer relationships between them and to compare levels of their polymorphism for use in conservation efforts. Two populations across microsatellite loci had significant deviations from Hardy-Weinberg equilibrium. Average number of alleles were 3.6 and 4 in Turkoman Jergelan and Turkoman sahra, respectively, varying from 3 (HMS1) in Turkoman Jergelan to 6 (ASB2) in Turkoman sahra. AHT4 locus was monomorph in two populations. Average observed and expected heterozygosity was 0.366 and 0.668 for Turkoman Jergelan and 0.316 and 0.685 for Turkoman sahra, respectively. The lower observed rather than expected heterozygosity confirms high inbreeding level in two populations. Estimates of Nei's Genetic distance showed a low distance (0.0647) between two populations which may be caused by their common ancestor, genetic substructures and gene flow occurrence in Raz and Turkeman sahra regions.

Keywords: Genetic Diversity, Microsatellite markers, Polymorphism, Iranian horse

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Comparison of Fixed Regression and Random Regression Test-Day Models for genetic evaluation of milk yield trait in Holstein cows Razavi Khorasan province

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Abstract

The Fixed Regression Test-Day Model (FRM) and Random Regression Test-Day Model (RRM) for genetic evaluation of milk yield trait of dairy cattle in Khorasan Razavi province were studied. Breeding values and genetic parameters of milk yield trait from two models were compared. A total of 164391 monthly test day milk records (three times milking per day) obtained from 19217 Holstein cows distributed in 172 herds and calved from 1991 to 2008, were used to estimate genetic parameters and to predict breeding values. The contemporary group of herd- year- month of production was fitted as fixed effects in the models. Also linear and quadratic forms of age at calving and Holstein gene percentage were fitted as covariate. The random factors of the models were additive genetic and permanent environmental effects. In the random regression model, orthogonal legendre polynomial up to order 4(cubic) was implemented to take account of genetic and environmental aspects of milk production over the course of lactation. Heritability estimates resulted from the FRM was 0.15. The average heritability estimates resulted from the RRM of monthly test day milk production for the second half of the lactation was higher than that of the first half of lactation period. The highest and lowest heritability values were found for the first (0.102) and sixth (0.235) month of lactation. Breeding value of animals predicted from FRM and RRM were also compared. The results showed similar ranking of animals based on their breeding values from both models.

Keywords: Genetic evaluation, Milk yield, Fixed regression, Random Regression, Holstein cow

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Assessment Association Between CAPN3 and ADRB3 Genes Polymorphism and Estimated Breeding Values (EBVs) of Growth Traits in Baluchi Sheep

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Abstract

The current study was designed to estimate the frequency of CAPN3 and ADRB3 genes single nucleotide polymorphisms (SNPs) and investigate if their polymorphisms have association with estimated breeding values (EBVs) of growth traits in Baluchi sheep. Phenotypic information about several sheep growth traits on 102 purebred Baluchi sheep was collected. Association effects of the variants of CAPN3 and ADRB3 genes on the growth traits were examined. Three conformational patterns were identified for CAPN3 but the ADRB3 gene was not polymorphic in our experimental population using PCR–SSCP analysis. Analysis of variance using the CAPN3 SNP as the independent variable and EBVs as dependent variable showed that the CAPN3 genotypes were associated with additive EBVs for weight at birth ($P < 0.05$) but no association of the CAPN3 genotypes with the other examined traits EBVs were found. Genotype BB had a superior birth weight when compared to those of individuals with other genotypes. Findings of this research suggest that polymorphisms in the CAPN3 gene might be one of the important genetic factors that influence growth traits and maybe explain partial source of genetic variation. The polymorphism may also be useful in marker-assisted selection for BW.

Keywords: Baluchi sheep, Breeding value, CAPN3, ADRB3, PCR-SSCP

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Sex Determination in Ostrich (*Struthio camelus*) Using PCR Technique

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Abstract

The important of ostrich breeding have been increased in the Iran as other country around the world. Lack of sexual dimorphism in many species of birds including Ostrich (*Struthio camelus*), making it difficult to differentiate between males and females, especially in young birds. This can be problematic for breeding programs. Blood samples from randomly chicks in the first days were collected and then DNA was extracted from blood. For sex typing used PCR by OSFES primer that produced a 423 fragment. Our results shown that sex determination using PCR method for chicks in the first days is useful, easy and inexpensive.

Keywords: Ostrich, Sex determination, PCR

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The effect of melatonin treatment in combination with progestagen on reproductive performance of ewes during the anestrus period

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Abstract

To evaluate effects of melatonin treatment in combination with progestagen on reproductive performance of ewes during the anestrus period, 60 ewes were used and allocated randomly in two groups during the anoestrous peiod: All ewes synchronize by CIDR and receive PMSG (600 IU) on the day of CIDRs removal. Ewes in group treatment(n=30) resived melatonin implants(18 mg) 35 days before inserting the CIDRs. The other group of ewes(n=30) served as control. Fertile rams were introduced into both groups at CIDRs removal. Induce estrus , Fertility, litter size and fecundity were calculated. data were analyzed in Chi- Square method by SAS soft were. Induce estrous during fierst cycle in group treatment and control were 95, 100 percentage, Fertility were 93.4, 40 percentage and fecundity were 0.54 and 1.6 and litter size were 1.71 and 1.4 respectively. Results shown that melatonin treatment signgficantly improved reproductive performance in the Lori ewes in out of season.

Keywords: Ewe, CIDR, Melatonin, Fecundity, Twining Rate

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The Effect of Dietary Protein Source on Plasma Lipids and Lipoproteins in Male and Female Wistar Rats

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Abstract

The purpose of this study was to investigate the effect of feeding dietary soy protein and soy protein supplemented with methionine on lipids and lipoproteins content of blood in wistar rats. Sixteen male and 16 female wistar rats with the initial live weight of 116 ± 6.3 and 115.8 ± 6.8 grams respectively, were fed by the isocaloric and isonitrogenous diets containing casein (20%), soy protein (28%), soy protein (27%) supplemented with methionine (0.3%) and soy protein (14%) plus casein (10%) for 8 weeks. Soy-methionine fed animals performed higher average live weight gain in comparison with the other groups ($p<0.05$). Female rats showed higher serum triglyceride and lower LDL- cholesterol in comparison with male rats ($p<0.05$). Casein fed rats had higher serum cholesterol concentration than soy-casein and soy-methionine groups ($p<0.05$). According to the metabolic responses of rats to experimental diets, it was concluded that soy-methionine and soy-casein diets were more effective in reducing total and LDL-cholesterol compared to casein or soy diets in male and female wistar rats.

Keywords: Casein, Cholesterol, Methionine, Soy protein, Wistar rat

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