



The Effect of Replacement Sugar Beet Pulp with Barely on Performance and Carcass Characteristics of Moghani Male Lambs

A. Abarghani^{1*} – M. Bojarpour² – J. Fayazi³

Abstract

By: A. Abarghani, M.Sc of Research Center of Agriculture and Natural Resources, Ardabil-Iran M. Bojarpour, Assistant professor, Department of Animal Science, Faculty of agriculture, Ramin University, Ahvaz- Iran J. Fayazi, Assistant professor, Department of Animal Science, Faculty of agriculture, Ramin University, Ahvaz- Iran. In order to investigate the effect of barely (Ba) replacement with sugar beet pulp (SBP) on performance and carcass characteristics of Moghani male lambs, an experiment was done with completely randomize design with 5 dietary treatment containing different levels of replacement (0, 25, 50, 75 and 100 percent), using 30 lambs with average initial weight and age of 30 ± 2 kg and 5 ± 0.12 months respectively. The duration of the experiment was 70 days. Rations were formulated according to NRC feed standards (1985). The average daily dry matter intake of rations containing 0, 25, 50, 75 and 100% sugar beet pulp (rations 1 to 5) were 1.38, 1.48, 1.27, 1.36 and 1.41 kg respectively. There were no significant differences between figures. The average daily gains for the treatments 1 to 5 were 323,308,303,313 and 301gr and feed conversion ratios were 3.85, 4.94, 4.54, 4.26 and 4.75 respectively. There were no significant differences between the data on carcass characteristics. Total carcass fat percent in treatment 100 percent sugar beet pulp was higher than 100 percent barley (control group). Generally, replacement barely with 75% beet pulp produced best performance.

Keywords: Sugar beet pulp, Barely, Performance, Carcass, Moghani male lamb

1 - MSc of Research Center of Agriculture and Natural Resources, Ardabil-Iran

(* - Corresponding author Email: akbarardabil@yahoo.com)

2,3- Assistant Professors, University of Agriculture and Natural Resources, Ramin Ahvaz



Determination of Animal Unit Weight and Daily Animal Requirement by Metabolizable Energy of Farahani Sheep Breed

H. Arzani¹ - Z. Jafarian Jelodar^{2*} - A. Nikkhah³ - H. Azanivand⁴ – M. Ghorbani⁵

Abstract

To estimate the grazing capacity in each region it is necessary to determine animal requirement based on forage quality and animal unit weight of dominant sheep breed. In present study animal unit weight of Farahani sheep breed was investigated. Two herds were selected. Thirty animals including 15 three and four years' old ewes, 5 nine months old lambs, 5 six months old lambs, 5 three and four years old rams were weighed in lowland and highland. The weight of animal unit obtained 42 kg and animal unit equivalent for rams, 9 and 6 months old lambs were estimated 1.48, 0.6, and 0.52 respectively. Two sex of animals (ewes and rams) and two herds were significantly differed in weight ($p < 0.05$). For determination of forage quality 5 sample from each species that each was made from 5 individual plants collected from each species. Crude protein, acid detergent fiber, dry matter digestibility and metabolisable energy were estimated for 7 species from highland and 10 species from lowlands. According to Tukey test, forage quality significantly differed between species ($p < 0.05$). This shows that animal requirement should be determined based on forage quality of available forage to animals. Requirement of animal grazing on rangeland is more than house keeping animals. So in this research considering environmental conditions and distances that animal had to walk every day %25 was added to animal requirement calculated using either NRC tables or MAFF equation. The result showed that animal requirement calculated using either NRC tables or MAFF equation were 9.6 and 7.5 MJ metabolisable energy respectively and based on forage quality according to NRC tables and MAFF equation were 1.94 and 1.52 Kg dry matter respectively.

Keywords: Metabolisable energy, Animal Unit, Animal Unit Requirement, Forage Quality

1,4 – Professor and Assistant Prof., College of Natural Resources, University of Tehran, Karaj-Iran, Respectively

2 - Assistant professor, College of Natural Resources, Agricultural Sciences and Natural Resources University, Sari-Iran

(* - Corresponding author Email: z.jafarian@sanru.ac.ir)

3 - Professor, College of Agriculture, University of Tehran, Karaj-Iran



Effects of Different Ideal Amino Acid Ratios on Male and Female Broiler Chicks During 21 to 42 d of Age

R. Taherkhani^{1*} - M. Shivazad² - M. Zaghari³ - A. Zare Shahneh⁴

Abstract

A chick bioassay with chemically defined amino acid (AA) diets was conducted to compare four different AA profiles: the NRC (1994), Feed stuff, Rhone Poulenc Animal Nutrition (RPAN) and Illinois Ideal Chick Protein (IICP) AA profiles. This battery study involved male and female chicks during grower (21 to 42 days of age) period. Indispensable AAs were rationed to lysine according to requirement ratios presented in the four AA profiles. Digestible lysine set 0.85 and 0.78 % of diet for male and female, respectively. All diets were kept isonitrogenous (2.28 % N) by varying levels of L-glutamic acid. All diets were checked to have at least 0.3 % of proline and 0.6 % of glycine. All Diets contained 3200 kcal ME/kg and a positive control diet were used according to NRC (1994) recommendation. Four battery pens of five chicks were fed one of four different profiles or positive control diet in both sexes. Weight gain, feed intake, feed conversion ratio (FCR), breast meat, abdominal fat and liver weight measured at day 42 posthatch. Results indicate that in male chicks, weight gain and FCR with IICP profile were significantly better than all other profiles. In female chicks weight gain and FCR with IICP profile were significantly better than RPAN and NRC (1994) profile, but not from Feedstuff profile. Results of this experiment suggest that ideal ratio of sulfur AA in NRC (1994) profile is probably insufficient for supporting maximum performance.

Keywords: Ideal amino acid ratio, Male, Female, Broiler, Grower, Performance

1- Assistant professor, Payame Noor University – Ghazvin

2,3,4- Professor, Associate professor and Professor, Respectively, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran

(* - Corresponding author Email: rezataherkhani@yahoo.com)



Effect of Substitution Barley Grain with Dried Citrus Pulp on Performance of Holstein Dairy Cow

J. Bayat Koohsar^{1*} - R. Valizadeh² - A. A. Nasserian³ - M. Tahmasbi⁴ - R. Safari⁵

Abstract

In order to determine the effects of substitution of barley grain with dried citrus pulp (DCP) on eight lactating Holstein cows with average body weight of 550 ± 50 kg and 75 ± 15 days in milk were allocated to 4 dietary treatments, which were diet; the control with 0% dried citrus pulp (DCP) and 15% barley grain, diet 2, 3 and 4 containing 5, 10 and 15% DCP and 10, 5 and 0% barley grain respectively. Each period lasted for 21 days including 14 days adaptation and 7 days sample collection. Dry matter intake (DMI) body was not affected by DCP substitution, although, the DMI tended to decrease with increasing level of DCP. Results showed that increasing levels of DCP in diets had no significant effect on apparent digestibility, blood urea N and glucose, milk yield and composition and ruminal N-NH₃, but ruminal pH was significantly lower for cows fed T₁ and T₂ compare to T₃ and T₄. The ruminal N-NH₃ of diets 1, 2, 3 and 4 were 20.08, 19.96, 19.53 and 19.01 mg/dl and the ruminal pH 6.45, 6.52, 6.69 and 6.71 respectively. The time spent eating; ruminating and total chewing activities were not influenced different treatments. It was concluded that DCP can be substituted by barley grain up to 15% without any alters affects on dairy cow production performances.

Keywords: Dried citrus pulp, Dairy cattle, Milk production, Blood metabolites

1,5- PhD. Student, College of Agriculture, Ferdowsi University of Mashhad

(*- Corresponding author Email: javad_bayat@yahoo.com)

2,3,4- Professor, Assistant prof. and Assistant prof., College of Agriculture, Ferdowsi University of Mashhad, Respectively



The Available Energy Values of Fats for Broiler Chickens at 42 Days of Age

M. Salarmoini^{1*}- A. Golian²- H. Kermanshahi³

Abstract

An experiment was conducted to determine the effect of different inclusion rates and degree of saturation of fat sources on true metabolizable energy corrected to zero nitrogen retention (TME_n) values in broiler chickens at 42 days of age. Animal fat and cotton seed oil were blended in the proportions of: 0.25:0.75, 0.50:0.50, 0.75:0.25. The three blends together with the animal fat and cotton seed oil were each added at 0, 3, 6 and 9 percent to a basal diet. Fats were analyzed for most chemical parameters (fatty acid profile, gross energy, dry matter, peroxid value, acid value, saponification index, iodine index, unsaponification index). The experimental diets were evaluated for TME_n according to Sibbald method. 136 male broiler chicks were selected at 42 days of age and randomly distributed in 68 cages. Each treatment had 4 replicates of 2 birds each. There wasn't any significant deviation from linearity in the response of dietary TME_n to added fat. Synergism, as demonstrated by a higher determined than calculated TME_n values, was detected with fat blends. For all fats, the best regression equation can be achieved from the 3 following parameters: true dry matter digestibility, oleic acid level and gross energy.

Keywords: True metabolizable energy, Animal fat, Cotton seed oil, Fat blends, Broiler chicken

1 - Animal Nutrition Research Center, College of Agriculture, Shahaid Bahonar University of Kerman
(* - Corresponding author Email: Salarmoini@mail.uk.ac.ir)

2,3- Professors, Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad



Molecular Study of Calpastatin, Calpain and Beta-Lactoglobulin Loci in Kordi Sheep

M.R. Nassiry^{1*} - R. Valizadeh² - M. Tahmoorespur³ - A. Javadmanesh⁴ - S. Foroutani⁵

Abstract

The genotypes for beta-lactoglobulin (Blg) and calpastatin (Cast) were determined by polymerase chain reaction (PCR) and restriction enzyme digestion and genotyped for calpain (Capn) by PCR-SSCP method in a native Iranian breed sheep, Kordi. Blood samples were collected from 100 pure bred Kordi sheep from Kordi breeding station located in Shirvan, Mashhad. The extraction of genomic DNA was based on Guanidin Thiocyanate-Silica gel method. After PCR reaction, amplicons were digested with restriction enzymes *MspI* and *RsaI* for beta-lactoglobulin and calpastatin genes, respectively. The beta-lactoglobulin locus had 3 genotypes with frequencies of 0.24, 0.54 and 0.22 for AA, AB and BB, respectively; calpastatin genotypes had 2 genotypes with frequencies of 0.76 and 0.24 for MM and MN genotypes, respectively. Calpain genotypes were analyzed with SSCP method, which was 2 genotypes with frequencies of 0.92 and 0.08 for AA and AB, respectively. Heterozygosity value for beta-lactoglobulin locus was 50% and for calpastatin and calpain loci was very low (21% and 8% respectively). χ^2 test confirmed the Hardy-Weinberg equilibrium for three loci in this population. These data provide evidence that Iranian's Kordi sheep breed have a variability, which opens interesting prospects for future selection programs, especially marker-assistant selection between different genotypes of different locus and milk and chess characteristics, gain and meat traits and also for preservation strategies.

Keywords: Beta-lactoglobulin, Calpastatin, Calpain, Polymorphism, Kordi Sheep

1,2,3,4,5- Associate Prof., Professor, Associate Prof., Lecturer, and MSc Graduated Student Respectively, Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad

(* - Corresponding author Email: nassiry@gmail.com)



Assessing Genetic Diversity in Eight Indigenous Iranian Sheep Breeds (*Ovis aries*) Using AFLP Markers

A. Khaleghzadegan^{1*} - S. Z. Mirhoseini² - S. M. F. Vahidi³ - S. B. Dalirsefat⁴ - H. Zare⁵

Abstract

In this study genetic diversity of eight Iranian sheep breeds including; Lori Bakhtiari, Makuei, Moghani, Taleshi, Shal, Zandi, Naeini and Kalakui was studied by using AFLP method. A total of 309 individuals were analysed that produced 121 clear polymorphic bands. The average of heterozygosity within breed (HS) was high and equal to 0.2795 ± 0.0255 . Also, the average heterozygosity between breeds (Dst) was very low and equal to 0.0184. The maximum and minimum genetic distance was obtained between Lori Bakhtiari and Makuei (0.0151) and between Lori Bakhtiari and Taleshi (0.0486) respectively. Gene flow value (Nm) was very high and estimated to 7.5685. The UPGMA tree based on Jacard genetic cluster similarity index revealed association among sheep breeds. Principal Component Analysis (PCA) demonstrated that different sheep breeds tend to group together. The phylogenetic tree based on Nei's Unbiased Measures of Genetic Identity and Genetic distance (1978) and UPGMA algorithm indicated a relatively agreement with biogeographical distance and phenotypic characteristics of breeds and may reflect undocumented migrations, gen flows and identify an original genetic resource. In this study no breed specific markers identified.

Keywords: Iranian sheep, AFLP markers, Genetic diversity

1,2,5- Msc Graduated Student, Associate Prof. and Msc Graduated Student, Respectively, Department of Animal Sciences, College of Agriculture, University of Guilan

(*- Corresponding author Email: khaleghzadegan@arianquail.com)

3- Member of Academic, Department of Genomics, Agricultural Biotechnology Research Institute of Iran (Rasht)

4- Member of Academic, Department of Animal Sciences and Sericulture, Faculty of Agricultural Sciences, University of Guilan



Study of Genetic Variation in Six Iranian Sheep Breeds Using Microsatellite Markers

V. Molaee^{1*} - R. Osfoori² - M. Eskandari nasab³ - S. Ghanbari⁴ - M. Nikmard⁵

Abstract

In this study a set of 10 polymorphic microsatellites (MAF33, OarCP34, BM8125, MAF214, MAF70, DYMS1, MCM527, OarJMP29, OarJMP58, BM1824) has been used to assess the distribution of genetic variation in six Iranian sheep breeds (Sanjabi, Kabude Shiraz, Turki Ghashghaii, Lori, Bakhtiyari and Arabi). From each breed 45 sheep randomly were selected and their blood samples were collected individually. The DNA of samples were extracted by modified salting-out method. The genomic DNA amplified through polymerase chain reaction (PCR). All locus per population combinations were at Hardy-Weinberg equilibrium except MAF214 for Kabude Shiraz and BM1824, MAF214 and MCM527 for Sanjabi. All loci were found to be polymorphic in the six sheep breeds, and generated a total of 73 loci across the 10 locus from the 270 individuals analyzed. There was substantial genetic variation within sheep breeds, with average heterozygosity range of 0.747 to 0.792 based on expected heterozygosity. The confidence intervals for the gene diversity at each location indicate that no significant difference between breeds heterozygosity. The results indicated that genetic differences between the breeds explained 8% of the total genetic variation and the remaining 92% was due to differences among individuals within the breeds.

Keywords: Microsatellites, Sheep, Genetic Variation, Heterozygosity, Polymorphic

1,4,5- Msc Degree, College of Agriculture, University of Zanjan

2- Assistant Prof. of Agriculture Biotechnology Research Institute of Iran

(*- Corresponding author Email: osfoori@yahoo.com)

3- Associate Prof., Dept of Animal science, College of Agriculture, University of Zanjan



Application of Triplex PCR Technique in Identification of *Clostridium perfringens* B, C and D Types

M.R Ahsani^{1*} - M.R. Mohammad Abadi² – M. Shamsodini bafti³ – M. Ezatkah⁴ – M. Hasani Derakhshan⁵ – A. Esmailzadeh koshkooeh⁶

Abstract

In this research 130 sheep-dung samples were collected from Kermani breed in area of Kerman randomly. After processing and culture of samples, the produced colonies were studied morphologically and gram stain test and the genus of these bacteria were identified using biochemical tests. The Clostridia strains isolates were included 30 percent of total samples *i.e.* *clostridium perfringense*, *baratii*, *absonum*, *bifermentans*, *sporogenes*, *leptum*, *aurantibutyricum*, *sporosphaeroides*, *symbiosum*, *scatologenes*, *ramosum* and *sordellii*. DNA extracted from the isolated bacteria. For genotyping of 39 bacteria, the extracted DNA was tested by triplex PCR. Based on length of synthesised fragment in PCR, different types of toxin and strains of this bacterium were detected that from 23 samples of *clostridium perfringense* isolated using biochemical tests, all samples shown 324 bp fragment. From these 5 samples were detected as B type, 8 samples as C type and 6 samples as D type.

Keywords: *Clostridium perfringens*, Biochemical testes, DNA, Triplex PCR

1,6- Msc Student and Assistant Prof., Dept. of Animal Science, Shahid Bahonar University of Kerman, Respectively
(*- Corresponding author Email: mmohammadabadi@yahoo.com)
2- Associated Professor, Genetics and Transgenic Animals Centre, Shahid Bahonar University of Kerman
3,4,5- Assistant Professors, Razi Vaccine and Serum Research Institute, Kerman



Unopened Whole Straw Bale Processing with Urea is Better than Opened Straw Bale Processing in Feedlot Systems

T. Tanha¹ – M. Zahedifar² – E. Mahjoubi^{3*} – M. Shokat Fadaii⁴

Abstract

In order to investigate the effect of processing type (whole straw bale processing or opened straw bale processing with urea) on diet digestibility, economical and productive parameters in feedlot cattle, 18 Holstein bull with average body weight 224.72 ± 20.45 kg were used in a completely randomized design with 3 treatments and 6 replicate. Treatments 1, 2 and 3 contained 40% typical straw, 40% whole straw bale processed with 5% urea (WSBP) and 40% opened straw bale processed with 5% urea (OSBP), respectively. The average *in vitro* digestibility of DM (32.7, 46.9 and 46.5%, respectively for treatments 1 to 3) and OM (30.5, 47.0 and 45.8%, respectively for treatments 1 to 3) was not significant between WSBP and OSBP, but was significant between treated and typical straw. The average daily gain (698, 881 and 882 g/d, respectively for treatments 1 to 3) and daily DMI (8.8, 10.2 10.0 kg/d, respectively for treatments 1 to 3) were significantly higher for WSBP and OSBP compared to typical straw. The cost price of consumed diet for 1 kilogram weight gain was 910 Rials lower for WSBP than typical straw. Also, the time require to achieve 200 kg weight gain reduced to approximately 2 month. The results of present study showed that processing of WSB can reduce needed time and labour cost, and in comparison with typical straw time required for achieving weight gain reduced.

Keywords: Finishing, Holstein bulls, Straw

1- PhD Student of Animal Nutrition, Eslamic Azad University, Shabestar Branch and Academic stuff of Payame Noor University
2- Academic stuff of Eslamic Azad University, Karaj Branch
3- PhD Student of Animal Nutrition, University of Zanjan
(*- Corresponding author Email: E_mahjoubi133@yahoo.com)



Effects of Sodium Bicarbonate as a Top-Dress on Reducing Lameness and Improving the Performance of Holstein Feedlot Cattle

Gh. R. Noori¹ – H. Amanlou² – D. Zahmatkesh³ – E. Mahjoubi^{4*}

Abstract

In order to study of effects of sodium bicarbonate on lameness occurrence and the performance of feedlot cattle, 100 Holstein bull calves (251.75 ± 5.75) were used in a completely randomized design. Calves were group fed a similar basal diet during 42 days experimental period. Used treatments included 1) control treatment without feed additive, and 2) experimental diet that calves consumed 50 g/d sodium bicarbonate. Results showed that the effect of experimental diet on dry matter intake ($P < 0.001$), average weight gain through trial ($P < 0.03$) and feed conversion ratio ($P < 0.02$) was significant. A tendency was detected for average daily gain ($P < 0.07$). Compared with control group, occurrence of laminitis in experimental group was less (22% vs. 8%; odds ratio = 2.6). Generally, results showed that feeding of sodium bicarbonate can have an efficient role in reducing lameness occurrence and increasing profitability in feedlot farms.

Keywords: Sodium bicarbonate, Lameness, Performance and Holstein bull calves

1,2- Msc Graduated Student and Associate Prof., Dep. of Animal Science, Zanjan university, Respectively
3,4- Ph.D. student of ruminant nutrition, Dep. of Animal Science, Zanjan university, Iran
(*- Corresponding author Email: e_mahjoubi133@yahoo.com)



Effect of Gamma Irradiation on the Chemical Compounds and Microbial load of Broilers Diet

G. Akbari¹ - A. Moharami^{2*}

Abstract

The aim of this study was to determine and scrutiny about chemical compounds and microbial load changes of broiler chicks' diet due to gamma irradiation processing. There were 12 broiler chicks' diets weighting one Kg that including 4 packs from starter period, 4 packs from Grower period and 4 packs from finisher period. Feeds were irradiated in four doses including 0, 6.7, 7.7 and 8.7 Kilogray. According one-way ANOVA analysis, Data sets of proximate chemical compounds changes comprising peroxide value, ether extract and crude fiber indicates that there was significant ($05/0 \geq P$) deference between irradiated and control groups. Nonetheless, chemical changes for crude protein and ash were venial. All of the irradiated diets indicated that there were no bacterial colony on the related media.

Keywords: Broiler chicks, Gamma irradiation, Chemical changes, Microbial load, Poultry feed

1- Payame Noor University - Tehran

2- Payame Noor University - Abarkooh

(* - Corresponding author Email: moharamy_akbar@yahoo.com)