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The effect of different levels of Vitamin E in semen extender during the cooling on Caspian stallion sperm quality

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Abstract

The purpose of this study was to determine the effects of different concentrations of vitamin E (VitE) on the quality of preserved stallion semen 5 °C for a period of 48 h. Semen was collected and the most (≥90%) IT'S plasma was removed by centrifugation at 600 × g. Pooled samples were divided into four equal parts and were diluted with extenders which were supplemented with different concentrations of VitE [(0 (control, C), 5 and 10 mM)] and DMSO positive control group [as vitamin E solvent, (DC)] to reach a final concentration of 50 × 10^6 sperm/ml. Motility, viability, plasma membrane integrity, total abnormality and lipid peroxidation were determined at 0, 6, 24 and 48 h. The results showed that 5 mM vitamin E resulted in higher viability and plasma membrane integrity compared to control after 48 h of storage (P<0.05). Different concentrations of vitamin E had no significant effects on sperm motility and total abnormality compared to C and DC extender(P>0.05). Also, treatment of 5 mM vitamin E decreased lipid peroxidation compared to C and DC extenders after 48 h of storage (P<0.05). In conclusion, adding of 5 mM vitamin E to extender could improve Caspian stallion sperm quality during cooled-storage at 5 °C.

Keywords: Caspian stallion semen, cooling, lipid peroxidation, sperm quality, Vitamin E.
Determining the impact of some factors on genotype imputation error rates for genome wide association studies in dairy cattle

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Abstract

The effect of two genotype imputation strategies, relatedness between reference panel and test populations and minor allele frequency on imputation error rate were examined with using a stochastic simulated population in this research. Reference panel and test populations were composed of 1,000 and 500 individuals, respectively. Individuals in the reference panel were genotyped using a high and a medium density chips. The high density chip contained 75,000 SNPs plus QTLs, and the medium density chip contained 7,500 SNPs. Individuals in the test populations were genotyped, using a low density chip with 500 SNPs. Two strategies were applied for genotype imputation. In a 2-tiered strategy, genotypes of low density chip were directly imputed from high density chip. In 3-tiered strategy, genotypes of low density chip were imputed from high density chip with using a medium density chip. In order to impute genotypes, BEAGLE method was used. Correlation between imputation error rate and minor allele frequency showed that imputation error rate was affected by minor allele frequency in both strategies. Imputation error rates were decreased when a medium density chip was used to predict genotypes of low density chip. Closer relationship between reference panel and test populations led to a higher accuracy.

Keywords: genotype imputation, high density chip, minor allele frequency, simulation.
Comparing the nutrient values and cost-income for two method of alfalfa harvesting (hay or silage)

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Abstract

This study was conducted to evaluate the input consumption, production costs nutrient values and production performance of alfalfa hay and alfalfa silage. Data for alfalfa hay production were collected from 75 farms in Zanjan province using a face to face questionnaire in year 2012, using a systematic random sampling method. Records for silage were collected from two farms which had a silage harvesting system. The benefit-cost ratios for alfalfa hay and alfalfa silage productions were 1.20 and 1.44, respectively. Total production cost was calculated as 5874.83 and 4899.26 Rials per Kg for alfalfa hay and alfalfa silage, respectively. The crude protein yield of alfalfa hay and alfalfa silage were calculated as 955.42 and 1338.73 Kg ha⁻¹, respectively. Cost of energy types (NE L3X, NE L4X) for alfalfa hay was higher than alfalfa silage. The results of this research indicated that alfalfa silage production was more profitable than alfalfa silage.

Keywords: cost of production, forge, input consumption, nutrients.

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Estimation of genetic parameters of milk yield and open days traits of Holstein dairy cattle in Iran

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Abstract
A data file containing 607662 (317608) milk (open days) records belonging to 294417 (177838) Holstein calved from 1983 to 2008 was used in the current research. The bivariate repeatability model with herd, calving year, calving month, days in milk (only for milk trait) and calving age for each parity as fixed effects and additive genetics and permanent environmental effects as random effects was used to analyze data. Phenotypic (genotypic) trends were estimated by regressing mean of phenotypic values (breeding values) on birth year by simple (segmented) regression. Heritability and repeatability for milk yield (open days) were estimated 0.20 (0.054) and 0.42 (0.120), respectively. Phenotypic trend of milk yield was 116.65 Kg per year (p<0.05) but that of open days did not follow any trend (p>0.05). Genetic trend of milk yield before 1996 was estimated -4.15 kg per year (p>0.05), but after 1996 had increased and was estimated as 43.74 Kg per year (p<0.05). Genetic trend of open days before 1996 was not significant, but after 1996 it's was estimated as 0.36 day per year (p<0.05). Phenotypic correlation between these two traits was low but positive (0.041) and genetic correlation was estimated as 0.46 that shows higher open days for high productive cows. Genetic correlation compared to the phenotypic correlation explains that the strong relationship between these traits was covered by environmental effects. According to the results of this study, it is suggested that both reproductive and productive traits should be included in breeding programs.

Keywords: milk yield, open days, genetic correlation, Holstein cows, Genetic trend.
Effect of different concentration of vitamin C on queen laying rate and body protein percentage of worker in honey bee colonies (*Apis mellifera* L.)

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Abstract

Role of vitamins in bee nutrition is very important especially in the case of supplemental feeding with sugar and pollen substitutes. In this experiment effects of different levels of vitamin C on the rate of queen laying and workers body protein were studied. Experimental colonies had the same age queens and the same population (5 frames). This study was done in April and July 2011 using three levels of vitamin C (2000, 4000 and 6000 ppm) with sugar syrup (50%), with a control group which fed syrup without vitamin C for 45 days. Results showed a significant difference between treatments in terms of queen laying (p<0.05). The highest laying rate observed in treatment with 2000 ppm vitamin C and the lowest one belong to control group with 9049, 4848 cm², respectively. Treatments have significantly affected the worker body protein percent average (p<0.05). The highest percent of protein was in treatment with 2000 ppm (57.45 percent) while the lowest one was in treatment of 4000 ppm (47.50 percent). According to results of this experiment adding of vitamin C (2000 ppm) to syrup, could increase rate of queen laying and the workers body protein percentage.

Keywords: body protein, honeybee, queen lying, Vitamin C.
The effects of adding of propolis and monensin in milk on performance, feed intake and digestibility in Holstein suckling calves

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Abstract

The effect of feeding propolis on performance, feed intake and digestibility of Holstein suckling calves, was considered in using a completely randomized design with 4 treatments (diet) and 10 replicates (cattle) per treatment during 52 days. Treatments were: 1) Control (without monensin in starter and without propolis in milk); 2) Starter without monensin but 500 ppm soluble propolis powder in milk; 3) Starter without monensin but 1000 ppm soluble propolis powder in milk and 4) Monensin in starter and without propolis in milk. SAS software and PROC MIXED and GLM were used to analyze data. There was significant difference between treatments for body weight means during suckling (p<0.05) and whole period (suckling and after suckling) (p<0.01). Treatment 3 had the highest and treatment 2 had the lowest body weight. The wither height in treatment 3 showed significant difference compared to the other groups (p<0.01). Both treatment 3 and 2 had the highest wither height in order. There was significant difference between treatments for dry matter intake both in whole period and after suckling (p<0.05). In whole period treatment 1 had the highest and treatment 4 had the lowest dry matter intake. There was no significant discrepancy in terms of feed efficiency and digestibility of dry matter, organic matter and neutral detergent fiber between treatments. According to positive effect of propolis (biological antibiotic) on the performance of calves in comparison to monensin (synthetic antibiotic), use of 1000 ppm propolis per kg milk in suckling calves is recommended.

Keywords: monensin, performance, propolis powder, suckling calves.

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Factors associated with mortality from birth to yearling age in Moghani lambs

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Abstract

The data used in this research were according to survival rate records of 9700 lambs from 735 rams and 8082 ewes, which collected from Moghani Flock Breeding Research Station during the year during 1365 to 1390. The frequency distribution for causes of culling and survival distribution function of lambs to yearling age was estimated by SAS (2000). Results revealed that 49.81 percent of total lambs were culled from the flock until the first year of life because of reasons including illness, lack of breed purity, etc. The mortality rate over this period was estimated 20.81 percent which occurred 8.03, 7.5, 4.43 and 0.85 percent in first three months, second three months, third three months and fourth three months of lambs life, respectively. According to percentage of mortality rate, the accumulative survival of lambs from birth to yearling age was calculated as 79.19 percent. The regression coefficient of lambs survival from birth up to yearling age showed a monthly 1.77 percent decrease in lambs survival of this breed. The most mortality rate occurred in first, fifth, second, fourth, sixth and ninth months of lambs life, respectively. In comparison with third and fourth three months of lambs life, the fatality in first and second three months were higher because of heavy rainfall and frigid weather in winter quarters in this area.

Keywords: lambs moghani, longevity, mortality, survival.

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Modeling the lactation curve of Holstein dairy cows using the Sine function and comparing it with Dijkstra and Wood’s functions in a herd of Holstein dairy cow

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Abstract

Description of lactation curve was investigated using sine function compared with two functions (Dijkstra and Wood). The data contained 32233 dairy milk yield records from 93 first parity Iranian Holstein cows that had calving between Aug 2008 and Jul 2009. Actual milk production per day and subsequently the actual production of each animal were available in the first lactation. Lactation records of milk production per cow from 7 until the end of lactation was used for the study. The data was fitted by the Trust-Region method in MATLAB software. The models were tested for goodness of fit using sum of squares error (SSE), root mean square error (RMSE) and coefficient of determination (R-square). Also expression for the features of the lactation curve were calculated by using mathematical’s formulae. Goodness of fit and lactation features of models was subjected to analysis using the MIXED procedure of SAS (2001) that the random effect was effect of cow. The results showed that Sine function can be fitted to daily milk production records. Statistical analysis showed that significant differences exist between the goodness of models (P < 0.01) and the best fitting was related to the Sine and Wood functions. The random effect of cow was also significant (P < 0.01) that reflects the variable response of each animal to each model. Numerically, all the estimated features of the lactation curve given by the Sine function was similar to Dijkstra and Wood functions. The results showed that simple Sine function has high competence and ability to fit the daily records of milk production. Also Sine function could describe the persistency of lactation much better than the other models. Biologically, the parameters of Sin function were acceptable and showed some part of lactation curve but all three functions couldn’t fit the first 30 days of lactation in the best way.

Keyword: Holstein cows, lactation curve, Sine function, test day records.

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Effect of neutral detergent soluble carbohydrate source plus roasted canola seed on growth performance and nutrient digestibility of lambs fed high concentrate diets

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Abstract

Effect of partial replacement of barley starch with beet pulp soluble fiber with or without roasted canola seed on apparent nutrient digestibility, dry matter intake, daily weight gain, feed conversion ratio and rumenal pH were investigated using 24 Arabian male lambs for period of 84 days in a completely randomized design with a 2×2 factorial arrangement. Treatment had no significant effect on the dry matter intake(DMI), feed conversion ratio(FCR), and apparent digestibility of protein and organic matter (p>0.05). High starch diets compared to high soluble fiber diets significantly decreased the digestibility of DM, OM, ADF and NDF (p<0.01). Adding of canola seed significantly decreased digestibility of ADF and NDF (p<0.01). The interaction of carbohydrate source with canola seed was significant for daily weight gain and rumen pH (p<0.01), indicating that adding of canola seed to high starch diet would increase daily weight gain and rumen pH more dramatically in comparison with diet containing soluble fiber (p<0.01). It could be concluded that partial replacement of starch with soluble fiber with adding canola seed to these diets could have positive effects on growth performance, nutrient digestibility and rumen pH.

Keywords: fattening lamb, neutral detergent soluble carbohydrate source, performance, roasted canola seed.
Effect of ensiled urea treated apple pomace on performance and carcass characteristics of Ghezel lambs

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Abstract

The effects of different levels (0, 10, 20 and 30 percentage of dry matter) of apple pomace ensiled with urea on performance of 24 Ghezel male lambs were investigated using a completely randomized design with four treatments and six replicates. The average initial body weight and age of the lambs were 31.27 ± 7.40 kg and 187 ± 37 days, respectively. After 15 days of adaptation, the lambs were individually fed with experimental diets for 70 days. Daily feed intake was measured individually and the lambs were weighted at the beginning and the end of the experiment after an overnight feed and water withdrawal. Average daily gain and feed intake, and feed conversion ratio were calculated. At the end of the experiment, lambs were slaughtered and the warm and cold carcass and other cuts were measured. There were no significant differences among treatments in term of average daily gain, dry matter intake, feed conversion ratio and warm and cold dressing percentage. Percentage of internal organs fat was not statistically different among the treatments. The results showed that, including apple pomace ensiled with urea into the fattening diet of Ghezel male lambs is recommendable as a replacement for alfalfa hay.

Keywords: apple pomace silage, carcass characteristics, Ghezel lambs, growth performance.

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فهرست
مجله علوم دامی ایران
دوره 45، شماره 1، بهار 1393
صفحه
عنوان
تأثیرات سطوح قواعد و ویتامین E بر کیفیت اسپرم اسب‌های خزده در رقیق. ایمان یوسفیان؛ احمد زارع
شاهی؛ مهدی زندی؛ مجید حرمی‌نژاد؛ رضا نوری و مجید آنی‌آباد. 1

تعیین برخی عوامل مؤثر بر نرخ ختای ایمیته‌پیشین زنبور عسل بر زنبورهای میوه‌گرفتگی. سید مهدی اسماعیلی؛ امیر علی نیک‌نام؛ حمید خسروی و علی اکبر دامادی. 4

مقایسه مواد مغذی و هزینه در روش‌های مختلف علت بالینی و علت سیلوشده. داوود زمزمی. 8

یابی سراسری ژنومی در گاوهای قبل از تولد بر خیز در پنج دوره اول شیردهی. حسین مهربان. 9

سیب‌میوه اساسی‌فرده: محتوای نشانی و ارتباط‌های آن با نرخ خطای ایمنی‌پسیون برای استفاده در مطالعات رابطه‌ی‌های سرشاری زنومی در گاوهای هلشتاین. تاریکی مهری؛ عباس پاکدل‌نیا؛ محمد مرادی شهر بابک؛ سید محمد صاحب‌نامه. 13

عملکرد رشد، خوراک نیازدهه و قابلیت هضم مواد مغذی در گوساله‌های شیرخوار هلشتاین و مغانی سالگی در بره ومیر از تولد تا یک سالگی اثر از گروه‌های کم‌هایه و پور؛ علیرضا بیات؛ محمد دادپسند برینی‌نژاد. 15

تأثیر سطوح گوناگون ویتامین C در برخی اجزای مولکولی و پروتئین‌های زنبور عسل. سعید عباسی و ظیفی؛ مهدی یاری. 24

علو و کاهش دست‌بکاری در پنج دوره اول شیردهی. حسین مهربان. 27

یابی سراسری ژنومی در گاوهای قبل از تولد بر خیز در پنج دوره اول شیردهی. حسین مهربان. 28

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برمی‌کنندگی گاو‌های هلشتاین در ایران از این به‌ویژه تولید شیر و روزه‌ها بازمی‌گردد. این مطالعه با هدف بررسی این سوال از طریق مطالعه اثرات بر عوامل مختلف ویژه‌های سیلوشده و سیلوشده‌های سیلوشده و سیلوشده‌ها انجام شد. این مطالعه شامل دو روش برداشت علفی و سیلوشده با اندازه‌گیری مواد مغذی و هزینه داشت.