

Allelic and genotypic frequency of Calpastatin gene in Ghezel and Arkhamerino sheeps and their crossbreds

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Abstract

Calpastatin have role in regulation muscle growth and meat tenderness after slaughter that its coding gene located on ovine chromosome 5. Studies have shown that this gene is polymorphic in many breeds of sheep and is related with weight gain and carcass traits. This is the result of a single base pair substitution in the Calpastatin gene that is recognized by MspI and NcoI restriction fragment length polymorphisms (RFLP) method and can be use as genetic marker in animal breeding. The aim of this study was to analysis of genotype distribution of Calpastatin gene in sheeps by MspI/RFLP method. Blood samples were taken from 137 sheeps (65 Ghezel, 42 Arkhamerino and 30 their F1 crossbreds). Genomic DNA was extracted from 50ul blood sample. Gel monitoring and spectrophotometer methods were used to determination quality and quantity of DNA. Primers ovine Calp-R and ovine Calp-F amplified a 570 bp fragment of the ovine Calpastatin gene. MspI enzyme was used for restricting of PCR products. Digested products were separated by electrophoresis on 1.5% agarose gel and visualized after staining with ethidium bromide on UV transilmination. Data analysis was done using PopGen32 software (ver.1.32). Frequency of M-allele in Ghezel, Arkhamerino and their crossbreds were 69%, 48% and 50%, respectively. The sheep populations were in Hardy-Weinberg equilibrium and it was concluded that breeding based on selection for Calpastatin gene was not done.

Keywords: Calpastatin, Sheep, Polymorphism, Genotype, Ghezel, Arkhamerino PCR-RFLP.

Received: 04/02/2008 Accepted: 07/26/2008

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Evaluation of drought return period using standardized precipitation index (SPI) in Fars province, Iran

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Abstract

Drought is one of the natural disasters and it is very much frequent in dry and semidry areas of Iran. Lack of rainfall has different effects on underground waters, soil moisture and river currents. Examining and analyzing of drought severity duration curves and evaluation curves are essential to water resources and agricultural management planning. So, the drought indices should be used. Standardized precipitation index (SPI) is one of the most important indices that aims to assign numeric values to the most important climate factor (rainfall). It is used to determine precipitation deficit in different time scales. Time scales show the drought effects on water resource abilities. In present study, the drought severities were determined in a 30 year statistical period for 20 stations across Fars province of Iran in three 6, 12 and 24 months scales. Then based on drought severities in different months, the change process curves of SPI index were provided at different scales. Considering the short-time, mid-time and long-time scales, and the drought was examined from different view points and its severest events and their alternation periods were compared and analyzed. The results showed that Fars province has been encountered with droughts for many years and it has deteriorated in recent years. Other results showed that the short-time droughts had very much fluctuation and were much sensitive to the moisture changes. But in long-term time scale, the severe droughts had long standing and reflected the drought in better fashion. Thus, since drought severity and its frequency are all directly or indirectly time scale depended functions, they may be regarded as the initial warning for drought and help to evaluate it. Result was also revealed the changes process from low severity to high one from northwest to the southeast of the province. The alternation period of drought occurrence with a mild severity varied 3-10 years in average at the studied stations. These quantities for moderate and severe droughts were obtained 5-15 and 10-15 years, respectively.

Keywords: Drought, Standardized precipitation index (SPI), Fars province.

Received: 03/12/2008 Accepted: 09/20/2008

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Biology and life table of greenbug, *Schizaphis graminum*
Rondani (Hom., Aphididae) on broom corn,
Sorghum cernuum

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Abstract

Schizaphis graminum is one of the most important pests of broom corn in early season. Biology and life table parameters of this aphid was investigated in laboratory at $25 \pm 1^\circ\text{C}$, 50-60% relative humidity, and a photoperiod of 16:8 (L:D) hours. The experiment was carried out by rearing 50 four hour-old aphid nymphs in leaf cages and their mortality and ecdysis was recorded daily. The results indicated short development time of different nymph instars, so that they completed its development in 6.98 days. Prelarviposition period was very short and mean generation time was 7.48 days. Mean longevity of the aphid was 35.24 days. Survival curve of *S. graminum* on broom corn was determined as type I. There was not observed any mortality in nymphal development period. Mortality rate was also very low in young adult stage. Maximum death rate (0.16) occurred in 33-old age and life expectancy of the aphid was estimated 34.74 days in 1st instar nymph stage and decreased gradually in a constant rate. The results of this study revealed relatively high longevity and slow mortality trend in aphid population.

Keywords: Broom corn, *Sorghum cernuum*, Greenbug, *Schizaphis graminum*, Biology, Life table, Life expectancy.

Received: 01/14/2009 Accepted: 02/28/2009

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Evaluation of bacterial contamination and PH of raw milk in traditional dairy farms of Kashmar area in different seasons.

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Abstract

Microbial and chemical changes in milk cause its processing disorder and so, decrease shelf life of dairy products which can lead to hazardous effects on consumers and society health. In present study, 6 traditional dairy farms were selected in order to evaluation milk changes in production sites. Samples of raw milk were harvested monthly for a year, in morning milking from cow teats, milking machine, buckets in collection centers, cooling tank of collection centers and transporting tanker in factory. Samples were examined for total microbial count and PH. Geometrical means of total microbial count of raw milk in above mentioned sites were 1.6×10^5 , 8.2×10^5 , 3.2×10^6 , 9.3×10^6 and 7.2×10^6 cfu/ml. Total microbial count in milking machine, buckets and cooling tank of collection centers increased significantly in comparison to earlier sites ($p < 0.01$). Total microbial count and PH in summer were significantly higher than winter ($p < 0.05$). According to the results, more attention of milk producers to healthy principles was recommended especially in summer.

Keywords: Microbial count, PH, Row milk, Season, Kashmar.

Received: 11/27/2007 Accepted: 05/21/2008

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Study of infection rate of suburb bee hives to parasites *Nosema apis*, *Varroa* spp. and *Acarapis woodi* in Miyaneh, Iran

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Abstract

Infection rate of suburb bee hives to parasites *Nosema apis*, *Varroa* spp. and *Acarapis woodi* was evaluated in Miyaneh region, because of their importance and high distribution in Iran. For this reason, 150 hives were chosen randomly from 30 different bee farms. Selected bee hives were transferred to laboratory for light microscopic examination. From 150 studied hives, 129 hives (81%) were infected to *Nosema apis*, 7 hives (4.43%) were infected to *varroa* spp. and did not observed any infected hives to *Acarapis woodi*. According to the results, bee hives had high infection rate to *Nosema apis* and so, planning management programs for parasite control and preventing its spreading is necessary by veterinary organization.

Keywords: Parasite, *Nosema apis*, *Varroa*, *Acarapis woodi*, Honey bee, Hive, Miyaneh

Received: 05/12/2008 Accepted: 01/01/2009

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Developing an optimal solution for fruit transporting network through production, cold storage, and consumption centers in Fars province

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Abstract

Lowering transformation costs using low cost transportation plans may result in reduced final price of crops in consumption places and increased efficiency. This study was a try to develop an optimal solution for fruit transport throughout production, cold storage, and distribution points. Fruit cold storages of Fars province are located in Firouzabad, Jahrom, Sepidan, Istahban, Shiraz, and Kazeroun. Production points providing the above storages with fruits are Jahrom, Darab, Sepidan, Istahban, and Semirom (Isfahan province) districts. The dataset were gathered by completing questioner in 1385 (2006) in the above mentioned points. The cost function of the study included two parts: cost of transporting fruit between production and storage points, and the one of transporting between storages and distribution centers. In current pattern, the total cost of both transporting networks equals to 2105 million Rials, while in optimal solution it can be reduced to 1886.2 million Rials, (equal to 10.4 percent reduction). Some transporting paths including Jahrom to Kazeroun, Jahrom to Shiraz, Darab to Kazeroun, Sepidan to Firouzabad, Sepidan to Jahrom, and Semirom to Shiraz, Shiraz to Tehran, and Shiraz to Isfahan were eliminated from transportation network. In three nearly optimal solutions, from the eliminated paths, Semirom to Shiraz, and Sepidan to Jahrom ones could not be incorporated and the other ones could get a positive amount.

Keywords: Fruit, Cold storage, Transportation, Optimal solution, Fars province

Received: 10/22/2007 Accepted: 08/31/2008

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Effect of Probiotic (Protexin) on performance, blood biochemical parameters and egg quality in laying hens

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Abstract

The effect of probiotic on egg production, egg quality, yolk cholesterol, triglyceride and blood biochemical parameters of layer hens was studied. Experiment was carried out with 256 bird and each sixteen bird were considered as a replicate that were randomly allotted to basal with Probiotic supplementation at rates of 25, 50 and 75 mg/ kg diets. Treatments were arranged in a completely randomized design. The Probiotic used in the study was a commercial preparation (Protexin) with 3×10^9 spore g⁻¹ of the product. Egg production, egg weight, feed intake, feed conversion ratio and egg mass were not influenced by Probiotic, as well as Haug unit, specific gravity, egg shell weight, egg shell thickness and shell weight/ surface area. Experimental groups had not statistical differences in biochemical parameters such as albumin, total protein, phosphorus, calcium, cholesterol, triglyceride and glucose amounts. Probiotic had not also any effect on egg yolk cholesterol and triglyceride. It was concluded that dietary Probiotic supplementation up to 75 mg/kg of diet had not beneficial effects on the performance and egg quality of laying hens.

Keywords: Probiotic, Egg quality, Cholestrol, Blood, Laying hens

The effect of Pre winter nitrogen fertilizer application on yield and yield components of nine rapeseed cultivars in Miyaneh region, Iran

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Abstract

For evaluating pre winter nitrogen fertilizer (N) applying effects on yield and yield components of nine rapeseed cultivars, three N levels (0, 50, and 100 kg/ha) and 9 winter rape seed cultivars (Licord, Opera, Okapi, Modena, SLM046, Talayeh, Zarfam, Elvise and Ebonita) were arranged in a randomized complete block design based factorial in three replicates in Miyaneh region fields. Results showed that there were significant differences among cultivars in all attributes. Increasing N level did not affect seed number per pod, but increased other attributes. 50 kg N/ha significantly decreased HI and TKW in comparison to control. SLM046 and Elvise cultivars produced the highest and the least seed and oil yield, respectively. Some reasons for higher yield in SLM046 than others, were higher plant height, higher pod per plant, higher seed per pod, and higher TKW and HI. Whereas, lesser TKW and HI caused the least yield in Elvise. However, there was no significant difference between two mentioned cultivars in other attributes. In conclusion, it seemed that remobilization had important role in seed filling in SLM046 but not in Elvise.

Keywords: *Brasica napus*, yield, yield components, Harvest index, Oil.

Comparison of forecasting ability of artificial neural network with other forecasting methods: case of sugar beet price

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Abstract

The aim of this study was to forecast nominal and real price of sugar beet and to compare forecasting ability of artificial neural network method with other forecasting methods. The stationary of the series was tested and then, in order to investigate whether series are stochastic, nonparametric test of Vald-Wulfowitz and parametric test of Durbin-Watson were applied. Based on the above tests results, nominal price of sugar beet were recognized non-stochastic and predictable, while the real price series was found stochastic. The study period covers 1971-2005. The models used for forecasting were autoregressive, moving average, ARIMA, Single and Double exponential smoothing, harmonic, ARCH and artificial neural network. Based on the lowest forecasting error criterion, harmonic model forecasted nominal price of sugar beet with lowest forecasting error. The amount of nominal series forecasted by different models was at range of 344000-396000 and 398000-448504 rials per ton for 2004 and 2005, respectively. The happened values of nominal price series for 2004 and 2005 were 387200 and 447000 rials per ton, respectively.

Keywords: Forecasting, Price, Sugar beet, ARIMA, Harmonic, Exponential smoothing, ARCH, Artificial neural network.