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# Effect of different levels of butyric acid on performance and carcass characteristics of broiler chickens

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The objective of this study was to determine the effect of butyric acid on the performance and carcass composition of broiler chicken. One hundred and sixty day-old commercial Ross (308) broiler chickens were randomly distributed into four groups, with four replicates of 10 birds in each group. Control(C) birds were given a diet without butyric acid; treatment 1(T<sub>1</sub>) was fed a diet with 0.25% butyric acid in both starter (1-21d) and grower (21-42d) feed; treatment 2(T<sub>2</sub>) a diet with 0.25% butyric acid in starter and 0.1% butyric acid in grower period and treatment 3(T<sub>3</sub>) a diet with 0.25% butyric acid in starter and 0% butyric acid in grower period. There were no significant differences among treatments in body weight gain (BWG) and feed conversion ratio in either the starter (1-21d), grower/finisher (21-42d) or the whole experimental period (1-42d). However, Feed consumption was decreased ( $p < 0.05$ ) by feeding the B<sub>2</sub> and B<sub>3</sub> diets during the 6-wk period as compared to the control and B<sub>1</sub> diets. The reduction in feed intake resulted in better feed efficiency for birds fed control and B<sub>1</sub> diets, although this effect was not significant. Dressing percentage, breast meat yield and abdominal fat content was not affected by diet treatment. The results showed that the addition of 0.25% butyric acid (baby c<sub>4</sub>) in starter and then 0.1% in grower/finisher period tend to improve performance and helps to maintain carcass quality of broilers.

Key words: butyric acid, performance, carcass characteristic, broiler

# Effects of dietary garlic levels on performance and carcass yield of broiler chickens

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The aim of this study was to investigate the effect of feeding different levels of garlic powder in isoproteinous and isoenergetic diets on the growth and carcass characteristics of broiler chickens. One hundred sixty day- old Ross (308) chicks were randomly allocated to four dietary treatment groups of four replicates each, to make forty chicks per group. They were fed rations containing garlic powder at 0 (control), 2, 4 and 6% inclusion levels in a complete randomized design experiment. The chicks were maintained on a 24-h light schedule and feed and water provided ad libitum consumption throughout the 49-d experimental period. 8 birds per treatment, 2 birds per pen, were randomly selected and weighed and fasted over night and then killed for carcass analysis at 49 day age. The results showed that among experimental groups significant difference in final body weight (BW) was found between control and 6% garlic fed birds. The highest and lowest significant BW was found in control and 6% garlic powder fed birds respectively. There were no significant differences ( $p > 0.05$ ) in feed intake and feed conversion ratio among experimental treatment. But by increasing the level of garlic powder up to 4% of broiler diet dressing percentage and breast meat yield were not

significantly affected. Abdominal fat pad content (including fat surrounding gizzard, bursa fabricus and adjacent muscles) also decreased numerically by increasing garlic up to 6%. It was concluded that using garlic up to 4% of diet had no effect on performance and carcass composition.

Keywords: Garlic, Broiler, Performance

## The effect of urea-treated barley straw in ewe's diet on pre-weaning growth parameters of lambs.

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The objective of this study was to evaluate the effects of urea-treated straw in ewe's diet on pre-weaning growth parameters of her lambs. Forty Barbary ewes (3-6 years of age, average weight 41 kg) were randomly chosen from the flock of Al-Fateh university sheep experiment station. Ewes were divided into two groups, control group (C) receive untreated barley straw and treatment group (T) receive barley straw treated with 10 % urea solution applied as 40% (V/W). All barley straw sprayed by molasses when introduced to animals. Both groups receive commercial concentrate according to physiological state. Experiment started with introducing the rams in July. Fifteen lambs in each group were studied. Mean birth weight of lambs was 4.21kg and 3.733kg for T and C groups respectively, there was no significant difference between groups. Over all groups, males were heavier at birth 4.279kg than female 3.7kg ( $p < 0.05$ ). Birth weight was 4.5kg and 3.99kg in males, 3.88kg and 3.56kg in females for T and C groups respectively. Interaction between urea treatment and sex of lamb was not significant. Pre-weaning average daily gain (DG) in lambs of T group (222.19g), in C group (203.82g), but this difference was not significant. DG was 232.553g and 213.439g in males, 210.346g and 197.407g in females for T and C respectively. DG was not affected by treatment-sex interaction. Lambs of T group were heavier (27.733kg) than lambs of C group (24.30kg) at weaning (weaning age adjusted to 120 days) ( $p < 0.05$ ). Weaning weight was 31.678 kg and 29.34kg in males, 30kg and 27.037kg in females for T and C respectively. Effect of sex-treatment interaction was not significant. Cereal straws can be treated with urea and incorporated in ewe's diet without negative effects on growth parameters of her lambs.

Keywords : urea, straw, Barbary lambs

# Evaluation of some quantitative indicators of growth in population of sea shrimp (*Marsupenaeus japonicus*, Bate, 1888) cultivated in Narta husbandry

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In this paper it has been studied the biological growth features of a population of sea shrimp, *Marsupenaeus japonicus*, Bate, 1888 (Crustacea, Penaeidae), cultivated in Narta (Vlora). Analyzing the results, we concluded that the value of “b” coefficient, correlation length/weight, is allometric positive ( $b = 3,2297$ ). The value of “b” coefficient and the value intervals of the others analytic coefficients, showed that the Narta Lagoon is a good environment for the optimal cultivation of this shrimp.

The mean value of condition coefficient ( $K_f = 9,157$ ) and the relative growth rate ( $Sw = 0,3323$ ), showed that the cultivated population is in optimal conditions and all the tested individuals during this study has uniform growth rate.

Key words; Shrimp, *Marsupenaeus japonicus*, Ponds, Juveniles.

## Linseed and rapeseed supplements diversely altered trans 18:1 isomers in total lipids of *Longissimus thoracis* muscle of finishing Normand cows

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The aim of the study was to determine the impact of lipid supplements rich in unsaturated FA provided by extruded linseed (rich in 18:3n-3) alone or with rapeseed (rich in 18:1n-9cis and at a lower extent in 18:2 n-6 and 18:3n-3) on trans 18:1 isomers of *Longissimus thoracis* muscle in Normand cull cows given a concentrate/straw based diet (70/30) for a 100d finishing period. Vaccenic acid ( $\Delta 11tr$  18:1) was known to be beneficial for the human health by its protective effect against atherosclerosis whereas  $\Delta 9tr$  18:1 (elaidic acid) and  $\Delta 10tr$  18:1 would be detrimental since they were known to be pro-inflammatory and pro-atherogenic in animal models and humans. Beef trans 18:1 were purified by preparative HPLC and the relative distribution and amount of their 11 isomers (from  $\Delta 6tr$  to  $\Delta 16tr$ ) were determined by GLC-MS. In the control diet (C), trans 18:1 were dominated by the  $\Delta 10tr$  (33.7%) and  $\Delta 11tr$  (36.1%) isoforms, the  $\Delta 9tr$  representing only 8.5%. Addition of linseed (diet L) highly decreased the  $\Delta 9tr$  (-41.2%) and  $\Delta 10tr$  (-53.7%) isomers ( $P < 0.05$ ) to the benefit of only  $\Delta 12tr$  up to  $\Delta 16tr$  isomers ( $\times 2.4$ , ( $P < 0.05$ )). On the other hand, when compared to that in diet C, addition of the mixture rapeseed (2/3) and linseed (1/3) significantly decreased the  $\Delta 9tr$  (-

24.7%) and  $\Delta 11tr$  (-30.7%) isoforms to the benefit of the  $\Delta 10tr$  isoform (+22.0%) ( $P < 0.05$ ). We concluded that addition of lipids rich in unsaturated FA from linseed or rapeseed to a basal diet rich in cereals, can diversely modified the health value of beef *trans* 18:1 on the basis of its  $\Delta 9tr$ ,  $\Delta 10tr$  and  $\Delta 11tr$  18:1 contents. Linseed rich in 18:3n-3 had a positive effect on beef health value by decreasing both  $\Delta 9tr$  and  $\Delta 10tr$  18:1. Inversely, association of linseed with rapeseed rich in 18:1n-9 would alter beef health value by decreasing  $\Delta 11tr$  18:1.

## The new agrifood green power concept on a zootechny–based agriculture, in light of bioeconomics and eco-economics paradigms

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The authors decided, based on professional and moral considerations, that the presentation of the new concept of green power from organic food breeding, in light of bio-and eco-economic paradigm, is made in the traditional international symposium in ICDBNA, which very recently has been transformed by law 45/2009 on National Research and Development Institute of Biology and Nutrition Animals.

The authors present the original design on the pentagram of green power include: green economy, green energy, green business, green biotechnology, green revolution features scientific, technical, economic, legal and environmental.

It presents for the first time in scientific literature livestock paradigm main characteristics of bio-economic (launched in 1970 and developed over 35 years by Nicholas Georgescu-Roegen-who was Honorary Member of the Romanian Academy) and the paradigm of eco-economic initiated in 1975 and developed especially in the last 15 years by Lester Brown, who is awarded the academic merit of the Romanian Academy.

In this smooth special and very necessary paradigm in condition of current economic and financial crisis globalizate, authors present a comparative study of animal production of EU countries with major semnification security and food safety population. In conclusion the authors demonstrate the need for breeding Romanian agriculture (idea launched since 1930 by the Romanian scientist GK Constantinescu and developed by him as director of the Institute Zootechnical Romania until 1947), with practical demonstrations of number potential Romanian livestock to ensure food over 80 million people.



# Quantitative fertility estimation based on the first calving age in buffalo

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The present paper aimed to estimate the lost fertility of buffalo heifers due to delayed calving. The estimation is done using the data of the first calving of 130 heifers, registered within a 10 years period in a single buffalo herd. The optimal fertility, of 100% is obtained when a heifer delivers the calf at a 3 years age (1096 days). The age of heifers at the first calving and the length of the first pregnancy are discussed. The effect of the age at the first calving upon the heifer's fertility is given by the difference between the real and the desired age at the first calving. Variance quota of the year of birth and the month of birth, doesn't matter of the year, were estimated. The first calving data delayed, as a mean, with 215 days getting a 19.62 lost in heifers fertility. These lost could be avoided since the variance quota of the year of birth represents 70% and the residual variance, which includes heredity represents 16 % of the total variance.

Key words: fertility, buffalo, heifers

# Remote sensing monitoring to determine dynamics of grassland available for animal production in Eastern Turkey

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This study was aimed to show the ability of determining biomass availability and the dynamic status of grassland available for animal production using LANDSAT satellite images by integration of Remote Sensing techniques and Geographic Information Systems. For this purpose, The Landsat 5 TM satellite images taken in 2005 were used to determine the land use including grasslands within the range of red (0.45-0.52  $\mu\text{m}$ ), near infra-red (0.52-0.60  $\mu\text{m}$ ) and infra-red (0.63-0.69  $\mu\text{m}$ ) bands of images.

The results obtained in this study showed that within the visible and infrared region selecting one or two bands used to create images and processing, land use types and grassland areas can be determined. Furthermore, the models can be developed to open up new dimensions not only to predict green yield available for animals on pasture but also to predict the green yield consumption by animals; and to describe the dynamics of a grazing system.

Key words: Remote sensing, Grassland, Landsat, Animal Production

# Prediction of lean meat proportion of lamb carcasses

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The objectives of this study were to identify a reduced pertinent set of variables from an original data set of 18 carcass measurements in order to avoid redundancy and collinearity problems or to simplify data analysis and the development of the linear regression models to predict lean meat yield of lamb carcasses. Forty-six (46) male lambs, 26 of Churro Galego Bragançano Portuguese local breed and 20 of Suffolk breed were used. Lambs were slaughtered and carcasses weighed approximately 30 min after in order to obtain hot carcass weight (HCW). After cooling at 4 °C for 24-h a set of seventeen carcass and tissues measurements were recorded. The data interrelationships were analysed following the common factor analysis procedure. HCW was lowly correlated with leg length ( $r = 0.17$ ) and moderately correlated with measurements that characterize carcass lengths and perimeters ( $r = -0.39$  to  $0.56$ ). Four common factors (factor I = HCW; factor II = breast bone tissue thickness; factor III = subcutaneous fat thickness; and factor IV = carcass conformation) were retained, account for 81.9% of the variation in the eighteen original variables. This study shows that common factors analysis can be used to condense the information given by large sets of variables, by selecting a reduced number of variables, which avoids collinearity problems and simplifies the development of carcass composition estimation models.

Key words: Lambs, Carcass, Tissue, Measurements, Common Factors

## Effect of Monensin on some of the metabolic hormones and ketone bodies in transition dairy cows

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A study involving 40 Holstein cows from one dairy farms near Shiraz, Iran, was conducted to measure the effect of monensin 3 wk precalving on metabolic hormones and ketone bodies in dairy cows immediately postcalving. At 3 wk before expected calving, 20 cows each were allocated to a control (no monensin) and a treatment group 20 cows receiving 300 mg/cow per day of monensin in the a.m. concentrate feeding. Cows were blood sampled once per week postcalving, at the same time of day and the same day at 1, 2 and 3 of the week after calving. Serum was evaluated for IGF-1, Insulin,  $\beta$ -hydroxybutyrate (BHBA) and glucose. Monensin treated cows had no significantly on BHBA and significantly increased concentrations of serum IGF-1, Insulin and glucose in the week postcalving. Monensin treatment administered precalving significantly improved indicators of energy balance in both the immediate precalving and postcalving periods. The findings indicate better energy metabolism in monensin-treated cows as they approach calving. Improvement of energy balance before calving is important for the prevention of energy associated metabolic diseases, such as retained placenta, clinical ketosis, and displaced abomasum, which might occur immediately postcalving.

# Interactions among seasonality of reproduction, genotype and the ram effect

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In a flock of isolated anoestrous ewes, the introduction of rams can induce oestrous cycles. This technique known as the 'ram effect' is a cornerstone of 'clean, green and ethical' management of ovine reproduction. However the response of ewes to the 'ram effect' is highly variable among and even within breeds thus undermining its usefulness. The aim of our experiment was to determine the effectiveness of the 'ram effect' at different times of anoestrus in seasonal (Vendéen and Charollais breeds) and less seasonal (Ile-de-France and F1, Ile-de-France X Romanov) breeds of sheep. Romanov rams were introduced to anoestrous ewes at the beginning (the date when the proportion of the flock showing spontaneous ovulation fell below 50%), the middle (4-6 weeks after the start of anoestrus) or the end (the date when the proportion of the flock showing spontaneous ovulation rose above 25%) of anoestrus. We followed the ovarian responses to the 'ram effect' by measuring plasma concentration of progesterone 11 days after the introduction of rams in different breeds in different locations. In the Vendéen breed, the response to the ram effect varied from 3% to 73% with the poorest response in the middle and the best response at the end of anoestrus. Unexpectedly the response of the Charollais breed in mid-anoestrus was better than in the Vendéen breed reaching 60 to 63% in terms of fertility. In the Ile-de-France breed and the F1s, the response varied between 65 and 80% at the beginning of anoestrus and between 89 % and 100% in the Ile-de-France breed in mid-anoestrus and the end of anoestrus. The 'ram effect' appears to be more effective regardless of breed, at the end of anoestrus and can be used effectively to advance the breeding season by about a month. In less seasonal breeds, the 'ram effect' is also effective at the beginning and middle of anoestrus. But in the more seasonal breeds the response appears to be variable especially in mid-anoestrus. The response was very poor in the Vendéen breed and a little better in the Charollais breed. More studies are needed to understand these differences. Contrary to the literature, there was no evidence in this study, of a link between the proportion of ewes ovulating spontaneously and the effectiveness of the 'ram effect'.

'Ram effect', genotype, anoestrous season

# Influence of selected phytoadditives and probiotics on zootechnical performance, caecal parameters and meat quality of rabbits

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A total of 96 unsexed, weaned NZW (New Zealand White) hybrid rabbits 5 weeks old were randomly allocated to 4 similar groups, and kept in standard cages. The animals of the experimental group (EG1) got the sage (*Salvia officinalis*) plant extract (10 µl/animal/day) in drinking water for the period of 21 days and were fed with an untreated pelleted diet B, in (EG2) they were fed with an enriched diet with supplement *Eleutherococcus senticosus* (Ginseng dry extract 30g / 100 kg feed). The rabbits of the experimental group (EG3) had *ad libitum* access to the untreated diet B and the drinking water had a culture of *Enterococcus faecium* AL 41 strain 10<sup>9</sup> CFU / ml; 500 µl /animal/day) in the drinking water for the period of 21 days. The control group (CG) had *ad libitum* access to the untreated diet B and the drinking water did not contain any coccidiostatic drugs during the experiment. The experiment lasted for 42 days, until the animals attained the slaughter weight of 2.5 kg. The body weight and feed consumption were registered weekly. The samples of individual feeds and complete granulated mixture were analyzed for the content of nutrients according to STN 46 7092. The samples of MLD (*Musculus longissimus dorsi*) were homogenized and analyzed for individual nutrients.

The collected caecal samples were analyzed for pH, VFA, ammonia-N and content of lactic acid. *Eimeria sp.* oocysts were enumerated in the faeces samples microscopically and expressed as counts of oocysts per 1 g of faeces (OPG). The significant differences were evaluated by a t- test. The feeding of natural substances did not influence biochemical and zootechnical parameters, and it had no negative effect on the growth performance of rabbits. It had however a positive effect on the health status and it reduced the number of *Eimeria* oocysts in the rabbit intestinal ecosystem. Among these 3 additives, compared to each other, the highest values of phagocytic activity (PA) were determined after application of the probiotic strain *Enterococcus faecium* AL41. Phytoadditives did not influence negatively biochemical parameters in the blood, and the caecum of rabbits. They positively influenced mortality as well as they increased the body gain and the energetic value of meat.

# Effects of moderate (5%) levels of linseed in layer diets

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The study evaluated the potential of a diet formulation for layers, with a moderate level (5%) of linseeds, to produce omega 3 polyunsaturated fatty acids (alpha linolenic acid - alpha LNA and docosahexaenoic acid -DHA). The experiment was conducted on 108 Lohmann Brown layers (35-42 weeks of age) assigned to three groups. The diets for experimental groups (E1 and E2) differed from the control (C) diet by the inclusion of 5% linseed or 20.2% full fat soy. The diets for group C and E1 contained 27 ppm vitamin E, while the diet for group E2 contained 250 ppm vitamin E. Feed intake, forage quality preservation in time, egg production, egg weight and egg components weight have been monitored throughout the experiment. Eighteen eggs per group were collected randomly (weeks of age 35, 37, 39 and 42) and average samples of egg yolk were formed (3 eggs/sample). The samples were assayed for the gross chemical composition, pH (determined one week after the harvesting of eggs which were kept in a refrigerator at 4<sup>0</sup>C), fatty acids profile and vitamin E concentration. The 5% dietary linseeds treatment produced eggs enriched in alpha LNA and DHA without affecting layer performance. The determinations performed on week of age 37 show that both alpha LNA and DHA were in significantly higher concentrations ( $p \leq 0.05$ ) in the eggs from the linseed treated groups than in the eggs from group C. The 250 ppm vitamin E in the diet for group E2 preserved the quality of the feed and increased vitamin E concentration in the egg yolk. The eggs from group E2 were used in a clinical study conducted at the Parhon National Institute of Endocrinology, Bucharest. The volunteers which consumed 6 eggs per week for six weeks had significantly lower serum triglycerides levels ( $p \leq 0.002$ ) in the end of the survey than at the beginning of it.

Keywords: linseeds, eggs, alpha LNA, DHA, vitamin E

# Valuation of *Staphylococcus aureus* pathogen in the fresh milk of the Tirana (Albania)

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During 2004 we have analyzed 120 milk samples, which were taken from two different factories in Tirana. Out of these, 60 samples are un-pasteurized milk, the other 60 samples are taken from the same milk, after the process of pasteurization. These samples have been analyzed for the presence of pathogens, which can be very dangerous for the consumers health. From the isolated pathogens of three samples of milk, we identified the presence of: *Staphylococcus aureus*, which represent 5% of the samples of un-pasteurized milk or 2.5% of all the verified milk. The above results show that the un-pasteurized milk taken from these two factories is represented with the presence of *Staphylococcus aureus*, which is considered a dangerous pathogen for the consumers.

KEY WORDS: fresh milk, pathogene, *Staphylococcus aureus*

# Detection of hypoestrogenic activity in fish in Kelcyra's reservoir that causes from chlororganic through screening uterotroph test with mouse test

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This mouse (mouse test) causes from chlororganic residues in Kelcyra's reservoir of Permet's district. This reservoir has disfavor position where discharged most pesticides residues for many years that have been used to protect the plants and animal health. This residues as accumulated in the water ecosystems and as well as in fish organisms.

All chlororganic compounds causes hyperetrogenisms activity in the wild birds, animals and human with endocrine disruptions when animals article describes research study about detection hypoestrogenic activity through uterotroph test with premature female and human fed with fish or fish and wild birds products.

## The situation of aquaculture in Suşehri (Sivas - Turkey)

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This study was carried out to determine the present situation of aquaculture in the Suşehri province. Suşehri is situated in the east of Sivas about 140 km the city centre. Suşehri is in the inner parts of Black Sea Region on the northeastern part of Turkey. Suşehri whose altitude is 950 meters has settled on an area of 985 km<sup>2</sup>. In the province which has been named as Suşehri because of the bounty of water in the region. Only three aquaculture farms are present in the Suşehri province and their total production capacity is about 28 tons/years in project base. All of the aquaculture farms were small-scale and family-run establishments, having a capacity about 10 tons per year in Suşehri province. Aquaculture was determined currently very low in Suşehri province. Aquaculture is very important natural sources both strategic and vital for all world. The goal of aquaculture is grow in a manner that does not harm to aquatic ecosystems. Therefore, monitoring of environmental impacts of aquaculture is very important for aquatic ecosystems conservation in Suşehri province.

Key Words: Environment, Aquaculture, Suşehri, Sivas, Turkey.

# Hematologic response of European catfish, *Silurus glanis* reared in different density in flow-through production system

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Hematological indices are important parameters for the evaluation of fish physiological status. The aim of present study was to obtain a basic knowledge of the hematological response of European catfish maintained in different technological condition induced by stocking density. Specimens belonging to two experimental groups had individual weights of  $619.74 \pm 216.49$  g/ex. for the first experimental tank (C1), respectively  $560, 83 \pm 193.20$  g/ex. for second tank (C2). The stocking density was 88 kg/m<sup>3</sup> for C1 variant, respectively 42.86 kg/m<sup>3</sup> for C2 variant. The sampling of catfish blood from the two variants before and after the experimental trial allowed determination of hematological indices. At the fish raised in higher density (88 kg/m<sup>3</sup>) was observed an increase of RBC (+15.78%), PVC (+ 28.7%), Hb (6.41%), MCV (+11.5%) and a reared of MCH (-8.16%) and MCHC (-18.06%) while at the fish reared in lower density (42.86 kg/m<sup>3</sup>) was observed an increase in RBC (+21.21%), PVC (+ 33.18%), Hb (-2.18%), MVC (+11.00%) and a decrease of MCH (-18.59%) and MCHC (- 26.32%). Physiological stress induced by maintenance in high stoking density is reflected in the hematological indices with direct implications at the biotechnological level.

Keywords: *Silurus glanis* , different density, hematological indices

## The effects of mineral supplement use on broiler chickens bioproductive performances on organic farms

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Information concerning food supplemental with mineral traces of poultry raised in an organic environment, are from abroad, and are restricted mostly to the use of some mixt formula that include also, the mineral trace within. In these circumstances, we proposed ourselves to bring forward a design and estimate three patterns of 3% mineral mixture, so we can meet the mineral requirements in Ca, P, Na, Cl, Fe, Mn, Zn, Cu, Co, I, Se of meat chickens with a slow development, reared on organic farms. During the experiment there were used 150 meat chickens (Ross 308 hybrid), set in three groups (V1, V2, V3). On the first six weeks, chickens were fed with a mix feed of 3003 kcal ME and 19.8% CP, and on the last six weeks were fed a 2981 kcal ME and 16.03% CP, respectively. The body weight progress to chickens from experimental groups, show that chickens from group V1 registered  $3750.0 \pm 98.7$  g, the ones from V2 had  $3945.5 \pm 91.6$  g, a higher rate with 5.21% versus V1 group, and the V3 group has had  $4144.5 \pm 109.0$  g higher that V1 with 10.52%. Differences were significant ( $p < 0.05$ ) between V1 and V3. The conversion index to the chickens from experimental groups place the chickens from V1 on the first place with 2.81 kg fodder mixture/live kg, on the second place the V3 group with 2.82 kg FM/live kg and V2 group on the last place with 2.87 kg FM/live kg. The microelements intake mg/live kg, emphasize the fact that the quantity of Fe intake / live

kg was about 188.35mg for V1 group, with 15.45% higher to V2 and with 28.73% for V3. The Mn intake/live kg, was of 65.17 mg for V1 group, with 48.81% higher for V2 and with 92.59% in case of V3. the intake of Zn/live kg, was of 103.54 to the V1 group, with 22.94% higher for V2 and 40.22% for V3, respectively. Cu/live kg intake was of 26.12 mg for V1, with 11.39% higher for V2, and 32.56% for V3, respectively. The Co/live kg intake was of 0.46 mg for V1, with 151, 44% higher for V2 group, and with 144.14% for V3. The intake per live kg was of 0.38 mg to V1, by 108.6% higher in V2, and 129.39% to V3, respectively. The intake of Se/live kg was of 1.01 mg for V1, with 29.35% in case of v2, and 25.71% for V3.

Key words: mineral, broiler chickens, organic system, poultry nutrition

## A PCR-RFLP method for identifying fish species of economical importance

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The identification of different fish species by molecular methods has become necessary to avoid the commercial frauds on the fish market. The falsification of fish products derived from valuable species represents a frequent phenomenon due to the substantial profit resulting from selling less expensive products as more demanded and higher priced species foods. Different fish species of a great economical importance like sturgeons and salmonids can be identified by PCR-RFLP. This method is based on the amplification of a specific region from the mitochondrial genome, which is subsequently digested with restriction endonucleases (RE) resulting in species specific restriction patterns that allow to distinguish between the analyzed species.

Keywords: salmonids, sturgeons, mitochondrial DNA, PCR-RFLP.

## Effect of sire, age at first calving, season and year of calving and parity on reproductive performance of Friesian cows under semiarid conditions in Egypt

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The objective of this paper was to study some factors affecting reproductive performance of a locally-born Friesian herd in Egypt. Data of 2096 reproductive records representing 482 Friesian cows daughters of 38 sires raised at the Dairy Unit of Milk and Meat Project of Faculty of Agriculture, Alexandria University, Egypt (located at the northern western part of the Nile Delta) between 1985-2002 were utilized to study the effects of sire of the cow, age at first calving (AFC), season and year of calving/birth and parity on period from parturition to first service (FSP), days open (DO), calving interval (CI), number of services per conception (NSC), AFC and breeding efficiency (BE). The least squares mixed model analysis by SAS (1999) indicated that



the overall least squares means ( $\pm$  standard error) of FSP, DO, CI, NSC, AFC and BE were  $88.4 \pm 1.1$ ,  $130.7 \pm 1.9$ ,  $403.1 \pm 1.9$  days,  $2.1 \pm 0.1$  services,  $30.7 \pm 0.1$  months and  $90.1 \pm 0.6$  %, respectively. Sire had highly significant ( $P < 0.01$ ) effect on DO, CI, NSC and AFC, but had insignificant effect on FSP and BE. The influence of AFC on FSP was highly significant ( $P < 0.01$ ) and not significant on DO CI, NSC and BE. Cows had AFC more than 36 months had the longest FSP ( $92.6 \pm 4.5$ ) and cows had AFC less than 29 months of age had  $87.8 \pm 2.7$  days FSP. Season of calving had significant effect on FSP ( $P < 0.01$ ), DO and CI ( $P < 0.05$ ), but had insignificant effect on NSC. Season of birth had no significant effect on both AFC and BE. Cows calving in autumn had the shortest CI ( $394.3 \pm 4.7$  days) comparing with those calved in other seasons (ranged between  $404.8 \pm 6.5$  and  $409.4 \pm 5.2$  days). Cows calving in autumn also had the shortest DO ( $122.6 \pm 4.8$  days). Year of calving/birth had significant ( $P < 0.05$  or  $P < 0.01$ ) effect on all traits studied. A decreasing efficiency in reproductive performance of cows was observed over time. The shortest FSP and DO were in the period 1988 to 1990 ( $64.3 \pm 5.3$  and  $98.1 \pm 8.9$  days, respectively) and the longest were in the period 2000 to 2002 ( $107.5 \pm 5.2$  and  $188.1 \pm 8.8$  days, respectively). Calving interval increased from 371 days in 1988-1990 to 450 days in 2000-2002. NSC increased during 1985-1990 from 1.7 services to 2.3 during the period 1991 to 1999. Breeding efficiency deteriorated from 96.7% in 1982-1984 to 84.8% in 1994-1996 and AFC increased from 30.8 to 33.8 months during the same periods. Parity had highly significant effect ( $P < 0.01$ ) on FSP, DO and CI and had insignificant effect on NSC. Generally, FSP, DO and CI decreased with increasing parity. The results of the present study showed that sire of the cow, managerial systems and appropriate environmental conditions have significantly effects on reproductive efficiency of Friesian cows of the herd under investigation. The highly significant ( $P < 0.01$ ) effect of sire on DO, CI, NSC and AFC indicating that sire selection may be used as a useful tool for the genetic improvement of these reproductive traits.

Key words: Friesian, reproductive traits, environmental effects

## The use of polymerase chain reaction (PCR) for sex typing of ostrich (*struthio camelus*) in Iran

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Ostrich farming has been dramatically increased in the past few years in Iran. At this bird, it is very difficult to distinguish between males and females at chickens and young birds. The objective of this study was development of DNA markers that can be used for sex identification in ostrich using polymerase chain reaction (PCR) technology. Two methods used for this study were included PCR and random amplified polymorphic DNA (RAPD). DNA isolated from blood and feather of 45 birds (20 male and 25 female). We used feather because feather sampling requires less training for field workers, results in shorter handling times for the organism, generates no hazardous wastes, and requires simpler storage procedures. Polymerase chain reaction was performed with using from one pair w-linked primer. One w-linked primer was used for RAPD analysis. At results in PCR method one band approximately 650bp identified in female birds that in male birds don't observed. Also in RAPD method female birds have one additional band that in male birds don't observed. The size of this extra band approximately was 1300bp. Comparing the two methods it was found that PCR method

was better than RAPD method because the results of PCR method could be obtained faster and easier than RAPD method. Therefore PCR is a fast, accurate and inexpensive procedure for sex typing of ostriches that can use for breeding of this bird.

Keyword: ostrich, sexing, DNA marker, polymerase chain reaction

## The influence of corn extrusion in chicken diet

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Significant physico-chemical changes occur in corn grain structure, due to extrusion, thus positively contributing to its nutritive value, i.e. nutritive components became easily digested by enzymes. Also, corn extrusion is beneficial concerning hygiene and sensor characteristics (sweet taste is becoming more apparent).

The objective of this research is to point at the efficiency of feed meal extrusion in growing chicken diet. Experiment was carried on 3000 chickens, hybrid ROSS. Chickens were divided in two groups, experimental and control. Growing period was 49 days. The diet was the same for both groups of chickens, except in the experimental group corn was replaced with extruded corn.

In growing period up to 42 days, chickens fed with diet containing extruded corn grew more rapidly, had higher weight gain (1985 g), with less consumed feed (2644 g) in comparison to control group (1940 g; 2685g). Mortality also decreased (20:96).

Concerning this data, the use of extruded corn in growing chicken diet is beneficial.

Key words: chicken growing, extrusion, corn

## Effect of zinc methionine supplementation on somatic cell count in milk and mastitis in Friesian cows

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Two hundreds and forty lactating Friesian cows on the 1<sup>st</sup> to 8<sup>th</sup> of lactation and different stages of lactation were used to study some factors affecting on somatic cell count and its effects on milk yield and composition. Also, 12 normal cows, 15 subclinical and 15 clinical mastitis cows divided into three similar groups, the first group was unsupplemented, while the second and third groups were supplemented with 5 and 10 gm zinc methionine/head/day, respectively. Subclinical and clinical mastitis cows were intramammary injected by antibiotic Gentamast (Gentamicin 100 mg) till complete recovery.

The obtained results showed that winter season showed significantly ( $P < 0.05$ ) the highest somatic cell count followed by summer season, while the lowest value was in autumn season.

Somatic cell count tended to decrease with the progress of lactation up to the peak period and increased significantly ( $P < 0.05$ ) thereafter and also with the progress number of lactation. The percentages of normal, subclinical and clinical mastitis cows were 77.71, 15.82 and 6.46%, respectively. Milk yield and composition and its output decreased significantly ( $P < 0.05$ ) with increasing somatic cell count. Zinc methionine supplementation resulted in significant ( $P < 0.05$ ) decrease in somatic cell count in milk. Zinc methionine supplementation for subclinical and clinical mastitis cows led to significant decrease ( $P < 0.05$ ) on somatic cell count, electrical conductivity, recovery time and the cost of therapy compared with unsupplemented group.

*Key words: Friesian cows, zinc methionine, somatic cell count and mastitis.*

## Influence of enzymatic additives on the production of laying hens Isa Brown

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The aim of this work was to analyze the influence of enzymatic additives on the productivity of laying hens ISA BROWN. The experiment was realized together with the Central Control and Testing Institute of Agriculture. We observed the frequency of hens, their live weight, weight of eggs, non-standard eggs and egg production. The experiment was conducted 11 months, in 3 phases: from the 22nd to the 28th week, from the 29th to the 46th week and from the 47th to the 68th week of production. Two groups with 1080 (540 in each group) animals were examined (control group A, experimental group B). In the experiment we used diets based on wheat, rye, barley, soybean and standard feed additives (minerals, vitamins, etc.). In group B we administered a feed mixture with *endo-1,4- $\beta$ -xylanase* (activity 7820 TXU.g<sup>-1</sup>) and *endo-1,4- $\beta$ -glukanase* (activity 2940 TGU.g<sup>-1</sup>) fortification. After finishing of the last period (68th week of hens' age) we registered parameters in both groups of animals. The body weight at the end of the experiment was positively affected in the second group (containing enzymes: B). The average body weight of hens was significantly higher (2.307 kg). In this group we also found higher weight of eggs. For hens in the control group, the first group (without enzymes: A), we registered a typical lower average body weight of the hens (2.239 kg), a lower weight of eggs, higher percentage of non-standard eggs (7.10 %), 4.0 % were cracked, 0.52 % were broken.

After the administration of the enzymes in the feed mixture fortification we determined a positive effect on laying hens' productivity. The application of enzymes positively affected the average body weight of hens and also positively affected egg production. We also found a positive effect on the health status of hens.

**Keywords:** nutrition, poultry, feed mixture, enzymes, productivity, eggs

# Effects of colostrum supplementation on health and growing performance in Holstein calves

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The objective of this study were to determine the colostrum production, to use of surplus high Ig concentration colostrum for feeding dairy calves and its effect on health and growing performance in Holstein calves. From December 2008 to march 2009 first 4 postpartum milkings of colostrums were recorded from 72 Holstein dairy cows. Colostrum with high immunoglobulin (> 50 g Ig/L) content was stored in 2 L plastic bottles at freezer. The Ig content in colostrum was determined by specific gravity (SG). Colostrum collected in 2 L plastic bottle was thawed pooled, reanalyzed and refrezer for later use. 18 healty Holstein female calves were assigned randomly at birth to one of two groups: group 1 (n = 9) received 4 L only frash dam colostrum in three feedings at 1h, 6 h, 12 h after birth and group 2 (n = 9) received 4 L of some fresh dam colostrum plus pooled colostrum (PC) within 1 h, 6 h and 12 h from birth. Average colostrum yield was 23,09 kg. 16% of the cows produced inferior grade first milking colostrum. Calves in group 1 ingested 106, 58 g of Ig G and in group 2, 145,58 g Ig G. after 12 h from birth. Failure of transfer of passive immunity (FTPI) in group 1 was 66,66% (6/9) in group 2, 11,11 (1/9).

Keywords: colostrum composition, colostrum management, immunoglobulin, Holstein calves

# Effects of abnormal parturition on colostrum components in Holstein dairy cows

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The objective of this study were to evaluate the effect of abnormal parturition (dystocia) on colostrum composition (fat and immunoglobuline) in Holstein dairy cows. Fat content of first milking was high in cows with dystocia (n = 8)  $74,0 \pm 24,9$  g/L vs  $40,0 \pm 10,9$  g/L (cows without dystocia n = 8) but immunoglobulins in first milking in cows with dystocia  $40,26 \pm 7,42$  g/L were lower than in cows without dystocia  $56,50 \pm 5,06$  g/L. Hours could elapse until a dystocic cow is first milked. We suggest that dilution with additional milk production was the reason for the lower Ig content in colostrum of dystocic cows. In dystocic parturition colostrum from dystocic cows may be insufficient for the transfer of passive immunity to dystocic calves.

Keywords: abnormal parturition, colostrogenesis, dystocia, immunoglobuline

# Researches concerning the use of an ecological technology for the carp (*Cyprinus carpio*, L.1758), breeding in the 1st summer in polyculture with Asian cyprinids

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One of the actual fish breeding objectives is the production of sufficient quantities of population material, which has an adequate structure on species and an adequate quality to the market requests, by the efficient use of unconventional food resources and mainly of the natural trophic reserves existing in the fish ponds.

The aim of this experiment is to obtain carp small fry, sanger, novac and cosas using an ecologic technology based on mixing in different proportions of mineral and organic fertilizers and fodders. The use of fertilizers aimed at obtaining an optimum environment for growing and developing a natural trophic base, essential for the development in the first larvae stages. The fodder used had a content of 32% protein.

The experiment was initiated in two experimental ponds and a witness pond, belonging to the pond complex of Cazaci no. 3 Experimental base, complex destined for growing in the first summer. The experiment period was of 120 days.

The ponds were populated with larvae obtained through the artificial reproduction of the mentioned species, within CCDP Nucet. The best production (3210 kg/ha) was obtained in the witness pond where organic fodder was administrated (18.275kg), minerals, (30kg/ha phosphorus and 50kg/ha azote ) and fodder (24.150kg).

Key words: polyculture, carp, manor, ecologic

# Research regarding the use of an ecological technology for the growth of carp (*Cyprinus carpio*, L.1758), in the 2<sup>nd</sup> summer in polyculture with Asian cyprinids

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By the nature of the energy used and by the intervention way, fish breeding was and still is an ecological occupation in many countries, but one aimed at transforming it from an subsistent activity into a profitable one which imposed the intervention intensification by: increasing the energy entries, increasing the flux speed and making the use of energy efficient.

With this experiment we aimed at obtaining a material aged two summers through the use of an ecological technology based on stimulating the development of natural food by using different proportions of the mineral and organic fertilizers and fodder.

The experiment took place in five experimental ponds and a witness pond belonging to Cazaci-Marata Experimental base no. 2. The population material comes from CCDP Nucet, with an average weight of 50+10gr.

The best production obtained in the 2<sup>nd</sup> growing variant, made by the use of both mineral and organic fertilizers and by the use of fodder is of 1230 kg (the unitary production 3.075 kg/ha). The quantity of administrated fodder is of 2.250 kg. The final average weights are: carp 945g, sanger 990g, novac 948g and cosas 708g.

Key words: polyculture, carp, fertilizers, ecologic.

## Semen quality and relevant blood plasma parameters of Rahmani rams fed different dietary energy levels

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The aim of this study was to investigate the effect of three different dietary energy levels on some blood and seminal plasma constituents, plasma testosterone and semen quality of Rahmani rams. A total of twelve Rahmani lambs were used. The lambs had an initial weight  $30.9 \pm 1.03$  kg (8- 9 months old, pubertal age). The control diet (recommended allowances) was formulated as a metabolizable energy and adjusted fortnightly due to body weight changes according to NRC (1985). The metabolizable energy contents of the control diet was increased by 20 % for the high energy (HE) diet and decreased by 20 % for the low energy (LE) diet. The actual metabolizable energy levels for the control, high and low dietary energy were 2615, 3138 and 2092 kcal ME/kg on DM basis, respectively.

Blood samples were collected fortnightly, while semen samples were collected twice weekly from each ram for nine weeks. Blood plasma hematocrite, total protein, albumin, globulin, A/G ratio, total lipids, triglycerides, cholesterol, AST, ALT, AST/ALT ratio and thyroxine did not differ significantly in all experimental groups. The concentration of blood plasma testosterone was lower ( $P < 0.05$ ) in LE rams than HE rams and the control rams.

The concentration of seminal plasma total protein, globulin, A/G ratio, total lipids, triglycerides, and AST/ALT ratio did not differ significantly in all experimental groups. In general, the most of semen characteristics were high in LE fed rams but did not differ significantly compared to other groups.

From the present study, the low dietary energy level (2092 Kcal ME/kg DM) is sufficient to get high semen quality of Rahmani rams in Egypt.

Keywords: semen; hormones, dietary energy; rams.

# Feeding value and in vitro digestibility of rice straw treated with *Pleurotus* fungi

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This study was carried out to test the effect of four *Pleurotus* species on chemical composition, cell wall degradation and digestibility of rice straw. Rice straw was inoculated with spawns of four *Pleurotus* fungi (*Pleurotus florida* , *Pleurotus djamor* , *Pleurotus sajor-caju* and *Pleurotus ostreatus* ) and packed in the plastic bags and incubated in a fermentation chamber at 23-27°C and 75 – 85 % relative humidity. After 40th day, rice straw samples from all groups were taken and analyzed for chemical composition and in - vitro digestibility. The data obtained were analyzed according to the complete randomized design model consisting of four treatments plus one control and four replicates. Our data showed that fungal treatment significantly increased the crude protein (CP), silica , Ca and P contents of the rice straw but the hemicellulose , organic matter (OM), acid detergent fiber (ADF), neutral detergent fiber (NDF) and acid detergent lignin (ADL) contents decreased. The highest biological efficiency (BE) was produced by *Sajor-caju* species with 56.02% and the lowest was belong to *Pleurotus djamor* species with an average 51.17%. All species of fungi incubated on rice straw increased the in vitro digestibility ( $P < 0.05$ ). Rice straw treated with *Sajor-caju* fungus had the highest in vitro dry matter digestibility (IVDMD) and in vitro organic matter digestibility (IVOMD) with 80.1% and 82.18%, respectively. In general this experiment cleared that treatment with *Sajor-caju* can improve the quality of rice straw to be useful feed for ruminant nutrition.

Key words: Rice straw- *Pleurotus* fungi - Digestibility

# Feeding microalgae *Chlorella vulgaris* to laying hens influences laying performance and intestinal microbiota composition.

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It is generally accepted that the intestinal microbiota plays an important role in sustaining health and productivity of animals. *Chlorella vulgaris*, a natural occurring green microalga is believed to influence performance and health, including bird reproduction and the egg quality. The nutritive value of open or indoor cultured *C. vulgaris* depends upon the technological process used to treat the algal mass. To study these effects, two differentially processed *Chlorella vulgaris* powders (spray dried: SD-CV; bullet milled and spray dried: BMSD-CV) were fed to laying hens. A feeding study with 182 laying hens (Lohmann Brown) at age of 22

weeks was accomplished. Seven groups with 26 hens per group were examined. Hens were kept individually in a cage battery until 8<sup>th</sup> laying month. The hens were artificially inseminated. The control basal diet was supplemented with 2.5 g, 5.0 g or 7.5 g of spray-dried (SD) or bullet-milled and spray-dried (BM-SD) *Chlorella vulgaris* per kg. Number of laid eggs was recorded daily and the feed consumption monthly. Each month the collected eggs were weighed four times within two weeks. In the 3<sup>rd</sup> and 6<sup>th</sup> laying month all eggs laid over 3 consecutive days were collected and the yolk weight, albumen weight, shell weight and yolk colour were analysed. 5-10 eggs per hen were collected over 10 days in the 2<sup>nd</sup> and 5<sup>th</sup> laying month and stored in the incubator for hatching. Two nitrogen (N)-balance studies (NbS) were performed. In the NbS1 36 laying hens (Lohmann Brown) were allocated to 3 groups, 12 hens each, and they were kept individually in metabolism cages. Control group was fed the basal diet and the experimental groups were offered the basal diet supplemented with either 5.0g SD or BM-SD *C. vulgaris* per kg. In the NbS2, 36 laying hens (Lohmann Selected Leghorn) were allocated to 4 groups, 9 hens each. They received the control diet supplemented with 2.5g, 5.0g, or 7.5g of BM-SD *C. vulgaris* per kg. In both experiments, the feed offered to the hens was controlled and was adjusted to 110g per hen in the adaptation period (5 days) and in the collection period (5 days), when the excreta were collected two times every day. To study the effects of the microalgae on the crop and cecal microbiota composition, the genomic DNA was isolated from the contents at the end of the NbS2 and a polymerase chain reaction – denaturing gradient gel electrophoresis (DGGE) of bacterial 16S rRNA gene fragments was applied. The diversity and evenness of the DGGE fingerprints were calculated for each group. Dominating bands were excised, re-amplified and sequenced.

In the feeding trial, the feed intake in the control was higher than in the 7.5g BM-SD. The laying intensity, egg weight, daily egg mass production and feed conversion were not affected. The yolk tended to be heavier and its quality was improved in the 5 and 7.5g SD and BM-SD, and in 2.5g BM in comparison to the control and the 2.5g SD group. The albumen weight was higher in the control and the 2.5g SD than in the other groups in the 2<sup>nd</sup> measure period. 7.5g SD improved egg shell weight in the 3<sup>rd</sup> and in the 6<sup>th</sup> laying month a tendency was observed. The yolk was more intensive in all SD and BM-SD groups. The hatching performance tended to be higher in the 5 and 7.5g SD and BM-SD, and 2.5g BM-SD. No differences in the N-balance were recorded.

The diversity of the crop universal bacterial DGGE fingerprints was not affected ( $6.4\pm 1.65$ ,  $5.4\pm 1.19$  and  $5.5\pm 1.35$  in the control, SD-CV and BMSD-CV, respectively). Most of the bands from the corresponding positions in the gels were closely related to *Lactobacillus* sp. DGGE fingerprints of V2-V3 fragments of 16S rRNA of crop lactobacilli had lower diversity in the control hens ( $8.7\pm 1.22$ ) than in the SD-CV ( $9.2\pm 1.77$ ) and BMSD-CV ( $9.9\pm 1.88$ ) thus feeding *C. vulgaris* resulted in increased lactobacilli diversity in crop. A band closely related to *L. ingluviei* was present in 9 from 12 hens in the control group but in only one animal in the SD-CV and in 5 from 11 animals in the BMSD-CV suggesting a negative effect of *C. vulgaris* on this lactobacillus. Feeding *C. vulgaris* to laying hens resulted also in increased bacterial community diversity in ceca. No effect of the technological processing of the microalgae on the microbial diversity could be observed. The diversity of the ceca universal bacterial DGGE fingerprints was lower in the control group than in the SD-CV and BMSD-CV ( $5.6\pm 1.72$  vs.  $9.16\pm 2.64$  and  $9.31\pm 2.41$ , respectively). Most of the sequences retrieved from the DGGE bands from ceca were closely related to *Ruminococcaceae*, *Lachnospiraceae*, lactobacilli, proteobacteria and *Archea*, giving further insight into still poorly discovered intestinal microbiota of laying hens.



# Management and research of the Albania otter (*Lutra lutra*) population

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The population of otter (*Lutra lutra*) in Albania is controlled from our project's staff for about 3 years and we have noticed a decrease of lutra's number which are seen in rivers flows, in the lakes or in the artificial reservoir and hatchery. The size of the population is part-timed in 23%. And this wasn't true before the transistor period in Albania. But the decrease of the lutra's population is clashed from the:

1. Demographic change after 1990 year in Albania

2. The artificial reservoir, hatchery management from the private (because they have destroyed the lutra's population, because the fish is main alimentary for otter)

3. The damages caused from the destruction of the water canals

4. The diseases of otter population

We can say that we have taken some samples to study the diseases that we can find in these populations. But another aspect of our study is the genetic consideration of the population that is found here, in Albania. Our study is the first in its kind after 25 years here in Albania and has pulled out a lot of recommendation for the Albanian Environment Minister in protecting this endangered species.

Key words: population, otter, *lutra lutra*, Albania, diseases.

## Sequencing of exon three of $\alpha$ s1-casein sheep and goat gene

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Ruminant milk contains 4 types of casein,  $\alpha$ s1,  $\alpha$ s2,  $\beta$  and  $\kappa$  amounting to nearly 80% of the total protein output and are characterized by specific properties such as a low solubility at pH 4.6. The whole sequence of the caprine  $\alpha$ s1-casein gene has been sequenced and every exon has been analyzed, while in sheep only the mRNA sequence for this gene has been identified. We have analyzed a goat breed and have identified two polymorphisms compared to the GenBank sequence and also we have identified the ovine exon three and flanking areas. The difference between the goat and sheep exon three consists of a T-G substitution in position 15.

Keywords: ovine, caprine,  $\alpha$ s1-casein, gene, substitution.

# Estimation of genetic parameters and breeding values for lifetime production traits for Friesian cattle in Egypt

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A total of 878 Friesian cows kept at Sakha Farm, belonging to Ministry of Agriculture, Egypt, during the period from 1996 to 2004 were used. Data were analyzed using Multi Trait Animal Model. Traits studied are lifetime milk yield (LTMY), lifetime fat yield (LTFY), lifetime protein yield (LTPY) and number of lactations completed (NLC). The model included the fixed effects of month of birth, year of birth and parity as fixed effects, and random effects of individual, permanent environmental and errors. Means of LTMY, LTFY, LTPY and NLC were 6970 kg, 254 kg, 196 kg and 2.48, respectively.

Least squares analysis of variance showed significant effect of month of birth and year of birth on lifetime production traits studied and significant effect of parity on LTMY, LTFY and LTPY.

Heritability estimates were  $0.24 \pm 0.063$ ,  $0.24 \pm 0.061$ ,  $0.23 \pm 0.064$  and  $0.12 \pm 0.096$ , for LTMY, LTFY, LTPY and NLC, respectively. All phenotypic and genetic correlations among all traits studied are positive. Also, Predicted breeding values for all traits studied from cows, sires and dams are estimated.

## Determination of ionophore coccidiostatic salinomycin in premixes and poultry feeding stuffs

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The paper presents results of the HPTLC and HPLC determination of polyether ionophore antibiotic Salinomycine in samples of premixes and broilers feeding stuffs.

Extraction of salinomycine from samples of premixes and broiler feeds was performed applying the following methods: (A)-column chromatography on silica-gel column, eluting the salinomycine with methanol and (B)- ethyl-acetate in acid medium and extract purification on SepPac column, from which salinomycine was eluted with 1% NaOH in methanol (w/v).

The HPTLC determination of salinomycine content was accomplished on a Kieselgel 60G. The identification of chromatographic spots was performed by spraying the HPTLC plates with a p-anisaldehyde solution. The chromatographic spots were detected under UV light at 366 nm.

The HPLC determination of salinomycine residues in prepared samples was accomplished by derivatisation of a fluorescent detector. The fluorescent salinomycin derivative was separated

on a Bio-Sil C8 90-5S column (250x4,6 mm ) with a mobile phase consisting of methanol-acetonitril-water ( 100:15:1 ) at a flow rate of 1cm<sup>3</sup>/min. Detection of the fluorescent salinomycin derivative was performed on a fluorescent detector (  $\lambda=360$  nm;  $\lambda=470$  nm ).

The recovery test was carried out by adding standard solutions in concentrations from 10 to 60 ppm of feed samples. The recovery rates for the HPTLC and HPLC methods were over 80% and over 90% respectively.

Keywords: Salinomycine, HPTLC, HPLC, feed, premix.

## Study of growth curve variations for kids 0- 6 months old of Alpine goat breed in Albania

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Study of growth curve for kids at the age 0-6 months old and influence of non genetic factors on its variation, in order to evaluate the level of acclimatization of Alpine goat breed in Albania, was carried out by analyze of data for 728 kids managed in two different production systems- (a) semi intensive production system in farms with over 50 goats and (b)small family farms that manage 2-3 goats as “Goat of family”. Gompertz model was used for modeling growth dynamics of kids. For each kid, Gompertz’s model parameters were estimated. Analyze of variance was carried out according to procedure of General Fixed Factor Linear Model (GLM). Results showed that linear model accounts for 58-62% of total variance of growth curve parameters. Non genetic factors affect the variances of these parameters. Production system ( $P<0.01$ ) is the most important factor that affect on phenotypic variance of growth curve parameters. Sex and mode of birth ( $P<0.05$ ) are factors that must be taken into account during growth of kids 0-6 months old. Values and variations of growth parameters of Alpine kids farmed under conditions of Albanian production systems, show that this breed has positively responded to these conditions.

Key words: Alpine goat breed, acclimatization, Gompertz's curve of growth, non genetic factors, kids 0-6 months old

## Taillessness; congenital abnormality in Iranian calf (Case Report)

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The aim of this study is case report of taillessness abnormality in Iranian calves and comparison with tail related cases that reported previously. In a village in the suburbs of Tabriz, a northwestern city in Iran, a tailless calf was born. During the examinations and observations, no problem in digestion and faeces excretion was noticed and the calf had a

normal growth. There was a small excrescence on the back of the calf where the tail grows. In this recent case, there was no rectal adhesion. The aforementioned calf was born through the artificial insemination (AI) of a native female cow with a Holstein bull. The cow is completely healthy and in her previous parturitions, it has given birth to several healthy calves. Comparing this case with the other reported abnormalities reveals that this anomaly is rare and the probability of its occurrence in female calves of dairy cattle is twice the probability of occurrence in male calves. Most scientific reports have shown that tail abnormalities occur when a native cattle is inseminated with a pure breed cattle such as Holstein. Notwithstanding suggested that taillessness disorders may controlled by one autosomal recessive gene but future studies about genetical reasons of Taillessness in native calves may help to solving of this problem, especially in Iranian hybrid (Holstein-native) cattle.

Key Words: congenital abnormalities, taillessness, Rat-Tail syndrome, calf

## Possibility of preventing short term calcium deficit by using large size marble particles in nutrition of young laying hens

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The effect of short term calcium deficit in nutrition of young laying hens on production and quality of product was investigated, as well as the effect of the use of large size particles of calcium source on alleviation of the consequences of calcium deficit. Six week investigation was carried out on total of 135 individually monitored layers from age of 23 to 28 weeks, as two-factorial trial with 3 levels of calcium (Ca) in feed (2.5; 3.0 and 3.8%) and 3 different ratios of powder and granulated source of Ca (100:0; 60:40 and 40:60%). Trial was also divided into two three-week periods (period of deficit and period of normalization of nutrition of hens in regard to calcium). During the research production results, incidence of defect eggs and eggshell quality were monitored. Research results showed that use of diets with 2.5 – 3.0% Ca in nutrition of young layers, regardless of the form of Ca source in feed, powder or particles, can have negative impact on productivity of layers and eggshell quality, practically demonstrated in increased incidence of defect eggs, primarily higher incidence of big defect off eggshell, but also decreased laying ability at the end of three week deficit period. Trial groups of layers which in the first part of trial period were exposed to Ca deficit, in the second part demonstrated fast response to normalization of nutrition related to Ca, and in the first week of balanced feeding their egg production and eggshell quality is normalized. Research showed the justification for use of large size marble particles in nutrition of young layer hens, especially in conditions of their nutrition with suboptimal calcium levels, for the purpose of maintaining of the egg shell quality.

Key words: layers, calcium nutrition, deficit, large size particles, egg production and quality

# Research for sex and gonad development assessment in sturgeons (*Acipenser guldenstaedti*) by ultrasound

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The purpose of the study was to assess the sex and the stage of gonad development in sturgeons (*Acipenser guldenstaedti*), without putting stress on the tested specimens.

A proper management of sturgeon reproduction in an artificial environment requires sure methods to identify the sex and the developmental stage of the gonads. Ultrasound is a method that can be used to improve the accuracy of sex identification in sturgeons, the immature females being identifiable in a proportion in excess of 90% after the fourth year of growth. This method is a means to select the females from the males, the latter being marketable for meat after the age of 4 years. Ultrasound is a modern, non-destructive, method, while the classical method for sex identification was prone to have deleterious effects on the examined specimens, the operation being performed just before spawning.

The testing was performed on 30 specimens, 15 males and 15 females, aged 55 months, weighing in average 4.8 kg. The weight and length of the specimens, gonad length and their proportion of the body weight have been determined.

The experimental results suggest that ultrasound is an efficient method to identify the sex and developmental stage of the gonads in aquaculture sturgeons, which is very important for sturgeon production management.

Keywords: ultrasound, sturgeons

## Microsatellites variations in Romanian Mangalitsa and Large White swine populations

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Genotype data from 11 microsatellites were used to assess genetic variation among 2 swine breeds: Mangalitsa and Large White. Hardy-Weinberg equilibrium was tested and the exact P-value over all loci and breeds was not significant.

Estimates of average observed and expected heterozygosities, and number of alleles per population was obtained. The lowest and highest observed heterozygosities were found in the Large White breed (0.150-SW24 and 0.912- SO228). For a number of microsatellites, alleles that present frequencies up to 0.46 in one populations were not detected in other populations (SO005, SO355, SW24, and SW911). In this study we demonstrate the differences between Mangalitsa and Large White swine populations in terms of allelic diversity.

Keywords: Mangalitsa, Large White, microsatellite, variation

# Comparative study on some Romanian and Bulgarian silkworm hybrids with the aim of their introduction in the family sericultural seed farms – III. Technological parameters of the dry cocoon and silk filament

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A comparative study of nine Romanian and ten Bulgarian silkworm hybrids was carried out in the experimental base of SERICAROM S.A. – Research Department Baneasa with the aim of the most productive hybrids selection for their introduction in the family sericultural seed farms. The estimation of the hybrids was done according to technological parameters of the dry cocoon and silk filament. The mean length of cocoons in Romanian hybrids ranged from 3.250 cm to 3.500 cm. In Bulgarian hybrids the length of the cocoons ranged in the limits 3.144 – 3.539 cm. The cocoon width was 1.606 – 1.894 cm in Romanian hybrids and 1.771 – 1.934 cm in Bulgarian hybrids. The highest values of the filament length were observed in the hybrids S<sub>1</sub> x H<sub>2</sub> (1298 m), AC<sub>29</sub> x B<sub>1</sub> (1232 m), SK<sub>2</sub>/F x S<sub>8</sub> (1225 m), AC<sub>29</sub> x SK<sub>2</sub>/F (1220 m), H<sub>2</sub> x S<sub>1</sub> (1213 m). The mean cocoon filament size ranged between 2.04 – 2.58 d in the Romanian hybrids and 2.49 – 2.74 d in Bulgarian hybrids. The following hybrids remarked: B<sub>1</sub> x AC/T (2.04 d), AC/T x SK<sub>2</sub>/F (2.21 d), SK<sub>2</sub>/F x S<sub>8</sub> (2.27 d), V<sub>2005</sub> x V<sub>64</sub> (2.45 d). The elongation of the fibre ranged between 14.42 – 18.40% in indigenous hybrids and 15.30 – 20.28% in the Bulgarian hybrids. Sericin forms 22.61 – 26.21% in indigenous hybrids and 22.76 – 26.52% in Bulgarian hybrids of the whole weight.

Key words: filament length, non broken filament length, filament size, tenacity, sericin.

## Characterization of *pseudomonas putida* (P13) and *Pantoea Agglomerans* (P5) as novel probiotic on phosphate availability and performance in broiler

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Our experiment has been working in the selection of bacteria, mainly from the genus phosphate solublizing bacteria, as potential probiotic candidates. This study characterized two phosphate solublizing bacteria (PSB) as novel probiotic on tibia, blood and excretion phosphate and broiler performance. *Pseudomonas putida* and *Pantoea Agglomerans* are phosphate solublizing bacteria that isolated with Screening soil samples collected from various

region of Iran. The experiment included 320 Ross broilers from 1 to 49 days of age. Birds were randomly allocated to 4 treatments, with 4 replicates of 20 birds. Treatments include T1.Negative Control (basal diet, with no added probiotic); T2 – Negative Control + Probiotic(in starter, grower and finisher); T3 – Negative Control + Probiotic(in grower and finisher) and T4 – Negative Control + Probiotic(in finisher). At the end of experiment in blood, excretion and tibia phosphate was determined. The results obtained in this experiment showed that the probiotic significantly increased body weight gain ( $P<0.05$ ). Probiotic significantly improved feed conversion ratio ( $P<0.05$ ). However, the probiotic supplementation did not affect on feed intake between treatments ( $P<0.05$ ). In addition, results showed that probiotic caused significantly decrease on the feces phosphate ( $P<0.05$ ). probiotic significantly increased serum and tibia phosphate ( $P < 0.05$ ) when compared to treatment without probiotic. The results of this report suggest that this phosphate solublizing bacteria probiotic culture could be useful to improve performance and phosphate availability in commercial poultry farms.

Key Words: probiotic, phosphate solublizing bacteria, tibia, excretion, broiler

## The effects of fermented and dried whey powder on performance and nutrient digestibility in broilers

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In this experiment, effects of fermented and dried whey powder on performance, protein and fat digestibility were investigated. The experiment included 280 Ross broilers from 1 to 42 days of age. Birds were randomly allocated to 7 treatments, with 4 replicates of 10 birds in each. Treatments include T1.Negative Control (basal diet, with no added whey); T2 – Negative Control + 1/5% dried whey powder, T3 – Negative Control + 3% dried whey powder, T4 – Negative Control + 4/5% dried whey powder, T5- Negative control + 1/5% fermented whey, T6- Negative control + 3% fermented whey and T7- Negative control + 4/5% fermented whey. All treatments received whey during whole period of rearing. The results obtained in this experiment showed that the both kinds of whey significantly increased body weight gain ( $P<0.05$ ). Dried whey powder and fermented whey significantly improved feed conversion ratio ( $P<0.05$ ). However, the whey supplementations did not affect on feed intake and ( $P<0.05$ ). Protein and Fat digestibility in ileum and fecal significantly affect by both kinds of whey ( $P<0.05$ ), But effects of fermented whey was more. In addition, results showed that whey caused significantly increase nutrient digestibility in ileum and fecal ( $P<0.05$ ).

Key Words: Dried Whey Powder, Fermented Whey, Nutrient Digestibility, Broiler

# Analysis of the reproduction indices in familial type sheep farms of different sizes

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The goal of the researches we carried out was to assess the main reproduction indices in sheep: index of sheep in estrum (E %), fecundity index (F<sub>m</sub> %), insemination index (I %), embryonic mortality index (ME %), index of pregnancy preserving (P<sub>g</sub> %), index of sheep with abortions (A %), pregnancy index (G %), index of sheep that farrowed (F %), sterility index (S<sub>m</sub>), prolificacy index (P<sub>f</sub> %), birth rate index (N %), numeric survival index (C<sub>p</sub>), numeric productivity index (C<sub>m</sub>).

Two types of familial farms have been used during researches, comprising flocks of 150 mating sheep, respectively of 37 mating sheep, across 2-3 sexual cycles, during 2007-2008.

The biological material comprised specimens from Țurcană and Karakul breeds and their crosses from certain familial farms of variable capacities, from the North-East country area (Mogoșești).

Basing on the achieved data, it could be stated that the reproduction indices values in the experimental groups have been found within the limits specified by the scientific literature.

Key words: sheep, indices, reproduction, farms

## Body weight dynamics of the sheep youth belonging to local populations from the North-East area of Romania, during birth-18 months age period

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The meat yield has been assessed in the studied sheep familial farms, using a control group and an experimental one, through the measurement of the body weight dynamics in several life moments (birth, 6 months, 15 months and 18 months).

The results related to body weight gain, from birth to weaning, then till 15 and 18 months indicated low values in the control groups. Slightly ascendant dynamics has been observed for the traits of the experimental groups, but still below the limit admitted by the literature of the field (Pascal 2005, Pascal 2004, Voia 2006).

Key words: sheep, youth, body weight, farms



# The effect of changing the degradability of protein supplement on the digestibility of wheat straw based diets

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A study was conducted to investigate the effect of feeding either degradable or undegradable protein supplements with either untreated or ammonia treated wheat straw supplemented with kibbled carob pods as a source of energy on the nutrient digestion and nitrogen balance in lambs. Ammoniation increased the crude protein content of wheat straw by nearly 100% and decreased the contents of NDF and ADF by 7% and 1.7% respectively. Treating the straw with ammonia resulted in an almost significant ( $P < 0.01$ ) increase in dry matter and organic matter intake. Not surprisingly, the increase in N intake was highly significant ( $P < 0.01$ ). The type of protein fed had no effect on DM and OM intake but rendering it less degradable resulted in an increase ( $P < 0.05$ ) in N intake. Compared with untreated straw the DM and OM of diets containing ammoniated straw was significantly more digestible ( $P < 0.001$ ). The N fraction was also more digestible ( $P < 0.01$ ). Feeding the protein in relatively undegradable form also increased the overall apparent digestibility of dry matter ( $P < 0.05$ ), organic matter ( $P < 0.01$ ) and nitrogen ( $P < 0.05$ ). In conclusion, the results of this study suggest that in an in vivo situation, the intake and digestibility of straw based rations supplemented with carob is increased if the straw is ammoniated and the protein supplement used is rendered undegradable.

Key words: In vivo digestibility, kibbled carob pods, undegradable protein, ammoniated straw.

## The electrophoresis study of the true protein of wheat bran treated with *Neurospora Sitophila* Fungus

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The object of this study, was investigation of degradability of wheat bran and determination of kinds of true protein of wheat bran, comparison of degradability between untreated and treated wheat bran with neurospora sitophila fungus. The study was carried out by using nylon bag technique and SDS-PAGE technique.

There was significant difference ( $P < 0.05$ ) between the rumen degradability values true protein of treated and untreated wheat bran at different rumen outflow rate. Wheat bran protein were composed of four major component albumin, globulin, prolamin or gliadin and their molecular weight was 18.3, 26, 35 and 14.5 respectively. In general the content of protein in wheat bran has 17 percent. All of the protein subunit in treated and incubated wheat bran were

degraded in this trial. Electrophoresis analysis of incubated wheat bran reveal that subunits in treated wheat bran were degraded completely within 8 hour. The investigation of content of degradability was carried out by nylon bag technique in 0, 4, 8, 12, 24, 48, 72 hour. There were significant difference ( $P < 0.05$ ) between true protein digestibility of untreated and treated of wheat bran.

In conclusion, SDS-PAGE and Bradford method indicate that four protein of treated wheat bran with *Neurospora sitophila* fungus are degradable in rumen. Investigation of the content of true protein with Bradford method in wavelength of 595 nm emphasise this results.

Key word: wheat bran, electrophoresis, fungus, *Neurospora sitophila*, true protein

## The effect of different levels of dietary calcium, phosphorus and vitamin D<sub>3</sub> on broiler bloody and osseous factors

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The present study examined the effect of different levels of calcium, phosphorus and vitamin D<sub>3</sub> on performance of Ross-308 broilers. The diets were NRC (1994) levels for control diet, calcium and phosphorus at 10% lower of NRC levels and vitamin D<sub>3</sub> as in control diet, calcium, phosphorus and vitamin D<sub>3</sub> at 10% higher of NRC levels, calcium and phosphorus at 10% lower of NRC levels and vitamin D<sub>3</sub> as in control diet, calcium and phosphorus at 10% lower of NRC levels and vitamin D<sub>3</sub> at 10% higher of NRC levels, calcium and phosphorus as in control diet and vitamin D<sub>3</sub> at 10% higher of NRC levels. The experimental design was a completely randomized design test (factorial experiment) with 5 treatments and 3 replicates in 56 days containing starter phase (d 1 to d 21), grower phase (d 22 to d 42) and finisher phase (d 43 to d 56). Calcium and phosphorus of tibia bone and calcium and phosphorus of blood serum were determined. The results indicated that calcium and phosphorus of serum were not affected significantly, but decreasing 10% calcium and phosphorus and increasing 10% vitamin D<sub>3</sub> levels had significant effect on calcium of tibia bone.

Keywords: Calcium, phosphorus, vitamin D<sub>3</sub>, blood serum, tibia bone, broiler

## Path analysis of the relationship between various body measurement and live weight in immature West African dwarf goats

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Direct and indirect effect of eight explanatory variables (withers height, rump height, body length, foreleg length, shoulder width, rump width, rump length, and heart girth) influential on live weight at growing age (1-2 years) of male and female west African dwarf goat were

investigated using path analysis. Result of the analysis indicated that the direct effect of wither height was larger on live weight of male whereas in female rump width had the largest effect on live weight. In indirect effect, body length and rump length through wither height were higher in male. Shoulder width and foreleg length through rump length in female. Wither height and rump traits have influence on body weight of growing male and female WAD goat respectively, and could be used in selection criteria for increase body weight of this goat at early age

Key words ; Path analysis, direct effect, indirect effect, live weight, goat.

## Evaluation of the effects of different nutrient levels on performance of laying hens in early laying period

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This study was conducted to evaluate the effects of different nutrients level on performance of Hy-line W-36 laying hens in early laying period. This experiment was conducted with two hundred and forty laying hens from 37 to 47 weeks in a completely randomized design with 5 treatment and 4 replicate with 12 bird in each replicate. Experimental diets were isocaloric and included: diet with nutrients recommended by NRC 1994 for laying hens (control) and 4 other Experimental diets with 10% and 15% more and low nutrients than recommended by NRC 1994 for laying hens. The results of this experiment showed that the performance and egg quality in laying hens are affected by different experimental diets ( $P < 0.05$ ). The highest percent of egg production (86.66), the highest amount of egg weight (62.05 g), the highest amount of egg mass (32.4 g), the highest amount of daily feed intake (117 g), the best feed conversion (2.17) and the lowest amount of feed price for production per kilogram of egg (8150 Rials) were observed in control group, whereas the lowest percent of egg production (56.22), the lowest amount of egg weight (57.17 g), the lowest amount of egg mass (32.4 g), the lowest amount of daily feed intake (106.5 g), the worst feed conversion (3.30) and the highest amount of feed price for production per kilogram of egg (1130 Rials) were observed in treatment contain 15 lower level of nutrients than recommended by NRC 1994 for laying hens. There were significant difference between treatments in eggshell weight ( $P < 0.05$ ). The highest amount of eggshell weight (6.35 g) was observed in control group and the lowest amount of eggshell weight (5.52 g) was observed in group with diet contain 15 lower level of nutrients than recommended by NRC 1994 for laying hens. Can be concluded that in Hy-line W-36 laying hens in early laying period increasing or reduction of nutrient recommended by NRC 1994 has adverse effects on performance and egg quality and causes the feed price for production per kilogram of egg be high and do not recommended.

Keywords: Performance, Laying hen, Nutrients level, Egg quality.

# The breeding of Beluga Sturgeon (*Huso huso*, Linnaeus, 1758) in recirculating aquaculture systems

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Research was aimed at the breeding of beluga juveniles (*Huso huso*) in a pilot recirculating aquaculture system, aquarium-type, in conditions of low fish density and intense feeding. The factor that made the difference between the two experimental variants was the feeding level. After a growth period of 30 days, as a result, fish biomass has doubled in the variant with 15 g/kg metabolic weight (2.1% of biomass), from about 3 kg/m<sup>3</sup> to 6 kg/m<sup>3</sup>. We demonstrated that the use of a feeding level of 30g/kg metabolic weight (4.2% of biomass) negatively affected the fish growth because the food quantity was too big, unprofitable and causing pollution to the system.

Key words: beluga, feeding level, FCR, RAS

## Linear evaluation of the type of Holstein-Friesian bull dams

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Objective of this research was to calculate main type values of heads of cattle in nucleus herd of bull dams, using linear method of evaluation. Research included 224 cows of Holstein-Friesian breed selected as bull dams on the territory of Central Serbia. For all studied traits basic variation-statistical parameters were calculated: arithmetic mean, standard deviation, variation coefficient, standard error and variation interval. Average values of the evaluation of Holstein-Friesian bull dams were following: body height 7.11, strength and capacity 7.34, milk traits 7.23, pelvis width 6.31, position of pelvis 5.29, position of hind legs 5.10, fore udder attachment 6.69, height of rear udder 6.95, width of rear udder 7.31, udder depth 6.70, central ligament 6.85, udder balance 5.17, teat position 5.96, teat length 5.23. Evaluation/score of type and body development are very important indicators of production performance of cows, their ability to consume sufficient quantities of food, produce technologically high quality milk, reduce consumption of energy in production and remain in exploitation as long as possible.

Key words: linear evaluation/score, bull dams, Holstein-Friesian breed.

# Effect of dietary fibre level on nitrogen excretion pattern on growing pigs

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The objective of this study was to evaluate the effects of adding fiber sources to reduced-crude protein to decrease urinary N excretion by growing pigs.

Two dietary protein concentrations (HP, 18.8% and LP, 14.0%) and two fiber levels (HF, 4.46%; LF, 3.25% crude fiber) were tested in 2 x 2 factorial arrangement. Diets with wheat, maize, soya bean meal, sugar beet pulp were supplemented with lysine, methionine, tryptophan, threonine, isoleucine, or valine to meet an ideal amino acid profile. The pigs were fed in two equal feed doses at a daily rate of 90 g/kg<sup>0.75</sup>. Pigs (29.9± 1.7 kg; n = 12) were housed in metabolic cages for 10 days. Faeces and urine were separately collected from 7d to 10 d.

Faecal, urinary, and total N excretion was reduced with a reduction of dietary protein in high fiber diet; the reduction was greater for urinary (-46%) and total N excretion (-36%) than for faecal N excretion (-17%). Fiber addition to the diet tended to result in a greater proportion of N excreted in faeces than in urine ( $P < 0.05$ ). Nitrogen retention, expressed as a percentage of N intake, was increased ( $P < 0.05$ ) in pigs fed the low-protein diets, and it was affected by fiber addition to the LPHF diet (-14%). However, fiber addition to the HP diet tended to influence N retention (+22%  $P < 0.05$ ) positively.

Reduction of crude protein and fiber is effective to reduce N retention and fecal N excretion.

Key Words: crude protein, excretion, fiber, pigs, slurry

## Alternative sources of crude fibres in rabbit compound feeds

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The shortage and continuous price enhancement of traditional nutritive substances in the animals diets calls for search of their alternative. In Bulgaria the research in this area is insufficiently. There aren't investigations for rabbits. In this respect is interesting to study the dry distillers grain of wheat (DDGW), produced by Geo Milev Ltd, Iskar Station, Sofia, as a source of crude protein (CP) - 26% and crude fiber (CF) -13% as well as the meadow hay and wheat straw as main sources of CF in the growing rabbits diets. Three compound feeds were made (prepared). All diets contained 20% oats, 15% barley, 16.40% wheat bran, 10% soybean meal, 5% sunflower meal. The main sources of CF for the diets were: Variant I: 30% Alfalfa dehydrated (meal); Variant II: 20% meadow hay + 10% DDGW and Variant III: 15% wheat straw + 15% DDGW. All compound feeds contain as follow: CP-16.10-16.20%; CF-12.60,

12.70 and 13%; Ca- 1.20% and Metabolizable Energy - 2177; 2280; 2290 kcal/kg. The nutritive value of compound feeds was determined by the conventional Weende analysis. The chemical composition was determined by Van Soest detergent analysis, and the enzymatic in vitro dry matter digestibility by method of Aufrere. The compound feeds were granulated with a pellets mill, die 4, pellets length 2 cm. The measurement of particle size of the compound feeds was made. The ingredients mill was average to fine, which warrant good mixtures homogeneity and make easier processes of granulate and hydro thermal. Pellet durability index (PDI) was determined by test. Following results were received: with participation of alfalfa meal-PDI=9.70; with participation of meadow hay PDI=9.64, with participation of wheat straw PDI=9.64. The produced pellets have very good quality. The study shows that we made suitable choice of alternative sources of crude fibres for rabbits and their processing is also suitable. On the base of these results we could go on to evaluate their effect on digestion, utilization of nutrients, biochemical parameters, also meat quality and quantity.

Keywords: rabbit, nutrition, alternative, source, crude fibre, DDGW

## Oxidative changes in lipids and proteins in beef during storage

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The development of lipid and protein oxidative stability in beef *m. Longissimus dorsi* during storage was measured. The samples from the same individual animals were either chill stored (for 6 days) and then subsequently frozen (for 90 days) or vacuum aged for 14 days and stored at 4°C for maximum of 6 days. Lipid and protein oxidation during storage were measured respectively by quantification of thiobarbituric reactive substances (TBARS) and protein carbonyl groups. Time had significant impact on the TBARS formation during storage of the fresh meat samples as they increased significantly at the end of the chilling period ( $P<0.05$ ) and after freezing ( $P<0.001$ ). Vacuum aging influenced the lipid oxidation in beef muscle during storage as it was more pronounced than in the fresh meat. In the course of storage of both fresh and vacuum packaged samples the measured reflectance values significantly decreased ( $P<0.001$ ) but remained higher in fresh when compared to vacuum packaged meat ( $P<0.001$ ). Duration of the storage had significant impact on the formation of carbonyl substances as it increased over time in the vacuum packaged meat samples.

Keywords: beef, storage, TBARS, proteins

# Capsaicin-containing feed supplement “Ovocap”. Effect on some immunological indices in pheasants and laying hens

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The effect of the feed supplement OVOCAP, containing hot pepper capsaicinoids, on some blood indicators of the innate and adaptive defense system (complement activity, Ig-Y, IL-1 $\beta$ ) in hunting pheasants and laying hens was investigated.

Both pheasants and hens were allocated into control and experimental groups respectively. Experimental birds were given supplemental OVOCAP according to a previously tested application scheme.

Ovocap treatment increased complement activity by 2.5 times in the pheasants and 4.5 times in the laying hens as compared to the respective control groups. There was a clear-cut species-specific effect of OVOCAP on IL-1 $\beta$  levels, manifested by an increase in pheasants (4.2 times) and a decrease in hens (8.9 times). Similar species-specific effects were observed on Ig-Y level too. Plasma immunoglobulin levels were inversely related to those of IL-1 $\beta$ .

Keywords: capsaicin, OVOCAP, hunting pheasant, domestic hen, complement, Ig-Y, IL-1 $\beta$ .

## Comparative methods for the determination of psp toxins in bivalve mollusks of albania

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The present contribution provides extensive data regarding a four year period of monitoring along the Adriatic seashore of Albania, for the presence of organic and inorganic pollutants. The monitoring has been conducted in eight selected monitoring areas, where sampling of water and bivalve mollusks was performed.

As a result of the monitoring, PSP biotoxins were detected for the first time in clams. In five out of eight monitoring areas, PSP levels surpassing the maximal permissible levels of 80ug/100g were detected in clams.

In two areas considerable levels of Cr and Hg were also detected, indicating most probably the presence of the pollutants from the nearby industrial sites.

The detection and the quantitative assessment of the PSP biotoxins were performed by the official AOAC mouse i/p test. However the positive cases were further confirmed by the rapid immunochromatography test.

Keywords: PSP toxins, bivalve mollusks, ecosystem

# The monitoring protocols in the pharmacological treatment of metritis to cows

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The study was conducted to cow's farm "Derveni" for a 1-year period (2008). The cows in the study were monitored for uterine and vaginal infections, two weeks before they were born until six weeks after it. 20 cows resulted with metritis and endometritis, representing 13.8% of the total animal controlled.

These cows were divided into two groups. The first group was treated only with antibiotic Exenel with a dose of 1 ml/10 kg weight. The second group was treated with a combined scheme: antibiotic and hormones substances: Oxitocin 2ml, Exenel 1ml/10 kg weight for 5 consecutive days, and Estrumate (PG F2 alpha) of 2ml / m. The effectiveness of therapeutic scheme resulted 60% in the first group and gave 4 recidives. The effectiveness of therapeutic scheme in the second group resulted at 90% and gave 1 recidive.

This result shows the effects of prostoglandis in involucionin uterin, evacuation of products inflamative, stimulate the next cycle, stimulating the local immune uterin and uterine contraction improved. Therefore, more efficient protocols for the treatment of endometritis and metritis of cow's milk are combinations of antibiotic therapy with the hormonal, which improve parameters of reproduction and improving of the fertility.

Key words: cow's milk, metritis, PgF2alfa, Exenel

## Impact in acidosis showing lameness in cattle

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The relationship between acidosis and screening of lameness is associated with hypofuncion continued with ischemi to hoofed. In the treatment of lameness different therapeutic schemes are applied, which constitute the basis of preventive and therapeutic schemes. Schemes included in preventive washment of the hoofed with disinfectant solutions, as well as by antibiotic group tetracyclines. Also the cutting hoofed calendar is applied.

Therapeutic treatment is achieved with local and systemic treatment. In local treatment is included the use of solutions based disinfectant and iodide solutions with antibiotic ointment and with different order and domestication antimicrobik. Parenteral antibiotic is used in the treatment group linkozamides as lincomycine, spectomycine etc.

The best method is prevention by keeping under control the diet food. Food diet should contain as much as possible fiber, cellulose and therefore glucides are eliminated.

Key words: Cattle, acidosis, lameness, disinfectant treatment, antibiotic treatment



# Effects of dietary oil source and vitamin A supplementation on egg yolk vitamin A and $\alpha$ -tocopherol concentration

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An experiment was conducted for evaluated of effects of dietary oil source and Vitamin A Supplementation on Egg Yolk vitamin A and  $\alpha$ -Tocopherol Concentration. One hundred eight Hy-Line hens, 39-wk-old, were divided into six groups: three groups received the basal diet supplemented with 3.5% fish oil and three doses of Vit A (0, 10000, 20000 IU), whereas the diets of the other groups were supplemented with 3.5% of sunflower oil and the same doses of vitamin A for 10 wk period. Result showed that the performances of the hens and egg weights were not affected either by the oil source or by the vitamin level. No differences were observed between dietary oils in the deposition pattern of vit A in the egg. Yolk Vitamin A increased linearly as dietary vit A increased ( $P<0.001$ ) from the control level of 4.75 mg/100g of yolk to 12.52 mg/100g of yolk when 20000 IU were added to the hen diets. But significantly lower egg yolk  $\alpha$ -Tocopherol concentration was found in hens fed diets including the highest level of vitamin A supplementation ( $P<0.001$ ).

*Key words:* fish oil, sunflower oil, vitamin A, vitamin E and yolk

# Effect of application of feeding by norms of lambs from Ile de France breed

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The aim of this study was to establish the effect of feeding by norms of female breeding lambs from Ile de France breed. The experiment was carried out in the Institute of Animal Science – Kostinbrod. The experimental animals were divided in 2 groups according to their type of birth - single (11 lambs) and twin (10 lambs). The lambs were equal in age ( $118\pm 0.91$ ). The experiment continued 90 days. Food intake was controlled daily. The composition of ratio and the amount of forages were according to the requirements of the norms by Todorov and Dardjonov, 1995. The chemical analysis of the forage, which were used, was done by adopted methods (Sandev, 1979). The live weight of the lambs was measured individually at the beginning of the experiment and after that monthly. It was calculated the average daily intake of forage, energy (FUG) and protein (PDI) per lamb and their gain efficiency per 1 kg. The obtained information was analyzed by variation-statistical methods.

The obtained results showed, the applied norm feeding ensured reaching of live weight, which respond to the age and type of birth (singles - 50.27 kg, twins – 44.7 kg) of the breeding female lambs from Ile de France breed. The average daily intake of forage, energy and protein was 1.626 kg, 1.625, 123.17 g for the singles, and 1.526 kg, 1.5, 116.9 g for the twins. The gain efficiency per 1 kg for forage, energy and protein was 11.7 kg, 11.69, 886.14 g for the singles and 10.82 kg, 10.64 и 829.08 g for the twins.

*Key words:* lambs, Ile de France, feeding by norms

# The effects of stocking density and light program on tibia quality of broilers of different genotype

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Continuous selection of broilers on fast growth and higher share of breasts in the carcass results in significant conformation changes of present broiler type compared to previous types. Under the influence of above stated, but also management factors (stocking density, light regime, quality of litter, micro climatic conditions), the incidence of deformed and broken bones which have considerable effect on economical results of production, is increasing. For the purpose of determination of bone quality influenced by genotype, stocking density and light regime, investigations of osteometric and mechanical traits of tibia were carried out, since this bone is considered to be reliable indicator of the quality of tubular leg bones. Broilers of Arbor Acres and Cobb 500 genotypes were reared to 42. day of age in floor system, and two stocking densities: 12 birds/m<sup>2</sup> and 16 birds/m<sup>2</sup>. Continuous (23L:1D) and discontinuous (4L:2D) light regimes were applied. Investigations of the tibia quality were carried out on random sample of 160 broilers differentiated according to the sex. Differences in the surface of diaphysis cross section of tibia from broilers of different genotypes were insignificant, whereas differences in values established for breaking force (39.41 kg and 36.81 kg) and specific breaking force (0.77 kg/mm<sup>2</sup> and 0.73 kg/mm<sup>2</sup>) were statistically confirmed. Results of trial indicate that stocking density is a rearing factor which had exhibited stronger effect on tibia quality compared to applied light regime. Differences in response to investigated factors were also established depending on the sex of broiler.

Key words: broilers, genotype, tibia, stocking density, light regime

## Oocytes in presence of selenium have bactericid effect on coliform bacteria

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Coliform bacteria, if they are present in reproductive tract in large amount, can cause sterility-apoptosis of oocytes, therefore in this paper is analysed influence of coliform bacteria on oocytes *in vitro* conditions. Results are that in large concentration coliform bacteria eat oocytes, and in low concentration oocytes have bactericid effect on coliform bacteria. It was investigated if this is influence of follicular fluid or follicular cells in ovary, but we could conclude that oocytes in presence of selenium have strong bactericid effect. Taking into accounts that coliform bacteria are the usual flora in digestive tract and that anus is often in

mamalian animals nearby vagina, this question is of importance in practis, in animal husbandry, in veterinary and human medicine.

Key words: oocyte, Selenium Se, coliform bacteria, bactericid, *in vitro*

## The effect of dietary non-starch polysaccharides on the intestinal viscosity and on the cecal microflora of broiler fed with various plant protein sources

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The aim of this study was to establish the effect of non starch polysaccharides (NSP), originating from various plant protein sources, on broiler intestinal microflora and digestive viscosity. There were 4 treatment groups divided according with the amount of crude protein (CP) administrated: EG1 (receiving feed containing 34% soybean meal in the 1 to 3 weeks and 30,5 % soybean meal in the 4 to 6 weeks); EG2 (receiving feed containing 10% high quality sunflower meal with 36% CP); EG3 (receiving feed with a low quality sunflower meal (27% CP) and EG4 (receiving feed with incorporated pea at a level of 15% satisfying the protein and energy requirements). At the age of 6 weeks all birds were killed by cervical dislocation in a germ free isolation chamber sterilized by ultraviolet radiation. By duodenum and caecum were prelevated the samples for the digestive viscosity determination. The caecum was then removed from each bird, and the fresh excreta of the caecum were gently squeezed and carefully collected for lactic bacteria and coliforms counting. Following plate counting the effect of NSP on lactic bacteria showed no difference between EG1 ( $4.81 \times 10^8$ ) and EG2 ( $5.17 \times 10^8$ ). In the case of EG3 group the plate counts were  $1.61 \times 10^8$  and  $1.75 \times 10^8$  for group GE4. However, the number of coliforms increased following a reduction in lactic bacteria numbers. We can conclude that the presence of coliforms bacteria is clearly dependent on the number of lactic bacteria present in the intestinal lumen. The results obtained for the digestive viscosity show that it increases for experimental groups EG2, EG3 and EG4 until 28.31%.

Key words: non-starch polysaccharides, digestive viscosity, cecal microflora, protein sources, broilers

# The sanitation effect of electrolyzed water (neutral anolytes - ANK) on pathogen agents from living space and feedstuffs used in laying hens nutrition

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One of the most important indicators of the laying hen digestive micro flora and also with excrement contamination levels, is represented by the bacteriological water quality combined with feedstuffs and mixed diets quality. Numerous previous and preventable studies performed, against those with incidental epidemiology cases have highlighted the fact that water is a major provider of pathogen agents with negative effect, given by various bacteria, such as: *Staphylococcus aureus*, *Escherichia coli*, *Cryptosporidium*, *Giardia lamblia*, *Listeria* and *Legionella*.

The objective of the work consist in studying the sanitation effect of neutral anolit acid (ANK) on pathogen agents from, both living space and feedstuffs respectively, used to laying hens nutrition.

It has used the following solutions of neutral anolit acid in water, like:

I. ANK solution with an active chlorine content of 8mg/l and 12mg/l respectively, used as drinking water for laying hens;

II. ANK solution with an active chlorine content of 8mg/l and 12mg/l respectively used for treatment the seven types of feedstuffs (maize, barley, maize gluten maize, rice, barley, soybean meal and canola meal), three mixed feeds, and five types of eggshells, respectively. Treatments consisted in the immersion for 15' of each sample in ANK solution.

III. ANK solution with an active chlorine content of 36mg/l used for accommodation space treatment by washing it for 15 '.

Microbiological analyses were performed in order to determine the Total number of germs, Coli forms and fungi per each sample.

The three ANK solutions used in experiments had a total bactericidal effect on the Total Coliforms. In the same time, the total number of germ decreased until to 30 times against the control. The experiment highlights the role of active chlorine on the microbiological load in the water, feedstuffs, mixed diets, eggshells and accommodation space. As the concentration of active chlorine is much higher as more significant is the bactericidal effect of the ANK solution. These experiments proved that the ANK solution could be used as disinfectant agent to control the microorganisms from water, feedstuffs, laying hens living spaces and on the surface of eggshells.

Keywords: electrolyzed water, Neutral Anolyte ANK, bactericidal effect, electrochemically activated substances

# Effect of sequential feeding of wet and dry whole wheat on performance and digestive organs of broiler chicks

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This experiment was performed to examine suitability of wet and dry whole-wheat sequential feeding on performance and digestive organs weight of broiler chicks. Three hundred broiler chicks were used in this study from 7 to 42 d. The following five treatments were employed: control and two different times of access (6 and 12 h) to wet and dry whole-wheat to alternate corn soybean diet. The diet of broiler chicks in control were include ground-wheat with 50, 100 and 150 g wheat per kg respectively in starter, grower and finisher diet. Body weight, feed intake and feed conversion were recorded at 14, 28 and 42 d. At 42 d two birds were slaughtered for determination of digestive organs weight as percentage of live weight. Sequential feeding of wet and dry whole-wheat and its time were decreased significantly ( $P < 0.01$ ) feed intake (whole-wheat + corn-soybean) of broiler chicks in over all growth period. The whole-wheat intakes of the birds given the 12 h sequential wet whole-wheat was the lowest ( $P < 0.05$ ). Body weight of broiler were significantly affected by wet or dry and whole-wheat sequential feeding times ( $P < 0.05$ ). Broilers in dry and 12 h sequential feeding had the lowest body weight in compare to their compartments, although, it was the highest in control ( $P < 0.05$ ). Feed conversion were significantly improved in wet whole-wheat sequential feeding for 12 h. The relative weight of gizzard and intestine were significantly increased in all of sequential feeding treatment especially in dry whole-wheat sequential feeding for 12 h. The highest cecum weight was observed in broilers received wet whole-wheat sequential feeding for 6 h and dry for 12 h ( $P < 0.05$ ). Dry wheat sequential feeding for 6 or 12 h increased proventriculus weight. The results of this study indicated that wet or dry whole-wheat sequential feeding is not suitable for broiler chick's production.

Keywords: Broiler chicks; Whole wheat; Wet feeding; Sequential feeding; Performance, Digestive organ.

## The prevention of abortion through the hormonal treatment in mares.

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According of some studies the reproductive ability in mares is lower than in other species. It is thought that the strong correlation between the progesterone concentration in blood (P4) and the pregnancy evolution could be one of the main factors that influence in their reproductive ability. The primary yellow body and the endometrial cups are the only source of progesterone production. Basing on these facts we experimented in mares the combine treatment with hormones and vitamins to prevent the abortion. For this reason we selected one farm with 7 mares where only 3 parturitions were obtained during the period 2006-2007 . The hormonal

treatment consisted in: Medroxyprogesterone acetate, 150 mg, i.m, hCG 1500 U.I, i.m and 150 mg Vitamin E also i.m. This treatment begun 15 days after the ovulation and it is repeated every 2 weeks until the 300 day of the pregnancy. So, we obtained excellent results; 6 mares from 7 mares, had normal pregnancy and parturition. Only one mare aborted 6 months after the insemination. So the improvement of the reproductive ability during two years are higher because of the hormonal treatment (3/7 & 6/7 ose 43% & 86%), (P>0.05). According these results we can conclude that the periodic use of the hormonal treatment improves the reproductive ability in mares.

Key words: Abortion, Corpus luteum, Endometrial cups, Progesterone, Mare.

## Studies regarding the production of probiotic biomass from *Lactobacillus plantarum* strains

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The aim of the study is to highlight the fact that *Lactobacillus plantarum* BS1 and BS3 strains have productivity at least similar to that calculated in the case of MRS medium when corn extract is used as nitrogen source. For tests, a medium that contains glucose 2%, corn extract – 50% d.s. 1%, Ca(OH)<sub>2</sub> 1% was used. The selection of the medium was made due to the fact that corn extract is a natural raw material very often used in the processes of biosynthesis from the medicines industry. Analyzing the results obtained it can be ascertained that the development of *Lactobacillus plantarum* strains on the medium used is comparable to that on MRS.

Keywords: probiotic, glucose, corn extract, productivity, rumen

## Research about feeding intensity for the juveniles beluga (*huso huso*, [Linnaeus, 1758](#)) in a recirculating system condition

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The main goal of the present experiment is represented by the establishment of optimal feeding ratio for the beluga fingerlings (obtained from artificial reproduction of broodstock from Danube River) in the conditions of an experimental recirculating system. The overall period of this experiment was 30 experimental days. The research included 2 experimental variants with two rearing units for each variant. The tested feeding ratio was 1.5%BW and 3%BW respectively. The fish were fed a 54% protein feed. During experiment water quality parameters (pH, O<sub>2</sub>, T, NH<sub>3</sub>-N, NO<sub>2</sub>-N, NO<sub>3</sub>-N) were recorded an everyday and, every 2 weeks, the fish were weight individually, and weight gain was recorded. Beluga growth performances were evaluated through analysis of various technological indicators: W (weight

gain), FCR (food conversion ratio), SGR (specific growth rate), PER (protein efficiency ratio). The body profile was evaluated through allometric factor.

Key words: recirculating system, adaptation, sturgeons, artificial feed.

## Comparison of the postmortem changes in the myofibrillar structure of bovine m. *Longissimus dorsi*

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The aim of this study was to determine the changes at degradation of some myofibrillar proteins in bovine m. *Longissimus dorsi* occurring post mortem during refrigerated storage. The study was carried out with six calves (male and female) of Limousin crossbreed, 24 months of age and an average live weight of 418 kg. Samples of m. *Longissimus dorsi* were taken 24 h post mortem after a 14 day vacuum aging at 2-4 °C and after 6 days storage at 2-4 °C after opening the vacuum bags. The extracted myofibrillar fractions were analysed by SDS acrylamide electrophoresis (5-11%). The amounts of T-troponin decreased ( $p < 0.01$ ) for all periods of storage which was related to the increase of 30 kDa polypeptide during vacuum aging ( $p < 0.001$ ) and after opening the bags ( $p < 0.01$ ). The desmin quantity decreased (from 1.27 % to 0.86 %) and the amounts of 38 kDa polypeptide increased ( $p < 0.05$ ) for the period of vacuum storage. Additional studies could fully clarify the changes in the myofibrillar structure of the meat during vacuum storage.

Key words: myofibrillar changes, bovine *longissimus dorsi*, storage

## Bioproductive and economic effect of the safflower on steer performance

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Twenty seven Brown steers with an average initial body weight of 285 kg were used to determine the productive effects of the dietary safflower. The animals were assigned to three groups as follows: group 1 (control) – no safflower; groups 2 and 3 – 18% and 35% safflower meal in the compound feed and wheat silage. The dietary safflower didn't change feed ingestion and didn't affect adversely feed palatability, which allowed an average daily gain in excess of 1.400 g (peaking at 1,567 g in group 2, with 18% safflower meal and 11.5% sunflower meal).

Keywords: steer, wheat silage, safflower meal, intake, feed conversion

# Research for a more precise selection of dairy buffalo cows in relation to the lactation rang of maximum potential index for milk production and fertility

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The paper aims to establish the minimum rang of lactation accepted for estimating the milk production potential. This aim is due to the great oscillations of the milk production level along the successive lactations. Since coefficients to equivalent the milk production potential of different rang lactations can't be used including young cows in the selection a scheme has to be postponed. To answer to this aim the milk control data of 99 buffalo cows having 4 or more than 4 lactations were used to calculate a selection index for milk production and fertility using

the formula:  $I = \frac{\sum_{i=1}^{1-i} l}{CI - 60}$ . Using the maximal value of this index of each cow it was concluded

to apply selection in buffalo cows only starting with the forth lactation keeping younger cows in a waiting position up to this stage. How to estimate the selection intensity in this case and a method to calculate the genetic progress are provided.

Key words: buffalo, selection criteria, selection index

## Investigation of purine derivatives in urine of ruminants by high performance liquid chromatography

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The measurement of microbial protein supply to ruminant livestock has been important area of research in ruminant protein nutrition. The purine metabolites can be used as a parameter to estimate quantitatively the supply of rumen microbial proteins to the ruminants. Initially the method used for the determination of purine derivatives in urine was a spectrometric one (Young & Conway, 1942), and then Pentz (1969) adapted the method using an autoanalyzer. The disadvantage of this method is that the procedure is long and requires precise times of operation and only a small number of samples can be analyzed per day.

The aim of this paper is to investigate the identification and quantification of the purine derivatives (hypoxanthine, xanthine, uric acid and allantoin) using two modern liquid chromatographic techniques namely: High Performance Liquid Chromatography with ultraviolet detection (HPLC-UV) and diode array detection (HPLC-DAD) respectively. The



HPLC chromatograms were registered using two HPLC equipments: Jasco-980 (UV detection at 218 nm) and Agilent 1200 (DAD detection at 203, 218, 255, 276, 292 nm).

The compounds were eluted on a Nucleosil 100 C18 column (5  $\mu$ m, 250 x 4 mm) (HPLC-UV) and Thermo Scientific ODS-2 HYPERSIL (5  $\mu$ m, 250 x 4.6 mm) (HPLC-DAD) with a buffer solution of pH 7.71 as mobile phase at a flow rate of 1 mL/min. The studied purine derivatives are well determined by the both realized methods. The obtained detection limits by the both methods are at  $\mu$ g/mL level. The HPLC-DAD method is 10 times lower than the HPLC-UV method.

These methods were applied to study the content of purine metabolites on samples of wether urine. The results are comparative.