

ANATOMICAL STUDY OF ORAL CAVITY IN ONDATRA (ONDATRA ZIBETHICA)

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Anatomical study was carried out on four fresh ondatra corpses. because of lips commissures disposition immediately the incisors and of lateral walls of oral cavities very long, ondatra can't open very large the mouth. Palatal vault, much narrowed in the oral half, has the aspect of an excavation. Incisor papilla well development, has the aspect of a tetrahedron placed on sagittal line in front of the first molar. The nine palatal creases occupy the space between incisive papilla and the plan of the last molar. Stenon channel is opened on parotidian tuber place on superior archway, before the first molar, at the base of incisive papilla. Tongue has a widened tip with a median gutter, a narrow body and very developed base, with a prominent lingual tor. On each dental archway there are two incisors very long and recurved, and six molar prismatic in shape and slow recurved. Molars have disposed in sharp angle.

Key words: *anatomical study, oral cavity, ondatra*

HISTOLOGICAL STUDY OF ORAL CAVITY IN ONDATRA (ONDATRA ZIBETHICA)

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Researches were made on fragments drawn from labial, buccinator, palatine and tongue, originated from four ondatras hunted in Aprilie. Samples were fixed in alcohol 80 degree, enclosed in histological paraffin, sectioned and stained with hematoxylin-eosin. Buccinator mucosa present fine hair associated with sebaceous glands. Epithelium of lingual mucosa present threadlike and fungus-like papillae, more numerous in tip and body of tongue, toward ventral side, are obviously the presence of sublingual salivary gland. Palatine papilla, on the section has triangular shape and contains soe fatty, oval-shape nuclei.

Key words: *histological study, oral cavity, ondatra*

STUDY ON THE EVOLUTION OF BONE MINERALIZATION IN BROILERS (0-49 DAYS) RAISED UNDER HEAT STRESS (32°C) UNDER DIFFERENT FEEDING REGIMES

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The experiment started a study on the optimal nutritional support for the harmonious development of the bone tissue in poultry raised under conditions of heat stress. This issue is actual in broilers due to the intensive development and in layers due to the competition between the calcium requirement for bone mineralization and eggshell formation. The experiment was conducted on 120 broiler chicks (0-49 days) raised in metabolic cages under heat stress (32°C). The broilers were assigned to four groups different in the supplement of vitamin C and sunflower oil to a basal diet that was the same for all groups. The control group (C) received the vitamins and minerals from the dietary premix according to NRC (1994) recommendations that do not include vitamin C. The diets for the experimental groups E1 and E2 included 150 (E) and 1500 ppm (E2) vitamin C, respectively. Compared to group C, the diet of E3 was supplemented with 5% sunflower oil. The results showed that the measurements of bone length, weight and density at 21,42 and 49 days didn't differ significantly ($p < 0.05$) between groups; in E2 there was a slight decrease of Ca level in the bone; in E3 the coefficient of absorption from the ingesta decreased for Ca (45.4% compared to 49.6% C), for Fe (13.56% compared to 14.70% C) and for Zn (20.08% compared to 22.10% M); the coefficients of Cu absorption were lower in both experimental groups with vitamin C compared to group C (3.60% E1, 3.20% E2 respectively 4.80C), which influenced adversely the Ca level in the bone of the experimental groups, but not significantly.

Key words: broiler, minerals, bones, vitamin C, oil

THE EFFECT OF SEASON ON THE RUMINAL FERMENTATION PATTERN AND RUMINAL MICROECOSYSTEM IN GOATS

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In traditionally farmed Carpatina goats offered specific forage to different seasons were studied the evolution of the ruminal microecosystem and the fermentation pattern. Season, respective the foraging concordant to the season, influenced the protozoal population structure. Genera like Ophryoscolex, Isotricha, Dasytricha appeared just at grass consumption. The hay consumption in winter determined the increase of the acetate proportion. The spring and especially the summer pasture's proteins level caused an increase of the valerianate and izo-butirate.

Key words: goats, VFA, protozoa.

ANATOMICAL AND HISTOLOGICAL ASPECTS OF THE FORESTOMACH DEVELOPMENT

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Anatomical and histological aspects of the ruminant forestomach development were studied in goat kids of 3, 6 and 14 weeks of age, maintained on grassland and fed specific to their age. Crucial changes in the anatomical development of the forestomach compartments could be observed during the period of feeding adaptation from milk to roughage. The general histological development of the forestomach seems to be age-dependent but it is affected by the diet too. The keratinization of the forestomach epithelium was an adaptive process due to the diet that induced changes.

Key words: forestomach, ruminal mucosa, reticular folds, omasal laminae.

LOCAL RAINFALL QUANTITY INFLUENCE ON SOME PHYSICAL-CHEMICAL AND MICROBIOLOGICAL WATER CHARACTERISTICS OF THE RIVER BEGA IN THE WATER CAPTURING AREA FOR DRINKING WATER PROCESSING

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This paper presents a study done on the influence of the local rainfall on the turbidity, pH and bacteriological characteristics of the river Bega in the Kingston valves area for drinking water processing. River Bega is part of the first quality surface waters, having in the studied area a width of approx. 50 m, a 4.6-4.8 m depth and a mean annual debit of 16m³s. Analyses were done on water samples taken at 4-6 hours after rainfalls, taking into account only the quantities exceeding 4 l/m². Our results show that there is a correlation between rainfall quantity and the analyzed physical-chemical parameters. The January - April period of 2001 was characterized by a poor pluviometric regime: 35.4 l-m² in January, 18.6 l-m² in February, 8.8 l/m² in March and 31.5 l-m² in April. Turbidity varied between 5⁰SiO₂/dm³ of water and 49.6⁰SiO₂/dm³ of water, and the pH values were between 7.4 and 7.8. Total coliform bacteria number varied between 1,500 and 29,000 germs/dm³ of water, being 4-6 times lower than the hygiene norms of the surface waters of the first category.

Key words: river Bega, rainfall, turbidity, pH, total coliform bacteria number

BEHAVIORAL STUDIES ON WOUNDED INDIVIDUALS OF FLORIDA MANATEE - TRICHECHUS MANATUS LATIROSTRIS, IN ARTIFICIAL CONDITIONS

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Within the Miami Seaquarium Park, there is a section for wounded manatees' treatment. These manatees are captured from the Florida coasts, by the coast guard or the park's employees. After recovery in an artificial environment, especially designed, animals are set free in the natural oceanic environment. In the artificial conditions offered by the Seaquarium during the 5th-23rd of July 1999, a study was carried out on two wounded manatees, named John and Beatrice. The study was done on a 15 days period, three hours daily (8:00-11:00 am), on Mondays, Tuesdays, Wednesdays and Thursdays when there were few visitors or none. During weekend days, animals become more restless because of the noise produced by the great number of visitors. The aim of this study was to analyze the surviving capacity of the two wounded individuals in artificial conditions, supplied only with food. The following behavioral elements were studied: routine activity, movement, feeding, resting and body hygiene, communication, social and sexual behavior. At the end of the study, there were made forecasts regarding the surviving chances of the two individuals when set free in the natural environment. Because John suffered severe wounds, his surviving capacity is quite limited. He hardly learns, feeds only at water surface, lost his balance sense and dives with difficulty. Therefore, the recommendation to, keep him in the Seaquarium Park, in artificial conditions. For Beatrice, the surviving capacity forecast was very high. Her wounds were completely healed, being unaffected morpho-anatomically. In the final period of the study, she showed a similar behavior to that of the manatees in natural environment, proving her surviving capacity.

Key words: *behavior, wounded individuals, Trichechus manatus, artificial biotope, surviving capacity forecast.*

ECONOMIC JUSTIFICATION OF ALTERNATIVE METHODS FOR SWINE LIQUID MANURE TREATMENT

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High animal concentration from pig production facilities represents a real ecological hazard, through the resulted amount of physiological wastes, solid and liquid manure. Transforming the manure into compost decrease the fertilization costs with 19%, meantime the costs involved being slightly the same with costs of the usual treatment of this wastes.

Key words: *swine, liquid manure, compost, costs.*

NEW METHODS OF BOVINE SOLID MANURE TREATMENT

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On a dairy farm where 2000 milk cows were maintained, crude solid manure deriving from the mixture of excrements and wheat straw, in the ratio of 1 kg straw: 91 excrements, was subjected to aerobic and anaerobic fermentation. During the experiment, changes of temperature, volume, water contents, organic matter contents, pH values, total macroelement contents and their low soluble forms were measured. Crude solid manure was converted by aerobic care into compost within 7 weeks; its volume was decreased by 2.3 times, macroelement contents were decreased by 4 times as compared to unit volume of compost obtained by anaerobic care. Therefore, considerably higher economic effectiveness of compost production and application to cultivated areas was achieved.

Key words: fermentation, thermophilic phase, termodisinsection, mineralization

ECOLOGICAL CRITERIA TO APPRECIATE THE NUMBER OF ANIMAL IN A FARM

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The paper presents a model of calculation of the animal number on a given surface. This principle may be applied for the surface calculation for a specific animal number, as well. Knowing the EC norm of 170 kg Nitrogen/ha/year, the shurry quantity/ha, may be calculate and therefore the resulted animal number that may be exploited on given are.

Key words: animal number, soil, shurry

STUDY OF CATALASIC ACTIVITY BY LEAD ACCUMULATION IN LABORATORY MOUSE

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*Five groups of mice were treated with different doses of lead acetate (0.0; 0.1 mM; 0.2mM; 0.3mM) and natrium acetate (0.3 mM) in 1 ml/100g body weight for five days. All mice were killed and liver, kidney and brain were recovered. Catalase activity, [determined in liver shows a decrease after treatment with increasing doses of lead salt. I content in kidney was higher than in liver. The experimental data showed the lead I accumulation in liver and kidney but also a diminished catalasic activity. The enzymatic \ activity in liver is reduced although the lead accumulation can't be appreciated as a I higher level. In kidney, the enzymatic activity of catalase was lower than in liver. The I vatalasic activity by the administration of natrium acetate (0.3 mM) is higher in liver and \ kidney as by the administration of lead acetate (0.3 mM). **Key words;** mouse, lead acetate, natrium acetate, catalase activity, liver, kidney and brain*

THE STRATEGIES REGARDING THE UTILIZATION OF THE BOVINE MANURE

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To evaluate the flows of nutrients that connect various processes, data are necessary regarding the quantities and concentrations of nutrients, the quantities and qualities of the bovine organic products, also the characteristics of the kind stock and the use in accordance with the weather conditions and soil types. The right use of bovine organic products (the manure) increases the fertility of the soil and has no negative impact upon the environment.

Key words: nutrients, stock capacity, fertilizers.

THE COMPLEMENTARY EFFECT OF SOME FORAGE ADDITIVES USED IN FEEDING OF WEANED PIGS. NOTE 3

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This paper presents the third step from a series of experiments that were focused on the complementary effect of forage additives on the nutritive and bioproductive indices in the weaned pigs. The complementary's effect was studied on 160 weaned pigs divided in to eight experimental batches, analyzing the association between three enzymatic preparation targeting the non-starch polyglucids and acidifying substance. The association between the two groups of forage additives resulted in an increase of the forage intake by 15.17%-23.07%, leading to an average body weight increase wits 15.77%-23.75% and specific consumption decrease wits 5,52%-6,67%.

Key words: forage additives, pigs, complementary's effect

THE COMPLEMENTARY EFFECT OF SOME FORAGE ADDITIVES USED IN FEEDING OF WEANED PIGS. NOTE 4

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This paper presents the compatibility and complementary effect of two groups of forage additives on the nutritive and bioproductive parameters in the weaned pigs. A hundred and twenty weaned pigs were used for the experiment and randomly divided in eight experimental batches, studying the association enzymatic preparation targeting the non-starch polyglucids and acidifying substance. The complementary's effect resulted after association between the two groups of forage additives was the improvement of the forage consumption with 20.71%-28.47%, leading to body weight increase wits 19.53%-26.33% and specific consumption decrease wits 62,81%-7,57%.

Key words: forage additives, pigs, complementary's effect

PRESTARTER FEED STRUCTURAL COMPOSITION INFLUENCES ON THE PRODUCTIVE PERFORMANCES IN WEANED PIGLETS

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Constant general decline of the Romanian economy and especially in animal raising is the result of the Romanian production units incapacity to adapt to the market economy needs. Intensive industrial pig raising in specialized pig raising complexes has utilization of sows, weaning representing the most critical period from the animals life. Presence of synthetic enzymes, in the administrated feed, which complete the piglets deficient enzymatic equipment comleted by acidifiers which improve the piglets digestive tract resistance against the Coli germs, aere ways to eliminate the "weaning crisis" and improve the efficiency of the pig meat production. The higher productive performances of piglets and elimination of some expensive veterinary interventions in this period will return the investments in such feed mixtures.

Key words: weaning, piglets, nutrition

RESEARCHES CONCERNING THE INFLUENCE OF ZINC OXIDE ADDED IN THE FEED MIXTURE DESTINED TO FATTENING PIGS

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The passage from a centralized economy to a market economy has were in the animal breeding especially in the pig breeding and fattening. Researceges were done on fattening pigs from 90 to 180 days of age, receiving the same R0 3S feed mixture, and containing 16% CP, and 3000 Kcal ME, with different Zinc oxide content (50 ppm in control group and 125 ppm in experimental group). Our results show that daily average gain was 680 g in control group and 803 g in experimental group. Specific consumption was higher in control group (4.1 kg feed on weight unit) than in the experimental one (3.47 kg feed on weight unit) Results underline also the decrease of the housing period with 16 days, with all involved costs.

Key words: pig, fattening, Zinc.

STUDY CONCERNING THE BIOPRODUCTIV EFFECT OF THE GRANULATED FEED ON THE WEAKLING PIGS

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The experiment was don eon a group of 32 weakling pigs divided in two equal lots. The control M lot was additionally fed with ground fodder and the experimental E lot with granulated in warm conditions. Usage of granulated fodder determines a higher ingestion in E lot and a better growing rate compared with the M lot.

Key words: weakling pigs, granulated feeds

THE STRUGGLE AGAINST THE ANEMIA OF THE SUCKLING PIGS WITH THE HELP OF THE PHOSFATIC GLASS WITH IRON IN COMBINATION WITH VITAMIN C

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The experiment was carried out on 48 suckling pigs in three ways.

- 1. The control lot (M) – 16 young pigs 100 mg Fe;*
- 2. The experimental lot (E 1) 16 young pigs 200 mg Fe + 100 mg vitamin C (the iron from the soluble poliphofatic glass administrated by mouth);*
- 3. The experimental lot (E 2) 16 young pigs 400 mg Fe + 200 mg vitamin C.*

The best results that concerns the growth and the values of the sanguine indexes were obtained by the lot M followed by the lot E1 and E2 but were not significant differences.

Key words: *iron, vitamin C, suckling pigs*

THE EFFECT OF SOME COMPOUND FEED ENERGETICALLY COMPONENTS ON THE QUALITY OF THE FATTENING SWINE CARCASSES

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The aim of our experiment was to see how barley as a component of fodder conentrate influences the carcass quality of fattening swine. For this we used 2 groups each having 14 animals: an experimental group and a control one. After the experiment we noted that the carcass quality of the experimental groups is better than that of the control one, as concerning the length (big and medium) and the internal width of the carcass.

Key words: *energetically components, level, swine, carcass quality.*

THE EFFECT OF SOME ENERGETICALLY COMPONENTS OF CONCENTRATED MIXTURE ON THE BIOPRODUCTIV INDICES IN THE GROWING – FINISHING PIGS

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In this study there were followed the effects of some energetic components of the concentrated mixture (corn and barley through their energetic levels on the evolution of the body weight, gain, ingeesta and specific consumption in 28 hybrids (Great White and Landrace). To the experimental lot made up from 14 animals were administrated feed with energetic and protein level of 3,047 Kcal EM, 15.01% CP in the first period and 3,131 Kcal ME, 13.04 CP in the second period. To the control lot in the first period were administrated levels of 2,822 Kcal EM and 15.1 CP and in the second period 2,886 Kcal and 13.01 CP. The usage of diferent percents of barley and corn in the structure of concentrated mixture did not influenced significantly the speed of growth and the grade usage of the food.

Key words: *energetic components, levels, pigs, bioproductiv indices.*

EFFECT OF DIFFERENTIAL FEEDING ON THE EVOLUTION OF THE CHEMICAL COMPOSITION OF THE EGG MASS IN WHITE-LEGHORN LAYERS

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The evolution of the chemical composition of the egg mass was investigated in White-Leghorn layers, with the initial weight of 1356 g. The groups differed by the dietary corn level, providing the same protein and energy level. The control received a diet with 18.47% corn characterized by (%DM):18.6 g CP; 1.9 g EE; 0.87 g lysine; 0.73 met+cystine; 0.23 g tryptophan and 17.55 MJ GE/Kg DM. The experimental group received a diet with 33.95% corn characterized by (%DM):18.0 g CP; 2.0 g EE; 0.74 g lysine; 0.63 met+cystine; 0.22 g tryptophan and 17.58 MJ GE/Kg DM. The following parameters were monitored: dry matter, protein and energy ingesta. Layer performance was: average laying percentage (eggs/hen/day):0.64 (C), 0.68 (E); average egg weight (g): 55.19 (C), respectively 55.57 (E). The chemical composition of the egg mass was: protein (g/day): 2.64 (C), respectively 2.85 (E); fat (g/day): 2.17 (C), respectively 2.16 (E) and energy (KJ/day): 156 (C), respectively 161 (E).

Key words: egg mass, corn, poultry.

DIFFERENTIAL MATEMATICAL MODEL OF THE EVOLUTION TIME OF THE CORPORAL WEIGHT OF BROILERS

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This work presents a mathematical model of the evolution in time of the corporal weight growth of the broilers during the period $t \in [0, 21]$ days. We get model using the first degree of the differential linear equation and the table 1 that gives the evolution in time of the corporal weight growth. Because of the intervention of the experimental factors this model is not a real one, the degree of accuracy being determined by these errors and factors. It is demonstrated in [1] that the solution of the equation $y' = f(t, y)$, $f \in C^0(d_2)$; $d_2 \subset \mathbb{R}^2$ for t and $t_0 = 0$ fixed depends continuously on $y_0 = y(t_0)$. The stress that appears weighing the broilers influences negatively the evolution of the corporal weight. It is necessary to indicate on analytic curve during a fixed period taking into account only the initial conditions.

Key words: linear differential equation; general solution; particular solution.

RUMINAL MICROSIMBIONT ACTIVITY STIMULATION IN UNWEANED LAMBS, USING “PROSIMBIONT A” FEED ADDITIVE

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Researches were done in order to evaluate the effect of “prosimbiont a” feed additive on the structure of the microorganisms population from the ruminal liquid in unweaned lambs. During the experiments (12 – 47 days) lambs were feed ad libidum with alfalfa hay and a mixture feed containing 18% crude protein (cp) (I₁ and I₂; n=9) and 16% cp (I₂; n=9). Both bacteria population and infusors population was greater numerically and more diversified in group 1 and 2 comparing with the control group.

Key words: *unweaned lambs; feed additive; ruminal microsymbionts.*

PLANTS SEEDING DENSITY INFLUENCE ON THE NITROGEN SIMBIOTICAL FIXATION ABILITY AT THE VESCE

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Vicia pannonica nitrogen fixation ability is highly influenced by the plants density on the surface unit. Nodosities formation, like indicator of this physiological process, is negatively correlated with the plants density; Our researches show that at 50 kg/ha seeding quote 30.6 nodosities formation can be observed in average, and at 200 kg/ha seeding quote only 9.2 formed nodosities were observed. Also the weights of the nodosities decrease proportionally when the seeding quotes increase. When number of formed nodosities on ha is reported, our results show an increasing tendency according to the seeding quote.

Key words: *Vicia pannonica, nitrogen symbiotical fixation, nodosities formation, seeding quote*

RESEARCHES CONCERNING THE RELATIONSHIP BETWEEN THE ROOT BIOMASS AND VEGETATIVE BIOMASS IN WHITE CLOVER SEEDED IN SUMMER END AND SEED PRODUCTION

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When perennial leguminosarum are seeded in summer - autumn period, seed production can be reached from the first vegetation year. An important seed production, involving lower costs, can be obtained by this way, when comparing with the classical technology. In white clover, comparing with the red clover and alfalfa, summer - autumn seeding is 7 - 10 days earlier (10 - 20 august). In the winter beginning time, shoot number is 0.3- 2.3 and plant losses in winter are around 45%. Decrease of thermal degree sum from the seeding to the winter beginning with 100 °C involves a seed production decrease with at least 50 kg/ha.

Key words: *white clover, seed production, new cultivation technology*

THE INFLUENCE OF NITROGEN FERTILIZATION IN CRIMSON CLOVER (TRIFOLIUM INCARNATUM) ON BIOMASS PRODUCTION

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Crimson clover is the earliest annual legume. It serves for obtaining an early fodder (with 14 day faster than red crimson) but it is less nutritive and pleasant for the animals (due to the leavers and stems porosity) than the red clover.

Key words: *Trifolium incarnatum, technologies, nitrogen fertilisation*

THE INFLUENCE OF MIXTURE TYPE AND NITROGEN FERTILIZATION ON BIOMASS YIELD AND CRIMSON (TRIFOLIUM INCARNATUM) FLORAL COMPOSITION EVOLUTION

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The crimson clover precocity makes it one of the best annual fodder legumes for cereals and sorghum rotation (4). This species grows and gives good results on every type of soil, except the clay, acids, and sandy ones. With an optimum humidity regime it could be sowed even on sandy soils. It likes sanding-tonig and tonig-sanding soil (2). The fertilizers are applied before sowing during the sowing or during plants growing period (1)

Key words: Trifolium incarnatum, mixture, nitrogen fertilisation, floral composition.

EFFECTS OF SOIL LIMING AND MINERAL FERTILIZERS ON THE PALATABILITY OF FODDERS AT GRAZING WITH YOUNG SHEEP

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The research has been made in Palinis Experimental Field (1360 m) on a brown acid soil, having a clayey texture, a strong acid pH 4.62-5.10 (in water), a high content of organic substance which gradually decreases in profile an a rapport C/N=16.7. We had in view the influence of the soil liming with calcium on the crop of dry substance, the efficiency of mineral fertilizers on non manured or manured pastures i.e. the effect of soil liming and chemical fertilizers regarding the palatability of the fodder grazed by the young sheep.

Key words: soil liming, fertilizers, fodder, sheep.

ESTIMATE THE PROTEIN REQUIREMENT FOR SOWS USING A MATHEMATICAL MODEL AND COMPUTER SIMULATION

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The mathematical model for protein allowance estimation is based on functions and parametrs from the literature, as well as on our own results. The mathematical model purposed for pregnant sows may be applied for dry sown and for suckling piglets too.

Key words: model mathematical, protein, sows.

LABOR EFFICIENCY OF RAISING CALVES IN OUTDOOR HUTS

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The goal of this paper was to quantify the labor requirements for rearing calves in outdoor huts. Time needed for each operation was measured and reported per calf. During the 63 days of raising calves in this specific technology 3 hours and 59 minutes of labor per calf was needed. Daily tasks took, on average, 182.56 minutes (3 hours and 3 minutes) including: feeding milk replacer (58.8 minutes), watering (55.44 minutes), feeding the grain (48.16 minutes), and washing the equipment (20.16 minutes). Periodically performed tasks took, on average, 56.71 minutes, comprising processing at arrival (2.31 minutes), starting calves (5.29 minute), bedding (11.3 minutes), dehorning (4.39 minutes), treatments (5.12 minutes), pushing and hauling the bedding (5.99 minutes), and preparing the hut for a new calf (22.31 minutes).

Key words: calves, hutches, labor efficiency

OBSERVATIONS ON NUTRITIONAL BEHAVIOR OF CALVES FED WITH AUTOMATIC SUCKLING MACHINE STAND ALONE 2 KOMBI

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Study was carried out on 5 Romanian Black and White bull calves during an 84-days time frame, divided in five periods, fed with an automatic machine. The measured nutritional behavior aspects were total milk consumption, average milk consumption speed, number of robberies, number of daily visits with consumption and number of daily visits without consumption. Milk consumption speed increased with age of calves, from 0.851 l/min in the first feeding period to 1.174 l/min in the fifth period. Number of robberies decreased from 6 in the first period to 0.4 in the fifth period. Calves visited frequently the feeding box and consumed milk in the first period (5.38), then more seldom in the second and third periods (1.7 and 1.89), and the frequency increased again in the fourth period (3.13). Number of daily visits without consumption decreased with age of calves, from 12.41 to 6.94, being relatively high during the last period.

Key words: calves, automatic suckling machine, nutritional behavior

ACTUAL STATE OF CATTLE PRODUCTION IN YUGOSLAVIA

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Actual state of cattle production in Yugoslavia is presented in the paper, concerning on the milk and meat production, breed participation and milk recording in socially owned and private sector.

Key words: cattle, beef, milk, meat, cattle breed.

THE MAIN ZOOECONOMICAL INDICES OF SOME DAIRY CATTLE FARMS FROM CENTRAL AREA OF THE COUNTRY ACCORDING TO THEIR DIMENSIONS

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Research was performed on 294 dairy cows farms from 6 districts situated on the central area of the country. The farms were structured function of the number of the cows in 5 groups, where we studied many socio-economical, technical and organizing, and financial indices, as: work capacity, the dimension and the character of the exploitation, technical and material base, and the economical and financial balance. Research revealed an impressive number of data, which both assure the knowledge and zooeconomical vharacterization of the exploitations from the area, and represents the fundamental basis for the elaboration of the new and optimized technologies for cattle exploit from the center and North-West of the country for milk production.

Key words: *cattle, dairy farms, exploitations.*

STUDIES THE PRODUCTIVE LONGEVITY ON SOME BROWN BREED POPULATIONS IN THE EAST PART OF THE COUNTRY (MOLDAVIA REGION)

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The period of productive life at those 1520 cows, which finished their production period in the studied farms, was around 963.29 days, with limits between 80 and 3809 days, so, with a very pronounced variability ($s=627.07$ days): The cows from this population have been exploited on average only 2.8 normal lactations (305 days), the culling frm the effective, taking place too early. The lifetime period was of 2069.7 days, with limits between 883 and 4380 days. This means that the cows had been maintained in population on an average of 5.67 years, with limits between 2.41 and 12 years. The average milk production on productive life was 9.292.15 kg, with limits between 414 kg and 47461 kg. Taking into account the period of exploitation and the milk production results that in the studied population mean on average 9.64 kg milk and 0.37 kg fat on a day of productive life, that means 4.48 kg milk and 0.17 kg proceeds on a day of life. The cows from this population have been exploited, on average only 2.8 normal lactations (305 days), the culling from the effective, taking place too early.

Key words: *Brown Breed, productive lifetime, lactation indices.*

RESEARCHES CONCERNING THE GENETIC PARAMETERS OF THE MILK PRODUCTION IN BROWN BREED COWS GROWN IN THE EAST PART OF THE COUNTRY (MOLDAVIA)

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Heritability and repeatability were calculated for a population of 1520 Brown cows, using the intra-classes correlation as method of work. A low value of the heritability coefficient was found for the amount of milk (0.27) and a high one for proportion of fat (0.54), which is characterized by a more pronounced genetic determinism. The value of the repeatability coefficient raise with the number of repetition, the highest repeatability of the amount of milk was found at the third lactation. The maximum values of the multiple heritability coefficients was found at the second lactation, and the proportion of fat and the amount of fat at more than three lactations.

Key words: *genetic parametrs, milk production, Brown Breed cows.*

RESEARCHES CONCERNING REPRODUCTIVE AND PRODUCTIVE ACTIVITY OF THE ARDENNES AND NONIUS HORSES IN THE CONDITIONS OF THE PADURENI AND (DISTRICT OF TIMIS) STUD FARMS

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The analysis of two breed studbooks showed that: horse number is decrti fecundity rate is 70.7% in the Nonius horse and 74.1% in the Ardennes ontf, rate is 66.1% in the Nonius horse and 65.8% in the Ardennes one; first foal id is 51.84M.64 months in the Ardennes breed and 62.84dO.89 months in the Aj one, the difference being quite significant; life time is 117.6±3.4 months i Ardennes breed and 128.3±0.52 months in the Nonius horse, the difference j distinctly significant; exploitation duration is almost identical for both ofthen^ number foaled per mare is 3.74M.22 in the Ardennes breed and 4.5±0.3Q | Nonius horse; colt number kept for breeding per mare is 1.38M.31 in the Ard breed and 1.84M.43 in the Nonius horse. Key words: reproduction activity, Nonius horse, Ardennes

DETERMINING LOCAL EQUINE POPULATION PHENOTYPK PARAMETRES IN OHABA LUNGA ROMANA (DISTRICT OF TIMIS) IMPROVED WITH ARDENNES AND NONIUS STUDS

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The author studied the improving effect of the Ardennes and Nonius studs on the fa equine population in Ohaba Lungd RomdnS (District ofUmis). The 12 body measurenn on 90 adult horses allowed the author to establish the morphologic type ofthe;j after origpi Thus, the equine population under study can be featured as small to i size draft horses (145.1 ±1.1 cm) with a rectangular body format, slight depth (46.29 relatively narrow chest (22.2%), a relatively well developed croup, a good heart (116.9%) and frame of bones (13.7%); body weight is qf395.5±4.9 kg.

Key words: *crossbreeding, Ardennes horse, Nonius horse.*

RESEARCHES CONCERNING THE GENERATION INTERVAL IN THE NONIUS VARIETY

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Of a number of 168 pairs of mare-male offspring and 196 pairs of mare-female offspring the authors calculated the period between generations on dam-line of Nonius horse. This period is of 1294418.43 months, respectively 10.79 years at the mare-female offspring and 122.78±4.5 months, respectively 10.23 years at the stallion-female offspring being on the average of 9.53 years. On stallion line the period between generation stallion male offspring is 11.02 years and stallion female offspring is 11.41 years being, on the average, 11.21 years old. As for the Nonius fit, the period between generations is 10.37 years and is by 1.66 years shorter than the one for the Arab by 1.78 years shorter than the one for the Romanian Trotter and by 1.36 years shorter than the one for the Furioso North Star.

Key words: horse, generation intervals..

EPIDEMIOLOGICAL STUDY OF OVINE OESTROSIS IN TIMIS DISTRICT

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The researches aimed at the study of the epidemiological triad component factors (the definitive host, causal agent, surrounding medium). For this desideratum carrying out been used as epidemiologic parameter „animal prevalence mean“, indicator that sees the number of animals with clinical signs assigned to ovine oestrosis, from a high risk situation. The researches have been carried out between 1994-1999 in 13 flocks of Timis district on an annual mean of 46544 sheep. The animal prevalence time analysis emphasized that the most increased mean values have been encountered in 1995, 1996 and 1999; and the most decreased values have been encountered in 1994. The dynamics was determined by climatic conditions, which the larval stages maturation. The area of Timis district, with climatic and environmental characteristics represents a suitable area for ovine oestrosis. Key words; temperature, precipitation, photoperiod, ovine oestrosis, epidemiology, prevalence.

PRODUCTION LEVELS OF SUFFOLK, BABOLNA TETRA AND ILE DE FRANCE BREEDING STOCKS OF BABOLNA CO, SZENDRO

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Average pedigree records of Suffolk, Ile de France and Babolna Tetra sheep breeds of Babolna Co. well show the production-fluctuation and problems during the adaptation and establishment of a new breed. Beside this it is also obvious that notable improvement could not be realized in many years. Results were largely fluctuate year-by-year-it is especially applied on the synthetic breeding value, the index value-as an indicator of the environmental changes and genetic instability through the phenotypic results. Consideration of prolificacy parameters – birth type – has not resulted the prolificacy improvement of following generations, which can be explained by complex reasons. Positive element of breeding-work is that live weight of second year has stabilized on a typical level of the breed, with consideration of the given environmental factors. According to the results we have found the evaluation of relationship-level necessary for the more effective breeding work.

Key words: *average pedigree, sheep, Suffolk, Ile de France, Babolna Tetra.*

THE EFFECT OF DIFFERENT LEVEL OF SHEEP KEEPING AND BREEDING TECHNOLOGIES ON PROFITABILITY

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The labour productivity of the extensive technology is higher than in the intensive technology. The extensive system does not need qualified labour, but the employment is periodical. In the case of expenses, every item is higher in the intensive technology. The material expenses, have highest proportion in both cases. The level of inputs in naturals and money value is smaller in the extensive technology, and the profitability does not fall behind considerably from the intensive technology. In the case of the indexes for sales revenue and assets proportional profitability, the extensive technology shows a better picture.

Key words: *Sheep, breeding technologies, profitability.*

RATIONAL KEEPING TECHNOLOGY FOR A PROLIFIC BREED

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The basic prolific breed of the Babolna Lamb-Meat Producing System is the synthetic Babolna TETRA, which was officially certified in 1999. Keeping and breeding of this breed, which can lamb two or more, needs special technology. During the development of the breed, Hungarian specialists began to establish an adequate keeping system, which considers the special needs of the breed. Because of its high prolificacy, the guidelines of emplacement and logistics had to be adapted. A new type of barn was built up following the most progressive trends and the needs of the animal. On a 2.000-ewe plant, there is a 4.000 m² light-structured wood barn, which has awning or plastic-foil sidewalls. This allows the free circulation of air and animals in the building during the hot summers, according to their needs. Among the advantages of the buildings, it is easy to handle the 2.000 ewe flock. The plant is surrounded by electric-fences and pastures for pregnant and milking ewes. In addition to the lambing and sucking-periods, keeping technology for other sheep-breeds (big groups, grazing et.) is completely suitable to the demands of this breed. There are no special requirements in the field of feeding, apart from the high nutrition demand of higher production.

Key words: *sheep, new breed with high prolificacy, keeping technology*

LA CALITE DU MATERIEL SEMINAL DE BOUC, EXPRIME PAR LA PRETABILITE AU CONGELATION, DANS DIFFERENTS DILUEURS

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L'appréciation de la capacité fécondante du sperme de bouc, on peut être effectuée par un test de la qualité, par deux indices: de prétabilité (IP%) et de survivance (IS%) des spermatozoïdes au choc glaciaire (-196°C), après la congélation. Par nos études, nous avons établi la prétabilité du sperme de bouc, au congélation, dans plusieurs milieux de dilution. Le contrôle et l'évaluation de la qualité du sperme a été réalisé, aussi en présence et en absence du plasma séminal.

Mots clef: *capacité fécondante, spermatozoïde, indice de survivance, indice de prétabilité, plasma séminal, choc glaciaire, congélation, bouc.*

DES ETUDES SUR LA CONTRIBUTION DE GLYCEROL DANS LA CRYOCONSERVATION DU MATERIEL SEMINAL DE BOUC

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Le mecanisme de cryoconservation est dependant de la temperature et de la conductivite hydraulique, cree sur l'entiere surface des spermatozoides. Les diluants pour le sperme ont le role de protejer les spermatozoides des actions nuisibles, qui portent au vieillissement rapide et a la mort de ceux-ci. Nous avons etabli le degre optimum d'agent cryoprotecteur de chaque ejaculation. Comme agent cryoprotecteur nous avons utilise le glycerol, en differents proportions.

Mots clef: bouc, dilution, le sperme, cryoconservation, glycerol, ejaculation, spermatozoide, saison sexuelle, contrasaison, nuisible.

PHENOTYPICAL CHARACTERISATION OF THE PRODUCTIVE TRAITS IN BLACK HEAD TSIGAIA SHEEP

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Under the economic conditions of Romania, the only solution for sheep production survival is directing it towards increasing the milk and meat production. During the past years, a sheep population with improved aptitudes for milk production was noticed in our country, population which has high daily gains both during lactation and after weaning. The purpose of this paper is to give a phenotypical characterisation of the black-head Tsigaia sheep. At lambing, the lambs weigh in excess of 5 kilograms and during suckling their daily weight gain exceeds 270 g. After weaning the lambs gain 137-217g/day according to the supply of dietary compound feeds. The wool production has the following characteristics: 35 micron fleece, 9 cm long, 3 kg wool, 45 kg body weight at the first shearing. The average milk yield is 86.4 l at the first lactation, with an average period of 142 days and an average daily milk yield of 615 ml. The black-head Tsigaia needs a scientific assessment as breed; the characters that have to be improved must be determined and a breeding program must be development, which to increase the milk and meat yield and make the other traits uniform.

Key words: Tsigaia, milk yield, meat production.

INTENSIVE BREEDING PROJECT FOR AN 960 GOATS HERD

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Using the existing information on mondial level, an average industrial facility was projected for a 960 goats herd, in two growth shelters. Each shelter has 10 compartments of 81.75 m², insuring 1.73 m²/goat. Feeding, drinking, milking and manure evacuation is insured by mechanical ways. Goats are maintained r permanently in shelters and feeding is done with a unique mixture. Work productivity is 260 goat per worker. The farm is projected to deliver 576000 liters of milk and 17140 kg of live kid meat and to hold at least 10% of profit. It is suggested that the realization of some industrial farms of goats exploitation, with an average capacity, in the urban neighboring represent a viable alternative for the farmers.

Key words: *intensive exploitation, milk goats.*

THE LAMBING AND SHEARING YEAR EFFECT ON)DUCTION PERFORMANCES OF TSIGAI YOUNG TSIGAI AND EWES FROM S.C.A. TURDA

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Research aims to establish the effect of the lambing year on productive performances realized by Tsigai young ewes and rams at the first shearing. The individual data were statistically processed and the significance of the differences between years using t and F tests was established. Statistical significant differences, which can be attributed to the influence of the lambing and shearing year, were recorded between the average values of the young ewes in all analyzed traits as well as for the body weight and fiber length between the rams born in 1997 and 1998. Variance analysis and F test indicate the significant influence of the lambing and shearing year in young ewes for all analyzed traits at the first shearing and also for the body weight and fiber length in young rams.

Key words: *young rams and ewes, lambing year, wool production, body weight*

ABSOLUTE GROWING RATE FROM LAMBING TO WEANING IN TURCANA x ILE DE FRANCE CROSSBREED LAMBS

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Studies were done on a group of 12 hybrids Turcana x Ile de France lambs (E) compared with a pure Turcana group lambs (n=12), following the evolution of the body weight and the average daily gain. Hybrid lambs were realized an significantly higher (p<0.01) from lambing to one months, two months and weaning age, compared with the pure Turcana breed lambs. The average daily gain was significantly higher (p<0.01) with 14 g in hybrid lambs, compared with the Turcana breed lambs.

Key words: *hybrids, Turcana, Ile de France .*

MODERN TRENDS OF DESIGNING POULTRY PRODUCTS AND A SUGGESTION FOR EVALUATION OF THE REAL BENEFIT

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Positive effects of some fatty acids are well known in prevention of cardiovascular diseases, and also there is a fact that because of specific poultry metabolism we manipulate with fatty acids in chicken products (specially chicken meat and chicken eggs) and enrich (design) it by a determinate feeding regime. Goal of this scientific paper is to show through mathematical model and parameter called "atherogenic index" that lipids contain some other harmful components, in order to take more care about them. Examples are shown for chicken meat, chickens of "HYBRO" hybrid had been fed with a complete mixture with addition of 6% of lard (group L), soybean oil (SO) and oils of different sunflower (SFO₁, SFO₂).

Key words: *poultry products, chicken, fatty acids, cholesterol, atherogenic index*

EFFECT OF LIGHTING PROGRAM DURING REARING PERFORMANCE OF COMMERCIAL LAYING PULLETS

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In this work, the effect of intermittent lighting programs on body weight, feed conversion ratio and vitality of birds at 18 weeks of age, have been studied. Hens of control group (A) had been reared under standard lighting program (8 h L : 16 h D) up to 17th week of age. Experimental groups were reared under the following programs: Group B - (2 h L : 1 h D) x 3 + 15h D; Group C - (2 h L : 1 h D) x 4 + 12h D; Group D was reared under the same program as Group C until 12th week and after that it was transferred to standard rearing program. The results have shown the positive effects of intermittent light on body weight, feed conversion ratio and vitality of birds at the end of rearing period (18 weeks).

Key words: *hens, intermittent light, body weight, conversion, mortality*

THE RAISING IN CAPTIVITY OF THE PARTRIDGE (PERDIX PERDIX)

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In this work we are presently the technology of raising partridges in captivity. We notice, that after hatching the partridge chicken, with a body weight of 7 grams, are raised on sawdust ground, under thermostat at 32 degrees, then following a decrease of one degree, each day plenty of water.

The nourishing takes place in the first three weeks with a diet that assures 29% crude protein annual 12 Mj/kg/EM. The content in protein decreases at 22-24% at 5 weeks, then reaches 18% at 6 weeks and achieves 14-15% after 10 weeks.

After age of 6 weeks, the chickens are feed in the shelter with possibility of movement during the day.

In July-August, the partridges are separated on sex and in February the pairs are coming together and are brought in special caves with shelters for laying eggs.

The obtained eggs are gathered and kept at 7-10 degrees, and after that they are incubated at a specific regime for partridges.

Key words: *partridge, captivity, endangered species*

ATTEMPTS TO OPTIMIZE THE FEEDING OF THE PARTRIDGE (PERDIX PERDIX) CHICKEN IN THE FIRST FIVE WEEKS OF LIFE

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In this work we are presenting the results of trying to reduce the costs of forage in the raising of partridges in captivity. For this we tried on the one hand to replace more than half of the quantity of fishmeal with soybean meal and sunflower meal, to assure the need of protein for the raising of partridge chicken from lifestart until 4 weeks, and on the second hand we tried to use as energy source only corn instead of a mixture of corn (28,6) and wheat (17,4). The obtained results in the experiment lead us to the following conclusions:

1. The diet which assures a level of 29% protein and 11,2 Mj/Kg EM (metabolisable energy) and which has protein source 32% animal origin forage (fishmeal) and as energy source: corn and wheat, assures a normal development and without loss of the partridge chicken raised up in captivity.

2. The diets that have as protein in big part forage of vegetal origin, (88%) and only 12% animal origin, have a bad influence over the dynamics of raising and development of partridge chicken. This sort of diet underlines the differences of growing between individuals but doesn't have an influence over the immune system of the chicken.

3. The diets assure 29% crude protein and 11,2 MJ/Kg EM, but which have as energy source only corn, may seem to have a negative influence over the development of the chicken but only after the age of 10-a 5 days.

Key words: *partridge, feeding optimization, protein source, energy source*

EXAMINATION OF SOME ASPECTS OF SWINE HEALTH MANAGEMENT AT A COMMERCIAL FARM

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Since the Second World War Hungarian swine industry has changed a lot. The concentration of animals increased, swine farms hundreds and thousands of sows became common. Swine health management has to adopt it self to the circumstances. The examined swine farm had 800 sows; it is in the eastern part of the country. Health management of weaned pigs and fattening pigs was studied for five years. The most important pathogens of weaned pigs and fattening pigs were identified and their clinical pictures were described at the farm. The following pathogens and disrases occurred at the farm: Escherichia coli, dysentery, rhinitis atropican, Mycoplasma pneumonia, Actinobacillus-pleuropneumonia, Streptococcus spp., and circo-virus. Mortality data of five years were analyzed. Evaluation of mortality data helped us to understand the health history of the swine farm. Determination of the most critical periods of health management enables managers to give an adequate answer and to minimize losses. The management was changed over the period of five years that effected the health condition of the swine farm.

Key words: *swine health management, infection, mortality, treatment, prevention.*

PIGS SELECTION AND HYBRIDIZATION PROGRAM IN THE REPUBLIC OF MOLDOVA

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The purpose of researches was to investigate the ways to increase the productivity of pig breeding. Scientific concept and new methods were experimentally checked in order to create specialized lines and for selection in pigs phylum. Lines were tested on compatibility with the purpose of creation of highly productive crosses for pig breeding. During 1973-2001 in the farms of Republic of Moldova was created the Moldavian meat phylum with 3 specialized paternal lines: "Niconia", "Manoileun", "Uniset" and a maternal one "Buchet". It was established, that more effective hybrids were obtained during interlinear combination of sows SL "Buchet" x SL "Uniset" with boars of a specialized paternal line "Niconia". In comparison with pigs of Large White breed, their feeding was finished 23 days earlier, their lard was 0.85 cm thinner, and weight of a back third carcass was 0.0 kg higher. The hybrids from boars of a specialized line "Manoileun" and Moldavian meat phylum are closed to them on productivity.

Key words: *boars, sows, piglet, genotype, hybrid, cross.*

SEARCHES CONCERNING THE INFLUENCE OF SOW AGE AND FARROWING SEASON ON PROLIFICITY

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The researches carried out during 2000 were put into evidence the fact that sow age and the seasons were influenced differently the prolificacy feature of sow biological material, grown and exploited in intensive conditions.

Key words: *prolificacy, sow, piglet, Large White, Landrace*

FERTILITY OF SOWS WITH DIFFERENT WEANING-to-ESTRUS INTERVAL

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Influence of various artificial insemination (AI) timing, in sows with different weaning-to-estrus interval (WEI) duration, on the farrowing rate and litter size were investigated. AI were performed 0h and 12h, 12h and 24h or 24h and 36h after standing estrus detection, in the sows with WEI < 5 days (n=63), 5 to 6 days (n=65) or > 7 days (n=52). Maximal farrowing rate and live born piglets per litter were estimate in sows with WEI < 5 days AI 24h and 36h (77% and 10,2), in sows with WEI 5 to 6 days AI 12h and 24h (80% and 9,89) and in sows with WEI > 7 days AI 0h and 12h after estrus detection (72% and 8,5). These results suggest that short WEI sows should be AI later in estrus period than long WEI sows.

Key words: *WEI, AI-timing, fertility, sow.*

USING OF SPECTRAL METHOD IN ESTIMATION OF SEASONALITY OF DYNAMIC SERIES

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A very large class of important problems from animals' domain falls under general rubric of "Fourier transform methods" or "spectral methods". In animal production, a short analysis of technological course results shows a temporal pattern of monthly parameters of production, as a trace of seasonality evolution of production and reproduction traits. In opposition to classical analysis methods of dynamical series, the spectral analysis allows for the treatment of series according to the periodical aspect and not to the temporal one. The dynamic series is considered as a repeatable run of a wave of different amplitude, during a time interval. One dynamical series, covering ten years, were treated: fecundity in a pig production farm.

Key words: *seasonality, trend, and periodical functions*

RESEARCHES ON INFLUENCE OF SOME PHYSIO-TECHNOLOGICAL FACTORS ON FIRST MATING IN LARGE WHITE: ENTROPY ANALYSIS

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The paper shows entropy of some physio-technological factors in delaying the age of the first mating (A_{MI}) in the Large White gilts. The sample had 2533 gilts that were born in five-years period. The factors were the following: the weight at 90 days of age (W_{90}) and 182 days (W_{182}), the age at the live weight of 90 kg ($A_{90\text{ kg}}$), the fat thickness at 182 days (F_{182}), the body protein at 182 days (P_{182}) and average daily gain (DG) between the age of 90 and 182 days. The factors and A_{MI} were transformed in categorical variable. The criterion for dividing was the mean and standard deviation. Entropy and relative entropy of A_{MI} generated by each factor and each class of factors were calculated DG and P_{182} determined the highest relative entropy of A_{MI} (0.728 respectively 0.714). The results indicate that these factors are very implicated in the temporal farrowing distribution.

Key words: gilts, Large White, 1st mating, entropy.

RESEARCHES ON SOME INDICES AND FACTORS OF TECHNOLOGICAL RISK ASSOCIATED WITH FIRST MATING AGE IN LARGE WHITE GILTS

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The paper shows entropy of some technological risk factors of delaying the age of first mating (D_{MI}) in the Large White gilts. The sample had 2533 gilts that were born in five-years period. The gilts having low weight at the age 90 and 182 days (<25 kg and <80 kg) were 1.97 respectively 1.93 times more at risk of developing delayed age at the 1st farrowing (DF). The thin gilts that lower fat depth at 182 days (<18.29 mm) and lower DG (<439 g) were 1.49 respectively 1.90 times more at risk of D_{MI} . The low body protein at 182 days (<12.69kg) were 1.82 times more at risk of D_{MI} . The prolonged age at the live weight of 90 kg (177-186, or 185-191 days) caused D_{MI} (OR=1.50 and 3.13). The results indicate that some classes of these factors can be considered indicators or factors of technological risk. The weight appeared to be the most confident risk factors to estimate the temporal mating distribution.

Key words: Large White, first mating, indicators/factors of technological risk.

INFLUENCE OF LOW LEVEL EXPOSURE TO FUMONISIN B1 ON SELECTED IMMUNOLOGICAL PARAMETERS IN WEANED PIGLETS

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The experiment was conducted in order to assess the immediate humoral response in weaned piglets fed on a diet contaminated with fumonisin B1 (FB1). Twenty piglets were assigned randomly, ten piglets in a group, to one of the two groups: control and treated with FB1 (8 ppm). The piglets were fed on the appropriate diets for 28 days and were inoculated with 1 ml inactivated Mycoplasma agalactiae strains on days 7 and 21 of the experiment. FB1 didn't change the body weight of the intoxicated piglets. The primary and secondary immune response was measured on days 21 and 28, respectively. No significant differences of the total IgG and IgA antibodies titre were observed in the serum of the FB1treated piglets compared to the control piglets. The secondary immune response, however, expressed by the titre of anti Mycoplasma agalactiae antibodies of the intoxicated piglets decreased significantly compared to the control ($p < 0.05$). The results of the present study show that low FB1 concentrations have immunosuppressing effects on weaned piglets, but they don't affect the growth performance.

Key words: pig, antibodies, fumonisin B1, immunity

THE MODELLING OF THE STRESSES AND DEFORMATIONS WHICH APPEAR IN THE MOST SOLICITED MECHANISMS OF THE AGRICULTURAL MACHINERY, USING "FINITE ELEMENTS METHOD", RESPECTIVELY THE COSMOS /M PROGRAMME

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This paper presents the significance of the Finite Elements Method (F.E.M), respectively the COSMOS/M programme in the modelling of the stress and deformation states that appear in the most solicited mechanisms of the agricultural machinery.

Key words: lamellar mouldboard, Hardy nozzle, stress, deformation.

CONSTRUCTION DESIGN VARIANT OF A MATERNITY SHELTER IN A FARM FOR DAIRY COWS

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An analysis report concerning the constructive conditions existent in a farm for dairy cows were done offering optimization solutions and taking into consideration that this farm is an important source of milk products for people of Cluj-Napoca.

Key words: dairy cows, maternity shelter, nursery compartment.

COW MILKING MACHINES MUST WORK AT THE BEST PARAMETERS IN ORDER TO PROVIDE A STATE OF COMFORT FOR THE COWS AND A MAXIMUM FLOW OF MILK AT MILKING

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The milking machine must provide a state of comfort for the cows in the working process. They effected 4800-6000 milking per cow and normally produce about 1650000 cycles. The adequate achieved cycles produce the state of comfort for the cows and lead to the increasing of the milking flow, illustrated by four figures and a table with the results of the statistical analysis. Comfort improvement at milking reduces mastitis cases in cows. For the currently used pulsatory collector, two important observations are presented. The designers should notice them.

Key words: *pulsatory collector, mastitis, elastic sleeve.*

THE ADJUSTMENT OF DAIRY COWS SHELTERS FROM THE TIED SYSTEM INTO FREE STALL ACCOMMODATION

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The work presents variants of arranging the Transylvania existing shelters or those that been deserted, so the dairy cows shelters built 30 years ago, by simple changes, easy to make, could be used as shelters for dairy cows in free-stall accommodation (Figure 1). The shelters of 9.00 m and 105 m width permit the combination of the resting exercise and feeding functions, while the one of 12.0 m width assures the functional separation by placing a concrete alley along the manger where the straw bedding can be reduced to 1.0-3.0 kg/animal, bedding that is necessary for manure disposal and the avoidance of the mud in the area. This kind of breeding assures a natural behavior of the species, without stressing situation. The straw bedding is well accepted by the animals during the cold period of the year, the heat losses by the floor are minimum.

Key words: *dairy cows, free stall accomodation*

THE NEED FOR HIGH QUALITY PROFESSIONAL TRAINING IN AQUACULTURE AND ITS ROLE IN THE DEVELOPMENT OF THE FISHERIES BRANCH IN ROMANIA

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During centuries fish was regarded as one of the best natural assets of Romania. If fishing as a work has a long history, fisheries were considered as economic activities not long time ago. Today this field is in a constant growth as a result of increasing demands on all markets. Therefore, in the present article the main goal was to highlight the need for top professionals trained to cope with current needs in all fishery activity in the context of recent start of the new Department of Fisheries within all Agricultural and Veterinary Medicine Universities. Several targets and tasks of the future professionals are presented and also their role in the development of the fisheries within Romania. Furthermore, beside the traditional fish farming there is an increasing demand for other aquaculture products and therefore a great need for specialists able to fulfill these objectives. In the present article we try to cover some of the challenges we face in order to deliver top quality graduates able to cope with the need of high performance.

Key words: *fisheries, aquaculture, academic training, specialists*

“IN VITRO” BEFRUCHTUNGSVERSUCHE DER KARPENROGEN MIT VON ANDEREN WIRBELTIEREN STAMMENDEM SPERMA

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*A fertilisation of the common carp eggs with sperms from other Vertebrates (*Rana esculenta*-Amphibia and *Bos taurus* –Mammalia) was tried to be performed in order to induce a gynogenetic development of the fish eggs. The observations of the segmentation events of the egg and of the early development of the embryo showed that the sperm head must penetrate into the egg to induce a gynogenetic development of the egg. In this order the sperm head had to be smaller than the micropil of the egg.*

Key words: *common carp, gynogenetic development, intergeneric hybridization, partenogenetic segmentation*

STUDY ABOUT THE CHROMOSOME POLYMORPHISM IN EXPERIMENTALLY OBTAINED ANDROGENETIC COMMON CARPS

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Androgenetic individuals were obtained fertilising by UV irradiation inactivated common carp eggs with normal sperm. To induce diploidy the pseudozygote was temperature shocked. All analysed individuals were diploid with 84-102 chromosomes. The survival with luck of until 16 chromosomes was possible because the common carp is tetraploid. The chromosome reorganisation events happened all over the segmentation and morphogenesis. All analysed tissues (kidney, scale epithelium and gill epithelium) had mosaic cells. For haploidy manipulated populations there were 60% of the individuals with 20-30% aneuploid cells. The incidence of interindividual polymorphism in 80-90% of the analysed individuals had a 7.3-7.8% variation. There was no significant interpopulational polymorphism.

Key words: *chromosome polymorphism, common carp, induced androgenesis, haploidy, diploidy.*

L'INFLUENCE DE LA BASE TROPHIQUE SUR L'ETAT DES POPULATIONS DES PRINCIPALES ESPECES DE POISSONS A VALEUR ECONOMIQUE DU LITTORAL ROUMAIN DE LA MER NOIR

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The paper presents general considerations on the nourishment of the pelagic and benthonic marine fish species from the Black Sea Romanian littoral. The required biological material for the analysis was obtained from sampling trawling carried out on the Romanian continental shelf in a complex research surveys and from the samples derived from the commercial catches. A remarkable importance has the knowledge of the marine ecosystem nourishing resources; their seasonal distribution and dynamics, in direct connection with the use of this trophic base by fish populations are important as well. Distribution and concentration of the by fish populations are controlled both by the development and concentration of the trophic objects, and more and less by the abiotic factors. During one year, for the same species, the nourishing spectrum is changing.

Key words: *Black Sea, omanian littoral, nourish, sturgeons, anchovy, horse mackerel, bluefish, grey mullet, red mullet, sprat, whiting shads.*

THE EXPERIMENTS OF JAPANESE OYSTER CRASSOSTREA GIGAS BREEDING ON THE ROMANIAN LITORAL

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The paper presents the results of the experiments carried out on the Romanian littoral (experimental pilot off-shore and in the laboratories of our instiute) on the Japanese oyster breeding using the "long-line" system. In the period 18.09-20.11.2001, the oysters growth was from 17.2 mm up to 38.7 mm (off-shore system) and from 17.2 mm up to 19.8 mm (laboratories system). The data collected will be used for elaborating culture technologies for this valuable species under the specific conditions of the Romanian littoral.

Key words: *Japanese oyster, Black Sea, Breeding*

ARTEMIA CULTURES AT THE ROMANIAN SEA COAST

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Artemia is the most popular organism offish and crustacean larvae as living food At the Romanian Coast, the most important technics in the world aquaculture, for rearing and production have been tested:

- *incubation and hatching of cysts harvested from natural salty lake,*
- *production in intensive culture systems,*
- *salty pond accomodation and production in extensive culture.*

Annually, the Artemia wet cysts crop could be 100-125 kg by 0.3 ha salty pond area (20 kg dry cysts, with 30 \$/kg profit). At the Romanian Black Sea Coast, Artemia have been used as living food for pike-perch, turbot, plaice, pike, aterina, sandy-goby, rainbow-trout, silver, big-head, golden carp and shrimp larval nutrition

Key words: *mariculture, Artemia, rearing, utilisation*

RESEARCHES REGARDING THE EFECT OF NATURAL ZEOLITES ON PISCICULTURAL WATERS

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Researches were made in a 4 weeks period. There were determined dissolved oxygen, pH, turbidity, chemical oxidation, and ammonium ions. There were used 3 aquariums: control aquarium (without filtration), an aquarium with sand as filterable element and an aquarium with natural zeolites as filterable element. Each aquarium was populated with goldfishes and bitterlings. Turbidity of the water low in the first part of the experiment, suddenly rise especially in the control aquarium. Ammonium ions had an ascendant quantitative evolution in the control aquarium, but there were little quantities of these in the others. Oxygen dissolved in the water in all aquariums had continuous decreasing values. At the fine of experiment mortalities of fishes were: 60%, 40% and 20% for the control, sand filter and zeolites filter, respectively. Chemical oxidation, low at the beginning, follows an ascendant evolution especially in the control aquarium. Each filtration element used in experiment decreased chemical oxidation of the water.

Key words: *natural zeolites, piscicultural water treatment*

OBTAINING TECHNIQUES OF THE LIVING ALGAL FOOD INTERESTING FOR ROMANIAN MARICULTURE

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The paper presents the results of the experiments carried out on the Romanian littoral in laboratories to improve the obtaining technologies and the use effectiveness of algal cultures as living food for fish larvae and bivalve. The exotic algal species had a good growth in the local conditions. We have established, by theoretical and practical bases, the optimum moment to start the semi continuous culture and the daily volume which need to be removed to keep the exponential growth faze (calculating the exchange constant "a").

Key words: *algal cultures, Black Sea, exchange constant.*

FARM BREEDING OF THE BURGUNDY SNAIL *Helix pomatia* Linnaeus 1758

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*The Burgundy snail, *Helix pomatia* Linnaeus, is an edible species from our fauna, seriously endangered primarily because of uncontrolled gathering, as well as change, destruction or pollution of habitats. In this analysis of possibilities of *Helix pomatia* culture, the species biology is given and the danger of extinction is pointed out. Snail farming together with increased legal control is the best way for the protection of this species. The outdoor method of *Helix pomatia* culture is presented including the choice of appropriate ground type, fences, pen organization, optimal combination of plants for food and shelter, population density as well as the yield expected.*

Key words: *Burgundy snail, endanger, breeding.*

THE pH INFLUENCE ON THE NITRITE REDUCTION IN THE MEMBRANE MEAT PRODUCTS ACCORDING TO THE APPLIED TERMICAL TREATMENT (II)

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In this experiment we assessed the pH influence on the nitrit reduction rate in a half finished product (bradt, srot) and final composition for the Verona salami taking into account the thermic treatment and storage period.

Key words: *bradt, srot, nitrite*

WEIGHT GAIN DYNAMICS IN YOUNG DOMESTIC RABBIT AND MEAT PRODUCTION FEATURES ASSESSMENT

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In the present paper meat production performances of young rabbits belonging to 3 different breeds were assessed. Recordings were processed during 60 days of the experiment, for each sex separately and under a balanced diet with common granulated feed. At the end of the experiment animals were slaughtered and carcass index was calculated. Also the body weight to head and skin ratio was established. Overall performances reveal the rabbit meat production in a small scale system can be a good opportunity to improve animal protein supply.

Key words: domestic rabbit, rearing dynamics, meat production

THE COMMERCIAL QUALITY OF CREAM IN THE BANAT AREA

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This paper approaches two main objectives: on one hand it aims to accomplish a market study, and on the other hand to determine the food quality of the products existing in the market. In the market study, we pursued the cream sorts available in the market, and their prices in the sale network. The product quality determination was carried out in specialized institutions: the Sanitary Veterinary Institute of the Timis County and the Institute for Public Health Timisoara (the Sanitary Chemistry Laboratory and the Microbiology Laboratory). On the market a large cream type is available, the lowest price being recorded at SC Belcar Bela Deta SA Society. Analyzed samples were according until the organoleptic and physico-chemical norms of with the Romanian standard (STAS) norms.

Key words: cream quality, sweet cream, sour cream

THE DETERMINATION OF SNAIL MEAT QUALITY

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The obtaining of snail meat presumes a more specific technological process and a specialized stuff too. The snail meat quality determination was carried out in the period of 1999-2000, at S.C. Rolex S.R.L. Hafeg. The samples were taken from batches destined for export in France. The samples were sent to the Sanitary Veterinary Institute of the Hunedoara County and to the Institute for Public Health Timisoara (the Sanitary-Chemistry Laboratory).

Key words: snail meat quality

ASPECTS OF FORMING THE PRODUCTION STRATEGY

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Breeders must consider market reactions and feedback in order to track what is today a market in decline. A drop in demand, shrinking profits and falling prices mean that breeders must follow the most important criteria: quality of slaughter lambs by genotype (dressing percentage, tissue ratio, ratio of the valuable meat part), quality of carcasses by genotype, according to S/EUROP system, market need for more lambs, weight of lamb needed, which demand and price determining factors play role in the various markets. We studied the complex market value of different genotypes. In this analysis, we evaluated the aseasonality of (fertility apart from the season) the slaughter quality, the fattening (optimal slaughter weight), and the quality of the carcasses. Additionally, we studied which genotype is suitable to specific demand on various markets.

Key words: *lamb, meat production, production strategy.*

POSSIBILITY AND QUALITY IN SHEEP BREEDING

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Classic economical examinations usually considers yield of production, production value, revenues and costs connected to the exact production level. Recent times quality has main importance in analysis of market possibilities and complex economical researches. Present papers represent the analysis of multiple factors implied in order to obtain meat and milk quality products in sheep breeding.

Key words: *sheep, profitability, meat, milk.*

PROBLEMS OF AGRICULTURE OF FR YUGOSLAVIA IN TRANSITION AND SOME POSITIVE EXPERIENCES OF DEVELOPED COUNTRIES

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In this paper, there are analyzed the financial exhaustion and unliquidity of subjects in the agricultural business, absence of significant subventions and more quality credit sources, low level of agrotechnics and insufficient price saturation, which additionally makes difficult the transition of agrarian business, the most important economic area of FR Yugoslavia (especially of the Republic of Serbia). As the experiences of the developed countries are the best road signs in the process of transition, a detailed analysis of organization and especially the analysis of contracted pig production in the USA was carried out, and that approach was recommended as the model for countries with insufficiently pig production.

Key words: *agriculture, pig production, transition, experience of developed countries.*

A COMPARATIVE STUDY CONCERNING FINANCIAL EVALUATION IN DAIRY FARMING IN A FEW AREAS OF ROMANIA

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This study presents some considerations concerning milk production, income, variable costs and gross margin/cow/lactation, using the data collected from 29 private dairy farms belonging to three important breeding areas: Vrancea, Buzau and Dolj. The average farm size was 10 cows/farm with small variations from a region to another. The average milk yield was 4,850 kg/cow/lactation but the average milk records in Vrancea and Buzau counties were over 5,000 kg. The yearly income per head was 779 USD ranking between 685 USD in Buzau county and 829 USD in Dolj area. The annual average variable costs per cow were 519 USD, ranking between 484 USD in Buzau farms and 569 USD in the ones of Vrancea area. The average gross margin available for all the farms was 260 USD /cow/year. The highest profitability was recorded in the farm of Dolj county, where gross margin was higher than 329 USD /cow. For each region, it was studied the income level, variable costs and gross margin by farm group, joined together according to milk records. It was noticed that the more milk yield/cow/lactation, the higher income, costs and gross margin. Therefore, milk yield is the main determining factor for gross margin

Key words: dairy farms, milk production, gross margin, income, variable costs,

THE INCREASE OF ECONOMIC EFFICIENCY IN EGG PRODUCTION BY USING NEW FORAGE RESOURCES

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A number of 216 Roso 2000 Hybrid layers have been used for testing two new recipes of combined food: V₁ / including 30% corn distilled grain and V₂ / including 20% rice bran comparatively to the results performed by using VM-based on 23% soybean cake.

The main parameters taken into account have been the following ones: average egg production, egg laying capacity, egg weight, yolk weight, white weight, shell weight, forage consumption, food conversion, cost and income/layer, profit/layer and profit/egg. Layers feeding based on corn distilled grain and rice bran have assured high quantitative and qualitative performances in egg production similar to the use of combined food based on, soybean cake, but also substantial savings, a higher profit per hen and egg.

Key words: *recipes of combined food, corn distilled grain, rice bran, economic efficiency*

ECONOMIC EFFICIENCY OF THE USE OF INSTRUMENTAL INSEMINATION IN VARIOUS QUEEN BEES MAINTENANCE SYSTEMS

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The study aimed to compare the economic efficiency of the implementation of A.I. to various queen bees maintenance systems. Three alternatives have been taken into account: V1-a queen bee in a cage together with her bees, V2-a queen bank system and V3-a queen bee in a nucleus. For each queen bee maintenance alternative have been evaluated the most important indicators such as: expenses, incomes, profit, number of marketable inseminated and selected queen bees, honey production, cost/queen, revenue /queen, profit/queen, profit rate. The most effective alternative was the queen bank system assuring 2,400 marketable queen bees and 20 kg honey delivered yearly 12,442 USD incomes, 3,400 USD expenses, 9,042 USD profit, that is 3.77 USD/queen bee and 265.72% profit rate under the condition as A.I. costs are just 1,058 USD, representing 31.1% of total queen bees maintenances costs.

Key words: *artificial insemination, selected queen bees, queen bank, profitableness.*

THE STUDY OF THE RENTABILITY OF MILK PRODUCTION AT THE CHISODA COW FARM

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This work presents a rentability evolution study in a five years' period at a farm with 100 milk cow. The fundamental methods were used for this study: documentation, analysis, synthesis, comparison during a long period of time using specific economic indicators. The rentability rate increased in the analysed period with 2,07 times having a satisfactory level between 1996-1998 and a good level in the last two analysed years. The farm activity was also profitable to the fact that the farm produced all categories of necessary fodders at much inferior cost in comparison with the average market prices.

Key words: *milk cow, rentability*

THE STUDY OF PRODUCTIVITY OF LABOUR AT CHISODA MILK COW FARM

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This work presents a study concerning the evolution of the work productivity in a five years' period at a farm with 100 milk cows. The fundamental methods were used for this study: documentation, analysis, synthesis, comparison during a long period of time using specific economic indicators. The average consumption of days, man per foddered cow, increased with 5% in the analysed period due to the decrease of the animal number. The average milk production man per day reduced with 18%. This reduction is entirely caused by the total milk production decrease/farm. In the considering farm work productivity has an average level.

Key words: *milk cow, work productivity*

THE STUDY CONCERNING THE DEMAND AND OFFER AT PORK PRODUCE IN CARAS-SEVERIN COUNTRY

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This paper presents a study concerning the situation of breeding pigs that are to be fed in caras-severin county, the grouping of housekeepings according to the animals number per housekeeping, the meat production obtained in the county and the capitalization of her. The necessary dates were picked from the general direction of nutrition and agriculture of the caras-severin county. For making the study it had been used the fundamental methods: the documentation, the analysis, the synthesis and the comparing using the specific economic indicators.

Key words: *pigs, meat production.*

THE STUDY CONCERNING THE EVOLUTION OF THE NUMBER OF ANIMALS, OF THE PRODUCTION AND OF THE CONSUME OF MEAT BETWEEN 1989-1999 IN ROMANIA

BUZAMAT GENOVEVA

THE ZOOTECHNICAL AND BIOTECHNOLOGIES FACULTY, TIMISOARA

This paper presented a study concerning the evolution of the number of animals at the main species (cattle, pigs, sheeps and birds); the evolution of the meat production obtained from this species between 1989-1999. Also in this period it had be followed the evolution of the annual consumption of meat per inhabitant. For making this study it had been used the fundamental methods: the documentation, the analysis the synthesis, the comparing using the specific economic indicators.

Key words: *numbers of animals, economic indicators*

LEADED PRODUCTION OF IDENTICAL BOVINE TWINS THROUGH EMBRYO- SPLITTING

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This method is very easy to apply in field conditions and consist in embryo splitting in age of 7-9 days (blastocyst) in two half using a micro knife. The micro knife is adapted to a mobile micromanipulator, which can be adapted to an inverse microscope or a stereoscope. The splitting is done in a Petri dish electrostatic loaded (+) and it role is to fix the embryo for easy bisection. Such an operation takes place in a few seconds (5-10 seconds). The media in which is done the bisection is Dulbecco PBS without FCS or BSA. The recovery of the embryo takes place after a short cultivation in Dulbecco PBD media with 20% BSA in 30 minutes at 37°C. After this operation the embryo can be transferred to a receptor cow.

Key words: *embryo-bisection, micro knife, embryo cultivation*

THE USE OF ULTRASONOGRAPHY FOR THE EXAMINATION OF DONOR COWS OVARIES AFTER EMBRYO RECOVERY

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The biologic stimulation of ovaries, which determine in donor cows to produce as many ovulation and embryos as they can, involve a careful observation of the ovaries after embryo transfer. We have studied the ovaries after the embryo transfer with an ultrasonograph and found that reproductive recovery for an artificial insemination or superovulation, of donor cows, is a very complex problem. If we don't watch very careful the anovulatory follicles they can become cysts and can form luteic or follicular cysts. These cysts can late or block the heat manifestation after superovulation until 80-90 days. We have used to prevent this problem two types of treatment: prostaglandin PgF_{2a} implant and GnRH. We have succeeded to recover donor cows in approximately 27-28 days from first prostaglandin administration.

Key words: *donor cows, ultrasonography, .ovary*

OBSERVATION ON LATE OVULATION FREQUENCY IN COWS

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***SC Simnic*

Late ovulation represents ovarian function troubles with high frequency in dairy cows. Our experiment has take place over three-year period. We have studied the ovaries and uterus of cows presenting late ovulations through transrectal examination. The females in heat were artificially inseminated and after 24 hours they underwent examination. Then we inseminated those cows at which ovulation had occurred. We have considered as cows and heifers with late ovulation those females that still had unovulated follicles on the ovaries after 24 hours by heat end. The frequency of late ovulation was 32.9% from 554 examined females. The gestation rates were 34.1 %from 182females with late ovulation.

Key words: *late ovulation, gestation rates*

SOMITE NUMBER EVOLUTION DURING BROILERS' EARLY EMBRYOGENESIS

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The aim of this paper was to study the degree in which the difference in the genetic structure have an effect upon the dynamics and evolution of somites numbers in the early embryogenesis in chickens.

The experiments were held on two genetics structures. Using a special technique during the 26-60 hours period of incubation , measurements were made upon the somites numbers, from ten to ten hours. The data suggests that earlier stages of development and for the embryos with a higher degree of heterozigocy there is a higher developmental speed.

Key words: *heterozis, heterozicity, embriogenesis.*

INFLUENCE OF GALLUS DOMESTICUS EMBRYOS GENETIC STRUCTURE ON THE NEURAL TUBE DEVELOPMENT

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The aim of this paper was to study the degree in which the difference in the genetic structure, namely "the heterozis effect", appear and have an influence upon the dynamics of the pellucide zonae, during the early stages of Gallus domesticus embriogenesis.

The experiments were made on two representative groups of embryos with different genetic structures. Using a special technique, during the 26-60 hours period of incubation, measurements were made from ten to ten hours. The measurements showed the fact that the neural tube area was growing and developing strongly in the embryos with a higher degree of heterozigocy.

Key words: *heterozis, heterozicity, embriogenesis.*

IN VITRO DEVELOPMENT OF MURINE EMBRYO CULTURED AS GROUPS OR INDIVIDUALLY IN MICRO-DROPLETS

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The aim of the present study was to assess the influence of embryos density on in vitro development. The culture was performed in micro droplets with a volume of 200 nl, with 1, 2, 5, 10 embryos per droplet. Both embryo development and degeneration were recorded for 5 days in culture, up to the stage of expanded/hatched blastocyst. Results demonstrate that irrespective of the group culture size, the development toward the blastocyst stage is better than in the individual culture system. This might indicate that during in vitro culture murine embryos are able to produce development-enhancing factors.

Key words: murine, embryos, culture in vitro, micro-droplet.

POLYMORPHIC MARKERS USED IN ANIMAL POPULATION GENETIC STUDIES

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All DNA testing is based on the observation that the genome of each person is unique (except of identical twins). The numerous small and large differences in nucleotide sequence among individuals are known as DNA polymorphism. Two fundamentally different types of polymorphism markers have been widely described in our paper: restriction fragments length polymorphism (RFLP) and satellites DNA markers. Specific allele of this markers can be used in genetic studies to identify a cross bred and to measure the purity of different breeds, or to confirm a parentage and to establish pedigree.

Key words: RFLPs, minisatellites, microsatellites, DNA testing

RAPID AND EASY METHODS FOR BIOLOGICAL SAMPLES PRESERVATION AND DNA EXTRACTION

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We report seven fast and reliable nucleic acid isolation methods from biological samples: milk, clinical swabs, blood (whole blood aliquots and white cells), semen and hair. These protocols may be used when small quantities of DNA are needed and are suitable for PCR amplification. The whole protocols are carried out in a few hours and involve the use of nonionic detergents (Laureth 12 and Tween20) with Proteinase K enzyme for DNA releasing and nuclei digestion. These detergent/protease methods work as well as purified samples in PCR amplification. One of the simplest and best methods for biological sample preservation is ice keeping or ethanol fixation.

Key words: nucleic acid, isolation, milk, clinical swabs, blood, semen, hair.

QUALITATIVE AND QUANTITATIVE EVALUATION OF THE HETEROCHROMATIC BLOCKS IN BUBALUS BUBALIS L. CHROMOSOMES

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By using an Advanced American Biotechnology program (AAB) with specialized software in karyotype analysis, we have tried to obtain a qualitative and quantitative evaluation of the heterochromatic blocks in the buffalo's chromosomes. From the primary data obtained by measuring each C-banded chromosome it results a great variability of the heterochromatic blocks in the chromosomal pairs. At it can be noticed as the chromosomes decrease, the constitutive heterochromatin ratio increases. After the statistical process of our data, the estimation of constitutive heterochromatin area and of euchromatin area in the diploid complement of our sample showed that the constitutive heterochromatin ratio is 22.32% and the euchromatin ratio is 79.15%. The analysis of variance – one way classification model – established that the influence of the chromosomal pair on the constitutive heterochromatin and euchromatin area of the buffaloes chromosomes is very significant while the metaphase induces an insignificant effect on the heterochromatin and very significant effect on the euchromatin.

Key words: buffalo, chromosomes, heterochromatin, euchromatin, image analysis.

ESTRUS SYNCHRONIZATION IN EMBRYO RECEIVING COWS AND HEIFERS WITH SYNTHETIC ANALOGUES OF PgF₂α AND GnRH

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The estrus synchronization protocol consists of two dosages of 2 ml Proliz (0.500 mg Cloprostenol), each at 11 days interval. For the receiving females, the first administration of Cloprostenol is done on the day when the donor cow manifested heat (day 0) and the hormonal stimulation for induction of superovulation at donor cows starts on the 10th day. For the synchronization of the ovulation moment, to the embryo receiving females we administer 2 ml Fertagyl (synthetic GnRH) at 48 hours from the second dosage of Cloprostenol. After that the heat behavior and the ovulation moment are observed every 6 hours by transrectal examination. From the 80 receiving females, 70 (87.5 %) manifest heat after the second dosage of Cloprostenol. For 7.1% of these, the ovulation takes place at 54 hours from the second dosage of Cloprostenol, at 60 hours for 67.1% and until 66 hours for 22.9%.

Key words: synchronization, embryo receiving cows, Cloprostenol, GnRH

STUDIES OF BIOCHEMICAL GENETICS IN THE HORSE BREEDS FROM ROMANIA

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Using the technique of electrophoresis in polyacrilamide gel we have identified the genetic structures at Pa and Es loci in Trapas, Lipitan and Hutul horse breeds. At Pa locus we have identified the allele genes Pa^K and Pa^S. Allele Pa^K was dominant with 97,37% in Lipitan and 87,04% in Hutul horse breeds. At Es locus we have identified 3 alleles, Es^F, Es^I and Es^S, the highest frequency being observed in allele Es^I, the values ranging between 65,79% in trapas and 55,88% in Lipitan horse breeds.

Key words: polymorphism, horse, Pa, Es.

XENOTRANSPLANTATION IS NOW POSSIBLE.

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Pigs can become donors of tissues and organs for people if they are obtained through genetic engineering. Experiments demonstrated that man can tolerate a pig's organ if the conflict between the anti-Gal antibody which can be found in the blood of the graft recipient and the Gal antigen on the endothelial cell of the donor, as well as the conflict between proteins-enzymes of the complement system of the humans and the graft on the other hand can be avoided. Researchers have already produced transgenic pigs that include in their cells the human gene anti Gal or human gene that is able to synthesize a glycoprotein-fucosyl instead of a glycoprotein-galactosyl capable to avoid the conflict between antibody anti Gal and the graft prelevated from the pig. Transgenic pigs destined to donate organs for people (xenograft), carry in their cells also other 2 genes which can synthesize the proteins CD55 and CD59 which are blocking the unleash of the complement in humans against the graft prelevated from pigs. In this case the xenotransplant in humans becomes possible.

Key words: xenotransplant, organ and tissue transplant.

THE EFFECT OF RECOMBINANT BOVINE SOMATOTROPINE (rbGH) ON THE PLASMATIC LEUKOCYTES NUMERICAL EVOLUTION AND ON THE METABOLIC AND CELL ENZYMATIC PROCESSES

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In our experiment, five Holstein Frisian cows were given 200 mg rbGH-individual at a period time of 14 days to establish this hormone effect on the plasmatic leukocytes numerical evolution and on the metabolic and cell enzymatic processes. Our results show the tendency towards leukocytosis, more obvious in the experimental group and especially after the last rbGH administration (6140/mm³).

The histochemical and histoenzymatic investigation show an increase in the RNA and DNA positive granules densities in the treated animals lymphocytes and a greater quantity of lipids in the neutrophile polymorphonuclears of the some animals as well.

Key words: dairy cows, recombinant bovine somatotropine, leukocytes

EFFECTIVE METHODS FOR DETERMINATION OF FERTILIZING POWER ON BUFFALO SEMEN

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Utilization of Polamski scale principale remains present but can be improved and combined with Milovanov resistance and “in vitro” capacitating methods. For determination of fertilizing power we used “in vitro” capacitating methods: direct methods, indirect methods and “swim-up” technique that is obligatory in E.U. We used these tests because Polamski scale can't be applied, knowing that a immobility of buffalo semen in some conditions is a characteristic of this semen, semen that can be recovered on the normal parameters. Milovanov resistance test have restricted efficiency because NaCl solution have a negative effect over the sperms. Semen charges tested with this new methods showed a good fertilizing power. This tests are more easy to perform and take off decision is more faster.

Key words: *swum buffalo semen, fertilizing power, Percoll and “swim-up” methods.*

OPPORTUNITIES OF USING QUILLAJA SAPONINS TO INFLUENCE RUMINAL FERMENTATION

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The effects of various doses of Quillaja saponins on VFA production and profile, methane production and protozoa density were studied in vitro (24 hours incubation), with ruminal liquid from sheep fed Lolium hay ad libitum. Increasing doses of saponins (1-24 mg/ml) led to a strong decrease of protozoa density (which have positive effects on digestion). This was not associated with a decrease of methane production; on the contrary, production of acetate and butyrate (linked to methane production) was stimulated partly due to an energy supply from the degradation of saponins by ruminal bacteria. The proportion of branched-chain fatty acids and valeric acids decreased. A population-selective effect of quillaja saponins against protozoa was also observed.

Key words: *rumen, quillaja saponins, VFA, methane, protozoa.*

THE EFFECT OF SOME IMMUNOMODULATING SUBSTANCES ON THE VIABILITY OF THE TRICHOPHYTON VERRUCOSUM SPORES

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The possibility of creating the suspension of spores of T.V. in a solution of immunomodulators was tested, having as a main purpose to potentate the vaccine against ringworm in bovines. The experiments have been carried out using the following immunomodulating substances: Zincosel, Seleretard and Cuprosel, in which was done a dilution of spores. The determination of the viability of the spores was performed at the following contact time intervals with the immunomodulating substances: 24 hours, 7 and 24 days, compared to a witness sample (physiological solution).

Key words: *immunomodulating, viability, Trichophyton verrucosum.*

ENCAPSULATION OF PROTEASES IN SILICA GELS

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The biocatalytic applications of enzymes require simple but efficient methods of immobilization, to produce stable and active biomaterials, easy to handle and to recover. The need for mechanical and chemical stability led to the use of silica obtained by sol-gel technology to immobilize biomolecules and cells. We immobilized proteases (Alcalase, subtilisin, chymotrypsin and papain) by encapsulation in silica gels (xerogels) using the one step strategy (base catalysis) and two-step strategy (acid catalysis for the sol synthesis and base catalysis for the gel formation) respectively. We used additives (PEG, PVA and BSA) in our attempt to stabilize the protein enzyme and to improve the immobilization yield.

Key words: *Alcalase, subtilisin, chymotrypsin, papain, protease activity, sol-gel process, xerogel, encapsulation, additives*

SCREENING FOR NEUTRAL PROTEASES PRODUCING LOCAL STRAINS

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A series of Bacillus subtilis, Bacillus globigi and Aspergillus oryzae strains isolated at the Industrial Microbiology Laboratory of USAMV Timisoara and Microorganisms Genetics Laboratory of USAMV Bucuresti were used for the biosynthesis in submerged cultures of proteases to be used for probiotic products, either as whole cells or as isolated enzymes. Some genetically modified strains have been tested also. Bacillus subtilis Tr 1, Bacillus subtilis 4amy-, Bacillus globigi amy+ and Bacillus subtilis 52 produced the higher level of protease activity: 48.54, 43.92, 38.14 and 35.25 U/100 ml respectively while Aspergillus oryzae 14 B produced 29.48 U/ml protease activity after 48 hours of culture. Bacillus subtilis USAMVB reached the highest protease release in 16-24 hours of fermentation.

Key words: *Bacillus subtilis, Bacillus globigi, Aspergillus oryzae, genetically modified strains, fermentation, submerged culture, neutral protease, α -amylase, probiotics*

GENETIC IMPROVEMENT BY SELECTION OF SOME CELLULOLYTIC ENZYMES PRODUCING STRAINS USED IN FEED INDUSTRY

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In order to improve the genetic funds of Collection of Microorganisms from industrial Microbiological Laboratory, several celulolytic enzymes producing strains was tested and selected. The capacity of production of cellulolytic enzymes in laboratory biosynthesis process was used as selection factor. Two fermentation media was used in the bioprocess. As a result of the researches a number of two strains was selected as having good cellulolytic activities. One strain of Trichoderma viride and one strain of Aspergillus niger. The selected microorganisms will be subject of further genetic improvements and can be used in probiotic and inoculant type products.

Key words: *cellulolytic microorganisms, Trichodrema, Aspergillus.*

GENETIC IMPROVEMENT BY SELECTION OF SOME PROTEOLYTIC ENZYMES PRODUCING STRAINS USED IN FEED INDUSTRY

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A number of two B. subtilis strains and five A. oryzae strains were tested for proteolytic actyvity in accessible and cheap media. The selection was made cultivating the testing strains in an agitator at 37°C, 180r.p.m. agitation. One Bacillus strain and one Aspergillus strain has shown a good proteolytic actyvity. The Bacillus strain was promoted for further investigations in laboratory bioreactor. The growth curve and the proteolytic activity were plotted and the tested strain will be the subject of further genetic improvements for proteolytic activity. The tested strain can be used in probiotic type products.

Key words: *Proteolytic microorganisms, Bacillus, Aspergillus*

ISOLATION AND SCREENING OF THE HAPLOPHILIC STRAINS WITH AMYLOLYTIC AND CELLULOLYTIC ACTIVITIES

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Halophilic bacteria are extremophilic microorganisms which produce salt-tolerant exoemzymes, such as amylases, proteases, nucleases and cellulases of potential commercial value. In this study we isolated 27 extremely and moderately halophilic bacterial strains from saline environments. Also, we tested 14 bacterial strains (Bacillus sp. And Streptomyces sp.) from culture collection for their ability to grow in salt-isolation media (10% NaCl). The halophilic strains were tested in a screening program for their ability to produce amylases and cellulases. The best results were obtained with strains: H 2 and H 5 (isolated from Telega lake) for α -amylase, H 8 (isolated from soil) and Streptomyces sp. 2.1, Streptomyces sp SfG 3 for CM-cellulase.

Key words: *isolation, screening, halophilic bacteria, extremozymes (amylases, cellulase).*

OBTAINING OF SOME MICROBIAN NATURE, ECOLOGICAL BIOSTIMULATORS WITH AGROBIOLOGICAL UTILIZATION

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The biostimulators are biological nature products obtained with the aid of some microorganisms from Bacillus and Trichoderma genus. The aim of this work was isolation and the selection of some microorganisms to have a biostimulator role and as a second effect an atifungs role. By isolation and selection, there were obtained two types of Bacillus subtilis which combined with one from of Trichoderma harzyanum, cultivated on adequate medium for each forms, it's possible to obtain ecological bioproducts, used in greenhouses and experimental field, especially at legumes cultures. The treatment has a positive influence on plants number, on emergence percent and total yeld and their quality. The highest yield has been registred at V3. As compared with the chemical fertilizers, the biostimulators presents some advantages:

- haven't secondary effects regarding human being and animals;
- don't pollute acvatical and terrestrial flora and fauna

Key words: biostimulators, bacteria, fungus.

GENETIC, MORPHOLOGICAL, AND FUNCTIONAL QUALIFICATION AND COMPLEX EVALUATION OF BULL SEMEN

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The quality of the semen can be characterized by a complex in vitro evaluation system that includes the morphological and physiological evaluation an the in vitro functional analysis before testing the fertility of bulls in vivo. The semen of the donor bulls can be evaluated genetically, the allele series of certain genes (inherited disorders, genes of high importance) can be detected by PCR. The genetic analysis also helps in pedigree verification and quality control. The elaboration of the evaluation system requires the adaption and development of the methods. Recently, a simple cell-counting computer software was developed, double staining Kovacs – Foote, used to monitor the physiological changes occurring during swim-up. A simple DNA extraction method from thawed semen was also elaborated. The BLAD deficiency and β -Lactoglobulin allele series can be detected of a donor by RFLP separately or with multiplex reaction.

Key words: geneticanalysis, PCR, RFLP, BLAD, spermatozoa, staining, software

APPLICATIONS OF THE “IN VITRO” CULTURES FOR PLANT REGENERATION IN THORNLESS BLACKBERRY

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Blackberry is a very appreciated species in many European countries and very pretable to be cultivate in Romania too. The thornless varieties are very appreciated by the farms and researches. Discovered by the Americans as a mutation in the wild species, the thornless roots were studied observing that the mutation affects only the epidermall cell initials consisting a periclinal chimeras. By cultivating mesophylic explants and adventives root regeneration there is the chance that some of the roots to be pure thornless forms. Our researches aimed the development of a protocol of plant regeneration from mesopyll explants in blackberries. The method can be used for “in vitro” cultivating the periclinal chimeras and the thorn or thornless plants too. We established the optimum culture mediums for morphogenetic cultures, mesopyllic explant culture and for root induction of the elongated shoots.

Key words: *Rubus sp., “in vitro” regeneration, adventives shoots, thornless blackberries.*

APPLICATION OF DNA MARKER IN INTROGRESSION OF ADULT PLANT LEAF RUST RESISTANCE GENE LR35 INTO BREAD WHEAT (TRITICUM AESTIVUM L.)

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Wheat leaf rust is one of the most important diseases all over the world caused by Puccinia triticina. More then 45 different resistance genes to this disease have been identified up to now and to most of them the pathogen has developed virulence. Therefore new resistance genes are required. For the detection of these genes have been developed specific DNA-based markers. The aim of this study was to introgress adult plant leaf rust resistance gene Lr35 into selected Slovak bread wheat cultivars (Triticum aestivum L.). The detection of this genes was carried out with the DNA-based SCAR marker, which identifies 900 bp bands from DNA of the resistant plants. Using SCAR marker assisted selection, it is possible to use adult plant resistance gene Lr35 in the pyramiding with other effective resistance genes in classical breeding programs for the support of durable resistance against leaf rust.

Key words: *Lr35 gene, SCAR marker, bread wheat, leaf rust, marker assisted selection.*

CHARACTERIZATION OF HMW GLUTENIN SUBUNITS IN THE COLLECTION OF DIFFERENT SPECIES OF WHEAT

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*The collection of 23 Slovak and European cultivars of winter (*Triticum aestivum* L.), 3 cultivars of durum wheat (*Triticum durum* DESF) and 5 cultivars of spelt wheat (*Triticum spelta* L.) were studied and characterized of their qualitative composition of high molecular weight glutenin subunits. Variation in HMW glutenin subunits has been analysed by the method of international organisation ISTA the standard vertical discontinual electrophoresis in the polyacrylamide gel in the presence of SDS and the Glutscore was calculated. The verified correlations between bread-marking quality and specific HMW subunits of glutenin can be applied as a screening test for the prediction of bread-making quality of wheat.*

Key words: *Triticum aestivum* L., *Triticum spelta* L., *Triticum durum* DESF, HMW glutenin subunits, electrophoresis SDS-PAGE.

SOMACLONE VARIABILITY OF LOTUS CORNICULATUS L.

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*The in vitro culture of the vegetable *Lotus corniculatus* allows research regarding the symbiosis between this plant and *Rhizobium loti*. The somaclones obtained through in vitro culture in the culture medium Gamborg (1968) from hypocotyls demonstrate the immense possibilities of capitalization of the genetic potential of this eternal plant. From the complex of somaclones obtained, genetic lines were highlighted as having a greater capacity of differentiation of 54.5%.*

Key words: *Lotus corniculatus*, somaclones.

HETEROZYGOSIS EFFECTS UPON BETA VULGARIS L. COMMON BEET RESISTANCE TO CERCOSPORA BETICULA FUNGUS

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*The tetraploid parental form Lovrin 533/90 responds well to the attack of this fungus (*C.beticola*), the frequency being of 54.89%, and the intensity of the attack of 15.15%. The maternal androsterile monogerm lines are strongly attacked by this fungus, the frequencies are high, over 60%, and so are the values of the intensities, between 17.5% (Lovrin 20/96) and 45.68% (Lovrin 50/96). At the triploid monogerm hybrid forms (3n) one can notice a good resistance to all the forms created through hybridization between Lovrin 533/90 and the androsterile monogerm lines. The best reaction of resistance to the attack of the *C.beticola* fungus was noticed at the Lovrin line 301/96, with an intensity of the attack of 7.34% and a degree of attack of 2.21%.*

Key words: *Beta vulgaris*, *Cercospora beticola*, heredity, plant pathology, ploidy.

CHROMOSOME DYNAMICS IN MEIOSIS AT THE CYTOPLASMATIC ANDROSTERILE MONOGERM DIPLOID COMMON BEET (BETA VULGARIS L.)

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In spite of the homology of chromosomes or in spite of the linear distribution of the genes, the cytoplasmatic sterility of monogerm diploid genotypes is determined by the imperfect match between the male chromosome genes and the possible female cytoplasmogenes, plastogenes and condrygenes. The cytogenetic studies of the male diploid, monogerm sterile, cytoplasmatic which come from inbred parents have set forth alternations in the chromosome dynamics in all the meiosis phases. Anomalies like: additivity of chromosomes, chromosomes chains, retardant chromosomes, forward moving chromosomes have been outlined here. The consequences of these anomalies are a diminished pollenisation power.

Key words: *Beta vulgaris, cytoplasmatic male sterility, chromosome.*

IN VITRO RHIZOGENESIS AT THE COMMON BEET (BETA VULGARIS L.)

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In order to induce rhizogenesis at the common beet (Beta vulgaris L.) diploid and tetraploid genotypes have been studied. Van Geyt and Jacobs medium (1979) is useful for obtaining a generative callus, and also for rhizogenesis at the common beet. Under the conditions of a medium without hormones, the percentage of root formation is inferior ($x=24.6\%$ for the diploid genotypes and $x=54.23\%$ for the tetraploid ones). By adding ANA and AA hormones, 1 mg/l to each, rhizogenesis presents an increased output at all genotypes studied of over 25%.

Key words: *AIA, ANA, Beta vulgaris, rizogenesis.*

CELL DEDIFFERENTIATION AND DIFFERENTIATION OF LOTUS CORNICULATUS L.

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Vegetables represent an important study source for the research of significant biological phenomena. The experiments made have shown the possibility of in vitro organogenesis induction at Lotus corniculatus, viable clones being obtained after approximately three months. The in vitro culture in Gamborg medium (1968) supplemented with BAP, AIA and 2,4-D offers the possibility of callus induction, caulogenesis and rhizogenesis.

Key words: *AIA, BAP, Lotus corniculatus.*

HAPLOID PLANTS INDUCTION FROM OVULES OF COMMON BEET (BETA VULGARIS L.) WITH DIFFERENT DEGREES OF PLOIDY

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The haploid plants of the beet can be successfully obtained from the young ovules on the top of inflorescence. The morphological aspect and the ovule and ovaries association are very important factors in the setting off the process of the organogenic callous growth. The culture medium B₅ was enriched by BAP, IAA and 2,4 – D in different ratios depending on the targeted phenological moment. The genotype has a decisive effect on the haploids. There are beet genotypes that cannot yield organogenic calluses from ovules.

Key words: *Beta vulgaris, breeding, haploid plants.*