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ABSTRACTS

TI: SEWAGE SLUDGE COMPOSTING AS AN EFFECTIVE METHOD OF ENTERIC PATHOGENS INACTIVATION

AU: Bauza-Kaszewska J., Paluszak Z.

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LA: Polish

AB: The main purpose of the experiment was to estimate the efficiency of two different composting technologies. The most important element of this analysis was the rate of inactivation of bacterial indicators of Salmonella genus. In mechanically turned windrows in a composting plant A, complete elimination of microorganisms was observed in 6 weeks. In object B, where the forced aeration system of the biomass was applied, survival time of bacteria investigated ranged from 149 to 301 days. The lack of thermophilic phase during composting processes results in a very low efficiency of sanitation technology in plant B.

DE: sewage sludge, composting, Salmonella

SO: Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 13–18.

THE INFLUENCE OF SELECTED PROBIOTICS ON LEVEL OF MACROELEMENTS IN BLOOD SERUM OF CALVES

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Polish

Excessive use of antibiotics as fodder additives contributed to the increase in resistance of some pathogenic bacteria. Morbidity and death rate, increase in body weight obtained, and hematological and biochemical blood indexes may be the expression of changes taking place in the animal organism. The investigation carried out on calves aimed at indicating the favorable effect of the additives containing living cultures of bacteria on some biochemical blood indexes. On the basis of the results obtained it can be found clearly that the calves of the control group showed the unfavorable blood indexes. Macroelements of calves blood were dependent on the season of the year, the age of the animals and the probiotic additive applied.

probiotics, biochemical coefficients of blood, calves

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 19–24.

INFLUENCE OF STUNNING METHOD ON pH VALUE OF THE CARP FLESH

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Polish

The influence of stunning method on pH value of the carp flesh was investigated. Two methods were compared: traditional – asphyxia for 30 minutes and percussive stunning was applied and electrical – fishes were stunned with variable voltage electric current and chilled on ice for 15 minutes. Immediately after filleting and every 24 hours pH measurements of flesh were performed for 7 days. Higher pH values were recorded in fishes stunned with electricity comparing to traditional method ($p < 0,01$). The pH values of fresh fillet were 6,44 and 6,69 in traditional and electric method, respectively. The reaction of flesh of fishes stunned with the traditional method remained lower for whole observation period.

pH, common carp, stunning

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 25–30.

THE CONTENT OF FATTY ACIDS AND ISOMER CIS-9, TRANS-11 IN RUMINANTS MILK FAT

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Polish

The object of the research was analysis of fatty acid content in milk from three different species of ruminants (sheep, goats, cows) from summer pasture. The research was made on 60 samples of milk (20 samples of each species of ruminant). In this research fatty acid profile and content of linoleic acid isomer-c9, t11 was observed.

The observations indicated significant effect of the species on fatty acids profile of milk fat. The best content with respect to fatty acids (the least amount of saturated, the highest amount of unsaturated) was found in goat milk. The highest content of linoleic acid isomer cis-9, trans-11 was stated in sheep milk. milk, ruminants, fatty acids, isomer cis-9, trans-11

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 31–36

THE PATHOLOGICAL SYMPTOMS DETECTED IN SLAUGHTERED CATTLE WITHIN THE SELECTED POWIATS OF THE SOUTHERN PODLASIE REGION

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Polish

The aim of this study was to evaluate of the health state of slaughtered cattle within the selected powiats of the Southern Podlasie. The following diseases have been diagnosed: tuberculosis, septicaemia and pyemia, neoplasms, leukemia, emacitation and watery muscles, icterus, putrificatis, abnormal smell, incomplete loss of blood, natural death, the finishing stroke in agony, poisoning chemical means, cystercosis, echinococcosis, fasciolosis, pus foci, contamination and congestions, other parasites and other changes. transport and before slaughtering. It has been stated that the losses of by-products of calves and cattle over 1 year old are caused by fasciolosis. Pus foci, contamination and congestions were also the frequent reasons for losses.

beef cattle, sickness changes

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 37–43

THE RELATIONSHIP BETWEEN THE OCCURENCE OF COPPER IN SOIL, FEEDS AND THE COW BODY

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Polish

The aim of the paper was to evaluate the copper content in soil, feeds and the blood serum of cows in the region of Central Pomerania. The research results obtained show that the shortage of copper occurred in the analysed region. The copper content in the blood serum of cows depended on their physiological state and the level of this element in the soil and feeds applied in cow nutrition. The successive lactation weeks and the lower content of copper in soil and feed reduced the concentration of this microelement in the blood serum of cows. The copper deficiency in the studied cow herds should be reduced by the addition to the feed rations of mineral supplements which include.

copper. soil, feeds, cows, blood serum, copper

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 45–50

INTRODUCTORY ANALYSIS OF SOME REPRODUCTIVE TRAITS OF GREYLAG (ANSER ANSER L.), CANADA (BRANTA CANADENSIS L.) AND WHITE KOŁUDA GANDERS®

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Polish

The length of reproductive season, reaction to semen collection procedure and basic semen characteristics were evaluated. Greylag ganders, comparing to Canada and White Kołuda® ganders, characterised by shorter reproductive season, lasting from beginning of March till the end of April; lower ejaculates volume (0,11 ml on average); lower spermatozoa concentration (102×10^6 ml⁻¹) and number of live morphologically normal spermatozoa in collected semen (54,2% on average).

wild ganders, semen characteristics, reproduction season

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 51–56

BIOACCUMULATION OF TRACE METALS IN CARP (CYPRINUS CARPIO L.) ORGANS

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Polish

The study was conducted using carp (*Cyprinus carpio* L.) from the ponds of river Barycz area, which was before for consumption. It was found, that as compared to the condition ten years ago, the concentration accumulated in the fish organs of Cd, Cu, Pb are fewer and the concentration of Zn and Cr are the same. The

organ which had the highest concentration of Cr, Zn, Pb and Cd was kidney and of copper was liver.
bioaccumulation, metals, carp
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 57–61

CADMIUM ACCUMULATION IN THE MUSCLES OF CARP FED WITH THE FODDER CONTAMINATED WITH SALTS OF THIS HEAVY METAL

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Polish

The aim of the study was to examine cadmium accumulation in fish muscles, fed with the fodder contaminated with cadmium. After second vegetative season of nourishment, fish were decapitated and the level of cadmium was analysed in muscles by means of absorption-atomic method. The results showed that above 5-time enlargement of cadmium concentration in fodder caused statistically significantly increase of accumulation of cadmium in muscles in comparison to control fish.

cadmium, carp, accumulation

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 63–67

SLAUGHTER VALUE AND PHYSICOCHEMICAL TRAITS OF MUSCLE LONGISSIMUS LUMBORUM OF CROSSBRED FATTENERS FROM LARGE SCALE FARM

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The subject of the research was the assessment of carcass value and physicochemical traits of longissimus lumborum muscle of 48 crossbred fatteners with diverse genotypes, chosen randomly from technological group of fatteners in the industrial pigs fattening farm. The carcass and meat value of fatteners was assessed basing on shortened SKURTC methodology, while physical and chemical traits of their muscles according to AOAC requirements. The shortened estimation of carcass value was carried out on the right halfcarcass. Physicochemical traits were assessed on the longissimus dorsi muscle cutted between 1st and 3rd lumbar vertebra. The results obtained confirm the influence of the crossbreeding variant on the carcass and meat value of fatteners and on some of physical (like pH) chemical (dry matter, ash participation, Ca, P and Mg content) traits of the m. longissimus dorsi of the back, the lumbar part. Statistically proved differences between the values of analysed traits confirm this.

crossbred fatteners, carcass value, physicochemical traits m. Longissimus lumborum

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 69–76

THE HAEMATOLOGICAL PICTURE IN THE TURKEYS BEING UNDER THE INFLUENCE OF PROPRANOLOL AND ACTH

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An attempt was made to check whether and to what degree administration of beta adrenergic antagonist influences the dynamics of blood leukocytes of the turkeys treated with ACTH. The six weeks old turkeys (Big-6) received propranolol in drinking water for 72 hours. Moreover, the birds received the ACTH injection twice, in 24 hours intervals. To evaluate the changes in the white blood cell picture, the blood was taken four times (in the 12th, 48th, 54th and 72nd hour of experiment). The control was the blood from the turkeys from poultry farm, which were kept in similar conditions. On the basis of estimation of the heterophils/lymphocytes (H/L) ratio, the earlier suggestions were confirmed, concerning the high sensitiveness and usability of blood picture in evaluation of environmental factors influence. Simultaneously, there was shown that the administered propranolol attenuates the changes induced by ACTH injection. The attenuating influence of propranolol seems to apply only to early stages of organism response.

turkeys, propranolol, ACTH, leucogram

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 77–83

THE EFFECT OF GENOTYPE OF POLAR FOXES (ALOPEX LAGOPUS L.) POLISH AND NORWEGIAN TYPE AND THEIR CROSS-BREED ON THEIR REPRODUCTIVE TRAITS

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Polish

The studies were carried out on 676 specimens of female foxes utilized between 1985–1996 in farm in Śniaty. The performed analysis of variance showed significant differences between reproductive traits of vixens belonging to different genetic groups. The highest performance was characteristic for native females, the lowest

for imported females. There was a significant increase of reproductive traits in the all groups of evaluated animals in the second reproductive season. The effects of crossing of Polish and Norwegian polar foxes were positive and showed higher means of reproductive traits in the group of cross-breed females polar foxes, re-production

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 85–90

EFFECT OF SEMEN DILUTION RATE ON JAPANESE QUAIL (*COTURNIX COTURNIX JAPONICA*) SPERMATOZOA MORPHOLOGY

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Polish

Adult quails males were used in the experiment. The rate of semen dilution effect on quail spermatozoa morphology was evaluated. Irrespective to dilution rate, quail semen dilution with Lake diluent caused significant ($p < 0.01$) decrease in number of live spermatozoa in total from 76.3% (in fresh semen) to 65.5% (1:0.5 dilution rate) and 63.09% (dilution 1:2). Number of live morphologically normal spermatozoa also decreased, comparing to fresh semen (57.65%), by 20.7 percent points (36.9%) for dilution 1:0.5 and by 23.61 (34.04%) when semen was diluted 1:2.

Japanese quail, rate dilution, spermatozoa morphology

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 91–97

PRODUCTIVITY AND BEHAVIOUR ASPECTS OF OUTDOOR REARED FATTENERS

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Polish

The study was carried out in summer months (June, July, August). Weaned piglets (20 castrated male pigs and 20 gilts) since the age of 80 days were reared in the half-opened pens connected with paddock, where automatic feeder and waterer were installed. The animals received fresh green forage every day. Fattening period lasted average 90,25 days (from 24,74 to 106,95 kg of body weight). Average daily gain were high (911 ± 98 g). Carcass meat content amounted of 50,19%, loin eye area 44,08 cm² and mean back fat thickness 2,93 cm. Meat quality characterized by pH1 value and wateriness was required. Etological observations of particular animal behaviour forms pointed at the harmonic daily rhythm from 8 a.m. till 10 p.m. Higher activity of animals was observed in the afternoon than morning hours. Paddock it was the preferable place for animals (from 35,19% of the first day after placement till 60,57% of observation time in the 76th day of fattening period).

fatteners, behaviour, outdoor system

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 99–105

THE INFLUENCE OF ADDITION OF HALLOISITE TO FODDER ON THE LEVEL OF CHOSEN HEMATOLOGICAL AND BIOCHEMICAL BLOOD PARAMETERS IN GROWING-FINISHING PIGS

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2 Rolimpex Group, Division in Wrocław

Polish

The effect of halloisite supplementation (1% and 2%) to forage of fatteners on the basic biochemical parameters of blood serum was an, ALT, AST, total bilirubin did not differ significantly between the groups. However, in groups receiving 2% of Hlt there was statistically significant growth of total protein concentration and decrease of triglyceride and HDL concentration comparing to control group. The full assessment of the Hlt usefulness in pigs feeding requires further zootechnical veterinary research analyzed in this study. The average values of hematological indices like Ht, Hb and biochemical indices like glucose, urea, total cholesterol, LDL. halloisite, pig, feed, blood, biochemical parameters

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 107–111

INFLUENCE OF THE MICROCLIMATIC ELEMENTS TO THE CHOSEN INDICATORS OF PHYSICAL TERMOREGULATION AND TO THE BASIC PHYSIOLOGICAL FACTORS AT THE CALVES IN THEIR FIRST WEEKS OF LIFE

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Polish

The aim of this study was to define the influence of chosen parameters of room microclimate on the basic factors of physical termoregulation as well as basal physiological factors by calves at first 2 weeks of their life and by grown specimen. Based on gained results and enumerated relationships, there was found an influence of the air temperature on the temperature of calf body at termostabile and termolabile sites, as well as on the internal body temperature. By grown specimen there wasn't found an influence of microclimate on the rectal

temperature. There was also found, by grown specimen, an influence of the dry cooling on the Burton index of thermostable sites, as well as temperature influence on the number of breaths, what could prove of more efficient functioning of physical thermoregulation mechanism by grown specimen on the contrary on the examined calves.

calves skin temperature, microclimate, Burton's index
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 113–118

PRELIMINARY ANALYSIS ON THE APPLICATION OF SELENIUM YEAST SACCHAROMYCES CERVISIAE AT THE CALVES WITH CLINICAL SYMPTOMS OF DIARRHOEA

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Polish

The aim of this analysis was to state the influence of selenium yeast *Saccharomyces cerevisiae*, applied at 7-daysold calves, on the intensification of clinical symptoms of diarrhoea, as well as the number of bacterial flora in their faeces, chosen biochemical indicators in their blood and the weight increases. Yeast were given with a milk substitute-specimen, in dose of 67 mg/day/calf. The applied specimen caused the amount reduction of pathogenic bacterial flora in faeces of examined animals, as well as the concentration increase of 947-globulins in blood serum. Bigger weight increases were stated by the congeners, to which the specimen were applied.

calves, diarrhoea, selenium yeast
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 119–124

BIOACCUMULATION OF SELENIUM IN ORGANS OF CARPS (CYPRINUS CARPIO L.)

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Polish

The microelements necessary for the proper functioning of organisms include selenium. It may be used to support treatment of certain types of cancer [Lippman 2000], but the crossing of its safe consumption level may lead to illnesses [Tarp 1995, WHO 1996]. The Barycz River waters contain only small amounts of selenium but are connected to the largest, in terms of their total surface, group of ponds in Europe, which are mainly used for carp (*Cyprinus carpio* L.) production; that is why they were chosen for the study in question. The research focused on checking the interrelation between the age of the fish and the selenium concentration in selected internal organs: muscles, gills, hepatopancreas and kidneys. The study has shown that selenium concentrations in muscles, gills and hepatopancreas increase with age.

selenium, carp, bioaccumulation
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 125–130

SHAPING OF BODY MASS OF CALF ON 1ST AND 5TH DAY OF LIFE DEPENDING ON HIS SEX, AGE OF MOTHER AND CALVING

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Polish

The aim of this work was to estimate influence of the calving performance, order of calving and newborns sex on the raising results of 106 Black-White calves. Two types of delivery were registered: I – „easy delivery” – spontaneous calving, II – „difficult delivery” – hard calving, with considerable help of human. The effects of calves rearing in the period of feeding by colostrum depend in an important way on the degree of difficulty in delivery, as well as mothers age and the sex of newborns. Progeny, which comes from multiparous cows and was born in a difficult delivery, as well as calves of male sex, obtained in an important way more profitable rate of rearing.

cows, age, sex and body weight of calves, daily increases
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 131–136

THE RESULTS OF CALVES REARING DURING THE FEEDING ON COLOSTRUM DEPENDING ON CALVING SEASON AND DURATION OF DRYING

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Polish

The research was carried out in the dairy cattle farm, located in western Poland. The calving season for cows (n=106) doesn't influence in an important way the body weight of the animals on their 1st and 5th day of life. Calves from winter calving developed in an important way (p.0.01) better (0.560 kg·day⁻¹) in comparison with calves born in the summer-autumn time (0.350 kg·day⁻¹). Duration of the period of preparing of cows for lactation, influences in a important way (by p.0,05) on the rate of daily increases, however, doesn't influence in an important way the body weight of calves in their rearing period.

Black-White cows, rearing of calves, calving season, dry period

THE INFLUENCE OF FATHERS ON DAILY INCREASES AND CALVES WEIGHT DURING THE FEEDING ON COLOSTRUM

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Polish

The research was carried out in the dairy cattle farm, located in western Poland. Among the examined sires heaviest calves were born from Adam (40,3 kg) and lightest from bull Best (38,0 kg). The differences between body weights of newborn calves among examined paternal groups were statistically unimportant. The groups of bull progeny differed essentially, ($p^*0,05$) by their body weight on 5th day of life and by the daily increases between 1st and 5th day of their life ($p . 0,01$). Among estimated fathers of calves designed for reproduction in the examined herd, bulls like Adam and Best, which gave the highest percentage of “easy deliveries” ,should be preferred. Breeders, which want to increase the probability of queys production should use by the reproduction of cows the semen of bulls like Susz, Adam and Best.

body weight, daily increases, calves, bulls

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 143–147

THE EFFECT OF YEAR, SEASON, BREED AND REPRODUCTION CYCLE ON SOME BLOOD PLASMA PARAMETERS IN COWS AND HEIFERS

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English

The observation was carried out in a group of 70 female cattle in the course of two years. The animals were kept in suckler herds. They were provided with pasture grass and maize silage indoors during the grazing season and with forage ration (silage and hay) in winter. The aim of the study was to assess the effect of year (2001 and 2002), season (spring and autumn), breed (Aberdeen Angus AA, Beef Simmental BS, Blonde d’Aquitaine BA, Charolais CH, Hereford HE and Limousin LI) and reproduction cycle (pregnant heifers PH, non-pregnant heifers NPH, pregnant cows PC, non-pregnant cows NC and lactating cows with calves LCC) on some blood plasma parameters. Mean values of these parameters were following: Total protein (TP) 72.37 g·l⁻¹, glucose (Glu) 3.23 mmol·l⁻¹, urea (Urea) 4.39 mmol·l⁻¹, bilirubin (Bilir) 4.63 mmol·l⁻¹, alkaline phosphatase (ALP) 1.02 μ kat·l⁻¹, asparate aminotransferase (AST) 1.29 μ kat·l⁻¹, gamma glutamyltransferase (GMT) 0.30 μ kat·l⁻¹, sodium (Na) 114.33 mmol·l⁻¹, calcium (Ca) 2.30 mmol·l⁻¹ and phosphorus (P) 1.99 mmol·l⁻¹. Year affected TP, Glu, Bilir, ALP, AST (all $p<0.01$) and urea ($p<0.05$). Season affected TP, Glu, urea, Bilir, Ca, P (all $p<0.01$) . There were significant differences in urea, GMT, Ca and P between breeds. Reproduction cycle affected TP and Glu ($p<0.05$). It can be concluded that year and season affected the observed blood plasma parameters considerably more than

breed or reproduction cycle. Suckler cows, blood plasma, metabolic characteristics

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 149–155

FORMING OF CHOSEN BLOOD PARAMETERS OF CALVES IN DEPENDENCE ON THEIRS HEALTH CONDITION

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Polish

The aim of this work was a comparison of intensification of diarrhoea clinical signs to the shaping of acid-base parameters levels as well as to the hematological indicators at calves in neonatal period. Blood from these calves was collected in 7, 14 and 21 day of theirs life. Even the moderate intensification of diarrhoea leads to the metabolic acidosis. Together with an appeasement of diarrhoea signs, in short period it comes to the metabolic acidosis compensation, in result of HCO₃⁻ and BE increase. The respiratory acidosis, affirmed in 7 day of calves’ life, didn’t fall the full compensation in period of 2 weeks. Forming of hematological parameters of blood of calves in neonatal period depends mainly on theirs health condition.

calves, diarrhoea, acid-base equilibrium

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 157–163

EVALUATION OF MICROCLIMATIC CONDITIONS IN TWO OBJECTS OF HORSE BREEDING

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Polish

Research was executed in two objects of horse breeding in winter period. In every building 27 measuring series were executed, considering the microclimatic parameters as well as stable ventilation. Temperature, humidity, air movement and intensity of lighting in both stables were contained in limits of recommended norms. Katathermometric cooling in both stables were comparatively large (44,7 mW·cm⁻² and 51,14 mW·cm⁻²). There were the low frequency of air exchange together with the high values of ventilating volume in both stable. Forming of microclimatic parameters during investigative period it didn't connected with changes of health

conditions of horses. horse, microclimate, ventilation

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 165–171

EFFECT OF MANAGEMENT SYSTEM ON GROWTH AND DEVELOPMENT OF GERMAN-HOLSTEIN HEIFERS IN VORPOMMERN

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Polish

The material comprised 142 young German-Holstein (Deutsche Holstein) female cattle. The animals were managed in the farm Ramin belonging to Ramin Agrar GmbH & Co.KG, Germany. The heifers were divided into two groups depending on their age and the applied management system. Selected body conformation and developmental traits were analysed, such as body weight and daily gains, as well as some body measurements, namely hip height and chest girth. Body condition was scored by manual feeling for the amount of fat covering, assessed on a 5-point scale. The heifers were weight using an electronic cattle weighing platform. Differentiation of ration energy content did not affect daily weight gains. As far as hip height and chest girth are concerned, the heifers managed in confinement were better, while those kept on pastures were more healthy.

heifers, growth and development, measurements, body weight, condition assessment

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 173–178

ANALYSIS OF THE REPRODUCTIVE ABILITY OF GANDERS HATCHED IN WINTER AND IN SPRING

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Polish

Ten White Kołuda ganders hatched at the first of March and eleven hatched at middle of June were evaluated during their first reproductive season. Ganders' response to manual semen collection and quantitative and qualitative characteristics of semen were analysed. The response to massage and production of valuable ejaculates of 7- months old ganders was delayed comparing with 10-months old males by 1,0–1,5 months, but it finished at the similar time (last week of June). However, as reproductive season progress the decrease in percentage of positive reactions and semen quality was smaller in relation to older ganders. No significant differences with respect to ejaculate volume, spermatozoa concentration and number of total live and live properly formed spermatozoa were found between evaluated groups.

ganders, semen, spermatozoa morphology

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 179–185

GROWTH RATE AND POST MORTEM ANALYSIS OF YOUNG GEESE OBTAINED FROM ARTIFICIAL INSEMINATION WITH GANDER SEMEN OF DIFFERENT ORIGIN

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Two groups (10 birds each) of White Kołuda goslings obtained after geese insemination with fresh semen collected from: group I – ganders derived from pedigree farm; group II – ganders of VIth generation obtained after insemination with frozen-thawed semen (for 7 years any genetic selection was made). Body weight at the Day 1, 21, 35, 42, 56, 70, 84 and 105 (day of slaughter) and growth rates were calculated. At post-mortem analysis there were evaluated (in g and % in relation to live body weight): eviscerated carcass with neck, heart, liver, gizzard, edible giblets, breast muscles with skin, legs with skin, wings with skin and remainder of carcass with skin. Average live body weight at 15 weeks of age was 5334g for group I and 5348 g for group II; dressing yield – 68.18 and 68.61%, respectively No significant differences with respect to body weight, growth rate and post-mortem value were found between

both evaluated groups. goose-broilers, growth rate, post mortem analys

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 187–194

THE INFLUENCE OF FERTILIZATION AND CHEMICAL PROTECTION OF CROP ON HEAT EXTRACTION AND EMISSION LEVEL OF GASES FROM STRAW USED FOR BEDDING

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Polish

The heat extraction caused the increase in the emission of NH₃ and CO₂ in the reactor 1 and decrease in the emission of N₂O and CH₄. In the reactor No. 2 the emission of NH₃ decreased and the emission of greenhouse

gases: CO₂, N₂O, CH₄ increased. Disadvantageous effect is the increase in methane emission of 94%. It results in

recommendation of heat extraction technologies only for these farms where straw from an intensive farming is

available. Bedding with a straw cultivated in "ecological" way causes increase in all unwanted emissions. In the

reactor No. 1 the heating power was 146,37 W.m⁻² while in the reactor No. 2 it reached 110,8 W.m⁻² animals, ammonia, methane, nitrous oxide, heat extraction

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 195–202

EFFECT OF MANAGEMENT SYSTEM AND LENGTH OF STANDS ON MILK SOMATIC CELLS COUNT Neja W., Sawa A. Cattle Breeding Department, University of Technology and Agriculture, Bydgoszcz

Polish

Effect of management system and length of stands in 1968 farms from Pomerania and Kujawy region were analyzed. Herd size and season were considered in statistical calculations. Negative influence of herd size increase on milk somatic cells count was found. The smaller somatic cells count was observed for cows kept in

loose barn kept. The milk quality was higher in stanchion barns if cows were kept on stands longer than 2 meters.

In that case along with increase of herd size the milk quality made worse in smaller extent comparing to herds where cows were kept on shorter stands. Larger variation in somatic cells count was observed depending on season that depending management system and length of stands. The worst quality milk was obtained in autumn

(IX–XI). milk, somatic cells, management system, length of stands

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 203–209

EFFECTS OF THE RATION COMPOSITION ON CARCASS AND BEEF QUALITY OF YOUNG BULLS

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Polish

The objective of this study was to evaluate the effects of the replacement of the ration consisting of corn pulp, crushed cereal meal and cereal straw with a new ration based on grass wilted silage and soy-bean meal on the slaughter value and meat quality of young bulls cb×hf.

The weight of kidney fat, gut fat and caul fat as well as fat and dry matter content in m.l.d significantly decreased

after changing the ration, however it did not affect daily body gains and the dressing percentage of young bulls. fattening, beef

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 211–216

MICROBIOLOGICAL EVALUATION OF EFFECTIVENESS OF SEWAGE TREATMENT IN A SELECTED

MEAT PROCESSING PLANT

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Polish

The research was carried out to evaluate the effectiveness of the treatment of meat processing plant sewage on the basis of determining the general number of microorganisms, Salmonella bacilli and group D streptococci present in raw and treated sewage. The research has shown that the effectiveness of a mechanical and chemical

treatment plant is very little with respect to microbiological sewage treatment. The number of bacteria tested only

slightly decreased after treatment regardless of the season of the year. The fact that Salmonella bacilli were often

found in the treated sewage was especially disturbing. The research carried out has shown the necessity of further

treatment of meat processing plant sewage using biological methods. meat processing plant sewage, treatment, indicative bacteria
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 217–223

THE RESEARCH OF CONCENTRATION OF MERCURY IN TISSUES OF LAYING HENS HOUSING IN

FREE RANGE SYSTEM IN AGRICULTURAL AND INDUSTRIAL REGIONS Opaliński S., Dobrzański Z., Pokorny P., Barej R.

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Polish

The concentration of mercury in tissues (liver, muscle and lung) of hens housing in free range system in the typical agricultural region (south Opolszczyzna) and in the industrial copper region (LGCR) with AAS method

was examined. The highest concentration of Hg was detected in livers of laying hens from the industrial region,

average 4,80 µg·kg⁻¹, similar values were detected in lungs however the lowest concentrations were detected in

muscles. The correlation coefficients between the content of Hg in lungs and muscles ($r=0,84$) and between the

content of Hg in livers and muscles ($r=0,67$) were calculated and statistically significant ($p<0,01$). The

differences of concentrations of Hg in each tissue in compared regions were statistically not significant.

According to the Decree of Health Minister from 13.01.2003 the detected concentrations of Hg were not above

the limit. hen, mercury, muscle, liver, lung, correlation

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 225–229

INACTIVATION OF SELECTED ENTERIC BACTERIA IN ORGANIC WASTE SUBJECTED TO KNEER

TECHNOLOGY COMPOSTING PROCESS Paluszak Z., Szala B.

Department of Microbiology, Academy of Technology and Agriculture in Bydgoszcz

Polish

The influence of type Kneer container method of composting on hygienisation of biomass subjected to this process was investigated. Obtained results show that high temperature generated during composting process was

a decisive factor in elimination of examined indicator microorganisms – E. coli and fecal streptococci. The shortest inactivation time was observed during summer. The most resistant to the effects of high temperature in

composted biomass were streptococci group D. composting, enterococci, E. coli

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 231–237

THE CHARACTERISTICS OF LAMB SKINS FROM POLISH MERINO AND WRZOSÓWKA SHEEP

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Polish

The object of the research was the analysis of usefulness of lambskins to produce hides and furs coming from “wrzosówka” sheep with mixed coat and polish merino with homogenous coat. The research was made on the skins coming from the polish merino and „wrzosówka” rams. The lambs were beaten down at the age of 100 days. Taken off skins were cooled and conserved with salt method and after 3 weeks the skins were curried. The raw and curried skins were examined concerning the hide production usefulness (the surface of the skin, its

thickness, weight, length of haircoat, resistance to ripping off, hair coat thickness). Basing on the research one can state that „wrzosówka” skins had better resistance, were less thick and better haircoat. That is why they better

suit for the hide production than polish merino lamb skins. sheep, polish merino, „wrzosówka” sheep, fur usefulness

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 239–244

THE INFLUENCE OF THE ORGANIC CHROMIUM SUPPLEMENT ON THE SELECTED BLOOD

CELLS AND TISSUES AT TRANSPORTED CALVES

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2 Department of Anatomy and Histology, Agricultural University in Wrocław

Polish

The purpose of this research was to define of the influence of organic chrome supplement on the selected blood

cells and organs' tissues of calves, which were under the transport stress. The examination was executed on 28

calves, which were 14 days old. The calves were being fed by chrome preparation in the dose of 0,5 mg per one

calf per day during 5 days before and after transportation. Calves, being fed with the chrome supplemented fodder had lower rate of leukocytes and lymphocytes in blood. The histological analysis of calves internal organs revealed small changes in lungs, liver, thymus and ileum. calves, chromium, stress

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 245–251

CHOSEN ELEMENTS OF NATURAL HABITATS ECOLOGY IN KAMIENNA RIVER VALLEY (JAKUSZYCE – SZKLARSKA PORĘBA)

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2 Department of Limnology and Fishery, Agricultural University in Wrocław

Polish

Investigations in river Kamienna valley realized on 15 objects in 2002–2003 years, on section between Jakusyze

and Szklarska Poręba. On the ground of relevé defined the following plants communities: highmoor from the class Oxycco-Sphagneteta Br.-Bl. Et R. Tx. 1943, represented by associations Eriophorum vaginatum-Sphagnum

fallax Hueck 1928; water-logged meadow from the class Molinio-Arrhenatheretea R. Tx. 1937, represented by

associations Angelico-Cirsietum oleracei R.Tx. 1937 em. Oberd. 1967; spruce forest from the class Vaccino-Picetea Br.Bl. 1939, herbs from the class Epilobietea angustifolii R.Tx. et Prsg. 1950, represented by associations

Epilobium angustifolii (Rübel 1933) Soó 1937. The communities characterized low abundance nutrient, absent:

total nitrogen, total phosphorus, CaCO₃. The reaction of pH upper levels of this water is 3,38-6,49 and low diversity of the plants 22-85 species. In the communities indicate seven protected species of the plants. Kamienna river valley, plants community, species diversity, highmoor, spruce forest, water-logged meadow

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 253–258

BIOACCUMULATION OF CADMIUM AND LEAD IN HYDROBIONTS OF THE BIAŁA ŁĄDECKA RIVER Pokorny P., Dobicki W., Polechoński R., Kowalska-Górska M. Department of Limnology and Fishery, Agricultural University in Wrocław

Polish

Research focused on determining the pollution of the Biała Łądecka River with cadmium and lead by checking

their concentrations in the water, in larvae of Caddis of the Family Glossomatidae and in water plants

(*Batrachium aquatile* (L.) Dum). Accumulation rates of these elements for Caddis and *Batrachium aquatile* have also been calculated. The results obtained indicate that the pollution of the Biała Łądecka River with lead is

not high; 0.0063 mg Pb-dm⁻³ on average, which is slightly more than 50% of the permissible concentration for

Class I surface waters. Cadmium pollution is higher and amounts to 0.001 mg Cd-dm⁻³, which places the river's

water in Class II surface waters. The cadmium bioaccumulation rates for Caddis were five times higher than for

plants (22420 and 4527 respectively); the corresponding lead rates were 18635 for Caddis and 3127 for plants. mountain rivers, Biała Łądecka, bioaccumulation, cadmium, lead

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 259–264

LEVEL OF MERCURY IN PIKE-PERCH AND BREAMS TISSUES FROM WOJNOWSKIE LAKES IN DEPENDENCE FROM AGE Polechoński R., Dobicki W., Pokorny P. Division of Limnology and Fishery, Agricultural University in Wrocław

Polish

The tissues (kidneys, muscles, gills and livers) mercury contents were found to vary with fish age. Predatory fish

(pike-perch *Stizostedion lucioperca* L.) and non-predatory (bream *Abramis brama* L.) were compared. Fishes were caught in nets annually in years 1997–2002.

The mercury bioaccumulation vs. fish age relationship was species-specific. Pike-perch, interesting higher trophic level in lake ecosystem, accumulated in one's tissues higher concentration of mercury thanks biomagnification effect. Positive correlations between concentrations of mercury in fish tissues vs. fish age were recorded in everybody cases. mercury, fish, age, bioaccumulation
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 265–271

INFLUENCE OF CADMIUM ON CARP SPAWNING EFFICIENCY Popek W., Sionkowski J., Drag-Kozak E., Szymocha J., Epler P. Department of Ichthyobiology and Fisheries, Agriculture Academy, Cracow
Polish
The aim of this work was to investigate the effect of the fodder contaminated with low concentration of cadmium on the effectivity of carp spawning stimulated with hormones inducing an ovulation. Fish were feeding with contaminated fodder for 10 months period, and next during the spawning time females were made intraperitoneal injections of carp hypophysis homogenate (c.h.h.) or Ovopel. Afterwards females were transported into spawning ponds, where males were carried earlier. In 2 days females were cached and, weighted. The spawn of females were determined in the spawning ponds. It was shown that prolonged action of low cadmium concentration has unfavorable impact on fish spawning, through inhibition of oocytes ovulation. This element has stronger influence on ovaries than on nervous tissue. cadmium, spawning of carp
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 273–277

INFLUENCE OF VARIOUS TOYS ON THE SENSES OF SIGHTING AND HEARING OF SUCKING PIGLETS
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Polish
The purpose of the study was to try several simple method of stimulation of the piglets by the various toys. The toys like color bottles, pom-poms made with special kind of string, bottle full of stones , metal chain influenced on the senses of sight and hearing. This performance had to stop boring the piglets and to limit aggressive behavior and cannibalism. Metal chain occurred to be the best thing to pay attention of the piglets. It was easy to disinfect and resistant to animal activity. The use of indirect stimulation influenced significant to the decrease of daily weight gain probably by the use of energy to the piglets fun activity. behaviour, welfare, piglets
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 279–284

ANALYSIS OF HAIR COAT COLOR OF POLISH MOUNTAIN SHEEP FROM TATRA AND PODHALE
Ramadani S., Patkowska-Sokoła B., Bodkowski R. Department of Sheep and Fur Animals Breeding, Agricultural University in Wrocław
Polish
The object of the observation was analysis of the colour of hair coat of polish mountain sheep of 10 cabins (bacowkas) of Tatra and Podhale. The colour was observed during the pasture (August) on 6285 ewes from chosen bacowkas. The organoleptic rating of colour was done according to earlier prepared colour scale. The observation indicates very small part (2%) of colour coat sheep, in spite of the fact that colour sheep were present in each of the analysed herds. The smallest number of sheep was the brown coated – only 0,4 % in the observed population. The proportion of the black sheep was about 0,6 %. The biggest number of the colour sheep were the grey ones – they were the 1,2 % of the observed amount. The most sheep were white – about 98 %. It is recorded that the base colour of hair coat of polish mountain sheep from the analysed herd was white. polish mountain sheep, hair coat colour
Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 285–290

THE POLLEN ACCUMULATION IN THE SECOND HALF OF SEASON BY HONEYBEE (APIS MELLIFERA L.) COLONIES Roman A. Institute of Animal Hygiene and Environment, Agricultural University in Wrocław
Polish
The aim of this work was to establish what amounts of pollen the honeybee colonies may to gain over, in

second

half of foraging season and establishment of existence of dependence between size of pollen loads brought to the

beehive by the worker bee and amounts of the pollen accumulated by the honeybee colonies. The investigations

were realized in second half of the utilitarian season, at two sequential years (2002 and 2003). The examinations

showed that honeybee colonies operated on that region may have a problem with provide oneself in appropriate

quantities of flower pollen for actual aims. The mean amounts of pollen obtained from individuals honeybee colonies in this time were from 3.81 to 10.85 g/day in first year and from 4.62 to 26.79 g/day in second year

of

investigations. In comparison to actual feed requirements of honeybee colonies these quantities were very low.

The research showed that in second half of foraging season the honeybee colonies may have the problems with

supply in pollen appointed on actual aims- the developmental aims and worker bee preparation to the wintering.

The average pollen loads were 7.53 mg/piece in the first year and 7.20 mg/piece in the second year. The study did not show a relationship between pollen load size and pollen efficiency in a colony. honeybee colonies,

pollen loads, pollen efficiency, pollen trap

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 291–296

THE HEAVY METALS CONTENT IN BEES' NECTAR AND MATURE HONEY Roman A. Institute of Animal Hygiene and Environment, Agricultural University in Wrocław

Polish

The sampled material (freshly collected by bees' nectar and mature honey) was analyzed for trace elements: copper (Cu), cadmium (Cd) and lead (Pb) contents using an ICP method. The research was carried out in the northern Lower Silesia region in year 2002. A total number of 100 samples of freshly collected by bees nectar and mature bees' honey. Every 1000 mg from each proof was decomposed in 10 ml nitric acid spectral pure. The

biological materials were liquidized and mineralized by microwave method (type MARS 5 CEM), whereas for

quantitative analysis of toxic metals contents ICP technique was applied (ICP AES Varian company). The higher

contents of these elements were found in freshly collected by bees' nectar. On dry matter basis, mature honey contains from 25,0% to 33,3 % less trace elements than does freshly collected nectar. The remaining analyzed metals stepped out in considerably lower concentrations: lead suitably 0,33 and 0,22 mg·kg⁻¹ of d. m., copper 0,31

and 0,23 mg·kg⁻¹ of d. m. As well as cadmium - 0,08 (in nectar collected by bees) and 0,06 mg·kg⁻¹ of d. m. (in mature honey). heavy metals, bees' nectar, honey, reduction of pollution

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 297–302

ESTIMATION OF BEDDING MATERIALS USED FOR HEN BROILERS ON THE BASIS OF BIRDS' BEHAVIOUR

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Polish

The investigation was carried from 3rd to 6th week of fattening period and 3 kinds of bedding were tested: straw,

chopped straw and wood shavings. It was found that the birds having free choice of different length straw preferred the chopped straw. However having at a choice shavings and long straw, they preferred long straw at

the beginning of fattening period. Later, they have been choosing shavings (that are "short material"). From two

short materials: shavings and chopped straw, at the beginning of fattening they have been choosing the chaff more often. It can be said, that in the first weeks of the birds' life, the shavings should not be used as a litter.

behavior, litter, long straw, chopped straw, wood shaving

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 303–309

21-STEROID HYDROXYLASE PHYLOGENETIC ANALYSIS IN MEMBER OF MAMMALIA PHYLUM Strzala T., Frontczak A., Ślizga A., Kosowska B. Department of Genetics and Animal Breeding, Agricultural University in Wrocław

Polish

The subject of our studies was phylogenetic analysis of 21-hydroxylase gene, made with several different sources: exons, introns and amino acid sequences. We analyzed sequences from seven species of Mammalia phylum: human, rat, mouse, dog, pig, cattle and rabbit. Main objective of our studies was to find out what kind of

sequences is the best for phylogenetic analysis of 21-hydroxylase gene. Such kind of sequences were exons. molecular phylogenetic analysis, introns, exons, amino acid sequence, mammals

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 311–318

THE EFFECT OF PRESERVATION METHODS AND EXTRUSION OF SIDA FORAGE (SIDA HERMAPHRODITA (L.) RUSBY) ON CHEMICAL COMPOSITION Tarkowski A. Institute of Animal Nutrition, Agricultural Academy of Lublin

Polish

In the investigations evaluated influence of silage, drying and extrusion-cooked on chemical composition of sida

forage (*Sida hermaphrodita* (L.) Rusby). Molasses supplements increased crude protein such as decreased crude

fiber content in leaves and whole plant of sida silage. Sida meal contained high level of crude protein (22%) and

crude fiber (24%). The contents of crude protein and crude fiber in extrudates were resultant of their level in horse bean, triticale and sida meals. sida forage, silage, meal, extrudates, chemical composition

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 319–323

MILKY GLAND HEALTH AND SANITARY STATE OF RAW MILK IN SPECIALIZED FARMS OF PODKARPACIE REGION Tietze M., Hunc D., Bryl M. Department of Animal and Environmental Hygiene, University of Agriculture in Lublin

Polish

The aim of study was to assess the milky gland health as well as hygienic quality of milk originating from three

farms localized in Podkarpacie region. In total 200 cows of different genotypes at the age of 3–10 years and being at

full lactation period with mean annual efficiency of 6500 kg of milk, were studied. Seventy-five milk samples were

taken. Total number of microorganisms, Coli titre and number of somatic cells were determined. Assessment of

milky gland health was performed applying clinical investigation and TOK test. It was revealed that microorganisms of minor pathogens group were the main etiologic factor of mastitis subclinica. Total number of

bacteria and somatic cells qualified tested milk in 90% to extra class. The percentage of cows with healthy udders

was 64% in selected specialized farms of Podkarpacie region. raw milk, sanitary quality, total number of bacteria, mastitis subclinica, somatic cells

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 325–330

CONTAMINATIONS OF AIR IN THE AREA OF DAIRY CATTLE FARM

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Polish

The main goal of this work was to attempt to estimate a range of microbiological and chemical contamination of

air environment by a cow farm. This investigations were conducted on a cowhouse and in its direct surroundings.

In order to evaluate a range of dissemination of microbes, air samples were collected inside of the cowhouse and

outside from so collected „stripe” consisting of three separate points located in various distances from the building, and from a control point. Simultaneously basic microclimate parameters and value of ozone inside and

outside the cowhouse were measured. Our study revealed that the air was microbiological contaminated till 75 m.

distance from cowhouse, and chemical contaminated about 300 m. distance from cowhouse. cattle farm, microbes, ozone

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 331–336

WELFARE FACTORS ON FARMS IN THE KUJAWY AND POMERANIA DISTRICT Traczykowski A., Rzepczyk B. Department of Animal Hygiene and Microbiological Environment, Academy of Technology and Agriculture in

Bydgoszcz

Polish

The inspection was carried out on 96 farms in six different regions located in the Kujawy - Pomerania District. The aim of the inspection was to establish the sanitary state of buildings, efficiency, care, morbidity and mortality, as well as treatment procedurement of animals.

The study concluded that the buildings on the farms in question didn't meet the requirements as far as the living

conditions were concerned. The main reasons for it were poor lighting within buildings, lack of processes for disposing of manure lack of dung grids, and midden-pits, as well as poor ventilation of buildings. These poor conditions were reflected in poor breeding standards of animals. inspection, farm animals, welfare

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 337–343

ARSENIC IN FISH PRODUCTS – THE ESTIMATION OF CONSUMER'S HEALTH RISK

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Polish

The total concentration of arsenic in 121 samples of canned fish (sprat, herring, mackerel, tuna, sardine) and in 45

samples of smoked fish (sprat, herring, mackerel, trout, salmon) produced in years 2001–2002 was examined.

Acceptable concentration of arsenic in fish and fish products is 4,0 mg·kg⁻¹ of wet mass. The detected concentrations were not above the acceptable limit in any sample, the highest mean concentration of arsenium was in smoked mackerel (1,31) and the lowest in canned tuna (0,7 mg·kg⁻¹ w. m.). The differences between mean

concentration of arsenium in smoked mackerels and trouts was statistically significant (p<0,05). Considering the

PMTWI, the total arsenic intake from fish and fish products was 12,6%, inorganic arsenic 3,8%, of dose which is

acceptable by FAO/WHO. fish, arsenic, PMTWI, WHO

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 345–350

THE CONTENT OF BRYNDZA CHEESE PRODUCED FROM POLISH MOUNTAIN SHEEP AND FRESIAN SHEEP MILK

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2 Department of Sheep and Fur Animals Breeding, Agricultural University in Wrocław

Polish

The observations of the chemical content of bryndza cheese was made on milk from polish mountain sheep and

fresian sheep. Milk for cheese production was taken from sheep (15 sheep of each breed) in third lactation (15 week, July-August). The sheep was fed only on pasture grass. There were differences in protein, fat and dry matter content between bryndza cheese from polish mountain sheep and fresian sheep. In the range of these constituents the most profitable appeared to be bryndza cheese from milk of polish mountain sheep. The differences in the content of cheese functional constituents, eg. fatty acids and conjugated linoleic acid isomers cis-9, trans-11 were also observed. The polish mountain sheep cheese had more profitable content of constituents

given above. bryndza cheese, polish mountain sheep, fresian sheep, chemical composition, fatty acids profile

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 351–356

ADDITION OF GARLIC, ONION AND ACIDIFIER TO THE FEED FOR WEANERS AND PIGLETS AND

THEIR WEIGHT GAIN AND HEALTH

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2 Agricultural University of Poznań

3 University School of Physical Education

Polish

The research object was to define the influence of garlic, onion and acidifier on health and weight of weaners and

the weight gain of piglets. It was found that applied additions had a beneficial influence on the weight of piglets

during the weaning and for 30 days after the weaning and on feed consumption per kg of increment. These feed

additions had positive effect on the state of health of piglets and weaners, defined as a number of days of animal

diarrhea. The possibility of using garlic and onion as an additions to feeds allows to make use of vegetable wastes which are out of the lass. pig, piglet, weaner, health, garlic, onion, acidifier

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 357–362

THE ANALYSIS THE BLOOD INDICATORS OF BEEF CATTLE CHAROLAISE AND LIMOUSINE IN THE WELFARE ASPECT Wójcik A., Mituniewicz T., Iwańczuk-Czernik K., Sowińska J., Witkowska D. Department of Animal and Environmental Hygiene, University of Warmia and Mazury in Olsztyn

Polish

An intention of the work was the analysis hematological and biochemical indicators of blood the beef cattle Charolaise and Limousine (cows and calves), before and after pasture period in the aspect of their welfare estimation.

Explored showed that hematological and biochemical bloods indicators of cows of meat races Charolaise and Limousine had not run away from reference indicators for the healthy cattle. Shows this on the kelter of the health of cows and calves and on high level welfare of these animals. Pasture period put into influence generally

profitably on the formation himself indicators of hematological and biochemical bloods. Certain disturbances in

the economy energy - albuminous occurrent after pasture period at cows Charolaise suggest the necessity of giving additional food them on the pasture with fodders with high energy. welfare, beef cattle, pasture, blood indicators

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 363–368

THE ESTIMATION OF WELFARE OF THE BEEF CATTLE OF RACES CHAROLAISE AND LIMOUSINE

IN PASTURE PERIOD BASED ON AN ANALYSIS OF KEEPING CONDITIONS AND PRODUCTION PERFORMANCE Wójcik A., Mituniewicz T., Iwańczuk-Czernik K., Sowińska J., Witkowska D. Department of Animal and Environmental Hygiene, University of Warmia and Mazury in Olsztyn

Polish

An aim target of the work was former the estimation welfare of the beef cattle of races Charolaise and Limousine

(cows with calves) of held on the pasture in the term from May to October based on an keeping conditions and

production performance, productiveness and wholesomeness of the herd. In consideration of conditions of holding on the pasture of cows and calves of the race Charolaise and Limousine one ought to ascertain that they

answered to requirements welfare. There testify hereof increases era masses of the body of calves up to the mark

1, 38 kg at the race Charolaise and 1, 26 kg at calves of the race Limousine. The indicator of the effectivly of the production for the race Charolaise was situated in values of the good mark while, races Limousine of very good. The period of spending on the pasture put into influenced profitably on the wholesomeness of the beef cattle. The however irregular preparation of ways on the pasture and on cantonment bore on the pronouncement

of diseases of the osseous (lames) arrangement at cows and calves. welfare, beef cattle, pasture, productivity, health

Zesz. Nauk. AR Wroc., Zoot., 2004, LI, Nr 501, 369–374