Abstracts of articles

AGRICULTURE

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LEGUME COMPONENTS AND AMINO ACID PRODUCTIVITY OF SUDAN GRASS AND SUNFLOWER SILAGE USAGE MIXTURE AT DIFFERENT LEVELS OF MINERAL NUTRITION

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Keywords: sunflower, sudan grass, soybeans, vetch, protein, amino acids, silage.

The purpose of research is improving productivity and quality of silage sunflower and Sudanese due to intercropping with vetch spring wheat and soybean at different levels of mineral nutrition. The main purpose of this research was to study the ways of improving the quality of silage. The experiment was going for 5 years and begun in 2011 year. 6 variants of plants mixtures were planted at two levels of mineral nutrition. During the experiment, we studied the effect of legume plants for the composition of amino acids and yield level in silage either with fertilizers or without. We found that while using fertilizers the yield level was increased in all variants. In addition we found that with the application of mineral fertilizers the composition of amino acids in silage mixtures of plants was increased as well. But not all variants were good in investigated parameters. For example, sunflower itself showed the best yield not only in control variant but with fertilizers application, nether then less its amino acid composition was the worst during the whole time of research. Among the other variants, two-component mixture of sunflower and soybean can be highlighted. It has one of the highest level of protein and the best amino acid composition. This mixture showed one of the highest level of the yield as well.

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APPLICATION OF GROWTH REGULATORS IN WINTER WHEAT CULTIVATION IN THE CONDITIONS OF FOREST-STEPPE OF MIDDLE VOLGA REGION

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Keywords: winter, wheat, regulators, growth, grain, yield.

The research is improvement of cultivation of winter wheat technology for the basis of growth regulators application. The object of the research was the most common winter wheat variety Bezenchukskaya 380. The growth regulators TSE-TSE-TSE, Reggae, Moddus preparations were examined based on chlormechvatchlorid – inhibiting the synthesis of gibberellins. In the experiment, the authors used the full plant protection: herbicides, fungicide, and insecticide. Mineral fertilizers were used in the form of spring fertilizing of plants of ammonium nitrate at the rate of 200 kg per ha in physical weight (68.8 kg/ha., D. V.). The results of the research showed that the growth regulators TSE-TSE-TSE, Reggae, Moddus, regardless of the conditions during the growing season, reduce the length of the internodes and consequently, total height of plants of the variety Bezenchukskaya 380. Morpho-physiological changes of plants are accompanied by changes of particular elements of the productivity, which determines the formation of different grain yield. However, higher grain yield under the influence of growth regulators is formed only when the growth and development of plants takes place in the conditions of adequate moisture. In arid conditions, the application of growth regulators has no positive influence on yield formation. Thus, when cultivating the variety Bezenchukskaya 380 on intensive technology the use of retardants is reasonable in the conditions of adequate moisture. Therefore, the decision to use this method should be made taking into account long-term forecast weather conditions.

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COMPLEX ASSESSMENT OF THE GRAIN CROPS VARIETIES FOR RESISTANCE TO DAMAGE BY STORAGE PESTS

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Keywords: winter, summer, wheat, grade, stability, barn, wreckers, storage.

The purpose of researches is complex assessment of grain crops grades for resistance to wreckers of inventories. 17 grades of grain crops zoned in the Samara region (wheat firm and soft, triticale, barley) for resistance to wreckers are researched in case of storage by complex of qualitative, biological and biochemical indexes. Complex assessment of grain crops grades is executed by 32 criteria of stability, 7 of which entered complex assessment of grades for resistance to wreckers: solid losses, life expectancy of bugs, fertility; protein content, quantity of gluten, vitreouse and mass of 1000 grains of the grain damaged by wreckers. By results of researches the most steady noted grades of winter wheat: Volga region 86 (27 points), spring-sown soft field – Kinelskaya 61 (31 points), spring-sown firm field – Bezenchukskaya 182 and Bezenchukskaya of 200 (30 and 26) points,

barley – Volga region 65 and Agathe (24 and 22 points) Belonging of grades to certain type or a version didn't influence stability manifestation. In each group of cultures there were grades, both steady, and susceptible against wreckers. Influence of field wreckers (a bug turtle and wheaten trips) for manifestation of resistance of grain to damage by barn wreckers is also established. The received results of researches can be used in selection work on creation of grades with wide group resistance to wreckers of grain inventories.

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YIELDING CAPACITY FORMATION OF GRAIN AND LEGUMINOUS CROPS IN THE CONDITIONS OF THE TRANS-VOLGA FOREST-STEPPE FARMING

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Keywords: bean, cultural, abiotic, factors, treatment, soil, fertilizers.

The purpose of research is increasing the resistance of plant protein production. The data on duration change features of interphase periods and yielding capacity formation of grain and leguminous crops (peas, vetch, lupine) under the influence of abiotic factors, soil tillage and fertilizers in crop rotations are given in the article. Researches were conducted in a stationary three-factor field experiment during the period of 2003-2015. Duration of vegetation of leguminous crops was extended with an increase in rainfall and shortened with an average daily air temperature rise. Tillage of the soil by 20-22 cm in comparison with cultivation (on 12-14 cm) due to improvement of growth conditions extended the vegetation period for 2-3 days, an elevated background of fertilizers also increased vegetation for 1-2 days. The level of yielding capacity was in direct dependence on the period duration «seedlings – blossoming», especially in white lupine and blue lupine and in an inverse relation to air temperature. Yields of leguminous crops directly depended on the amount of rainfall and value of hydrothermal coefficient, especially in lupine that characterizes it as a more hygrophilous crop in comparison with peas and vetch. The studied crops for the level of yielding capacity can be arranged in the following row: peas + lupine of 2.06-2.40 t/ha > peas 1.97-2.36 t/hectare > lupine of 1.99-2.30 t/ha > vetch 1.47-1.77 t/ha, with an advantage of deeper soil tillage and elevated background of fertilizers. Crop studies allows us to draw a conclusion that along with cultivation of traditional grain and leguminous crops (peas and vetch) in the conditions of the forest-steppe of the Volga region white lupine and mix of peas and blue lupine represent a special interest. White lupine can become a valuable fallow crop for winter crops. When planning a mix of peas and lupine it is important to pick varieties with the vegetation period close in duration, that will help to increase production of high quality forage.

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AGRO-BIOLOGICAL FEATURES OF GROWING THE BROWN MUSTARD UNDER THE CONDITIONS OF LEFT-BANK FOREST-STEPP OF UKRAINE

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Keywords: mustard, agrobiological, features, morphological characteristics, productivity.

The purpose of research is determining the agro-biological features of modern varieties of brown mustard when grown under the conditions of Left-bank Forest-steppe of Ukraine. The results of the research of 2014-2016 biennium to study the reaction of modern varieties of brown mustard by certain growing have been presented. The features of plant growth and development have been determined, as well as the comparative characteristic of productivity indicators has been conducted. The subject of research are the brown mustard varieties (Prima, Mriya, Demeter, Retro, Rosava, Roksolana, Felicia, Chornyava). The experiment was done by the training and production complex of Sumy National Agrarian University. At the simultaneous sowing in the second decade of April, the shoots appeared almost at the same time. The beginning of flowering (BBCH 60) of the most studied Brassica juncea varieties was fixed on the 40-48 day. The period of vegetation in the context of varieties was: Mriya – 85 days, Rosava, Retro – 90 days, Prima – 92 days, Roksolana, Chornyava – 99 days, Felicia – 89 days, Demeter – 101 days. The biggest leaf area was formed in Prima variety – 26.1 thousand M^2/ha, the smallest leaf area was formed in Chornyava variety – 16.4 thousand m^2/ha. In other varieties, the index ranged from 20.5 to 23.8 thousand M^2/ha. The research results showed that under the conditions of the Left-bank Forest-steppe of Ukraine the agro-biological features of the varieties of Prima, Felicia, Demeter and Mriy have made the formation of the greatest seed yield of 23.4-24.7 c/ha. The minimum yield capacity was obtained from the varieties of Chornyava and Rosava (14.5−19.0 c/ha). The agro-biological features of Retro and Roksolana varieties contributed to the performance of the yield capacity potential of brown mustard seed at the level of 20.2-22.5 c/ha.

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SEEDLINGS OUTPUT UNDER DIFFERENT WAYS OF STONE FRUIT TREES GRAFTING

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Keywords: gardening, multiplication, stone, crop, variety.

The purpose of research is increasing the output of stone fruit trees planting material per area unit in the environment of the Middle-Volga Area. Experimental research has been carried out at Samara State Agricultural Academy and the horticultural farm «Kutuluk» of Bogatovskiy District in 2015-2016. The stone fruit trees grafting of zoned and promising varieties have been selected to become research objects. Grafting viability accounting has been performed according to the program and the method Cultivar fruit, berry and nut trees. In the article presented we demonstrate the data for the viability rate of stone fruit seedlings produced by three breeding methods: June budding, chip budding and spring copulation grafting. The studies resulted in significant differences found concerning grafts viability due to species, grafting techniques, varieties and dates(years) of grafting. It is shown that chip budding and spring copulation grafting under the critical climate of the Samara region provides a higher viability rate of all the stone fruit species, respectively, 78.3 and 68.0%. It was revealed that the viability rate has been greatly depended on weather conditions during the fusion of grafting components. The June budding seedlings output has been much lower 41.8%, not stable over the years and is largely dependent on weather conditions of overwintering grafted buds.

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CARBOHYDRATE-AMYLASE COMPLEX GRAIN STATE OF WINTER WHEAT DIFFERENT GRADES DEPENDS ON TREATMENT BY MICROFERTILIZERS ZHUSS IN COMBINATION WITH NITROGEN FERTILIZERS

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Keywords: winter, wheat, starch, amylolytic, enzymes, nitrogen, fertilizers.

The purpose of research is improving the state of carbohydrate amylase complex in the grain of winter wheat varieties and Volga 86 Torch through the use of fertilizers. Studied quantitative starch content, amylase activity of α-, β-amylase and the total activity in the grain of winter wheat varieties and Povolzhskay 86 and Svetoch on the background of the use of pre-treatment of seeds microfertilizers ZhUSS both separately and in combination with nitrogen fertilizers. The results of studies of carbohydrate-amylase complex of winter wheat represented on average over the 2011-2013 for grades Volga 86 and the average for 2014-2016 for grades Svetoch. The studies were conducted in the conditions of forest-steppe of the Average Volga region. Microfertilizers pre sowing seed was carried out with the mass concentration of the active elements, g/dm^3: ZhUSS-1 (33-38 copper, boron 5.5-5.7) ZhUSS, 2 (32.0-40.0 copper, molybdenum 14.0-22.0) ZhUSS-3 (16.5-20.0 copper, zinc 35.0-40.0), and feeding the wheat seedlings nitrogen fertilizer: ammonium nitrate, ammonium sulfate and urea. An increase of the total activity observed in the variant amylases using 3-ZhUSS drug either alone or in combination with nitrogen fertilizers cultivar Povolzhskaya 86 on average 9.5%, and varieties Svetoch – 4.3% compared with control. Comparing the results of activity of amylolytic enzymes and quantitative starch content, can be traced inverse relationship between these parameters. For example, in embodiments with high starch content in the average for the years r correlation studies it was equal to grade Volga 86 – 0.43, and for the variety Svetoch– 0.42-0.44.

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PRODUCTIVITY AND FODDER VALUE OF PURE AND MIXED CROPS FOR FORAGE BY THE APPLICATION OF GROWTH REGULATORS

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Keywords: controller, growth, forage, barley, peas.

The purpose of research is productivity and yield quality of barley varieties improving in pure and mixed crops for forage by the application of growth regulators on ordinary Chernozem in conditions of forest-steppe of the Middle Volga region. The results of studies were in 2014-2015 by evaluation of the effectiveness of growth regulators: Avibif, Aminocat and Megamix N10. The yield of fodder mass in the variants was in the range of 1.16-2.31 t/ha on average for all variants of barley varieties of Helios yield in the control was of 1.63 t/ha, with the use of drugs...of 1.98 to 1.85 t/ha with varieties Vakula – of 1.74 and 1.99, the...of 2.06 t/ha, respectively. In the crops of local varieties of Berkut, in the control crop was higher and amounted to 1.84 t/ha, while application of growth regulators increased productivity by these crops less intensively to 1.93-1.97 t/ha. The output of exchange energy to be the best treatment options Aminocat (barley 75% + pea 50%) and slightly inferior to him the treatment options Megamix N10 (barley 100% + pea 25%), of 24.83-25.90 GJ/ha and 21.91-24.02 GJ/ha, respectively. Analysis of the output of the KPE showed that the best experience was the options of a mixture of peas with barley varieties of Helios – 2.73 thousand/ha, Vakula at 2.59, eagle – 2.55 thousand/ha. According to the research results, it was found that the maximum yield provide the crops treated with drugs and Avibif Megamix N10 in the embodiments, when seeding 100% barley and 25% of the full rate of peas, Aminocat – at sowing and 75% barley and 50% of full seeding rate of peas.

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THE PRODUCTIVITY AND THE VARIETAL CHARACTERISTICS OF WINTER WHEAT POVOLZHSKAYA 86 AND SVETOCH BY THE APPLICATION OF FERTILIZERS

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Keywords: winter, wheat, variety, pre-sowing, treatment, fertilizing, seedlings.

The purpose of research is increasing the productivity and increasing manifestations of the varietal characteristics of winter wheat varieties Povolzhskaya 86 and Svetoch, depending on the application of various fertilizers. The studies were conducted in 2011-2015 in the Central zone of the Samara region. For seeding used elite seeds of winter wheat varieties Povolzhskaya 86 and the Svetoch. One of the methods of farming with the aim of obtaining wheat with high yield and protein content is the use of fertilizers. In addition to the nitrogen, phosphorus and potassium for proper growth and development of winter wheat, essential trace elements. It was carried out that treatment of seeds with micronutrients before sowing, at the rate of 3 litr. of product + 7 l of water per 1 ton of seeds, with the mass concentration of active components, g/dm^3: ZhUSS-1 (copper 33-38; boron 5.5 to 5.7), ZhUSS-2 (copper 32.0-40.0; molybdenum 14.0-22.0), ZhUSS-3 (copper 16.5-20.0; zinc 35.0-40.0). There was also feeding of

wheat seedlings in the third decade of April-nitrogen fertilizers: ammonium nitrate with a nitrogen content of 34.6%; the ammonium sulfate with a nitrogen content of about 21%; urea – containing nitrogen in the amide form 46%. Dose of drugs in the processing plant were calculated in accordance with the technology of their application. The protein content was determined by the Biuret micropredation on photoelectrocolorimeter KFK-2. The highest productivity value was achieved in variants with additional fertilizing ammonium nitrate, 30.8 c/ha for Povolzhskay 86 and 37.0 kg/ha – the variety Svetoch. The highest protein content in both crops were similar and amounted to an average of 17.0% per year with options microfertilizer ZhUSS-3.

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TECHNOLOGY, MEANS OF MECHANIZATION AND POWER EQUIPMENT IN AGRICULTURE

UDK 631.363.7

THE ROTARY DRUM MIXER OPERATION PROCESS MODEL AND THEORETICAL JUSTIFICATION OF ITS PARAMETERS

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Keywords: mixing, uneven, spiral, pipeline, power consumption, mixing.

The purpose of research is preparing energy intensity reduction of concentrated feed mixture (feed concentrate) in compliance with zootechnical requirements for the quality of the mixture due to the use of the mixer-conveyors. Purpose: establishing a functional dependency between the structural and technology-related parameters of the mixer and process performance; identifying optimal or rational values of mixer parameters, providing the desired mixer quality and minimum energy intensity of mixing. The basis of modern industry is the use of mixtures varieties and obtained on their basis of composite materials. Getting compounds is carried out by various devices, including mixers, extruders and screw presses, widely distributed in industrial drum mixers, dryers, mixers and other devices. They are low cost in energy consumption and is able to prepare in short time possible uniformity of the mixture. In the future, the quality of the mixture practically does not improve. In this case, attempts to use drum mixers are widely presented in retail chains, for the preparation of feed on the basis of the protein-vitamin supplements (PVS) and native forage failed due to lack of quality of the mixture. The article gives the description, structural diagram and photograph of the mixer-conveyor, continuous with spiral working body. The technique is described and results of experimental researches of the continuous mixer-conveyor. Presents expressions describing the unevenness of the mixer and the energy intensity of stirring, depending on the length of the mixing zone the performance of the device and shares of the controlling component. Two-dimensional section of the surface response second order were built. It was based on the analysis of the graphs of the uneven mixture of intensity and substantiated parameters of the mixer: the optimal performance of the device is about 3.6 t/h; mixer-conveyor is operable for the preparation of dry compound mixture in the proportion of smaller component mixture – not less than 13% and the length of the mixing zone – not less than 1 m.

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DETERMINATION OF BLADED PLATE KEEPER DESIGN DATA OF CREAM SEPARATOR

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Keywords: milk, blade, pressure, capacity, blade profile.

The purpose of researches is to increase performance of cream separator application of bladed plate keeper for uniform filling the between plates spaces. Movement of milk on the bringing channels of bladed plate keeper of cream separator original design, taking into account is considered that flow milk movement. Thus, the milk flow in the bringing channels was considered how consisting of infinite number of elementary streams. Dependences for determination of the pressure created by a bladed plate keeper and the capacities necessary for giving to milk flow movement on the bringing channels of bladed plate keeper with required angular speed are determined. Schedules of these dependences for milk supply (productivities of cream separator) are constructed and influence of corners of blades, both on an entrance, and at the exit is analysed. It is established that for flow of milk it is necessary for decrease in impact that its absolute speed was minimum that was reached by value reasons of blades. Results of pilot studies showed sufficient convergence with results of theoretical researches. Economic calculations confirmed efficiency of developed design application.

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THE INFLUENCE OF THE MEASURING CONVERTERS CHARACTERISTICS FOR THE DETAILS PROCESSING ACCURACY IN MACHINE TOOLS WITH MULTI-LOOP CONTROL SYSTEMS

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Keywords: precision, control, accuracy, handling, converter.

The purpose of research is improving of manufactural parts accuracy by cutting in machine building and repair industry. One of the ways of increasing the machining accuracy is equipped with systems of active monitoring and automatic control of dimensions of parts. To create such systems requires the development and implementation of transducers (sensors), controlling the parameters of the geometry of the part, the condition of the cutting tool and the implementation of technological operations in real time. Such transducers can be implemented by different physical principles, but they must have performance parameters and characteristics that meet certain requirements. To ensure the effective operation of control systems and management of the necessary information, usually from several transducers, whose signals are usually summed and compared with the preset values. The article presents the description of the active control system and automatic control of the dimensions of the part using a half-bridge schematic of the pneumatic measuring converter and the procedure for their work. Various schemes were reviewed of summation of the output signals of transducers, and especially the testing of signals mismatch. It is shown that if connected regulation, additional error of machining parts in machine tools is not due to identical characteristics of transducers. Dependence for assessment of this component of the error was processing. Thus, the proposed active control systems, and automatic control of dimensions details using half-bridge schematic of the pneumatic measuring converter implies several requirements: when connected control increased requirements to the identity of the metrological characteristics of transducers; to exclude the influence of identity characteristics for the accuracy of details flowing part of the primary transmitters must be calibrated in terms of pressure and flow rate of the working environment.

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UDK 631.3

DEVELOPMENT OF AUTOMATION SYSTEM OF THE FERTILIZERS DIFFERENTIATED APPLICATION

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Keywords: fertilizers, system, platform, soil, strain gage.

The purpose of research is more effective use of sowing units, due to the introduction of fertilizer distributing machines modern hardware and software systems. The question of differential fertilizer at planting was studied, revealed the main shortcomings of existing systems. Based on the market of software and hardware platform Arduino has been selected on the basis of its developed electronic circuit differential fertilizer system. To test the efficiency of the entire system was manufactured calibration stand and software was developed for the registration of changes in strain gauge load. Next, the calibration experiment was set for 8 load cells type C2H 500 kg. According to the results of the experiment it was showed that the developed system can be used to automate the differentiated application of mineral fertilizers during sowing crops in precision farming technology. Measurement accuracy, high speed processing and signal generation and the high cost of the selected equipment make possible the introduction of precision farming technology even in small farms with minimal cost.

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VETERINARY MEDICINE AND ZOOTECHNICS

UDK 636.082.4

MEAT QUALITY OF DIFFERENT GENOTYPES OF HEREFORD BREED CALVES

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Keywords: cattle, Hereford, breed, young, weight, carcass, slaughter, yield.

The purpose of the research is Hereford breed calves meat quality improvement by harnessing the potential of the canadian selection bulls. Experiments were performed in LLC «K. H. Polanskoe» Bolshechernigovsk district of Samara region. The subject of investigations was the carcasses of Hereford steers of the breed obtained in the cows insemination of populations of canadian selection bulls stair: Wide Load 391W (group 1), upper Cut 20U (group 2), absolute 49S (group 3) and the descendants of domestic breeding bulls (control group). It was found that the calves of Hereford breed have good meat qualities. Exit steam carcasses in all groups was not less than 56.0% and the yield of pulp – not less than 79.0%. In calves, obtained from canadian selection bulls , meat quality was better expressed. The descendants of imported bulls by mass of steam carcass exceeded the indicators of the descendants of domestic bulls by the figure of 3.7-7.0% on exit of the flesh – 4.3 to 7.7%, they also had the advantage of index meat 2.1-4.2 percent. Canadian Herefords bulls were characterized by a greater mass of most valuable cuts of the carcass. They have plenty of hip part was 4.2 to 10.7 kg more than the domestic descendents. In the relative magnitude of this difference was 13.6 and 5.3%. The researches have allowed to draw a conclusion about expediency of use of canadian selection sires Hereford for improvement of meat quality of local Hereford farms, where this species are bred.

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ORGANIC TRACE ELEMENTS OF NEW GENERATION IMPACT FOR PRODUCTIVITY OF CANADIAN SELECTION YOUNG PIGS

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Keywords: young, pigs, organic, minerals, meat, productivity.

The purpose of research is increasing of pigs meat productivity by application of mineral feed supplements SaltMag. The article deals with the problem of increasing production volumes of competitive products with improved meat quality characteristics. Meat efficiency and quality of meat are predetermined by a number of genetic factors and paratypic. The most significant factor is the feeding. An unbalanced feed ration increases the risk of metabolic disorders in animals, which leads to reduction in productivity. Changes in metabolism and other physiological processes of pigs due to the presence of minerals, the lack or excess synthesis processes which gives the biologically active compounds. Modern breeds of pigs require a higher content of macro- and microelements in compound feed in connection with a significant increase in growth rate and productivity. It is known that the protein, energy, minerals must be replenished in a highly available form. However, inorganic salts of transition metals (zinc, copper, iron, manganese) due to the low digestibility and tested in transit in conjunction with the accompanying heavy metal salts pollute the environment. Thus, substantial revision of conventional approaches to mineral nutrition of farm animals is needed. The analysis of the research evidence by the benefits of the trace elements used in the feed production of organic compounds. This is primarily due to higher bioavailability, which can significantly reduce their input in the feed mixture. A significant reduction in the level of trace elements in organic form in compound feed significantly reduces the intake of heavy metals and helps to improve the quality of livestock products.

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UDK 636.082.4

LIVE WEIGHT AND ABSOLUTE GROWTH OF HEREFORD BREED CALVES OF DIFFERENT GENOTYPES

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Keywords: cattle, Hereford, breed, young, alive, weight, gain.

The purpose of the research is increasing the productivity of young Hereford by utilizing the genetic potential of canadian selection bulls. The experimental part of the work was done LLC «K. H. Polanskoe» Bolshechernigovskij district of Samara region. The object of research served as purebred bulls and heifers and Hereford, obtained by the insemination of local populations cows canadian selection bulls: Wide Load 391W, upper Cut 20U, absolute 49S and descendants of bulls of the national selection. The young animals received from the bulls, both local and imported, were conditionally divided into 8 groups. In the first and the fourth group included heifers and bulls, descendants of the bull Wide Load 391W. In the second and fifth group were heifers and bulls, descendants of the bull absolute 49S, third-and sixth – heifers and bulls, descendants of the bull upper Cut 20U. For

comparison with animals of the local population in the seventh group included Lee upskirt, and in the eighth group are the sons of the domestic bulls. It is established that the young Hereford bulls received from the canadian CE lectures, in all periods of growth and development was superior in live weight and the absolute gain of steers and heifers obtained from bulls of the national selection. At the age of 8 months, the superiority of heifers-daughters of canadian bulls in the live weight ranged from 3.9 to 7.6%, and calves from 3.5 to 8.7%. At the end of the cultivation period, the difference in live weight between the groups of heifers was 1.5 to 6.8% and the absolute growth of 3.7-6.8% in favor of the daughters of canadian bulls. In this age the calves of imported bulls surpassed their peers from the control group by 4.2-8.95%, and 5.1-8.2%. The use of genetic potential of canadian bulls will improve the productive performance of Hereford breeding farms in Samara region.

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MORPHOFUNCTIONAL CHARACTERISTICS OF MUSCULAR MUCOSA OF THE MULARD BREED DUCK STOMACH OF 6 MONTHS AGE

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Keywords: duck, histology, stomach.

The purpose of research is identification of morphological and functional features of the gastrointestinal tract of breed mulard ducks. The research were conducted for healthy mulard breed ducks of 6 months age (the parent stock) in the amount of 10 animals that belong to farmers in Rostov region. Feeding poultry used grain, wheat, corn and compound feed, mineral additives in the form of chalk, eggshell, limestone and river shells. Material for the research was the cranial pieces (entrance to stomach), caudal (pocket) and lateral divisions, but in the same region of the muscular outlet of the stomach. In accordance with the objectives and tasks of the research, it was found that breed mulard ducks of 6 months age have the muscular part of the stomach in different parts of different mucosal thickness, length and nuclear protoplasmic ratio (NPR) gland epithelium. The villae have different shapes: pointed, oval, round and a needle. The muscular plate number of smooth muscle cells is different in all parts of the muscle. Revealed the collagen and elastic fibers, they are thick beams between the iron group. PAS positive substance and acidic carbohydrate biopolymers present in the cuticle, between the iron group and in the glands themselves.

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LACTIC EFFICIENCY AND MORPHOFUNCTIONAL PROPERTIES OF THE BULLS DAUGHTERS UDDER OF THE DIFFERENT ECOLOGICAL ORIGIN

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Keywords: breed, Tajik, type, yield of milk, udder, measurements.

The purpose of research is improving the productive qualities and morphological properties of udder of Black-Motley breed cows of local selection by crossing with bulls-manufacturers of American, German and local selection. Researches were conducted on a lactic farm named by L. Murodov of the Gissar district of the Republic Tajikistan for heifers of the Tajik type of Black and Motley breed. The purpose of researches was perfecting of productive qualities and the morphofuctional properties of Black and Motley breed cows udder of local selection by crossing with manufacturing bulls of the American, German and local selection. The main aim was formation of lactic efficiency for the first lactation and morphological features of an udder. It is established that daughters of bulls of the American selection surpass in a yield of milk for a lactation of bulls daughters of the German origin on 572 kg (12.1%; P<0.01), bulls daughters of local origin – on 299 kg (6.3%; P<0.05). At the same time cows of the first group (the American selection) had the highest lactational curve, and the lowest at cows of the second group (the German selection). It is caused by the fact that bulls daughters of the American selection had the highest coefficient of constancy of a lactation (84.8%), and bulls daughters of the German selection the lowest was (77.3%). Morphological characteristics of the cows udder of all experimental groups was consistent with the requirements of machine milking. It was found that for improving the productive and technological qualities of the Tajik type of Black-Motley breed it is possible to use Holstein bulls.

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THE EXTERIOR AND REPRODUCTIVITY OF HEREFORD CATTLE OF AUSTRALIAN BREEDING ABILITY IN CONNECTION WITH ACCLIMATIZATION IN BASHKORTOSTAN

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Keywords: large, horned, livestock, mass, conformation, reproductive, ability.

The main object of our research was to determine the characteristics of the exterior and the reproductive capacity of the Australian breeding Hereford cattle in the process of acclimatization in the Ural steppe and forest steppe zones of Bashkortostan. The object of research is the cattle of Australian origin, brought winter 2009 GUSP MTS «Central» and LLC «Agro-SAVA-Usen», located in the Ural steppe and steppe zones of the Republic Bashkortostan. The scientific and economic indicators examined experiences of live weight during the first three years of acclimatization (2010-2012 gg.), Analyzed the data of linear and volumetric measurements for which the index is calculated body. Evaluation animals in conformation based on the study of body type characteristics, taking into account the ratio of body parts to each other. The study of conformation and constitution of farmed animals by taking individual body measurements and calculation of body index gives an indication of the intensity of their linear growth depending on the sex and acclimatization period. The reproductive ability of cows was estimated duration between ewes period and the service period, the output of calves per hundred ewes, in terms of body weight of newborn calves. The studies found that in the process of acclimatization there was a significant ($P<0.05$) increase in live weight of cows at 10.51% and 26.94% for the bulls that show an adaptive plasticity of imported livestock. The evaluation of the exterior and build the amount of balls in bulls was in the range of 18-20, the core of breeding cows – 22-24, which corresponds to the requirements of the elite class and the elite-record. For three years the duration of the acclimatization between ewes period decreased an average of livestock under study for 7 days, the service period – 8 days. Out of calves in the second year of acclimatization has increased by 2.51% and was significantly increased ($P <0.05$) for the third year at 7.73%. Thus, on the basis of the parameters was studied, it is possible to conclude that high acclimatization abilities Hereford cattle of Australian origin to the conditions of the Ural steppe and forest steppe zones.

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CLINICAL AND HEMATOLOGICAL INDEXES OF HOLSHTEINED BULL-CALVES OF THE TAJIK TYPE BLACK AND MOTLEY BREED

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Keywords: breed, bull-calves, blood, clinic, adaptation, heat stability.

The purpose of research is improvement of productive and technological qualities of Tajik type Black and Motley breed farm animals. Researches for subject were conducted in university named by L. Murodov of the Gissar district of the Republic Tajikistan in the conditions of the feedlot. As an object of researches were served the thoroughbred bull-calves of the Tajik type of Black and Motley breed, and also hybrid with Holshteined breed of different share of blood received by method of absorption crossing. The research problem is to study adaptation abilities the Holshteined hybrids with different share for the improving breed. For carrying out experience four groups were created from newborn bull-calves. At young growth during the different age periods studied morphological composition of blood and clinical indicators. It is established that calves of 6-month age have an increase in maintenance of erythrocytes in blood for 4.6-8.0% depending on share of Holstein blood. At the same time increase in concentration of hemoglobin in erythrocytes on 0.41-0.18 mg of % is observed. After 6-month age the maintenance of erythrocytes decreases by 8.2-6.8%, and concentration of hemoglobin by 0.86-0.46 g of %. On the basis of clinical indexes counted coefficients of adaptation and heat stability, thermal stability index which showed that at hybrids, in process of increase in a share of Holstein blood adaptation abilities and resistance to high temperature of air increase.

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THE OZONE INFLUENCE FOR THE INTESTINAL TRACT MICROFLORA OF HONEYBEES OF CARPATHIAN BREED

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Keywords: honey, carpathian, bee, microflora, intestines, ozone.

The purpose of research is increase of honey productivity bee colonies. The studies were conducted in the early spring in March, before the departure of the insect from the hive after hibernation. Bee colonies of the experimental group treated with ozone for families for 7 consecutive days at 2 hours per day when the ozone concentration of 6 mg . Bee colonies of the control group not treated with ozone. The results showed the presence of different species of microorganisms in the intestinal tract of bees in the control group, the quantitative indicators of the content of the polymorphic bacteria, staphylococci, streptococci, pseudomonas, fungi is quite large. Also, the experiments proved devastating effect of ozonation for bacteria groups, coliforms, pseudomonas, fungi of the genus aspergillus niger in the experimental group. With regard to the fungi penicillium glaucum and aspergillus ustus, ozone caused a slight decrease in their concentration in the intestinal tract of bees. Therefore, the use of ozone as a means of prevention and treatment of infectious diseases of bees can be justified as it creates the most favorable conditions for further development of bee colonies. However, the fact that the number of fungi after ozonation in the intestinal tract of bees increased, speaks about the resistance of these microorganisms to ozone, and therefore, for suppression of fungal flora, ozonation needs to be done either longer or use a higher concentration of ozone.

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THE RELATIONSHIP OF MICROBIOCENOSIS OF THE CARPATHIAN BREED HONEYBEES INTESTINAL TRACT AND THEIR PHYSIOLOGICAL ACTIVITY

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Keywords: bee, honey, microbiota, intestinal tract, the Carpathian breed, activity.

The purpose of the research is to identify the relationship between microbiocenosis intestinal tract bees after hibernation with their physiological activity. Experiments were conducted for determination of species composition of microflora in the intestinal tract of bees after hibernation and reproductive ability of the uterus and their effect of honey productivity bee colonies. The research was conducted on the basis of the private beekeeping apiary SP «Ovsyannikov» Mostovskij district of Krasnodar region. The objects of study were the bee colonies with different intestinal tract, referred to in points determined by the method of

L. A. Shagun (1983). The study was subjected for 3 bee colonies whose bowel habits were assessed at 2, 3 and 4 points. Bee colonies with the intestines condition at 1 point have been identified. The selected bees were also held and bacteriological assessment of the intestinal tract condition, the results of which showed a high correlative dependence on the state of the intestinal tract of bees from quantitative presence in its content of microorganisms, particularly Enterobacteriaceae, lactobacilli, and enterococci. With increasing amounts in the intestinal tract of enterobacteria, staphylococci, pseudomonas, yeast and fungi deteriorating the anatomical condition of the intestines of bees. Therefore, in cases of severe dysbiosis, in which intestinal tract of insects is estimated at 2 points, there is a weakening of bee colonies, reduced reproductive ability of the uterus and, as a consequence, honey productivity bee colonies.

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