

# Abstracts of articles

## AGRICULTURE

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### GROWTH REGULATORS INFLUENCE FOR EFFICIENCY OF BARLEY GRADES AT DIFFERENT LEVELS OF MINERAL FOOD

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**Keywords:** barley, peas, fertilizer, regulator, yield, liquid.

Research objective is development of increase methods in productivity of barley grades and peas of the fodder direction use in the conditions of the Central Volga Area forest-steppe. Now barley is the main fodder culture. Its grain contains 11.8% of a protein, 2.3% fat, 2.8% ashes and 65-72% the out of extractive substances. Seed of barley is rich with starch (55-65%), contains also B<sub>1</sub>, B<sub>2</sub>, C and E vitamins, from mineral substances compounds of phosphorus and silicon acid prevail. Thanks to the high fodder qualities seed of barley and products of its processing is much more nutritious than other concentrated forages. 1 kg of forage from seed of barley contains 100-120 g of digested protein. Results of researches for 2014-2016 with an assessment of indicators of safety, dynamics of accumulation of solid, structure of a harvest and productivity of different grades of barley in comparison with peas on different backgrounds of mineral food and with processing of crops by liquid fertilizers and the regulator of growth in the conditions of the Central Volga Area forest-steppe are given. Three-factorial experience has included two levels of mineral food: without fertilizers, N<sub>45</sub>P<sub>45</sub>K<sub>45</sub> (a factor A); five grades of barley: Helios, Vakula, Berkut, Yastreb, Bezenchukskiy 2 and a grade of peas the Flagman 12 (control) (a factor B); processing of crops on vegetation in a phase of branching by medicines: Avibif, Aminokat, Megamiks N10 (factor C). The maximum efficiency for years of researches Helios with processing of crops on vegetation by the medicine Megamiks N10 both without application of fertilizers provides grade barley, and at introduction of N<sub>45</sub>P<sub>45</sub>K<sub>45</sub>. He has provided productivity of 2.66 t/hectare.

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### **THE EFFECTIVENESS OF PRIMARY TILLAGE IN THE CULTIVATION OF SPRING WHEAT IN THE MIDDLE VOLGA REGION FOREST-STEPPE**

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**Keywords:** wheat, processing, soil, crop rotation, efficiency, spring.

The purpose of the study was improvement of tillage systems in crop rotations with pure and sideral pairs in the technology of spring soft wheat cultivation in conditions of the Middle Volga region forest-steppe. The studies were conducted in 2005-2009 were Studied three of the main processing of the soil in three replicates and two variants of crop rotation and green manure with clean pairs. Wheat type was Kinel'skaya 59. Significant differences in moisture meter soil layer before sowing of spring wheat in the period of harvest in different crop rotations depending on primary treatment was not observed. Under the influence of various crop rotation links and the main processing Chernozem soil it the density of the composition was changed from 1.05 to 1.16 g/cm<sup>3</sup> and was optimal for spring wheat range. Minimization of tillage led to significant increase in the weediness of spring wheat crops in both the number and mass of perennial and annual weeds. Spring wheat in crop rotation with bare fallow was to lesser extent clogged compared to crop rotation with green manure steam. The average for the study years the grain yield of spring wheat in crop rotation with bare fallow was 1.45-of 1.56 t/ha, in crop rotation with green manure by steam – 1.43-1.47 t/ha with no significant difference depending on the methods of basic treatment of soil. There were cost-effective processing of soil with plowing 6-8 cm and a tillage on 10-12 cm in crop rotation with bare fallow, 1 ha was obtained in 1363 RUB profit margin of 25.4%.

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### INFLUENCE OF NATURAL ADSORBENTS FOR ACCUMULATION OF HEAVY METALS IN SOY GRAIN

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**Keywords:** soy, adsorbents, metals, coefficient of, soil, grain.

The purpose of the research is the decrease in the accumulation of heavy metals (lead, cadmium, copper, zinc, cobalt, manganese, iron) in the grain of soybean varieties Samer 3 due to the action of natural adsorbents (silica clay, dung, charcoal). The results of natural adsorbents application is silica clay, manure and charcoal – in the cultivation of soybean varieties Samer 3 in the forest-steppe zone of Samara Volga region. Studies of the influence of adsorbents on heavy metals content of lead Pb, cadmium Cd, copper Cu, zinc Zn, cobalt Co, manganese Mn, iron Fe in soil and soybean. The introduction of adsorbents influences the contamination of soil with heavy metals and allows to limit their access to the plants and finished products. In the soil if you make the studied adsorbents reduced the content of total forms compared to the control: Cd 1.15%, Cu 1.06-1.1 times; the mobile forms of Cd, Cu, Co and Mn – 1.04, 1.39, 1.001 and 1.09 times, respectively. In comparison with the control the introduction of the flask reduces the concentration in the grain Pb, Cd, Zn and Fe 1.31, 1.13, 1.15 and 1.16%, respectively, of manure – the concentration of Pb, Cd, Cu, Zn, Fe, introducing charcoal – concentration of Cd, Zn and Fe 1.34; of 1.12 and 1.1 times, respectively. All the studied heavy metals Pb, Cd, Cu, Zn, Co, Fe, Mn apply to scattering ( $K_k < 0.9$ ) values of the coefficients of biological absorption are classified as biological capture –  $KBP < 1$ . The most effective adsorbent for the reduction of gross and mobile forms of most of the studied heavy metal crystals, as well as their contact with the grain, is manure.

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### FERTILIZER OF SWEET PEPPER IN NON-DISTRIBUTION CULTURE ON LIGHT-CHESTNUT SOILS OF VOLGOGRAD REGION

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**Keywords:** pepper, cultivar, hybrid, fertilizer, yield, mineral, water soluble.

The purpose of researches is increasing of water soluble fertilizers application efficiency at cultivation of sweet pepper on the subtype of the light-chestnut soils of Volgograd region. The effect of mineral fertilizers on sweet pepper was studied. It is proved that the fertilizer of new generation – mineral water soluble fertilizer Rastvorin the increased productivity of fruit pepper. In field experiments on the study of the productivity of sweet pepper were studied in the following varieties and hybrids: Podarok Moldovy (as standard), Paphos, F<sub>1</sub>, Pompeo F<sub>1</sub>. Selected varieties and hybrids were sown with a seeding rate of 1 million viable seeds per hectare. The experience was repeated three times. The location of the plots was systematic. Seeding was carried out in early April to 4 lowercase scheme with mandatory postsowing packing by ring-heel rollers. The most promising for soil-climatic conditions of the Low Volga Region varieties and hybrids of sweet pepper possessing high adaptive capacity and significant potential yield, in combination with the optimal level of mineral nutrition and water use. Fertilizer application increased the fruit weight of a standard average factor by 25-50% compared to unfertilized variant. Maximum weight standard fruit was on the variant with application of water soluble fertilizers Rastvorin – 0.32...0.40 kg as a result of tests it was found that water-soluble fertilizer with trace elements Rastvorin are an effective factor in increasing yield of fruits of sweet pepper in the conditions of the Low Volga Region. On the basis of the conducted research of the Low Volga Region it is possible to recommend promising hybrid sweet pepper – Pompeo F<sub>1</sub>, which is able to generate yield above the standard of 53.3 %.

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### THE INFLUENCE OF ANTHROPOGENIC FACTORS FOR THE FERTILITY OF GRAY FOREST SOILS

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**Keywords:** soil, degree of erosion, humus, acidity, absorbed.

The purpose of researches is increase of grey forest soils fertility. The results showed that the humus content in arable layer of high cultivated soil of plot 0.13 % more than in the soil underlying economy. In the gray forest soil with different degree of erosion there are also significant differences in the humus content in the upper layer of soil. In weak waterd soil, not prone to erosion, it ranges from 1.90-3.86 %, middle waterd – 1.56 %, strong waterd – 1.29 %, and in virgin – 2.30 %. The value of the exchange acidity in high quility gray forest soil of plot significantly less in comparison with the less cultivated. If in the topsoil of plot pH KCl equal to 6.0, then the soil base agriculture – 4.9, decreasing down the profile respectively to 4.5 and 4.3. The maximum value of hydrolytic acidity is found in the upper horizons of virgin light-gray forest and not washed out grey forest soils, decreases in the strong waterd direction. Anthropogenic influence significantly changed the amount of the absorbed bases and degree of saturation with bases. In topsoil plot, the degree of saturation of the grounds increased by 18% compared with soil farming. In the gray forest soil with different degree of watering, the amount of the absorbed foundations amounted to 40.2 from the 23.6 mEq/100 g soil and remained quite high throughout the soil profile. The degree of saturation of the bases varied them in the range of 81-96%. Silesia and virgin soil in the topsoil of the low amount of exchangeable bases, respectively, equal to 4.2 and 6.8 mEq/100 g of soil, varying to the parent material to 6.8 and 9.0 mEq/100 g of soil.

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#### **ELEMENTS TO INCREASE THE YIELD OF TOMATO IN THE CONDITIONS OF THE LOW VOLGA REGION**

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**Keywords:** tomato, variety, hybrid, technology, fertilizers, fertigation, water soluble.

The aim of the study is theoretical substantiation and practical application of effective methods of growing tomato in the open ground. The joint application of the growth regulator and complex fertilizer Energiya-M + Rastvorin was studied. The varieties and hybrid of tomato were taken as objects of research: Volgogradsky 5/95 (as a standard), Fokker F1, Herkules. Analysis of the examined data shows that the presowing treatment of tomato seeds with a solution of the growth regulator increased the germination capacity of the Volgogradsky strain 5/95 by 10.75%, the Herkules variety by 16.4%, the Fokker F1 hybrid by 10.25%. The results of biometric measurements of tomato, carried out during the period of mass fruiting, showed that in the conditions of crop rotation (on the black pair), the plants reacted positively to the introduction of the growth regulator Energiya-M, a water-soluble fertilizer of Rastvorin. An increase in the yield and quality indexes of tomato on all variants with the silicon organic preparation Energiya-M together with the water-soluble fertilizer Solubin was noted. The weight of the fetus in the studied hybrids ranged from 95 g to 130 g. The largest fetal mass was noted in the Hercules variety – 130 g, the smallest in the Fokker F1 hybrid – 95 g. The complex application of the growth regulator and fertilizer Energiya-M + Rastvorin allowed to increase the content of dry substances in all studied varieties and hybrids. The yield of the hybrids studied varied depending on the growing condition. The maximum yield was obtained with the joint application of the growth regulator and fertilizer Energiya-M + Rastvorin in the Herkules variety – 135.0 t/ha, which is 37 t/ha higher than the Volgogradsky 5/95 grade. The Fokker F1 hybrid had the lowest yield, which yielded a yield of 126.3 t/ha in this variant.

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# TECHNOLOGY, MEANS OF MECHANIZATION AND POWER EQUIPMENT IN AGRICULTURE

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## RESEARCHES RESULTS OF CONSTRUCTIVE AND TECHNOLOGICAL PARAMETERS OF THE DISK AND BAYONET SOWING DEVICE INFLUENCE FOR OF DISPENSING SEEDS UNIFORMITY

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**Keywords:** dosing, seeds, disc-pin, sowing, wire mesh, machine, activator.

The purpose of research is to increase in uniformity of seeds dispensing disk and bayonet sowing device due to justification of constructive and technological parameters of the activator of the seed material expiration from the bunker. In selection production where work is conducted with expensive, and at times and unique sowing material, the special importance is given to providing at crops of high uniformity of seeds placement. Now the problem of quality receiving crops at cultivation of cereal herbs which seeds belong to hardly loose isn't rather fully solved. The disk and bayonet sowing device in which the activator of the expiration of seed material from the bunker is used to improvement of seeds dispensing quality has been developed for seeds dispensing of meadow grass and fodder grass mix which part they are. The design novelty of the disk and bayonet sowing device with the activator is confirmed with the patent of the Russian Federation for useful model. For the purpose of optimum constructive determination and technological parameters of the disk and bayonet sowing device with the activator of the expiration the technique of assessment of quality of uniformity of longitudinal distribution of hardly loose seeds of cereal herbs and laboratory installation with the mobile horizontal cellular platform have been developed. Application of this way of conducting pilot studies considerably reduces time and labor costs for carrying out experiences, and also excludes damage of expensive sowing material. For complex assessment of constructive and technological parameters influence of the device for uniformity of seeding pilot studies with application of the multiple-factor planning theory as a result of which the mathematical model allowing to establish values of parameters of the activator consisting of two steps 7.0-7.1 mm high with the size of pins departure on 6.4 mm at which the best quality of seeds distribution of meadow grass along a row is reached has been received were conducted.

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## THE AUTOMATIC CONTROL SYSTEM FOR OPERATION OF PETROL INJECTION ENGINE AT IDLE APEED MODE

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**Keywords:** engine, mode, system, fuel injected, independent, automated.

The purpose of research is improving the petrol fuel injected (injector) motor vehicles in mode independent of idling by the fuel-air mixture composition control adjustment by an automated control system that provides reconfiguration (reprogramming) of standard motor controller for the air / fuel mixture corresponding to the specified high-speed idling. The article is devoted to solving problems related to the operation of the engine with injected fuel at low rpm model of independent mode is idle (at stops and Parking of motor vehicles with the engine running) that is due to poor mixture formation is characterized by impaired flow of operating the process of the cylinders. Developed a new way of working gasoline engine with fuel mode injection independent of idling and automated system for its implementation, allowing the air / fuel mixture adjusting through the regular reprogramming the engine control module on the air-fuel mixture corresponding to the specified high-speed idling. The advantage of this system is the compactness, wide availability of components and the ability to quickly connect to the circuit established to the engine controller. Studies show that the use of the automated system control the operation of a fuel injected engine in a mode independent of idling allows to reduce the minimum stable engine speed is up to 300-600 min<sup>-1</sup>, the operational fuel consumption by 15-20%, the content of harmful substances in exhaust gases by 30-60% compared to engine operation in normal configuration.

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#### **INFLUENCE OF OLEIC ACID FOR AUTTRACTOR DIESEL FUEL TRIBOLOGICAL PROPERTIES**

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**Keywords:** biocomponent, fatty acid, acid, oleic acid, additive, anti-wear.

Research objective is to increase anti-wear properties of diesel fuel introduction small (to 10% on volume) doses of the oleic acid applied as anti-wear additive. The technique and results of vegetable oils used as components of mixed fuels structure assessment which showed that all of them contain significant amount of unsaturated fatty acids – olein, linoleic and linolenic are given. By results of research the hypothesis of anti-wear additive use to diesel fuel quality possibility of oleic acid is made. For confirmation of hypothesis basic researches of anti-wear properties of fuels with additive of oleic acid were conducted. Researches were conducted by the universal tribometer. Concentration of oleic acid in fuel changed from 0 to 10% on volume with a step to 2%. Loading, rotating speed of spindle and material of parts of a frictional unit didn't change. Researches showed that, for example, at concentration of oleic acid of 2% on volume the average diameter of a spot of wear decreased by 17.7% (from 0.508 mm when using diesel fuel without additives up to 0.418 mm at addition of 2% of oleic acid). At concentration of oleic acid of 4% the average diameter of a spot of wear decreased by 22.9% of initial. At further increase in concentration of oleic acid (6, 8 and 10% on volume) decrease in diameter of a spot of wear made according to 21.6%, 18.9% and 13.7%, i.e. at increase in concentration of oleic acid over 4% anti-wear properties of diesel fuel worsen that is connected, apparently, with emergence in interface of effect of Rebinder. It is established that for substantial increase of anti-wear properties of diesel fuel it is enough to enter into its structure 2-4% of oleic acid on volume. Further increase in concentration of anti-wear additive leads to decrease in effect of its use.

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#### REACTIONS DETERMINATION OF THE WHEEL TRAILER MOUNTING LINKAGE

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**Keywords:** reaction, linkage, diagram, loading, balance, criteria, static.

The purpose of research is theoretical basis and an example of computer modeling load parameters for identifying hazardous sections in the design of the supporting levers. When designing new machines or upgrading their suspension, and also in the event of breakage of the chassis components have any questions related to designing services and strength calculations of elements of the chassis. A particular difficulty is the identification of the causes of failures of structural elements in the presence of the device lifting frame body (hopper) due to the rotation of the support levers move the wheels relative to the frame of the tank (body). The article is built the design scheme of static loading of the supports of the wheel mobile unit with adjustable height (hopper) and define expressions to determine the reaction of experiencing a fulcrum lever with different geometrical parameters with the angle of its location. Carried out theoretical researches have allowed to draw up the scheme of loading, to establish the analytical dependence of the internal forces and reactions of supports, which may of numerical modeling to optimize the design of the lever supports for the concrete governmental dimensions of their elements and profile rolled arm wheel support. The analysis of internal power factors shows that the most dangerous section in bending is the section in the vicinity of the cylinder mounts to the lever. In view of the availability of torque and its significant quantity threat the second section of the lever is the connection to the axle mount on the frame.

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#### **SIMULATION OF THE COMPARENT MIXING DURATION ACCORDING TO LESS COMPONENT PORTION**

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**Keywords:** mixer, quality, the mixture, uniformity, portion, component.

The purpose of research is improving the quality of mixing vertical mixer. The main objective is to study the effect of duration of mixing lobes and control component mixtures on the quality parameters of the mixer. Modern livestock

development requires the provision of animal food of high quality with adequate quantity. The quality of feed mixtures is determined by the existing in mixtures of substances in the diet on the list and quantitative content. Another important factor is the uniformity of distribution of substances throughout the volume of the prepared mixture. If the quantitative proportion of substances throughout the volume of the mixture is determined by the performance of the dispensers, the uniformity of distribution of substances in micro-volumes of a mixture depends on the mixer. Used mixers are continuous and batch. The mixers of periodic action slightly higher energy intensity of the mixing, but rather follows the general formulation of the mixture. The description of the mixing device of the proposed mixer is shown. Graphically the results of experimental studies of the effect of the control component proportion and the time of mixing the quality of mix being prepared. The simulation obtained results indicative of the function of the quality of the mixture and of empirical coefficients, taking into account the proportion of the control component. The higher the percentage of the control component, the less the required time of mixing of ingredients to achieve the required quality of the mixture. When the portion control ingredient is less than 3% mixing the time is more than 400 and multiplied. When the portion control of ingredients more than 8% of the duration of mixing is about 180-200 C and is not reduced significantly.

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# VETERINARY MEDICINE AND ZOOTECHNICS

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## INFLUENCE OF THE HOLSTEIN COWS GENOTYPE FOR THE RESULTS OF INSEMINATION

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**Keywords:** genotype, insemination, line, heifer, delivery, calving, fecundity.

The aim of the research is to improve the reproductive qualities of the Holstein cattle breed in conditions of industrial milk production technology due to its genetic improvement. The material for the studies was the Holstein cows belonging to different lines: the control group is the Reflection Sovering line, the experimental group is the Montvik Chiftane line. The following parameters were studied in the studied groups of animals: positivity of pregnancy, labor, involution of the uterus, sexual cycles, service period, manifestation of the first sexual cycle after childbirth, fertilization after calving. As a result of the studies, it was found that in the first-aiders belonging to the Reflection Sovering line, the length of labor was 0.6 hours shorter than that of the Montwich Cheftane line. The duration of separation of the afterbirth in the control group of animals is 1.0 hours more than in the experimental group. The duration of lochy excretion in the control group of the heifers was 2.5 days more than in the experimental group, and the involution of the uterus in the control group of animals ended 2.2 days later than in the experimental group. The manifestation of the first sexual cycle after calving in the first-aiders of the experimental group is 3.6 days less than the animals in the control group. The interval between the sexual cycles in the animals of the experimental group was 2.3 days than in the control group. The duration of the service period in the control group of the heifers was 18.1 days longer than in the experimental group. Based on the studies conducted, it was found that the reproductive ability of cows depends on their linearity. The Montvik Chiftain lineage has the best values for the course of delivery, the postpartum period and the recovery of reproductive function after calving, compared to the peers of the Reflection Sovering line.

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**CORRECTION OF REPRODUCTIVE INDICATORS OF HOLSTEIN COWS**

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**Keywords:** delivery, the placenta, fetus, fertilization, insemination, milk, involution.

The purpose of the study is to increase the efficiency of milk production in conditions of intensive technology. The material of the study was highly productive cow Holstein breed with milk for lactation 7,500 kg of milk or more. For the experiments, three groups of cows were made, each with 20 heads in each according to the principle of par-analogues. The animals of the groups studied had different parameters for the duration of deadness, lactation and the service period. During the study, the parameters of the course of labor, the postpartum period, the restoration of the reproductive function of cows after calving were studied. To monitor the blood and its serum, morphological and biochemical studies of the blood of animals in the study groups were carried out 30.0 days before calving. The length of the lactation period, deadness and the duration of fruitful insemination were especially taken into account. It was found that the reproductive performance of cows are interrelated with the duration of lactation and deadness. The increase in the duration of the dry period by 20.0 days reduces the course of the act of delivery by 1.8 hours and the postpartum period by 5.3 days. Correction of the periods of the duration of the physiological state of cows also affects the duration of recovery of reproductive function in cows after calving and its qualitative indices. It was revealed that under the conditions of intensive milk production technology, with a cow production level of 7500 kg of milk and more, the lactation period – 310.0 days, deadness – 80.0 days and the service period – 120.0 days is optimal, as it provides an increase in reproductive quality of cows due to improved metabolic rate in the prenatal period.

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## RELATIONSHIP OF THE HOLSTEIN CATTLE SKIN HISTOLOGICAL STRUCTURE WITH DAIRY PRODUCTIVITY IN CONDITIONS OF INDUSTRIAL TECHNOLOGY

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**Keywords:** breed, productivity, epidermis, glands, Holstein, dairy.

The purpose of researches is increase of milk productivity of Holstein cattle. The study was conducted on the basis of the dairy farm teaching and experimental farm «Kuban» of Krasnodar on cows-heifers of Holstein Black-and-White suit. The experimental group of cows were formed by animals belonging to the lines of Reflection Sovering, Vis-konsin Admiral Back Led, Vis Backing Idea. Selection of animals into groups was carried out by random selection-which, by the groups-analogues. The first group (control) included animals belonging to the line Reflection Sovering 0198998, the second group (experimental) – line Wisconsin Admiral Buck Led 697789, the third group (experimental) – line Vis Backing Ideal 1013415. Comprehensive comparative study of the productivity and interior features of Holstein cattle of different breed lines was conducted. Histological examination of the cows skin of the experimental groups pathological changes of its structure were not detected. While well defined three components: epidermis, dermis, subcutaneous fat and muscle tissue. The dependence between the depth of hair follicles and productivity of the animal was shown. The minimum depth of the hair follicles is associated with potentially high productivity of animals. The higher productivity and expediency of the use of animals line Vis Backing Ideal in the modern industrial production of milk was proven. The obtained results complement the available data on the Holstein breed, and will allow professionals to make the right choice when breeding Holstein cattle.

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## DETERMINING THE ACTIVITY OF ACID PHOSPHATASE IN THE HOMOGENATE OF ORGANS AND TISSUES OF BEES

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**Keywords:** bee, phosphatase, homogenate, acidic, technological, immunological.

The purpose of the study is the expansion of technological capabilities in the field of immunological research in bee-keeping. Research methodology is a determination of the activity of acid phosphatase in the homogenate of organs and tissues of bees, including the preparation of the biological substrate, the processing buffer-tion mixture with a pH equal to 5.0, incubation of the biological substrate, rinsing with distilled water, drying, additional staining smears of the biological substrate, then rinsing with distilled water, drying and determining the number of stained granules in the cytoplasm in a biological substrate of the percentage of the enzyme activity of acid phosphatase, microscopy and the determination of the color granules degree in the cytoplasm of platanitos in the homogenate of organs and tissues. As a biological substrate was used homogenate of organs and tissues of the bees. For the research set up 4 groups of bees of different breeds (Italian-Carpathian, Carpathian, Oka, grey mountain Caucasian) that were subjected to the chickpeas research on the above methodology. This method allowed us to determine the microbial properties of the body the bees, namely, the activity of acid phosphatase, which smears the homogenate of organs and tissues is one of the important diagnostic tests immunity of organism of bees. It was found that the higher the average cytochemical index, the higher the enzyme activity of acid phosphatase in the organs and tissues of bees, and consequently, the higher the immune status of the bee. It was higher in group 1 bees, Italian-Carpathian breed. The proposed method allows to reduce the material costs and time for determination of the studied indicator. This technique allows rapid method to determine the microbicidal properties of the organism of bees by determining the activity of acid phosphatase in platocytos in the homogenate of organs and tissues.

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#### MEAT PRODUCTIVITY OF BLACK-WHITE AND HOLSTEIN BULL-CALVES

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**Keywords:** bulls, breed, weight, productivity, Holstein, Black-and-White, meat.

The purpose of research is increasing the beef production and improving its profitability. The leading place in the meat balance belongs to the beef, because of its nutritional qualities, the ability of cattle to efficiently use waste grain production, cheap roughage, pasture grass, waste from food production, to give high gains with much less than that of other species of animals, the consumption of concentrated feed. The increase in beef production and fully meet the needs of the population in meat food products is a priority of the agriculture on the modern stage. For research by the method of vapor-analogues were formed 2 experimental groups of calves, 20 cows in each. In the first control group consisted of pure-bred bulls of black-motley breed in the second experimental group – purebred Holstein bulls. During growth of the animals was determined by their live weight, was calculated the medium daily and total gains.

During the study, researchers of the change in live weight of calves in the following age periods were investigated: at birth, 6 months, 12 months, 15 months and 18 months of age. Meat productivity were studied by control of the slaughter 3 animals from each group at 18 months of age. Studies were established but that for live weight, the gross, average daily gains of bulls of Holstein pre-ascend peers of Black-Motley breed. Gobies of the experimental group of Holstein had higher live weight before slaughter – 502.3 kg, that of counterparts in the control group it amounted la 447.4 kg, to the weight of the carcass bulls of the experimental group exceeded the experimental calves of the control group 40.8 kg or 17.6%. Evaluation of the efficiency of growing calves has shown that the most profitable to grow Holstein breeds bull-calves in comparison with analogues of Black-Motley breed.

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