S.D. Batanov, O.S.Starostina, T.F. Leontieva
Izhevsk State Agricultural Academy

PHYSYOLOGICAL ACCOUNTING FOR THE EFFECTIVENESS OF THE FEEDING ADDITIVE LIPOKAR IPLEMENTATION IN FEEDING HEIFERS OF BLACK-AND-WHITE BREED

The article presents the studies of effectiveness of the vitaminic additive "LipoCar" implementation (micro-granulated powder in the lipid cover, with the active ingredient beta-carotene in) in black-and-white heifers' diet, and its influence on the variability of hematological parameters. The blood system is the most dynamic indicator of the feeding factor. The analysis of morphological and biochemical blood composition, and dynamics of highly specific heifers' blood enzymes had revealed that the use of the vitaminic additive in heifers' diet had increased the intensity of metabolic processes in the body. Heifers of the experimental groups being fed with the "LipoCar," in the composition of their diet 6g/h and 10 g/h, surplussed to the principle diet, had exceeded test analogues by the following indicators of morphological blood composition: level of hemoglobin content (g/h), quantity of erythrocytes (101012/l) for the entire accounting period of growth and mature (3, 6, 9, 12 и 18 months), in average, by 4,1 – 9,6%, and 2,7 – 10,2%, respectively. The same situation had been revealed with heifers' biochemical composition of blood. Heifers' surpass from the experimental group over control heifers of the same age by digital values of total protein (g/h) in blood, albumins (g/h), globulins (g/h), thus indicating the average by 0, 5-6, 1%. Dynamics of transaminase activity in the blood serum had revealed some higher AST and ALT enzymes' activity for all age periods for heifers of the experimental groups compared to the results of those of the control group, in average, by 1, 8-5, 3 un. and 1,2-7,0 un., respectively.

Thus, including the "LipoCar" feeding additive into the diet had definitely increased indicators for morphological and biochemical structure of blood, level of protein metabolism, as well as interchangeability of highly specific enzymes in the bodies of experimental young cattle.

Key words: blood biochemistry, vitamin and mineral feeding, feeding additive "LipoCar", morphological composition of blood, blood enzymes.

Authors:

Batanov Stepan Dmitrievich – Doctor of Agricultural Sciences, Professor of the Department of Technology of Livestock Product Processing, Vice-Rector for Professional Retraining, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: stepanbatanov@mail.ru).

Starostina Olga Stepanovna – Candidate of Agricultural Sciences, Associate Professor of the Department of Technology of Livestock Product Processing, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: starostina636@yandex.ru).

Leontieva Tatyana Fyodorovna – Post-graduate student of the Department of Technology of Livestock Product Processing, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: tanyaleontyeva11@mail.ru).

E.F. Vafina, I.Sh. Fatykhov
Izhevsk State Agricultural Academy

FORMATION OF PRODUCTIVITY OF "GALANT" RAPE SEEDS DEPENDING ON THE METHODS OF CARING

Influence of agromechanical and chemical methods of caring of Galant spring rape crops was studied. Researches were held on sod-mediumpodsolic and medium loam of medium cultivation in the run of three growing seasons (2009–2010, 2014). The experimental scheme included 18 care approaches total. Agromechanical and chemical approaches were studied on the background of prio to germination seed processing with Karate, KE insecticide. Postseeding soil packing was done 3KKSh-6, harrowing prior to seedlings and over seedlings – BZSS-1 across seeding, herbicide (Lontrell-300, BP) had been used for the culture phase 3-4 leaves, micronutrient ($MnSO_4$ and $ZnSO_4$) – in the budding phase – the beginning of rape flouring. In various by their abiotic conditions years the rape seed yield as per experiment approaches had been ranging from 4,5 to 9,9 t/ha. The highest yield – 7,7...7,8 t/ha was formed by a set of caring measures, including postseeding packing soil, prior to germinating harrowing, harrowing over seedlings, herbicide spraying and spraying with a micronutrient solution. Relatively large productivity of these crops in above variants occurs due to the increase in the number of plants by 12...13 pcs./m2 and due to the increase in productivity of individual plants by 0,10...0,11 g (115 in the control volume/m2 and 0,59 g, respectively). The use of mechanical and chemical methods of taking care for the crops, as well as their combination helped to reduce crop clogging by 15…16 %, and by 39…54 % of their mass in the seedlings before harvesting. Combination of agromechanical and chemical activities had provided the growth of mass fat content in the seeds by 0,5…0,8 %, and the fat gross output by 44…82 % kg/ha.

Key words: spring rape; Galant breed; methods of seedling care; seed yield; weeds; herbicide; micronutrients; fat content in the seeds; fat output.

Authors:

Vafina Elmira Fatkhullovna – Candidate of Agricultural Sciences, Associate Professor, Plant Cultivation Department, Izhevsk State Agricultural Academy (16, Kirova St., Izhevsk, 426033, Udmurt Republic, Russian Federation, e-mail: vaf-ef@mail.ru).

Fatykhov Ildus Shamilevich – Doctor of Agricultural Sciences, Professor, Head of Plant Cultivation Department, Vice-Rector for Scientific Researches, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, Russian Federation, 426029, e-mail: nir210@mail.ru).

V.N. Goreeva, D.N. Pechnikov, E.V. Korepanova, I.Sh. Fatykhov
Izhevsk State Agricultural Academy

REACTION OF OIL FLAX VNIIMK 620 TO ABIOTIC CONDITIONS WITH AMINO ACID COMPOSITION OF PROTEIN SEEDS

The reaction of flax oil VNIIMK 620 to abiotic conditions with the amino acid composition of the seeds was studied. The object of the study was oil flax seeds VNIIMK 620. The objective of the research was to determine the reaction of the oil flax VNIIMK 620 to abiotic conditions with

amino-acid composition of seeds. The tasks were the following: to determine the amino-acid structure of the seeds of the oil flax VNIIMK 620; to reveal the diversity in the amino-acid composition of the seeds grown up in differing abiotic conditions.

The seed samples had been selected from the yield of field experiments 2014–2015, sod-podzolic medium loamy soil of the experimental field of JSC "Uchkhoz Iul'skoye IzhGSHA." The arable layer of soil for the experimental years contained humus (2,2 – 2,5 %), varying from low to medium, mobile phosphorus (148–275 mg/kg soil), from heightened to higher, replacing potassium (145–170 mg / kg soil) – heightened, changing acidity (pHKCl – 4,6 …5,7), from mid-acid to the close to neutral. The amino acid composition of the defatted seed protein was identified in the Bryansk State Agricultural University's laboratory. Meteorological conditions in 2014–2015 were characterized by a relatively different temperature regime and by the amount of precipitation, varying during the vegetative period of oil flax. A distinctive feature of weather conditions in 2015 was the relative deficiency of moisture during the formation and filling in the seeds – in June, just 65 % of normal precipitation, whereas in 2014, for the same period the amount of precipitation was 103 % of the norm. In addition, during the ripening period 2015 (July–August), the amount of precipitation was almost 2 times higher than the average long-term indicators (186–190 % of

It was established that the reaction of the oil flax VNIIMK 620 to the abiotic conditions in 2015 was manifested by the formation of seeds with as large as 5,69 % content of fourteen amino acids in the protein, and, correspondingly, larger by 2.15 % of irreplaceable and by 3.54 % interchangeable amino acids compared to their content in the protein of the oil flax's seeds grown in 2014. Though, the ratio of essential and non-essential amino acids contained in the protein of the oil flax's seeds grown in different years of their researches, remained, approximately, at the same level (1 : 1.2 in 2014 and 1 : 1.3 in 2015).

Key words: oil flax, variety VNIIMK 620, abiotic conditions, seeds, amino-acid composition.

Authors:

Goreyeva Vera Nikolaevna – Candidate of Agricultural Sciences, Associated Professor of the Crop Science Department, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: nir210@mail.ru).

Pechnikov Dmitry Nikolayevich – Post graduate student of the Crop Science Department, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: nir210@mail.ru).

Korepanova Yelena Vitalievna – Doctor of Agricultural Sciences, Professor of the Crop Science Department, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: nir210@mail.ru).

S.V. Ilyin, S.L. Vorobyova, E.M. Kislyakova
FGBOU VO Izhevsk State Agricultural Academy

INFLUENCE OF FEEDS OF A DIFFERENT PHYSICAL FORM ON THE GROWTH OF YOUNG PIGS AT GROWTH AND DISTURBANCE

The possibility of using the new technological equipment RID-2 in the system for the development of full-feed mixtures for fattening pigs, especially in enterprises using their own feed resources, commercial pig farms, and also in farms acquires particular urgency.

A comprehensive study of the effectiveness of using different feeding technologies for growing and fattening young pigs was carried out.

The research tasks included: determining the influence of feeding technology on the intensity of growth, development and exteriors of young pigs, and evaluating the physiological and economic feasibility of the studied technologies for feeding young pigs.Scientific and industrial research was conducted in the conditions of the pig farm of «Iskra» of the Udmurt Republic. To solve the tasks on the basis of the principle of analogs, taking into account the origin, age and live weight, experimental groups of crossed piglets, weaners with 30 heads were formed. During the experiment, all animals were kept in similar conditions.

During the period of research, the feeding of the gilt pigs of the control group was carried out in the first age period by the mixed feed of SC-5 of their own production, at the final fattening of the SK-6. The experimental group of animals received feed prepared at RID-2. Innovative technology of fodder preparation contributes to a change in the carbohydrate complex and the shape of the feed mix itself with the help of a mechanical-hydro-shock-cavitation-dissipation effect.

The physical form of the feed had a significant effect on the growth rate of piglets during the period of growing and fattening. The advantage over live weight was 3.3 kg, according to the average daily weight gain of 40.8 g or 5.6 %. The pigs, who received wet food prepared on the RID-2 plant, reached a live weight of 100 kg in 200 days, while in the control group this indicator was 206 days. The use of innovative technology for preparing feed for feeding contributes to the increase in the productivity of pigs and an increase in the profitability of production by 7.07 %.

Key words: technology of feeding, mixed feed, physical form, gilt, live weight, growth intensity, exterior, economic evaluation.

Authors:

Ilyin Sergey Vyacheslavovich – Zoo Engineer, OOO «Iskra ST», Malaya-Purga Region, Postgraduate of the Department of Feeding and Breeding Agricultural Animals. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: mullan@inbox.ru).

Vorobieva Svetlana Leonidovna – Doctor of Agricultural Sciences, Professor of the Department of Feeding and Breeding Agricultural Animals. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: vorobievasveta@mail.ru).

Kislyakova Yelena Mullanurovna – Candidate of Agricultural Sciences, Professor of the Department of Feeding and Breeding Agricultural Animals. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: mullan@inbox.ru).

T.I. Pechnikova, V.G. Kolesnikova
Izhevsk State Agricultural Academy

PRODUCTIVITY AND QUALITY OF SEEDS OF OATS OF YAKS DEPENDING ON DESIKANTOV AND TERMS OF THEIR APPLICATION IN THE CONDITIONS OF THE CENTRAL CIS-URALS

Data of researches on studying of influence of desikant and terms of their application on productivity of grain and on sowing qualities of seeds of oats of Yaks are provided. The purpose of

researches – establishment of influence of a desikation and terms of its application on productivity of grain and sowing qualities of seeds in an oat crop Yakov. Tasks: to study influence of desikant and terms of its processings on productivity, to define sowing qualities of oats in a harvest. In experience studied a grade of oats of Yaks which was sowed on cespitose and podsolic environments – not loamy soil in the usual ordinary way on depth of 3-4 cm with norm of seeding of 6 mln pcs. viable seeds on 1 hectare. Desikation was spent with the consumption rate of the medicine Raundap and That will do by 3 l/hectare (a consumption of working liquid of 200 l/hectare) and the medicine Reglon Super – 2 l/hectare (300 l/hectare a consumption of working liquid). For assessment of productivity of grain and sowing qualities of seeds of oats of Yaks used techniques, described in the corresponding state standard specifications and taking into account E.A. Budina and N.N. Yarkova's recommendations. In 2015 processing of crops of oats in the conditions of the Central Cis-Urals desikant Raundap, That Will Do, Reglon Super in 9 days after approach of a dairy and pasty condition of grain has provided formation of the greatest productivity of 4,23 t/hectare and to an exit of seeds of 78,6 %, 38,4 g weighing 1000 seeds and laboratory viability of 80 %. In 2016 the greatest productivity of 4,45 t/hectare has been received in option with application of desikant in 6 days after approach of a dairy and pasty condition of grain and at an exit of seeds of 82,7 %, 39,1 g weighing 1000 seeds and with laboratory viability of 97 %.

Key words: oats sowing Yakov; desikant; productivity; exit of seeds; weight is 1000 seeds; laboratory viability of seeds.

Authors:

Pechnikova Tatyana Ivanovna – Post-graduate student, Plant Cultivation Department, Izhevsk State Agricultural Academy (16, Kirov St., Izhevsk, 426033, Russian Federation, e-mail: e-mail: TANYA1491@yandex.ru).

Kolesnikova Vera Gennadyevna – Candidate of Agricultural Sciences, Associate Professor, Plant Cultivation Department, Izhevsk State Agricultural Academy (16, Kirov St., Izhevsk, 426033, Russian Federation, e-mail: kvg@mail.ru).

A.I. Lubimov, A.S. Chukavin, S.L. Vorobieva, V.M. Yudin
FGBOU VO Izhevsk State Agricultural Academy

RELATIONSHIP PARATYPICAL SIGNS WITH PRODUCTIVE LONGEVITY OF COWS OF BLACK-MOTLEY BREED

Presents information on the influence of reproductive traits on milk production and the productive longevity of cows of black-motley breed. Analyzed indicators of the age of the animals, reproductive quality and indicators of a productive quality. Efficiency of dairy cattle breeding is largely dependent on the intensity of use of a uterine livestock and especially high–producing cows. The importance in this case is the duration of productive use of cows, which depends on the production Economics and the impact of selection and breeding work, and also depend on the number of the obtained products, the amount and intensity of herd maintenance, cost-recovery levels in dairy cattle. Currently, a sign of longevity of cows is relevant in connection with the reduction in the average age the use of animals. Long used in the herd of cows are a good measure of the strength of the Constitution and productive performance. Was evaluated the influence of reproductive traits on productive longevity of cows of black–motley breed of JSC "Uchkhoz July Izhevsk state agricultural

Academy" Votkinsky district of the Udmurt Republic. Estimated the herd to number 3054 heads generate 2002–2012 years (decade), with age at first calving to 28 months – 759, 28,1–29 months – 112, 29,1–30 months – 85, to 30, 1 to 31 months – 62, more than 31 months – 95.

Key words: productive longevity; selection; service period; breed; black and white cattle.

Authors:

Lyubimov Alexander Ivanovich – Doctor of Agricultural Sciences, Professor of the Department of Feeding and Breeding Agricultural Animals, Rector of the Academy. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: info@izhgsha.ru).

Tchiukavin Alexander Sergeyevich – post-graduate of the Department of Feeding and Breeding Agricultural Animals. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aleks-kun@mail.ru).

Vorobyeva Svetlana Leonidovna – Doctor of Agricultural Sciences, Professor of the Department of Feeding and Breeding Agricultural Animals. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: vorobievasveta@mail.ru).

Yudin Vitaly Maratovich – Candidate of Agricultural Sciences, Aassociate Professor of the Department of Feeding and Breeding Agricultural Animals. Izhevsk State Agricultural Academy (11, Studencheskaya Str., Izhevsk, 426069, Udmurt Republic, Russian Federation, , e-mail: vitaliyiudin@yandex.ru).

A.K. Kasimov, N.M. Iteshina
Izhevsk State Agricultural Academy

TOPOGRAPHIC-CARTOGRAPHIC FIELDWORK OPENCAST AND ALLUVIAL LAND IMPROVEMENT

Abstract. Particularities of formation and dynamics of relief under various conditions otvaloobrazovanij. Morphometric studies conducted on experimental facilities have identified possibilities for laid off dumps, emerging in the process of development, reduce their height and optimal forms. Installed-but that for ecologically optimal dumping the basic indicator is the steepness of the slope-, limit value which is taken within 18-30° depending on the particle size distribution of soils. Provides recommendations for op-timizacii posttehnogennyh territories by forms of relief and accelerated return-economic turnover.

Key words: man-made landscape; taheometricheskaja survey; topographical profiles; edafotop; otvaloobrazovanie; slope steepness; microrelief drazhnyh fields; optimization of postehnogennyh territories.

Authors:

Kasimov Apdulbar Kasimovich – Doctor of Agricultural Sciences, Professor (16, Kirova St., Izhevsk, 426069, Russian Federation).

Iteshina Natalia Mihailovna – Candidate of Agricultural Sciences, Associate Professor (Izhevsk State Agricultural Academy, (16, Kirova St., Izhevsk, 426069, Russian Federation, e-mail: n.iteshina@yandex.ru)

I.E. Priporov, A.A. Peschalov, K.V. Zolotarev, D.P. Usachev, A.S. Frolenko
Kuban State Agrarian University named after I.T. Trubilin

INFLUENCE OF PARAMETERS OF THE SCREW PRESS EXTRUDER KMZ-2 ON THE PROCESS OF OBTAINING LOOSE SUNFLOWER CAKE

The aim of the research is to reduce the energy intensity of the process of obtaining loose extruded sunflower cake by study design parameters of the screw with variable step of press-extruder KMZ-2 through the holding of multifactor experiment planning. To achieve the goal of research is necessary to solve following tasks: to obtain a mathematical model in natural values, which describes the density of sunflower cake in the loose form based on design parameters of the screw with variable step of press-extruder; to develop a method of determining the density of loose sunflower cake based on the design of the three-factor experiment. To obtain the mathematical model of density of sunflower cake in the loose form used a three-factor three-level plan Box Bencina and carried out processing of results according to the known formulas. The results of processing experiments the experiment was semi-trated mathematical models in coded and natural values, which describe the density of sunflower cake in the loose form (g/cm3), and checking of its adequacy according to student's criterion and Fisher, as well as the homogeneity of variance of the feedback experience of the experiment on the criterion of Cochran's. The results about the conducted research was the following conclusions: reducing the taper angle of the screw, the screw pitch of the 2nd and 1st navilock lead to an increase in density rasiption of sunflower meal after processing of seed by screw press-extruder KMZ-2; application of mathematical model in natural values allows to obtain a product of uniform composition with constant physico-mechanical properties; the developed method for determining the density of loose sunflower cake based on the design of the three-factor experiment allows to obtain an adequate mathematical model in coded and natural values with minimal number of experiments.

Key words: energy consumption of the extrusion process; loose sunflower cake; mathematical model; experiment planning; design parameters of the screw with variable step; the extruder.

Authors:

Priporov Igor Evgenievich – Candidate of Technical Sciences, Associate Professor, Department of Tractors, Auto and Technical Mechanics, Kuban State Agrarian University after I.T. Trubilin (13, Kalinina St., Krasnodar, 350044, Russian Federation, e-mail: ya.krip10@ya.ru).

Pischalov Andrey Aleksandrovich – Student of the Military training centre, Kuban State Agrarian University after I.T. Trubilin (13, Kalinina St., Krasnodar, 350044, Russian Federation, e-mail: ya.krip10@ya.ru).

Zolotaryov Konstantin Vladimirovich – Student of the Military training centre, Kuban State Agrarian University after I.T. Trubilin (13, Kalinina St., Krasnodar, 350044, Russian Federation, e-mail: ya.krip10@ya.ru).

N.P. Kochetkov, R.I. Gavrilov
Izhevsk State Agricultural Academy

MODELLING OF OPTIMAL EQUILIBRIUM OZONE CONCENTRATION IN THE ROOM AIR

The main problem of ozone indoor air is the need to limit the time of their operation and control ozone concentrations with the given the norms set up. Modelling of processes of formation and decay of ozone in indoor air allows you to define specific values of ultra-low ozone concentrations in continuous operation of the ozonator, which is an urgent task. The aim of the work is mathematical modelling of the optimal equilibrium concentrations of ozone in indoor air. The tasks are are: to formulate the basic provisions and admitting assumptions; the selection of the main reactions of formation and decay of ozone; provide a system of differential equations to optimal equilibrium concentrations of ozone in the air; to carry out mathematical modelling of optimal equilibrium concentrations of ozone in indoor air. Material and methods: 1) physical chemistry of ozone; 2) methods of chemical kinetics of homogeneous environments; 3) differential and integral calculations. Reactions of formation and decay of ozone flow through the intermediate – atom of oxygen. The reaction of formation and decay of atomic oxygen is a feedback reaction, and the equilibrium in this reaction is achieved almost instantly. This allows to apply the method of quasistationary concentrations for atomic oxygen. Thus, the initial system of three differential equations, describing complex reaction of dissociation of molecular oxygen, formation and decay of ozone, is simplified to a system of two differential equations describing the first stage reaction. By solving the system of differential equations corresponding to the Cauchy problem for the concentrations of molecular oxygen and ozone equations for the dependencies of ozone and molecular oxygen on time. Introduced is the concept and the values of the activity concentration of molecular oxygen for a range of optimal equilibrium ozone concentration in the room air (0,03... 0,04 mg/m3) has been defined. The range of speeds for the formation of ozon has been also determined, that provides after 2-3 hours of operation of the ozonator 94...98 % of the optimal equilibrium ozone concentration at the room air temperature 20 0C. Determined are the specific values of ultralow concentrations of ozone (mg/hr) with continuous operation of the ozonator in a particular space volume varying from 0,68…0,91 (50 m3) to 13,6 …18,2 (1000 m3).

Key words: ozonation of indoor air; optimum ozone concentration; modeling optimal equilibrium concentrations of ozone in indoor air.

Authors:

Kochetkov Nikolay Petrovich – Candidate of Technical Sciences, Associate Professor, Department of Electroengineering and Power Maintenance. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Russian Federation, e-mail: nkochetkof@mail.ru).

Gavrilov Roman Ivanovich – Undergraduate student, Department of Electroengineering and Power Maintenance, Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426029, Russian Federation, e-mail: romanfildef@gmail.com).

N.P. Kondratieva, G.G. Bolshin,M.G. Krasnolutskaya,
R.I. Korepanov, I.R. Ilyasov, A.I. Baturin, V.M. Litvinova, O.M. Filatova
Izhevsk State Agricultural Academy

DEVELOPMENT OF MICROPROCESSOR SYSTEMS FOR AUTOMATIC CONTROL OF THE LED IRRADIATING INSTALLATIONS' WORK

The system of microprocessor dosing exposure of electricity is designed, allowing to increase the productivity of biological objects and significantly reduce the consumption of electricity. While experimenting in 2016 and 2017, we have set up phytostanols on the led strips, which are red, green and blue diodes, connected in series. Radiation is a purple-Burgundy color similar to bit fitolamp of type LF-40-1 and LF-40-2. Irradiation facility mimics the spectral irradiance of a particular region. Technically, this process is implemented, using programmable logic controllers and microprocessors. To obtain the desired spectrum of emission for the plants with microprocessors an additive color mixing is used. Thus, the system automatically admits the installation to reduce illumination (irradiation) by less than 4 kilolux to maintain required illumination during the daytime. The above control system also allows to obtain the required dose of the spectral density of the radiation zone of photosynthetic-active radiation and to reduce the electrical energy consumption by some 40...50%.

Key words: algorithm; microprocessor dispensing system; programmable logic controllers; automatic control system; the spectral zone photosynthetic active radiation; led irradiator.

Authors:

Kondratieva Nadezhda Petrovna – Doctor of Technical Sciences, Professor of the Automated Electric Drive Department. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, 426069, e-mail: aep_isha@maill.ru).

Bolshin Roman Gennadievich – Candidate of Technical Sciences. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, 426069, e-mail: aep_isha@maill.ru).

Krasnolutskaya Maria Gennadievna – Researche. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aep_isha@maill.ru).

Korepanov Roman Igorevich – Postgraduate student of Automatic Electric Drive Department. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aep_isha@maill.ru).

Ilyasov Ilnur Ravisovich – Postgraduate of Automatic Electric Drive Department. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aep_isha@maill.ru).

Baturin Andrey Ivanovich – Postgraduate of Automatic Electric Drive Department. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aep_isha@maill.ru).

Litvinova Vera Mikhailovna – Candidate of Philological Sciences, Associate Professor of the Department of Foreign Languages. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aep_isha@maill.ru).

Filatova Olga Mikhailovna – Candidate of Philological Sciences, Associate Professor of the Department of Foreign Languages. Izhevsk State Agricultural Academy (11, Studencheskaya St., Izhevsk, 426069, Udmurt Republic, Russian Federation, e-mail: aep_isha@maill.ru).