

ABSTRACTS AND KEY WORDS

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AGRONOMY

Bondarenko A. N. **RESOURCE-SAVING METHODS OF LEGUMES CULTIVATION OF WITH THE USE OF GROWTH PROMOTING BIOPREPARATIONS**

Recently such directions as biologization and ecologization of agriculture began to develop widely. Scientifically based introduction of methods of biologization and ecologization in agriculture let us consider biologization and ecologization of agrotechnological methods as one of the most important components of natural resources preservation strategy. Resource-saving agriculture can be considered as one of the elements of this direction. In connection with new agricultural technologies spreading which deal with efficient agriculture, the use of fertilizers on the basis of chelate growth promoting fertilizers, growth stimulants and fertilizers based on humic acids is of increasing importance nowadays. Studies on the cultivation of legumes were carried out on the land of federal state budgetary institution "PARRC RAS" in the 2014-2017. The study included green beans of Rubin variety and soybeans of Volgograd variety 1 cultivated with the use of growth-stimulating preparations. On average for the four years of the ongoing study, the maximum yields of green beans were obtained on the variant with the use of tank mixtures of Megavol+ Plantaphol 10:54:10 preparations and on the variant with application of humic fertilizer on the basis of chelate potassium Lignohumate AM brand – 2,8 t/ha. The coefficient of water consumption was consistent with the indicator 1492,1 m³/t. Under the cultivation of soybean varieties Volgogradka 1 the best variant was using the tank mixture of Megavol+ Plantaphol 10:54:10 preparations and in the variant with inoculation of microbial preparation of 6406 strain. The yield in this case was 2.6-2.7 t/ha. Ratio of water consumption varied from 1547,4 to 1606,9 m³/t.

According to the results of the study, the best variants chosen are guaranteed to give an increase in yield relative to the control option over 0.7 t/ha and can be recommended for the cultivation of green beans and soybeans in relation to the soil and climatic conditions of the Astrakhan region.

Keywords: legumes; green beans; soybeans; yield; water consumption coefficient.

N.I. Vasilchenko, A.N. Bykov, G.A. Zviagin **SOUTHERN CHERNOZEMS FERTILITY REPRODUCTION IN NORTHERN KAZAKHSTAN**

Fertility reproduction features of southern carbonate chernozems in the conditions of the dry-steppe zone of Northern Kazakhstan (Shortandinsky district of Akmola region) are studied. We studied the changes of humus content in the model micro plot experience. Various variants of the experiment with non-fallow and dump steam without fertilizers, grain crops with different doses of mineral fertilizers, manure, as well as with straw and sideral crops (pea-oat mixture, Donnik) are laid down. The introduction of rotted manure in small doses of 20 t / ha did not provide an increase in humus during crop rotation. When adding 40 and 80 t / ha of manure to the fallow field, it allowed to increase the humus content by 0.24 and 0.18% of the initial amount. The introduction of sideral steam and perennial grasses into crop rotation enhanced the processes of humification and provided a positive balance of humus. In this version of the experiment, the amount of humus increased by 0.10-0.13%. The greatest accumulation of organic matter occurred when using melilot: the increase in humus was 0.39%. Long-term cultivation of permanent wheat crop in one field, even with high doses of mineral fertilizers, does not provide significant reproduction of soil fertility. The application of mineral fertilizers does not contribute to the increase of humus in the soil. The greatest decrease in humus content in southern chernozems is observed in the permanent dump and waste-free pair-0.11 and 0.13% over a 6-year period of observations.

Keywords: southern chernozem; humus; soil fertility; fertilizer; organic fertilizer; straw.

E. V. Prosiannikov, O. V. Melnikova, V. E. Torikov, D. M. Melnikov **BIOLOGICAL ACTIVITY OF GREY FOREST SOILS OF THE STARODUB AND BRYANSK OPOLIE AGROECOSYSTEMS**

The main indicators of biological activity of grey forest soils of the Starodub and Bryansk Opolie in natural ecosystems, regular and intensive agroecosystems, including radioactively contaminated ones, were determined year by year. It is established that the radioactivity of the soils in the natural ecosystem catena of the Starodub Opolie is practically identical. In agroecosystems the radionuclides in soil catenas are redistributed. They are

accumulated in the agrohorizons of soil cavities. In the natural ecosystem the total number of invertebrates and the absolute number of earthworms are higher in grey forest soils, having the second humus horizon cavities, than in the grey forest soils of the neighboring low ridge. In both soils of opolie the earthworms predominate among invertebrates, accounting for about 81% of their total number. Radioactive contamination reduces the number of earthworms less than the intensification of crop cultivation technologies. In the grey forest soil of the regular agroecosystem, this figure is reduced by 56%, and in the grey forest soil with the second humus horizon by 76%. In intensive agroecosystems the number of earthworms is reduced less, by 39 and 23%, respectively. The biomass of the microbiota is significantly greater in the grey forest soils with the second humus horizon of the soil cavities than in the grey forest soils of the neighboring low ridge. Radioactive contamination of these soils reduces microbiota biomass less than intensification of crop cultivation technologies. In the grey forest soils of the agroecosystem, this figure is reduced by 50%, and in the grey forest soil with the second humus horizon by 61%. In the intensive agroecosystem the biomass of microbiota decreases less intensively, by 30 and 46%, respectively. In the incubation experiment on the grey forest soils of the Bryansk Opolje it is marked that soil enrichment with organic matter activates the soil microbiota more than 2 times. To a lesser extent, soil respiration increases with NPK application. This figure rises more than 5 times with the combined use of straw and NPK. In the field experiment, the cultivation of winter wheat in the crop rotation after annual grasses and mineral fertilization at the rate of $N_{60}P_{60}K_{60}+N_{60}$ activated the soil microbiota by 75-76%. The biological cultivation technology on the background of the aftereffect of dung, straw and green manure without mineral fertilization causes a decrease in soil respiration and cellulolytic activity, as compared with the intensive technology.

Keywords: soils of the Starodub and Bryansk opolie, mineral fertilizers, biological activity of soils, anthropogenic impact.

L .M. Soboleva, T.V. Plotnikova, E.M.Tiutiunnikova **UTILIZING COMBINATION OF HERBICIDE COMMAND AND GROWTH STIMULATORS MELAFEN AND EMISTIM C FOR TOBACCO SEEDLING GROWING**

Efficiency of combination of soil herbicide Command (CE 0.02 ml/m²) and growth stimulators Melafen and Emistim S for tobacco seedling growing in sheltered ground has been studied. Before studies inhibition properties of herbicide on first stage of tobacco growing were found. For decreasing effect of herbicide's depression and increasing growing processes researches during greenhouse and field stages have been carried. It has been found that soaking seeds in solution of growth stimulator Melafen (concentration 0.05 %) and Emistim S (concentration 0.00001 %) during 3 hours in combination with further treatments on basic stages of seedling development (cotyledon and ready for transplanting before pulling out) led not only to decreasing toxic effect of herbicide but also increasing qualitative properties of tobacco plants. Growth stimulators led to increasing length of plants from collar to growing point by 46 – 62 %, to end of tips – by 20 – 35 %, above ground plant mass – by 42 – 86 %, root mass – by 32 %. It was also noticed 28 – 36 % increasing outcome of standard seedlings from m² in time of transplanting. Due to prolonged effect of Melafen and Emistim S seedlings transplanted into field were with increased surviving properties. Later, due to increased growing rate it was noticed increasing leaf area by 9 – 18 % and productivity – by 16 – 24 %. Economic effect due to utilizing growth stimulators Melafen and Emistim S during seedling stage reaches 360 and 470 rubles/m² and during field stage – 66 and 98 th.rubles/ha respectively. Offered elaboration can be utilized for protecting systems of different agricultural plants where utilizing soil herbicides is recommended. Also quality of cured tobacco grown with stimulators had been improved.

Keywords: tobacco, seedling, weeds, herbicide Command, growth stimulator, Melafen, Emistim S, productivity, quality of raw tobacco.

O.V. Gonova, A.A. Malygin **PLANNING OF CARROT PRODUCTION ON THE BASIS OF SCIENTIFIC TECHNOLOGIES**

This article discusses modern technological approaches to growing vegetables in the open ground on the example of t carrots. In recent years, the cultivation of this type of agricultural crop, including the use of drip irrigation, has become relevant. At the moment, the total area of table carrots sown in the Russian Federation is 23-25 thousand hectares. Significant growth was observed in 2011 and 2016. According to the size of the area and the volume of gross production, the largest producers are Volgograd, Moscow and Novgorod regions, and the Krasnodar territory. On the territory of the Ivanovo region, carrot cultivation was carried out by many farms in the 90's and 2000, but due to the complete deterioration of existing vegetable stores, they had to

abandon this type of product. In 2013, in Gavrilovo-Posadsky district, LLC "Rodina Crop farm" implemented a project for the production and processing of carrots. As part of the program, the company built: a vegetable storage facility for storing 1200 tons of carrots; a shop for processing and packaging (sizing) carrots. This fact once again confirms the need to develop vegetable growing in the region. The authors proposed growing carrots in combs on an innovative basis in agricultural enterprises of the Ivanovo region, taking into account zonal features that have a significant impact on production efficiency.

Keywords: *vegetables, carrots, agricultural activities, innovations, science-intensive technologies, food security, agro-economic efficiency.*

Batyakhina N.A. ISSUES OF GREENING THE LAND USE SYSTEM IN THE RUSSIAN FEDERATION

Soil protection in agrolandscapes is especially necessary in conditions of intensification of production and increasing anthropogenic pressure on them. This complex should fit into the landscape farming system. The more intensive the load on the land in the farm, the higher the level of soil protection against destruction.

The article notes that raising soil fertility, increasing crop yields and ecological environmental improvement are possible only on the basis of agrolandscape farming system, which allows to establish the correct ratio of arable land, meadows and forests. The transition to such a system of agriculture requires: development of a project for agrolandscape land management with a set of anti-erosion measures for each farm; adjusting the structure of sown areas taking into account market conditions, that is, increasing the area of productive crops in demand (winter and spring wheat, perennial grasses), which in combination with occupied and green manure pairs determine the structure of biologized crop rotation; widespread use of legumes (peas, vetch) as factors in the biologization of agriculture.

The efficiency of expanding the area of perennial grasses to 25% of arable land in some areas of the Non-Chernozem region and the Belgorod region is shown. Here, techniques that increase the efficiency of arable land are based on strict adherence to crop rotation with legumes, the use of adaptive varieties, and the use of biologized fertilizer and plant protection systems.

It is noted that the creation of a system of shelterbelts makes it possible to reduce the cost of planting and growing them in comparison with single forest belts and what is very important for farmers is to sharply increase the return on their exploitation in the form of increased increases in crop yields. The creation of forest-sized landscapes will improve the environmental conditions for the cultivation of crops.

Keywords: *land use, greening of agriculture, protection of the water-air basin, reforestation, system of forest belts, crop productivity.*

A. A. Borin, A. E. Loshchinina BASIC TILLAGE AND CROP ROTATION YIELD IN THE CONDITIONS OF THE UPPER VOLGA REGION

We compared three main processing methods: moldboard plowing (PLN-3-35), flat plowing (KPG-2.2) to a depth of 20...22 cm, and shallow plowing (BDT-3) – 14...16 cm in the field crop rotation on sod-podzolic light-loamy soil. In autumn, after the main treatments, a loose addition of arable layer was noted - 1.22...1.27 g/cm³. By spring, the soil was compacted to 1.36...1.42 g/cm³. The rate of subsidence and compaction of the soil during moldboard plowing was higher than during flat and shallow ones. The supply of productive moisture in the arable layer of the soil before sowing winter crops for flat processing exceeded the moldboard plowing by 4.2 mm, and shallow plowing - by 3.0 mm. According to the moldboard plowing, a higher content of agronomically valuable (65.9%) and water-resistant (42.2%) aggregates was revealed in comparison with flat and shallow plowing. Biological processes in the soil were more active during moldboard plowing, which is associated with lower density and increased aeration of the arable layer. The transformation of linen was more active in the upper soil layer of 0...10cm and less in the layer of 10...20cm under all cultures of crop rotation. The number of earthworms as an indicator of the biological condition of the soil, on the processing systems did not differ significantly, more of them were found under the clover, due to long time absence of machine processing. The increase in the number of weed seeds in the upper layer during flat and shallow plowing, and the clogging of crops on them is 1.5 times higher, compared to the moldboard plowing. The development of winter and potato plants was better by flat plowing, and spring grain

and clover by moldboard plowing. In shallow plowing, the development of plants was inferior to moldboard and flat plowing. In a whole, crop rotation yield in flat plowing was higher than in moldboard plowing by 0.55 t/ha, and in shallow plowing it was lower by 2.83 t/ha.

Keywords: tillage, agrophysics, biological properties, contamination, crop yield.

Ponazhev V.P. INFLUENCE OF METHODS FOR SELECTION OF PLANTS AND WAYS OF SEEDING ON EFFICIENCY OF ORIGINAL SEEDS OF FLAX-DOLGUNETS GROWING IN PRIMARY SEED BREEDING

The results of scientific research are presented, which made it possible to develop less labor-intensive methods for selecting flax plants to grow original (updated) seeds. Studies have shown that a positive selection of tall plants of flax, compared with the accepted counterpart (control), increased seed yield 1.7 - 1.9 times. Moreover, plant homogeneity according to the main characteristics (height and fiber content in the stem) characterizing the varietal quality of grown seeds turned out to be at the control level. A negative selection, involving the removal of atypical plants, provided an increase in the output volume of seeds compared to the control by 3.9 - 4.1 times. This selection method did not reduce the varietal quality of seed material compared to the accepted analogue. With both selection methods, after combining typical plants, seeds with the same high germination rates were obtained (96 - 99%).

The breeding efficiency of the grown flax seeds using narrow-row sowing methods is shown. Studies have established that narrow-row sowing of seeds with a row-spacing of 7.5 and 6.25 cm compared with sowing by a wide-row method significantly increased their yield by 2.8-3.0 and 2.3-3.0 kg / ha, respectively. The greatest influence on the formation of seed yield in narrow-row sowing (6.25 cm) was exerted by the method of sowing, the part of which was 76.1%. As the length of seed propagation of flax increased (up to the uterine elite 2 years) in narrow-row sowing (6.25 cm) compared to broad-row, there was no decrease in quality indicators - germination and seed strength.

Keywords: flax, plant, variety, seeds, method, way, sowing.

VETERINARY MEDICINE AND ZOOTECHNY

V.G. Turkov, L.V. Kletikova, N.N. Yakimenko, M.S. Mannova, N.P. Shishkina DYNAMICS OF MICROFLORA IN CALVES IN EARLY POSTEMBRIONAL ONTOGENESIS ON THE BACKGROUND OF BIOLOGICALLY ACTIVE SUBSTANCES AND ENTEROSORBENT APPLICATION

The problem of intestinal normocenosis formation in calves remains urgent. For species and quantitative assessment of the intestinal microbial landscape, it is sufficient to use standard methods of research throughout the period of newborn. Intensive operation of the industry requires the use of means of specific and non-specific protection of newborns' body, among the latter the most promising are enterosorbents. Bifidobacteria actively reproduce during the newborn period. This is confirmed by their concentration at 15-day age: 1×10^8 CFU/g and 1×10^9 CFU/g, respectively, in calves of control and experimental groups, at starting - 1×10^6 CFU/g. Lactobacteria concentration in newborn calves increased from 1×10^4 CFU/g to 1×10^6 CFU/g in control 15-daily calves and 1×10^8 CFU/g of test groups. The most pronounced occupation properties were shown by the E. coli with normal enzymatic activity: in the intestine of newborns its concentration did not exceed 1×10^2 CFU/g, at 15-day age its content reached 1×10^6 CFU/g and 1×10^8 CFU/g in calves of control and experimental groups, respectively. In newborn calves, the concentration of enterococcus did not exceed 104 CFU/g, by 5-day age in all groups the amount increased to 105 CFU/g and remained the same up to 15-day age and only in 1 trial increased to 107 CFU/g. These species of microorganisms are bond-based and contribute to the maintenance of immunity and homeostasis in calves. It is not uncommon to detect opportunistic, pathogenic and transitive microorganisms in the intestinal contents of calves. In 5-day calves of the control group, clostridia (up to 103 CFU/g) were found, in 15-day calves, except for clostridia, hemolyzing E. coli and enterobacter (up to 106 CFU/g) were typed, which allows us to recommend oral use of enterosorbent suspension at a dose of 0.3 g/kg and 0.5 g/kg of live weight daily during the whole period.

Keywords: newborn calves, enterosorbent, normoflora, clostridia, hemolysing E. coli, enterobacter

ENGINEERING AGROINDUSTRIAL SCIENCE

Abalikhin A.M., Volkhonov M.S., Krupin A.V., Kolesnikova A.I. THEORETICAL STUDY OF THE EFFECT OF GEOMETRICAL PARAMETERS AND LOCATION OF ROTOR IMPACT ELEMENTS OF AN IMPACT-CENTRIFUGAL GRINDER ON SPEED AND ANGLES OF CRUSHED PARTICLES FLIGHT

One of efficiency indicators of grain grinders is grain granulometric composition. The basis of mixed fodder is crushed grain, the particles of which must have a leveled granulometric composition for subsequent mixing and obtaining a high-quality feed mixture. In agricultural production, hammer crushers are widely used, in which the destruction of grain occurs due to the impact of a hinged hammer. The main disadvantage of these crushers is that not the entire surface of the hammers is involved in grinding, thus reduces grinding process efficiency. A slightly different principle of material destruction is laid down in the basis of the proposed design of the shock-centrifugal grinder. Main work is performed by flat impact elements located on the rotor, which serve to accelerate crushed particles with subsequent impact of them on the bump elements. An important step in the design of new constructions of shock-centrifugal grinders is to determine size and location of the impact elements on the rotor, without which the grinding process is not possible. In the calculation method presented, the dependencies for determining the velocities and angles of a single particle flight from the surface of a flat impact element for its specified dimensions are proposed. Two variants of an impact element location on the rotor are considered and analyzed: radial and at an angle in the direction of rotor rotation. As a result of research carried out, it is noted that in the case of inclined position of an impact element on the rotor an increase in flight speed and flight angles change in crushed particles, which gives the opportunity to have a positive effect on grinding process.

Keywords: *impact centrifugal grinder; grinding process; flat impact elements; flight speed; flight angle*

Nikolaev V.A. PARAMETERS OF THE GRAIN TRAJECTORY AFTER TOUCHING THE SIEVE OF A SEMI-AUTOMATIC GRAIN CLEANING MACHINE

The main disadvantage of grain cleaning machines with rectangular sieves is limited throughput, which takes place due to a logical contradiction. It consists in the fact that as it passes through the sieve, the amount of material to be cleaned on the sieve decreases, and the width of the sieve remains unchanged. To overcome this contradiction, a grain cleaning machine with a sieve representing an inverted truncated cone that performs vertical vibrations is proposed. First, the parameters of the grain trajectory are determined after the first touch of the semiautomatic grain cleaning machine sieve when the sieve is in the lower position, and then when the sieve is in the upper position. Two variants of the grain trajectory are considered: when the grain trajectory after its collision with the sieve is in the vertical plane passing through the velocity vector, and when the grain trajectory after its collision with the sieve is in the vertical plane passing through the total force vector. The parameters of this interaction were determined by analyzing the grain path after the first sieving of a semi-automatic grain cleaning machine. Specific values of parameters are revealed, in particular, aggregate speed of the grain at the moment of its collision with the sieve, the angle between the grain velocity vector after reflection from the sieve and the horizontal, time of the grain's take-off over the sieve after falling on it, the range of the grain's flight over the sieve after falling. Based on the analysis, the conclusion is made: in order for the grain separation to be intensive, the sieve must move downwards with acceleration close to the acceleration of free fall.

Keywords. *Grain-cleaning machine, inverted truncate, vertically oscillating sieve, trajectory of grain, interaction of grain with sieve, parameters of grain trajectory.*

Dorokhov A.S., Sibirev A.V., Mosyakov M.A., Sazonov N.V. EXPERIMENTAL STUDIES OF DETERMINING THE FORCE INFLUENCE OF THE SEPARATING SURFACE OF THE MODULE FOR POST-HARVESTING PROCESSING ROOT CROPS AND ONIONS

Despite the availability of extensive research on the mechanized post-harvest processing of root crops and onions, which continues today, there are unresolved problems in this area, which in most cases are associated with the imperfection of the design of separating bodies of post-harvest processing

machines. Existing machines cause damage to commercial products as a result of the interaction of root crops and onions with each other, with working bodies and soil lumps. However, the largest percentage of damage is formed as a result of their interaction with the working bodies of the separating machines. The article presents a structural and technological scheme of a module for separation of a pile of root crops and bulbs developed at the VIM Federal Agroengineering Center. In order to determine the place of the greatest force impact and to carry out subsequent measures to eliminate these negative effects in the design of the module under consideration, industrial studies were conducted. A methodology has been developed for conducting industrial studies to assess the impact of working bodies on the amount of damage to root crops and onions during operation using the «Tuber Log» electronic tuber. The results of studies of module working bodies force impact that affect the damage to marketable products are obtained, processed and graphically presented. The greatest force impact ($\approx 10 H$) on tuber falls on the time interval of values from 4 to 6 s, while the standard deviation and coefficient of variation are $\sigma = 5,52$ and $v = 26,9\%$, respectively. The most «sparing» force impacts of the working bodies of the machine for separating the data logger at the translational speed of rubberized rollers $V_{OB} = 0,8$ m/s were determined, where the minimum power impact in the range from 2 H to 4 H is created throughout the entire process .

Keywords: *separating module, force effect, root crops and onions, working bodies*

R.A. Kasymbekov, I.D. Osmonov, B.S. Sultanaliev, S. Zh. Akmatova, M.S. Volkhonov, M.A. Ivanova **IMPROVING THE EFFICIENCY OF AGRICULTURAL MACHINERY USE IN THE KYRGYZ REPUBLIC**

The most important role in the development of an agro-industrial complex belongs to agricultural machines - one of the most revolutionary inventions of modern technology. Increasing technical equipment contributes to more efficient production. However, high-performance, complex and expensive machines require large material investments, which are paid off only with a sufficiently large amount of work, and require highly qualified service personnel. Due to the lack of material resources, many farms in Kyrgyzstan are not able to purchase equipment even under leasing. As a result, the machine and tractor park is aging and cannot provide the entire volume of mechanized work in agrotechnical terms. The analysis of data received from the state bodies of management of the agro-industrial complex on the structure of sown areas of agricultural crops and the number of agricultural machinery in the Kyrgyz Republic indicated a large spread of equipment for agricultural machinery in the regions, inconsistency of data. In some areas, agricultural machinery is not fully loaded, and in some areas it is less than 10% equipped. To increase the efficiency of using agricultural machinery, a methodology has been developed and examples of determining rational organizational schemes for its use in the Kyrgyz Republic are given. In the current conditions, it is advisable to introduce new organizational inter-farm schemes for the use of agricultural machinery, allowing the minimum composition of machines to perform a significant amount of work in the established agrotechnical terms. To do this, it is necessary to create a unified register of online accounting of all agricultural machinery available in the Republic, develop administrative regulations for the implementation of the measures proposed in the article, which allow maximum loading and effective use of agricultural machinery available in the Republic.

Keywords: *agricultural machinery, inter-farm schemes, efficient use of machinery.*

SOCIO-ECONOMIC SCIENCES AND HUMANITIES

A.A. Soloviev, V.V. Komissarov, M.A. Guseva, E.V. Bashmakova **HIGHER SCHOOL IN THE PERIOD OF GREAT PATRIOTIC WAR (ON THE EXAMPLE OF IVANOVO AGRICULTURAL INSTITUTE)**

The Great Patriotic War left a deep mark in the history of our country. The higher school, in particular, Ivanovo agricultural Institute, did not become an exception. This article considers the main milestones in the institute's life in the period of the war, shows the directions of its scientific activity, provides statistical data on the number of students, graduates and teachers of the Institute who worked and studied in it. The study showed that the university not only retained its enrolment, but also managed to increase it by opening a new veterinary faculty. Despite the difficult conditions of wartime, research activities of

Ivanovo agricultural Institute have increased markedly, and the connection of university science with industry has become even closer. The war certainly affected the educational process as well. Some buildings were transferred to hospitals. Classes were held in two shifts. The period of study was reduced to three years. However, such difficulties did not affect the quality of graduates' training and their importance for the country. The staff and students of Ivanovo agricultural Institute took an active part in the labor front, bringing the Victory closer by their activities. A special part of the article is devoted to biographical notes about frontline teachers, who fought bravely at the fronts of the Great Patriotic War. This is S.K. Voita - Director of Ivanovo agricultural Institute in 1939-1941, N.I. Belonosov - Rector of Ivanovo agricultural Institute in 1961-1974, V.K. Baluyev - Vice-Rector of the Scientific Department, Dean of the zootechnical faculty, I.P. Skurikhin - Vice-Rector on Educational and Scientific Work, Dean of the agronomy faculty and other teachers of the institute.

Key words: *higher school, Great Patriotic War, Ivanovo agricultural Institute, front-line teachers.*

Baldin K.E. ACTIVITY OF ZEMSTVO OF VLADIMIR AND KOSTROMA PROVINCES ON PROVIDING PEASANTS WITH QUALITY SEED MATERIAL IN THE EARLY XX CENTURY

The article deals with activities of zemstvo assemblies, councils and agronomists of the Vladimir and Kostroma provinces for distribution high-yielding seeds among peasants. The author gives the names of the most active local agronomists at the beginning of the XX century and considers the specific assistance they provided to the peasants. These agronomists were assisted by the most enterprising peasants, who served as examples for their neighbors in the introduction of new varieties of seeds and other agrotechnical innovations. The author also analyses the printed and oral agitation, which agronomists carried out among peasants to distribute quality seeds among them. The article deals with activities of agricultural warehouses; in fact they were universal hardware stores. Here peasants could cheaply buy fertilizers, agricultural tools and machines, as well as planting material, qualitatively different from their own seeds. The author shows the spread of stationary and mobile zemstvo points, where grain was cleaned and sorted for farmers. The villagers actively used the services of these points. Zemstvo also took up scientific and practical work in seed production. Of course, zemstvo had neither a material base nor specialists to bring out new varieties, but in their experimental fields they were engaged in zoning and testing of certain varieties of grains and technical crops for the provinces of the Upper Volga. The article also deals with the effectiveness of the work of local agronomists, here examples are given how these activities increased yields and well-being of farmers.

Keywords: *zemstvo, the Russian peasantry, agronomic specialists, agricultural warehouses, planting material.*

Sovik I. A. ADVANTAGES IN GLOBAL ECONOMY OF RUSSIAN AGRICULTURAL PRODUCTION OF GRAIN CROPS

The Russian Federation is a leading player in the global community, taking the main paths to its formation. The main trend of global economy is globalization, and domestic economies are integrating into the modern system. The Russian Federation is one of the largest countries in the world, located in a variety of climatic zones, and a particularly favorable climate for the development of agricultural sector is in the south. In Russia, 10% of the world's arable land is located, so more than 80% of the arable land of the Russian Federation is in the Central Volga region, the North Caucasus, the Urals and Western Siberia. Also in the south of Russia melon farming is widespread. The northern regions of the Russian Federation are also subject to successful development with the help of effective agricultural organizations, according to domestic experience, as well as the previous experience of countries such as Finland, Sweden, and Canada, their agriculture mainly operates in similar conditions as the northern and central RF. In October 2014, the Government of the Russian Federation approved a roadmap for import substitution in the agricultural sector for 2016–2017. According to it, the State Program for Agricultural Development for 2013–2020 and the newest prerogative vectors for the development of agro-industrial complex were established and the required resource provision in the amount of 568.3 billion rubles was allocated for 2015–2020, which will help to reduce imports by 1.4 trillion. rub. The ability to enter the world market can be considered as one of the motives for domestic producers of agricultural products and foodstuffs to increase

production volumes and measures of state self-sufficiency in agricultural products.

Keywords: *agriculture, the Russian Federation, export, import, import substitution, profitability, wheat, agrarian industry, state program.*

A. V. Andreev, N. P. Fadeeva ANALYSIS OF NON-EQUILIBRIUM STATES OF MILK-RAW MATERIAL MARKET IN THE CONTEXT OF EFFECTIVE REGIONAL AGRARIAN POLICY IMPLEMENTATION

In order to analyze non-equilibrium states in the regional markets of milk-raw materials, a model of "estimated price" has been developed. That model is a function of two factors, an indicator opposite to the supply elasticity, the role of which is to assess the efficiency of the price stimulus and resource efficiency, acting as an indicator of the balanced state of the market. Four types of non-equilibrium market state were identified based on that model and tested on the example of individual markets of the VRO (Volga Region Okrug). Thus it is possible to classify markets according to two characteristics: surplus or deficit and positive or negative reaction of milk sales volume to price incentive. These parameters are determined by the structural characteristics of the market and, above all, by the level of development of the collective sector - agricultural organizations. In regions with low level of development of the collective sector there is a significant shortage in the market of milk-raw materials and a weak reaction of agricultural organizations to the price incentive. At the same time, the actual price of milk sales came close to the upper limit of the price range of the "estimated price," which as a matter of fact indicates that there is a limit for further price incentives. However, even under these conditions, the structural position of processors in the market is stronger and incapable of solving the deficit problem. Regions with a high level of development of the collective sector are characterized by two situations - either surplus or slight deficit with the possibility of transition to balance in the market and excessive price incentive. Here, the actual price turns out to be much higher than the "estimated price," which shows the presence of a complementary price, - an investment instrument for the development of dairy cattle breeding. The application of the "estimated price" tool allows to synthesize the methodology of several approaches. In particular the decomposition of the price factor of 1 ton of milk by two factors: full costs and profit from the sale of 1 ton of milk, allowed to link the provisions of the concept of supply elasticity and the theory of reproduction.

Keywords: *Estimated price, nonequilibrium, deficit, surplus, supply elasticity, structural characteristics of the market.*

L. V. Kornilova, O. A. Nikolaeva, A. N. Smirnova USING ANECDOTE AS A WAY OF BROADCASTING VALUES OF CULTURE IN TEACHING THE DISCIPLINE "RUSSIAN AS A FOREIGN LANGUAGE»

This article discusses the actual problems of teaching Russian as a foreign language. When delivering classes, firstly, it provides for the practical focus of the "situation of entertainment" in the classroom on various aspects of TRFL in groups of foreign students. It is about using the humorous effect (anecdotes) as a way of activating grammar and speech. Besides "revitalizing" the classes, anecdotes using according to a specially developed method allows the teacher to solve several tasks, for example, to develop the principle of "language guess," to expand the students' vocabulary, to work out reading, auditing and speech development skills, because microtexts are reproduced well. The second, the reasons for the inadequate perception by the communicative act participants of nationally colored Russian humor are investigated. The authors identified the most significant reasons: 1) ignorance of Russian history and culture realities (for example, anecdotes about the Soviet Union, about our modern reality); 2) absolute misunderstanding of the realities associated with the names of famous and popular people in Russia (for example, Vasilyi Ivanovich Chapayev, Stirlitz, Anatoly Wasserman, Nicholas Valuev, etc.); 3) ignorance and misunderstanding of Russian culture values deep (for example, jokes which cornerstone proverbs, sayings, phraseological units and other "popular wisdom" are); 4) absolute misunderstanding of humor based on "word play" (e.g. so-called linguistic anecdotes, often based on metaphor, polysemia, etc.). At the same time, the authors give numerous examples of anecdotes, explaining the reasons for their misunderstanding by foreign students who carry a different culture. The third, the very notion of "intercultural communication" as well as the humorous effect as a way of broadcasting the values

and cultural meanings in intercultural communication is analyzed., It is necessary to have a certain basic knowledge: language proficiency, understanding of behavioral stereotypes, mental realities, features of national character, values and meanings of other culture to understand and estimate its features.

Keywords: *Russian as a foreign language, intercultural communication, nationally colored humor, anecdote, behavioral stereotype.*

L.E. Tinkchyan **THE SPECIFICS OF TEACHING LATIN ON VETERINARY FACULTIES OF AGRICULTURAL HIGHER EDUCATIONAL INSTITUTIONS**

This article is devoted to the features and benefits of teaching Latin on veterinary faculties of agricultural institutions of higher education. The position of the discipline in training programs for would-be specialists in «Veterinary», « Veterinary expertise», «Small domestic and exotic animals' diseases» is determined. Both general didactical principles of new language presentation and specific features of medical and veterinary students training are considered as applied to agricultural institutions of higher education. The main peculiarity of professional training on veterinary faculties of agricultural higher institutions is prevailing of lexical aspects over grammar ones unlike teaching of Latin for lawyers, philologists and botanists. The order of grammar aspects such as verb, noun, and adjective is shown to be connected with the applied professional phenomena like recipes making, diagnosis discussing and anatomy studying. Particular attention is paid to the necessity of comparing of introduced lexical units with both Russian language and studied foreign language. The conclusion is made that this comparison enables the students to use Latin terms, names of organs, diseases and medicines accurately. Of great value is also the investigation of the principles of transliteration medicine names investigation. The author stresses the point that students of medical educational institutions as well as students of veterinary faculties of agricultural educational institutions should write the names of medicines in recipes automatically.

Keywords: *grammar, vocabulary, specific terms, frequency of grammar phenomena, language aspects.*