

AGRONOMY, FORESTRY AND WATER MANAGEMENT

General Farming and Crop Production

UDK 636.085(470.64)

Expanding the food supply in Kabardino-Balkarian Republic

Yuri M. Shogenov, Khasan T. Nogmov

Abstract. This article discusses the results of a study conducted in the foothill zone of Kabardino-Balkaria to determine the influence of optimal dose of humic fertilizers on the green forage productivity of corn hybrids. Field trials were conducted in 2023–2025 on leached chernozem, which is characterized by the following parameters: humus content in the arable horizon of 3.3%, total nitrogen 0.28%, absorption capacity 34.4 mg equivalent per 100 grams of soil, soil solution reaction is neutral (pH – 7). The content of mobile phosphorus is 15.0 mg per 100 g of soil, that is, average supply (according to Chirikov), the supply of exchangeable potassium is increased (15–18 mg per 100 g of soil) (according to Chirikov). In terms of mechanical composition, this soil is heavy loamy. The physical clay content is 57%. During the experiment, it was found that the use of humic fertilizer Humate +7 increased the planting density of corn hybrids Prokhladnensky 175 SV and Rodnik 179 SV by 4.9 and 3.9%, respectively. Also, the plant height of the Prokhladnensky 175 SV and Rodnik 179 SV corn hybrids, when treated with the humic fertilizer Gumat +7 (10 l/t + 2 l/ha), increases to 277.6 cm and 268.6 cm, respectively. The green mass yield of these corn hybrids reaches its biological maximum in the foothills of the KBR, where the green mass of the Prokhladnensky 179 SV hybrid averaged 54.5 t/ha and dry matter yielded 18.5 t/ha, while the Rodnik 179 SV hybrid averaged 49.2 t/ha and 16.6 t/ha, respectively. Green forage quality in the Prokhladnensky 175 SV and Rodnik 179 SV corn hybrids was improved by using the humic fertilizer Gumat +7. In the 10 L/t + 2 L/ha treatment, digestible protein content was high at 20.21 g and 20.34 g, respectively, and feed yields reached a maximum of 12.4 t/ha and 11.3 t/ha, respectively.

Keywords: corn hybrid, Prokhladnensky 175 SV, Rodnik 179 SV, green forage, dry matter, digestible protein, metabolizable energy, carotene, feed yield

ANIMAL SCIENCE AND VETERINARY MEDICINE

Private Animal Husbandry, Feeding, Feed Preparation and Livestock Production Technologies

UDK 636.39:636.082

Effect of ultraviolet radiation on the live weight of young Murciana-Granadina goats

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Abstract. The article studies the dynamics of live weight of female goats of the Murciana-Granadina breed from four groups after ultraviolet irradiation with "SOU-1" (1st experimental),

"SOU-2" (2nd experimental), "OUFk" (3rd experimental) lamps, and without irradiation (4th control) lamps, with 15 heads in each. The obtained experimental data indicate that the first group of female goats demonstrated the best results in terms of live weight throughout the entire observation period, while the other groups showed less pronounced differences. In the first lactation, the female goats of the first group showed the highest live weight, exceeding the second group by 3.1 kg or 6.33%, the third group by 3.9 kg or 8.09% with statistically significant differences $p < 0.05$ and the control group by 6 kg (13.02%, $p < 0.01$). In the second lactation, the first group was in the lead, ahead of the second group by 3.0 kg (5.71%) and the fourth group by 6.3 kg (12.8%, $p < 0.05$). In the third lactation, the first group showed a live weight of 57.8 kg, which is 2.3 kg (4.14%) higher than in the second group, and 5.1 kg (9.68%) more than the weight of animals of the fourth group. The experimental animals of the fourth group had the lowest values, behind the third group (1.7 kg or 3.04%) and the second group (2.8 kg or 5.31%). The second group in the third lactation recorded the highest results in the third lactation, exceeding the indicators of previous lactations by 3.0 kg (5.71%) and 6.5 kg (13.27%, $p < 0.05$). The third group achieved its best results in the third lactation, exceeding the previous ones by 2.3 kg (4.42%) and 6.1 kg (12.66%). The control group's female goats achieved their maximum live weight in the third lactation 52.7 kg, which is 6.6 kg (14.32%) more than the first and 3.5 kg (7.11%) more than the second lactation.

Keywords: goats, live weight, Murciana-Granadina, average daily gain, absolute gain, relative gain

UDK 636.2.03

Study of the relationship between the duration of the service period and the indicators of milk productivity of cows

Alan M. Khuranov, Vladimir M. Gukezhev

Abstract. The study was conducted on 222 cows with completed second lactation lasting more than 305 days. In order to study relationship and interdependence of milk productivity of cows with extended lactation and the duration of the service period, the following indicators were studied: the amount of milk obtained per lactation, the amount of milk obtained in the first 305 days of lactation, daily milk yield in the first 305 days of lactation, the number of milking days after the first 305 days of lactation, the amount of milk obtained from cows after 305 days of lactation and daily milk yield of cows after the first 305 days of lactation, as well as the duration of the service period. According to the research results, the average milk productivity of cows for the first 305 days of lactation was 5821.2 ± 63.3 kg of milk, while for a lactation period of more than 305 days, it averaged 1091.8 ± 80.8 kg of milk; Of the 222 cows, 60 cows (27%) were impregnated before 84 days after calving; the service period of 85 cows (38.3%) was 242.3 ± 9.4 days, which significantly (by 183.7 days) exceeds the indicators of the group of cows impregnated before 84 days after calving; in the group of 162 cows impregnated after four estrous cycles, the number of lost calves was 65.1 heads.

Keywords: cow, calves, estrous cycles, duration of service period, milk productivity, extended lactation, offspring losses

Breeding, Selection, Genetics and Biotechnology of Animals

UDK 636.32/.38.03

The level and nature of wool productivity of young fine-wool animals of different origins

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Abstract. In this article, the authors study the quantitative and qualitative indicators of wool productivity in ewe lambs bred from Manych Merino sires of the 815 and 214 lines and ewes of Caucasian breed. Scientific and farm experiments have shown that crossing Caucasian ewes with rams of the 815 and 214 lines increases the wool yield in terms of physical weight and washed fiber, and also improves the physical and technical properties of the wool compared to young animals of the commercial herd during purebred breeding. Moreover, higher indicators of the level and nature of wool productivity were obtained from the offspring of sires of the 815 line. Therefore, to increase and improve the wool productivity of fine-wool sheep in commercial herds, it is recommended to use Manych Merinos, and among them, sires of the 815 line. In terms of live weight, the offspring of sires of the 815 line exceeded the offspring of sires of the 214 line and purebred Caucasian breed sires by 2.2 and 3.6 kg, or 6.4 and 10.8% ($P>0.95$). Overall, the use of Manych Merino rams of the 815 and 214 lines in commercial fine-wool sheep flocks ensures the production of offspring with superior quantitative and qualitative traits, including wool productivity, live weight, and economic efficiency.

Keywords: sheep, breed, Caucasian, Manych Merino, Manych type, 815 and 214 lines, crossbreeding, live weight, wool productivity, economic efficiency

UDK 636.234.1.082

Variability of milk characteristics in Holstein cows with varying degrees of inbred

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Abstract. To obtain stable results, inbreeding was used to increase homozygosity for lactic acid, which led to the production of a large number of inbred animals. It is of interest to study cow productivity indicators depending on the degree of inbredness. The highest productivity rates were established for the group of cows obtained as a result of moderate inbreeding. They outperformed cows from other groups by 278 and 559 kg, or by 2.7 and 5.46%. In the second case, a significant difference was found at $p<0.05$. There are no significant differences in the quality of milk. According to MJ in milk, there is a great superiority of the evaluated animals in this indicator, which ranges from 3.3 to 3.32% with a minimum requirement of 3%. It was found that with the outbred selection of pairs for mating, the difference in milk yield in cows with minimal and maximum indicators is the smallest, compared with groups of cows with moderate, long-term inbreeding. Based on this, we can say that an increase in heterozygosity for this indicator in cows allows us to get a dairy herd from cows of a more similar type. The calculation of the coefficients of variation for milk characteristics within the groups showed that milk yield values were set from 10% to 20% – this is the average indicator that warns of impending problems in the groups; for milk quality indicators, the values are in the range of up to 10% and indicate a slight deviation, which is equivalent to the norm.

Keywords: Holstein cattle, cows, selection method, inbreeding, outbreeding, productivity, diversity of traits, variability

AGROENGINEERING AND FOOD TECHNOLOGIES

Technologies, Machines and Equipment for the Agro-industrial Complex

UDK 621.436.2

Study of diesel engine performance when working on biofuel

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Abstract. The current stage of development of the global oil products market is characterized by objective processes of development of global economic and social processes, which is associated with innovative changes in the petrochemical, transport and other sectors. Analysis of the results of studies of physicochemical biofuels based on vegetable oils indicates that in terms of basic indicators it differs significantly from diesel fuel. The reason for this is the presence of glycerol and other impurities, as a result of which its viscosity, density, content of actual resins compared to diesel is much higher. Therefore, it is necessary to conduct an assessment study of the reliability of functional systems of agricultural machinery using mineral and biofuel. As a result of the studies, it was found that, based on the relationships obtained, it is possible to assess the degree of influence of various types of fuel on the reliability of the high-pressure fuel pumps of the diesel engine fuel system, taking into account the generalized indicators of the reliability of the tractor as a whole, that is, the availability and technical use factors. Analysis of the proposed probabilistic reliability model of a complex technical system made it possible to identify a "problematic" element of high-pressure fuel pumps operating on biofuels. Thus, the "problem" element in terms of reliability is seals, the average resource of which is 960 engine hours, which is 4 times less than fuel systems operating on mineral diesel fuel. Replacement of sealing materials inert to the aggressive biofuel medium will improve the reliability of high-pressure fuel pumps and the tractor as a whole.

Keywords: diesel engine, fuel, fuel apparatus, fuel system, fuel pump, biofuel

UDK 634:631.6

Application of a tool for deep reclamation tillage to increase the productivity of an orchard

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Abstract. Fruit growing studies have shown that regulation of the growth of apple trees can be done by pruning roots. A developed unit for deep tillage was used to trim the root system of trees in the garden of the research site "Agrobiotechnology" of the Volgograd SAU. The main advantage of the design is the ability to direct and evenly distribute meliorants in the vertical plane, to a depth of 0.1 to 0.35 m. This technique is especially relevant in arid farming zones, such as the Volgograd region. The proposed tool for deep tillage with differentiated application of mineral fertilizers in depth can be used both in field cultivation technologies and when performing deep tillage in gardens. At the same time, it can be used to prune the root system in order to increase the productivity and quality of the resulting products with the simultaneous introduction of nutrition directly into the area of the root system of garden trees. Pruning the roots has a positive effect on the physiological state of the apple tree and contributes to an

increase in flowering intensity next year. To prune the root system of fruit trees, it is recommended to use chisel tools with the simultaneous application of mineral fertilizers with a given distribution in the vertical plane (patent for the invention 2747144). This complex approach helps to reduce technological operations by combining the operation of trimming the root system and applying fertilizers in one pass. The technological technique of pruning the root system contributes to an increase in the length and mass of the roots, which allows trees to use soil moisture from low layers of the soil horizon.

Keywords: efficiency, chisel tillage, strip tillage, increased productivity of orchards, meliorants, architectonics of the root system

UDK 631.516

Combined barrel milling cutter for terraced garden

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Abstract. In the conditions of the southern regions of Russia, the development and commissioning of sloping lands with a favorable microclimate is promising. Using lands for fruit plantations significantly limits the methods of mechanical processing of trunk strips, since it becomes necessary to approach the trunk strip from one side. The techniques and technologies used in gardens in conditions of sloping lands should solve a number of key tasks aimed at optimizing agronomic processes. The most important of these are increased soil aeration, the destruction of rain channels for efficient water flow, as well as reducing energy and material costs per unit of production. To achieve these goals, it is necessary to develop and implement machines that provide complete mechanical tillage of the trunk strip in one pass. This will not only reduce the time and labor required for processing, but also improve the condition of the soil, which in turn will have a positive effect on yields. Therefore, the development and implementation of new mechanisms and machines for complete mechanical processing with simultaneous application of mineral fertilizers to the trunk strip in one pass is relevant. A two-rotor combined garden milling cutter is proposed, the design feature of which allows bypassing the tree trunk completely in one pass along the row.

Keywords: two-rotor milling cutter, barrel strip, mechanical processing, tree stalk, terrace

UDK 621.313.33

Theoretical justification and practical results of the reconstruction of the squirrel-cage rotor winding of an asynchronous motor

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Abstract. The traditional method of reducing the starting current is based on increasing the active resistance of the rotor circuit, which is achieved by changing the shape of the rods – either by making high and narrow grooves (deep rotor groove), or by using a double cage. Narrow rods have a high resistivity, and the connection between the current distribution and the geometry of the rod is based on the effect of current displacement: the higher the frequency, the more the current shifts to the periphery of the conductor. The study examines the electromagnetic processes occurring in an induction motor equipped with a squirrel-cage rotor in the presence of "dips" on the starting branch of its mechanical characteristic. Analysis of the current distribution

within the rotor winding demonstrates that these irregularities are primarily caused by the excitation of higher-order harmonic currents, mainly the fifth and seventh, which form unintended closed loops inside the cage structure. A modified design of the squirrel-cage winding is proposed, eliminating the formation of such parasitic circuits. Experimental results confirm that the reconstructed rotor provides improved starting and mechanical characteristics, reduces the influence of higher harmonic components, and ensures more stable motor operation under transient conditions.

Keywords: asynchronous electric motor, short-circuited rotor winding, rotor reconstruction, starting torque, magnetic circuit, mechanical power

UDK 632.51:631.348

Scientific justification of weed control in the agricultural production applying prospective constructions of technical means

**Fakhretdin M. Magomedov, Izzet M. Melikov, Elnara S. Gasanova,
Nailya F. Magomedova**

Abstract. The article deals with the scientifically based solution to the problem of effective weed control in the agricultural production, focusing on such crops as rice, also between rows of orchards and vineyards. The analysis considers innovative constructions of technical means that contribute to increase the efficiency of agronomic processes. It is proposed to use a wide-capture sprayer for rice sowings, equipped with aerial vehicles and a flexible outlet, which provides a more targeted and even application of herbicides, which is especially effective in conditions of intensive cultivation technology of this crop. The use of this technical means allows you to increase the yield and improve quality of agricultural products. The flame cultivator with *uprated* operational and technological capabilities is proposed to use for controlling weeds between rows of orchards and vineyards. This technical means ensure effective destruction of weeds, while minimizing the risk of damage to crops. The technical solutions presented in the article have good prospects for the use in the agricultural sector. They allow optimizing the weed control processes, increasing efficiency and reducing the costs for their implementation. The article is of interest to specialists in the field of agriculture, agricultural technology and mechanization of agricultural processes. It can be useful for the development and introduction of new technologies in agricultural production practices.

Keywords: weed control, constructions, sprayer, rice sowings, flame cultivator, orchards, vineyards

UDK 631.333.92

Justification of the design and technological scheme and parameters of the manure-compost mixture stirrer

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Abstract. Based on the analysis of the designs of machines for the technical support of mechanized composting, preliminary theoretical and experimental studies of well-known

scientists, own search studies, it was established that the mechanized production of composts requires additional study. Some devices and equipment require design improvements. Systematization of provisions on mechanized methods of compost production, rational parameters of working bodies will reduce operating costs, and technologies are available for practical use. Taking into account the above, the design and technological scheme of the agitator is justified, which makes it possible to implement the process of composting manure and composting mixtures in the form of beads. Its working element is a milling drum with radially located blades. The obtained theoretical and experimental studies of the agitator of dung-compost mixtures of the drum type make it possible to develop a methodology for its engineering calculations to determine the main parameters and operating modes of both the milling drum and the agitator as a whole. The performance indicators of the agitator for processing organic waste of animal husbandry, in particular manure, must meet the requirements set by agricultural plants for organic fertilizers based on the need to obtain the maximum possible yield in specific soil and climatic conditions.

Keywords: manure, processing, compost mixture, agitator, working body, drum

UDK 633.511:631.3

Device for electromechanical cotton stamping

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Abstract. This article explores the improvement of a device for electromechanical cotton boning by pre-crushing and moistening the cotton tops in the electrospark treatment zone, which increases their electrical conductivity by reducing their electrical strength. Based on an analysis of the advantages and disadvantages of existing methods and devices for boning cotton tops, the design of an electrospark apparatus for boning cotton is improved. A reduction in energy consumption is substantiated by equipping each section of the apparatus with a device for crushing the cotton tops using grooved, spring-loaded rollers mounted on forks of a telescopic rod, allowing for adjustment of the distance between the rollers. It is established that pre-crushing the cotton tops before electrospark treatment increases their electrical conductivity by reducing their electrical strength. To ensure the efficiency of electric spark treatment of cotton plant tops and the versatility of the process, it is proposed to include a hydraulic system for injecting a moisturizing liquid (which can be used with liquid preparations for the simultaneous moistening and chemical treatment of cotton). To increase efficiency and reduce energy costs due to the stability of the electric spark treatment of cotton plant tops, as well as to ensure the versatility of operation, the device is equipped with a hydraulic system for injecting a moisturizing liquid, which can be used with liquid preparations for the simultaneous moistening and chemical treatment of cotton plant. The hydraulic system contains a liquid tank, a pump, and special nozzles located in front of the discharge electrodes in the zone of their electric spark embossing for preliminary moistening of the cotton plant tops. The device for electromechanical cotton stamping is equipped with a former of a strict line of cotton plant tops for feeding plants into the gap between rollers in the form of sickle-shaped guides attached to the outer cups.

Keywords: electromechanical embossing, electric spark machining, electrical conductivity, discharge electrodes, cotton, efficiency, environmental friendliness, dustiness

Study of a rotary-cavitation liquid heater driven by an asynchronous electric motor

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Dzhamaldin T. Gabachiev**

Abstract. This article presents the results of a study of a rotary cavitation liquid heater (RCLH), in which mechanical energy in a rotating flow is converted through cavitation processes occurring in the rotor's working cavity. The unit's drive is based on a 7,5 kW asynchronous electric motor with a rotational speed of 3000 rpm. Experimental studies of the dependence of thermal power and energy conversion efficiency on rotor speed and fluid flow rate were conducted using thermocouples, a flow meter, and a wattmeter. It was demonstrated that, under optimal cavitation conditions, water heating from 20 to 80 °C is achieved with a conversion efficiency of $\eta=1,5-2,3$. The obtained results are compared with the characteristics of a gas boiler of similar thermal capacity and confirm the advantages of the RCLH in terms of energy efficiency and environmental friendliness. It was found that, with equal thermal power, the specific energy consumption of the cavitation heater is 40–50% lower, and direct CO₂ emissions are absent. It was noted that the RCLH does not require a fuel infrastructure, has a low startup time, and is compatible with renewable energy sources. The study's results confirm the potential of RCLH for use in decentralized heating systems, process heating, and low-grade heat recovery. The obtained data allow this type of installation to be recommended for further large-scale research, rotor geometry optimization, and a comprehensive economic assessment of its practical applicability for various enterprises in various climatic zones.

Keywords: rotary cavitation heater, hydrodynamic cavitation, heat pump, asynchronous electric motor, alternative energy, energy efficiency, boiler

Food Systems

Determination of temperature regime for baking semi-finished products from choux, shortbread and puff pastry

Rita M. Zhilova, Larisa Zh. Shiritova

Abstract. The purpose of the study was to determine the temperature regime for baking semi-finished products from cooked, sand and puff pastry. To determine the temperature regimes of baking a cooked semi-finished product, the study was carried out at four regime parameters: constant, increasing, decreasing and variable temperatures of the baking chamber. It was found that of all the studied temperature modes, the most optimal is variable – increasing from 180 to 210 °C by the middle of the process and then decreasing again to 180 °C. In this mode, the best quality of the cooked semi-finished product was achieved. The baking time was 35–40 minutes, the humidity of the cooled cooked semi-finished product varied between $23\pm 2\%$. It was found that the optimal mode of baking a semi-finished sand product was to increase the temperature of the medium from 200 to 250 °C in the central part of the process and decrease it to 200 °C at the end of baking. The optimal baking mode for a layered semi-finished product was revealed – an

increase in the temperature of the baking chamber medium from 200 to 250 °C. The best technological parameters for the preparation of a layered semi-finished product were the medium temperature of 240–250 °C and the baking duration of 11–14 minutes.

Keywords: flour confectionery products, baking, mass transfer, temperature regime, humidity, quality

UDK 664.64:641.56

Development of a high-protein bread recipe for sports nutrition

Marina Kh. Kodzokova, Zhanna M. Kunasheva, Adelina A. Doguzova

Abstract. Bread is one of the key products in the daily diet. The fortification of this everyday mass-consumed food product with essential nutrients aligns with the strategy of healthy eating. The active development of sports is seen as a foundation for building a healthy society; therefore, the state is implementing measures to engage young people in physical culture. At the same time, the quality of athletes' nutrition becomes increasingly significant: their diet should include products with predetermined characteristics and an improved composition. The aim of the scientific research was to develop a formulation for "Champion" bread made from first-grade wheat flour with enhanced nutritional value. The main task to achieve this goal was the selection of a new recipe ingredient for the production of bread from first-grade wheat flour intended for the sports nutrition product group. The objects of the study were: first-grade wheat flour, a protein supplement in the form of a powdered semi-finished product from "Kidney" variety green beans, a control sample of bread made from first-grade wheat flour according to a unified recipe, and a series of experimental bread samples with varying dosages of the protein supplement in the form of a powdered semi-finished product from "Kidney" variety green beans. The technological effectiveness of using the protein supplement in the form of a powdered semi-finished product from "Kidney" variety green beans in the formulation of first-grade wheat bread was experimentally established. During the work, it was found that a concentration of the powdered semi-finished product from "Kidney" variety green beans at 15% of the wheat flour weight is the most effective, allowing for a multiplicative effect. A positive trend was identified in the organoleptic and physico-chemical quality indicators of the developed product, which is enriched with essential amino acids, insoluble polysaccharides, and a complex of macro- and microelements.

Keywords: protein supplement in the form of a semi-finished powder, green beans, sports nutrition, bakery products, biochemical composition, optimal dosage, quality indicators, nutritional value

UDK 664.66

The influence of plant extracts on the quality and safety of bread

Aida Ya. Tamakhina, Larisa Z. Borieva

Abstract. Leading trend in modern bakery is the development and application of effective technologies for producing bread with enhanced microbiological stability and shelf life. The aim

of this study was to investigate the effect of aqueous extracts of tansy flowers (*Tanacetum vulgare* L.) and lingonberry leaves (*Vaccinium vitis-idaea* L.) on the microbiological safety and shelf life of bread. The subjects of the study were Darnitsky bread produced according to a traditional recipe (control) and test samples in which the dough water was completely replaced with aqueous extracts of tansy flowers and lingonberry leaves. The shelf life of bread with plant extracts increased to 7–8 days. The test samples were resistant to microbiological spoilage by mold for 8 days, representing a 6-day difference compared to the control sample. In the control sample, the counts of MAFAnM and mold colonies on the fourth day exceeded the maximum permissible limits by 4.5 and 2.4 times, respectively. In bread with tansy and lingonberry extracts, the counts of MAFAnM and mold colonies on the fourth day were lower than in the control by 6.9–11.2 and 3–6 times, respectively. The lowest microbial contamination was observed for bread with lingonberry leaf extract. The production method for bakery products using *Flores Tanaceti vulgaris* and *Folia Vitis idaeae* plant extracts enables the production of environmentally friendly and safe products based on local plant resources. This will significantly reduce the cost of bakery products and increase profitability by reducing losses and replacing chemical preservatives with natural biopreservatives.

Keywords: bread, plant extract, tansy, lingonberry, microbiological stability, shelf life, antimicrobial properties, biopreservative

UDK 637.54:637.523.2

The use of a brown algae in the formulation of cooked ostrich meat sausages

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Abstract. Currently, domestic farmers and the food industry have a significant opportunity to saturate the internal market with necessary meat products. Ostrich meat and its processed products can serve this purpose; however, it remains a relatively unknown product for the Russian consumer. The research aimed to substantiate the feasibility of using brown algae in the form of a dry mixture of crushed *Fucus* and *Laminaria* (50:50) in cooked sausage products made from ostrich meat (frankfurters). The study objects were produced frankfurter samples with brown algae, added at 1%, 5%, and 10% as a replacement for meat ingredients. The studies were conducted according to current standards using modern approaches to physicochemical product quality analysis. The conducted research proves the possibility and advantages of using a mixture of crushed *Fucus* and *Laminaria* as an iodine enrichment ingredient in formulations of cooked ostrich meat sausages (frankfurters). The most preferable amount in the formulation was found to be 5% brown algae, which improved the organoleptic and physicochemical quality indicators of the final product. Consumption of the developed product would satisfy more than 20% of the daily requirement for iodine.

Keywords: ostrich meat, brown algae, poultry meat, cooked sausages, formulation, product enrichment

ECONOMY

Regional and Sectoral Economy

UDK 338.43

Agricultural development in the region: status, problems, and prospects

Fatima E. Karaeva

Abstract. The article presents the results of a comprehensive study of the region's agricultural development. Special attention is given to the assessment of agricultural production throughout the country. Three distinctive features of agricultural production are highlighted and described: the importance of land as a primary resource, the impact of natural factors, and the seasonal nature of production. The article emphasizes the importance of sustainability as a key factor in modern agricultural development. It also addresses the challenges faced by modern agricultural production. These include: a low level of technical modernization in the industry, which leads to a decrease in labor productivity; underdeveloped logistics infrastructure; difficulties in accessing large markets; an ineffective credit policy towards small and medium-sized producers, and more. The article summarizes the practical experience of implementing targeted support programs for agricultural producers in the form of financial assistance for purchasing machinery, fuel, and fertilizers. However, these volumes are insufficient to address the urgent challenges of sustainable development. The creation of government assistance mechanisms to mitigate the effects of seasonal changes and climate impacts has been identified as a priority. Agricultural products have been evaluated based on the categories of farms in the fields of crop production and livestock farming. The main trends and prospects for the development of the industry have been identified.

Keywords: agriculture, modernization, sustainability, factors, priority, and development prospects

UDK 336:338.43

Analysis of financial stability of agrarian organization

Fatima I. Pilova

Abstract. The article analyzes the financial stability and solvency of the enterprise of the agro-industrial complex of the Kabardino-Balkarian Republic, engaged in gardening, using modern European technologies for growing, storing and packaging apples. The relevance of the research topic is related to the fact that in unfavorable market conditions, a timely study of financial stability indicators will allow the company's management to take measures that will improve the financial situation of the organization and will be able to prevent its bankruptcy. The well-being of the financial situation of the AIC enterprise can be considered as a significant factor in the continuity and efficiency of its activities. In order to achieve these indicators, it is necessary to ensure the constancy of the solvency of the organization, a high degree of liquidity of balance sheets, financial independence and a high degree of efficiency in the field of business. In the practical part of the article, a coefficient analysis of the financial stability and solvency of the

agrarian organization was carried out, which showed its absolute financial stability. Financial stability reflects the extent to which an enterprise is able to meet its debts and obligations and build up its economic potential. It is the results of the financial stability analysis that show the potential of current, investment and financial development, contain the necessary information for the management of the enterprise and investors.

Keywords: agro-industrial complex, enterprise, financial stability, solvency, financial analysis, balance sheet