Abstracts of articles

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EFFICIENCY OF FIELD CROPS BY GROWTH REGULATORS USE IN THE AVERAGE ZAVOLZHYE ZONE

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Keywords: productivity, yield, wheat, sunflower, processing, regulators, field, minimum.

The purpose of researches – increase in productivity of field cultures in steppe conditions of the Average of Zavolzhye. Results of researches for 2016-2017 according to efficiency of use of regulators of growth are given: Raykat Razvitiye, Aminokat and Megamiks of N10, at various systems of processing of the soil (the minimum processing of the soil, direct crops (No-Till) and application of fertilizers) in the conditions of Central Zavolzhye. The most valuable grades for a zone were used: a winter wheat – the Torch, spring-sown field – the Kinelsky Joy, sunflower a hybrid – Sanay. Assessment of weather conditions of the region, allows to make the conclusion that in general zone conditions in 2016-2017 conformed to requirements of cultures studied by us. Having provided rather high potential of efficiency, but moistening level acts as the defining and limiting factor. It has been established that accumulation of solid in plants goes slowly and to a phase of a trubkovaniye of wheat have saved up on the No-Till 81.7-171.2 system of g/m^2, at the minimum processing of 97.7-183.1 g/m^2. Options on which regulators of growth were used showed a tendency to increase in a grain yield. With application of fertilizers the efficiency increases, and most intensively it increases when processing crops by growth regulators Aminokat + Raykat Razvitiye. So in a crop rotation without processing of the soil the increase in a harvest in comparison with control of a winter wheat without fertilizers has made 0.54 t/hectare at application of fertilizers of 0.66 t/hectare, in a harvest of spring-sown field 0.16 and 0.25 of t/hectare respectively. In a crop rotation with the minimum processing crops of regularity same. Differences in a harvest of cultures depending on the system of processing of the soil are insignificant, the tendency of some increase in productivity of a winter wheat in a crop rotation with the minimum processing of the soil is only shown. Here when processing crops the medicines Aminokat + Raykat Razvitiye on average for 2 years reach productivity of 3.47 t/hectare without fertilizers and 3.89 t/hectare at application of fertilizers.

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PRODUCTIVITY OF SILFIUM PERFOLIATUM DEPENDING ON METHODS AND TECHNOLOGIES OFCULTIVATION IN SOIL-CLIMATE CONDITIONS OF THE REPUBLIC OF BELARUS

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Keywords: silvia, fertilizers, composition, yield, productivity, chemical, nutritional.

The aim of the research is theoretical and practical explanation, development of new suggestions and agrotechnical methods for improving of the technology of cultivation of Silfium perfoliatum for the green mass, fodder and seeds with rational use of land, material and energy resources in the conditions of farming in the forest zone. Silfium perfoliatum can be cultivated for green fodder and silage both in traditional and in intensive technology in the conditions of Belarus. Silfium, starting from the second year of plant life, reacts well to spring fertilization with semi-liquid cattle manure and mineral fertilizers on sod-podzolic medium-loamy soils of Vitebsk region. Doses of manure of 20 and 40 tons per hectare with a single application ensure a high increase in green weight for a period of three years with an average yield of 786.2 and 1000.9 centner/ha. Nitrogen in doses of 90-180 kg/ha with simultaneous application of phosphorus (P 90) and potassium (K 120) fertilizers increases crop yields 1.4-1.8 times. The highest yield of Silfium is provided when nitrogen is applied at 180 kg/ha, and the greatest accumulation of green mass per kilogram of fertilizer is at doses of 120 and 150 kg/ha. Silfium can be used depending on economic necessity from May-June to September as single-cut and two-cuts forage crops, and also cultivated on green forage as a multi-cut plant, the first cut is made in the stalking phase. Silo harvesting (the first cut) is carried out during the flowering phase of plants, the second one is made for the green forage as the time of ripeness comes (during the period of stalking-flowering of plants). Silfium has a high quality of green mass for exchange energy and fodder units, the average concentration of raw protein.

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THE SPECIES COMPOSITION OF INSECTS IN MIXED HERBAGE IN THE FOREST-STEPPE OF SAMARA REGION

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Keyword: herbage, entomofauna, phytophagous, entomophages, the composition, yield, mixed, feed, species.

The purpose of research is to increase the yield of green mass without the use of chemical plant protection products. Successful and stable development of field forage production is based on the perfect structure of

crops of agricultural crops with a scientifically based share of the area occupied by forage plants with protein and energy value, environmentally safe and conducive to the preservation and expansion of soil fertility reproduction. The production of a stable feed yield is limited by a number of factors, one of which is the damage caused by pests, which significantly reduce the productivity and quality of the feed. Field research was conducted in 2016-2017. In the fodder crop rotation of the research laboratory «Forages» of the Department of Crop Production and Agriculture of the FSBEI HE Samara State Agricultural Academy. The entomofauna of mixed sowings of fodder grasses was studied by mowing with an entomological net. In mixed crops of fodder grasses, a significant variety of blasts belonging to the orders of insects was recorded: Orthoptera, Homoptera, Thysanoptera, Hemiptera, Hymenoptera, Coleoptera, Diptera. In all the studied agrocenoses of mixed forage grasses there were representatives of the orders of the Bedbugs, the Horsecloth and the Diptera. They also provided a greater variety of species. In agrocenoses with the participation of a rump and a wheatgrass there was a little similar species composition of insects, despite the fact that both species are grassy. Greater similarity of mixed crops of fodder grasses, and accordingly a higher Jacquard coefficient was noted in three-component plant formations with the participation of the leguminous constituent. Inclusion of leguminous components in grass crops promoted an increase in both blasts and entomophages, with more pronounced this was observed with the addition of alfalfa or sainfoin. In the agrocenosis, the greybeard + grass gray + lapwing, horny inclusion of the leguminous component promoted an increase in the number of entomophages, and consequently a decrease in the damageability of crops by blasts.

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DYNAMICS OF ^{137}Cs CONTENT IN FARM LAND SOILS CONTAMINATED BY THE CHERNOBYL ACCIDENT

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Keywords: soils, monitoring, level, fertilizers,liming, production, pollution, potash, radiation.

The aim of the research is to assess the current content of radionuclides in the soil of farm lands contaminated with Chernobyl fallout. The results of radiation monitoring of soils of agricultural lands in the areas contaminated by the Chernobyl accident are presented. Serious problems of radioactive contamination of soils remain in the Bryansk region. In Gordeevka (7.4 CI/km^2), Lukovska (9.6 CI/km^2), Krasnogorsk (6.9 CI/km^2) and Novozybkov (10.6 CI/km^2) areas, the average content of ^{137}Cs in the soil exceeds the level of 5 CI/km^2. This indicates that in the radioactively contaminated areas of the Bryansk region there is a risk of obtaining regulatory clean agricultural products during 2.5-4 half-lives of ^{137}Cs (80-120 years). In the Plavsky district of Tula region, the decrease in the content of ^{137}Cs to 1 CI/km^2 will occur within 70 years. The main type of soil in the Tula region is black soil, so the content of ^{137}Cs in agricultural products, which meets the standards, can be achieved in a shorter time. High crop culture is the basis for reducing the concentrations of ^{137}Cs and ^{90}Sr in crop production. The analysis of spatial and temporal changes shows that in the first 30 years after the accident, the levels of soil contamination in agricultural land have significantly decreased and their area has decreased, where the density of soil pollution exceeds the level of 1 CI/km^2. At the same time, the number of subjects of the Russian Federation with farml lands with pollution level of more than 1 CI/km^2 decreased from 18 (1993) to 9 (2014). When considering the General radiation situation for farm land in Russia, it is advisable to separate soils with a pollution density of ^{137}Cs in the range of 0.3-1.0 Ki/km^2 into a separate group.

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VETERINARY MEDICINE AND ZOOTECHNICS

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MILK PRODUCTION EFFICIENCY BY USE OF LINEN AND RAPE OIL CAKES

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Keywords: cows, diet, oil cakes, production, productivity, efficiency, milk.

The purpose of research is improving the efficiency of milk production with the inclusion of linseed and rapeseed oil cake in the rations of high producing dairy cows. For carrying out scientific and economic experience, two groups of highly productive dairy cows of Holstein breed were formed. During the main period of scientific and economic experience, lasting 75 days, in the media from each cow of group II gave rise to natural milk by 45.0 kg or 2.07% more than from the analogues of group I. According to the content of butter fat in milk obtained from cows of group II (3.78%), compared with analogues of group I (3.79%), no significant differences were found. The protein content in milk obtained from cows of group II was higher by 0.02% than in milk of analogues of group I (3.28%). On average, from each cow of group II, milk of basic fat content was fed by more than 41.2 kg or 1.80%. The indicator of the amount of butter fat production obtained from cows of group II was higher than that of the group I analogues by 1.49 kg or 1.81%.During the main period of the study, milk protein was obtained from cows of group II more than from analogues from group I by 1.92 kg or 2.69%. Morphological and biochemical blood parameters in animals of both groups were within the physiological norm. Profits from the sale of milk basis of fat content in group II per 1 cow, in comparison with the I group increased by RUB or 1135.0 of 6.92%. The level of re-schedule of milk production in cows of group II, compared with group I was higher by 2.9%. According to the results, it was concluded that to ensure the full value of diets it is advisable to use flax and rapeseed cake in feeding highly productive dairy cows from the technical and economic points of view.

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THE INFLUENCE OF THE HEIFERS GROWING TECHNOLOGY FOR THE MORPHOLOGY OF THEIR OVARIES

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Keywords: ovary, ovocyte, follicle, arteries, veins.

The purpose of the research is to increase the reproductive function of heifers of Holstein breed. Material studies served as the ovaries Holstein heifers at the age of 16 months grown by different techniques content (stable-pasture and year-round stall-box). To determine macro-, micro-morphological parameters of the studied groups of heifers has been applied to the complex anatomical, histological research methods. Ovaries of heifers were are cut in half (through the gates of the body) and cut into marked pieces of size 1x1 cm Prepared samples were processed by Volkova- Yeletskiy method, then embedded in paraffin. Objects microcameras on three clearly defined levels, thus ensuring objectivity of the results of the qualitative analysis and micrometry. Histological sections were stained with hematoxylin eosin, fuchsin van gieson. The ovarian surface is bumpy with exposed cavitary follicles in the number of 3-6 pieces in one ovary. The oval shape of the ovaries. The mass of the right ovary more than the left-right asymmetry. The technology of growing heifers affects the morphological parameters of the ovaries in heifers. In heifers grown under intensive technology weight and morphometric parameters of the ovary is less than that of their peers. In heifers of the first group (it) quality population growth rate of the tertiary follicles are in 60-80% of cases of large cyst-like follicles with horse thin wall, and heifers of the second group (TT) of 20%, the remaining follicles maintain a healthy structure. Atresial body in the ovaries of heifers mostly tecale-atresial nature, but animals grown in conditions of intensive technologies are cystic, fibrous shapes up to 40%. In the main veins of the ovary of heifers grown under intensive technologies identified vascular disorders (dilatatia, plethora).

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USE OF RYZHIK OIL CAKE FOR PRODUCTION OF MUTTON

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Keywords: sheep, productivity, diet, oil cakes, meat.

The aim of the research is to increase the efficiency of lamb production by including in the diets of young sheep of ryzhik oil cake of low-glucosinolate varieties instead of sunflower. To do this, two groups of rams were formed, 25 heads each. On the background of scientific and economic experience were conducted physiological studies of experimental sheep. Meat production was determined according to the control slaughter data for 3 sheep from each group at the age of 8 months. In the studies it was found that in the carrot cake, compared with sunflower, contains more dry matter, crude fat, crude cell-Ki and nitrogen-free extractive substances, and the content of crude protein in the compared cake has virtually no significant differences. The use of ginger oil cake instead of sunflower meal in the diet had a positive impact on the dynamics of live weight and meat productivity of the rams. So, at the end of the experiment, at the age of 8 months in the young of the experimental group receiving the carrot cake, the average live weight was correspondingly greater by 0.64 kg or 1.43% than in the sheep of the control group, in the diet of which sunflower cake was used. During the period of experience, the safety of sheep in the compared groups was 100%. In young animals of the experimental group, higher rates of digestibility and use of nutrients in diets were revealed than in the control group. GE-matological parameters in animals of both groups were within the physiological norm. According to the results of the control slaughter of experimental rams, in comparison with the control group, the pre-slaughter live weight, the mass of steam carcass, the mass of

internal fat, the slaughter weight and the slaughter yield were higher. The economic efficiency of feeders in the experimental group has increased compared to the control.

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TECHNOLOGY, MEANS OF MECHANIZATION AND POWER EQUIPMENT IN AGRICULTURE

UDC 62-522

THE CALCULATION OF HYDRAULIC PRESS EFFORT TO BUILD CONNECTIONS OF PARTS BY TENSION

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Keywords: preload, assembly, connections, press, pressure, pressing, pressure, hydraulic.

The purpose of the study is to improve the equipment for the Assembly of tension joints of parts by equipping it with automatic process control systems. In the process of modern engineering or repair production uses a variety of ways to connect parts of machines and units. The most popular among them are threaded and splined (among dismountable joints), riveting and welding (including self-connections). Tension joints provide an opportunity to increase productivity, improve the quality of pairing, automate the Assembly process. At the same time, the tension joints cannot be subjected to even a single overload, which can cause the displacement of the connected parts and reduce the strength of the connection. On the basis of a brief overview of the most common methods of connecting parts shows the importance of the application in the Assembly of cylindrical parts by connecting with tension by pressing using hydraulic presses. The research methodology included a theoretical justification of the parameters of the Assembly of connection parts and power calculation. Expressions for determination of force of pressing of details and its components are presented. The equations and recommendations obtained and given in this work allow to determine the necessary working pressure of the fluid by the known parameters of the collected connection and the hydraulic press, that is, to adjust the hydraulic drive of the press; by the known parameters of the collected connection and the nominal value of the working pressure of the fluid in the hydraulic drive of the press, the choice of the necessary technological equipment (press model) is justified. It is recommended to control the pressing process by changing the press power. When the press is hydraulically driven, the volume flow of the fluid to the press and the pressure difference of the fluid at the inlet and outlet of the drive motor must be changed.

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INFORMATION TECHNOLOGY APPLICATION WHEN THE FIT CONNECTIONS PROBABILISTIC DEFINITION

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Keywords: anding, sorting, deviation, detail, information, fit, probabilistic.

The aim of the study is to increase the number of suitable mating pairs of connections by sorting parts under the specified parameters of planting, using information technology. In practice, not always the size of specific parts meet the tolerance, and the result – in the mating parts is not always followed the required fit, which affects the work of the machines. For the elimination of marriage applies selective Assembly of parts, sorting of the party included in the connection details for the size group within a specified tolerance. The use of parts sorting, broken down into different mating groups, significantly increases the likely number of fit connections, which improves the economic performance of production. The expediency of using a batch sorting of the mating parts to increase the number of fit connections for products with low service life or low cost (with pair replacement of critical mating parts) is justified. The article presents the methodological basis for the determination of suitable connections on the basis of data of private statistical samples of the shaft and sleeve sizes. The developed mathematical model in MathCad environment allows to determine the probability value of suitable compounds. Numerical analysis of sample parts allows you to set the distribution function of these parts for the whole party. Based on this, an example of the breakdown of the sorting of the party of parts into separate groups with the establishment of boundaries. Modeling the probability of the number of mating parts in groups allows you to set the total value of fit connections, and visualization of mathematical calculation facilitate understanding of the activities. The simulation results are presented in the form of graphs.

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