

AGRICULTURE. PLANT CULTIVATION

**Melnyk A. V., Prysyzhnyuk O. I., Bondarchuk I. L.** Cluster analysis of winter rape varieties and hybrids yield capacity in different agro-climatic regions of Ukraine // *News of Poltava State Agrarian Academy*. – 2017. – № 1–2. – P. 7–12.

The application of cluster analysis for the assortment of winter rape varieties and hybrids of current selection has been proved. The research was conducted in 2013–2015 in four different agro-climatic regions of Ukraine. For the farm cultivation of different varieties and hybrids, we should avoid selecting for the central region Cleopatra PR44V30, DK Sequoia, Demerka and PR45D05. For the farms of southern region, it is undesirable to combine two groups of varieties, namely Cleopatra and Chermosh, NK Oktan and PR45D05 or Snow Queen, Jumper, Sitro, Demerka, Abakus, Belana, PR44V30, DK Sequoia and DK Sekyur. For the western region: Cleopatra, DK Sekyur, NK Oktan, PR45D05, DK Sequoia and Sitro are similar in performance in terms of years of the research, and for the eastern region, there are the following varieties of Cleopatra, PR44V30, DK Sekyur, Snow Queen and Sitro. That is the varieties and hybrids from different groups of clusters can be sown under the conditions of one farm, but within the same group of clusters – it is undesirable.

**Kulyk M. I.** Switchgrass phytomass yield depending on the application fertilizing // *News of Poltava State Agrarian Academy*. – 2017. – № 1–2. – P. 13–17.

We have studied the change of the productivity elements (height and stand density) of switchgrass depending on the application fertilizing during recovery of the plants vegetation. We have studied the influence of foliar fertilizing with «Cristalon» on switchgrass fitomas yield during research years. Correlation between quantitative parameters of plants of the third to fifth years of vegetation and phytomass productivity stated in the article. Switchgrass phytomass yield a more determined by the content of dry matter in phytomass, number of stems per unit area, and to a lesser extent, with plant height when applying a spring fertilizing of phytocenosis.

**Piskovyj M. B., Magda M. A., Pylypchenko A. V., Sytnyk V. P.** Influence of growing technologies of hems on the nourishing state of soil // *News of Poltava State Agrarian Academy*. – 2017. – № 1–2. – P. 18–23.

In the article we expounded results of researches relatively to efficiency of growing of hems in the conditions of classic technology and organic

agriculture, determined how technology of growing of hems influences on the change of the biological state of soil, productivity of seed and stems, and also the study of ways of providing of culture of hems is founded by the elements of feed. We established researches, that growing of hems of sort of Gljana in the conditions of organic production does not assist the increase of the productivity of seed, by comparison of transitional from classic to biological technology (intensive). An accumulation and transformation of fresh organic substance of vegetable bits and pieces of hems depend on constituents technologies of organic agriculture, that allow to the microflora of soil not to carry the stress loading from influence of chemical fertilizers and facilities of plants' defence.

**Garbar L. A., Gorbatyuk E. M.** Features of sunflower seedings productivity formation // *News of Poltava State Agrarian Academy*. – 2017. – № 1–2. – P. 24–26.

There are the results of the investigations which were aimed to study the influence of sowing terms and row spacing on the formation productivity of different sunflower hybrids. The investigations were conducted during 2014–2016 in conditions of Steppe of Ukraine on typical black low-humus soil. The results of our studies revealed that PR64F50, PR64A15 hybrids provides formation of high yields of sunflower at level of 2,7 t/ha within recommended terms for sowing (by heating the soil to a depth of 10 cm till 10–12 °C) and 35 cm row spacing on typical black low-humus soil of Steppe zone of Ukraine.

**Gutyanskyi R. A., Pankova O. V., Fesenko A. M., Bezpal'ko V. V.** Graminicides in chickpea crops // *News of Poltava State Agrarian Academy*. – 2017. – № 1–2. – P. 27–29.

The results of three years of research on the effects of herbicides including graminicides on weediness and yield of chickpea in Eastern Steppes of Ukraine are submitted. The research revealed graminicide «Miura» has most controlled amount (98 %) and wet weight (99 %) of cereals annual weeds in crops of chickpea. The use of anticereals herbicides on background of soil herbicide «Advocat» created the preconditions for growth of wet mass for dicotyledonous perennial weeds and some dicotyledonous annual ones in crops of chickpeas. Therefore, authors have not revealed the optimal combination of herbicides to provide the greatest yield of chickpea.

**Knapp N. V., Garbar L. A.** The yield of potatoes depending on the norms of the planting and mass

planting material // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 30–33.

The results of the research are directed at understanding the influence of norms of planting and mass planting material on productivity formation of potato tubers in the conditions of Transcarpathian region.

As a result of our researches it was established that the yield of potatoes varies depending on the mass of planting bubbles and norms of their planting from 39,9 to 58,5 t/ha. By planting tubers weighing 20 g the yield increases with the increase of planting norms, when using tubers weighing 40 and 80 g optimum norms planted are 60–80 thousand pieces/ha.

**Kolesnikov L. O., Vasiliev A. A.** Stem moth (*Ostrinia nubilalis* Hbn.) and its harmfulness on the commercial crops of modern corn hybrids // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 34–37.

Corn stem moth (*Ostrinia nubilalis* Hbn.) is one of the most economically important pests of corn crops now. It's the reason of the loss of 4–25 % of the crop according to different published sources. The seed producers are advised to use resistant against stem moth of corn hybrids. Resistance involves an assessment of the hybrids toughness to the stems breakage (direct losses) and to the reduction of productivity (hidden losses). Resistance of modern hybrids to the stems breakage is high enough, so in 2015–2016, on the territory of Central Ukraine studies have been conducted concerning the reduction of productivity of corn plants damaged by caterpillars of the stem moth. The research was conducted on commercial corn crops in Poltava region. The population of stem moth was on the 18.6–56 % of crops, and yield losses from stem moth damage was 4.9–19.2 kg/ha.

**Marenych M. M., Yurchenko S. O.** Influencing of pre-sowing seed treatment with the biologically active substances on growth and development of plants of wheat winter on the initial stages // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 38–42.

In laboratory and field experiments we studied influencing of different concentrations of biologically active substances, disinfectants and their compositions on laboratory and field seed germination, development of plants on the initial stages of development. We found that application of disinfectants can not diminish germination energy of seed, but biologically active substances stimulated this index. Humic growth stimulators contributed both increase of germination energy index and intensification of plants growth and development processes. Treatment of seed by the «Radostim» contributed the increase of the field seed germination on 2–4 %, and in variants with

«Lignogumat of sodium» – on 5–6 %. Application in the ordered doses for the seed treatment contributed in the increase of the field seed germination on 7–9 % for «Gumifild» and on 10–15 % for «1R of Seedtreatment».

In variants with «Radostim» absolutely dry mass of above-ground part of plants grew on 13.8–20.6 %, and mass of the root system – on 16–25 %. «Lignogumat» contributed in the increase of mass of above-ground part and root system accordingly on 17–19.5 % and 12.7–31 %. In variants with «Gumifild» growth of above-ground part was on average 24.8 %, and root system – 26.3 %, and in the case of application of greater twice dose of «1R Seedtreatment» – accordingly 37.5 and 40.6 %. On variants where mixture «Max Star 025 FS», 1.5 l/t + «Gumifild» 0.5 l/t was used on average fixed the increase of mass of above-ground part on 13.9 %, root system – on 15.4 %, and on variants with mixture «Max Star 025 FS», 1.5 l/t + «1R» 1.0 l/t it was 25.6 and 26.2 % accordingly. We came to the conclusion about expedience of combining of mixtures pre-sowing seed treatment with the purpose of diminishing of the negative influencing of disinfectants on the indexes of germination energy and field seed germination of plants.

**Novyts'ka N. V., Dzemesyuk A. V.** The formation of soybean yield influenced by inoculation and feeding // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 43–47.

The article deals with the influence of inoculation and foliar feeding with multi-chelate complex and colloidal solution of metal nanoparticles on the yield performance of ultra and early ripening varieties of soybean. It had been found, that pre-inoculation of seeds with «HayKot Super» inoculant provides additional 2–4 t/ha yield allowances. Carrying out foliar feeding with chelated micro-fertilizers increases soybean yield performance by 10–15 %. Use of nano-metals for spraying soy at the stage of budding as a solution (240 mg/l) while mineral fertilizers applying at a rate of  $N_{30}P_{60}K_{60}$ , increases the yield performance of a crop at 2.8 t/ha. The maximum yield performance indicators of soybean were obtained by combining the seeds inoculation, mineral fertilizers application at a rate of  $N_{30}P_{60}K_{60}$ , and use of complex fertilizers «Rostock bean» (2 l/ha) for the foliar feeding.

**Trygub O. V., Liashenko V. V.** Sources of economic and breeding-valuable traits for buckwheat breeding (*Fagopyrum esculentum* Moench.) // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 48–55.

The article presents the results of the study of buckwheat of common origin from the National Collection of Ukraine for 2014–2016 years in

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Ustymivka Experimental Station of Plant Production on the economic characteristics and morphological parameters. Used study methods and description of the material allowed to differentiate collection material and identify the most valuable as a source of economic and selection-valuable traits in different directions selective use – for yield and its components, quality of products.

**Togachuns'ka O. V., Tymoshchuk T. M.** Environmental technology expertise of growing winter wheat on agrochemical and hygienic indicators of

podzolized dark gray soil // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 56–62.

We explicated results of the ecological examination of technologies for growing winter wheat in the Northern Forest-Steppe on the indicators of fertility and the effect on the migration of heavy metals in the genetic horizons of dark-gray podzolized soil. According to the results of environmental assessment, it is established that for the introduction of technologies in production, it is necessary to improve certain technological operations.

### AGRICULTURE. ANIMAL BREEDING

**Sukhanova S. F., Azaubaeva G. S.** Productivity of geese of parent herd when using feed additive «Vetoxel E forte» // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 63–69.

Researches established that use of feed additive «Vetoxel E forte» for geese of parent herd in an optimum dosage of 0,6 ml/10 l of drinking water allowed to increase egg productivity by 2,15–10,40 %, safety for 0,47–1,68 %, an impregnation of eggs for 0,99–3,09 %, deductibility – on 5,81–11,02, a young growth conclusion – for 6,10–12,66 %. In case of its use more expressed tissue respiration, phagocytic activity, number and index is noted also 2,82 % increased by 4,34 %, 10,28 ( $P \leq 0,05$ ). The daily geese received from experimental geese differed in higher nonspecific immunity. Due to use of «Vetoxel E forte» a forage expense on 1000 pieces of eggs decreased by 2,26–12,84 %, and the level of profitability of production of incubatory goose eggs increased by 1,98–4,74 %.

**Vyshnevskiy L. V.** Automated information system in animal husbandry as the basis for the selection process with the breeds // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 70–73.

In the article we show the main approaches of the creation of automated information system in animal breeding in Ukraine, which would meet international standards and allowed to form the basis of animals kept in farms under control; evaluate them on several

grounds, to form a unified classification system of animals and to provide information for users at different levels. The structure of information system in animal breeding in Ukraine and the composition of its software are given. It is envisaged that an automated system will include an information resource of software and hardware and telecommunications network related functions. Developed automated information system of animal genetic selection promote national security and competitiveness of the livestock industry, biodiversity and improve the genetic potential of species by international standards.

**Gavrylenko O. S., Homits'ka O. A., Zagorul'ko O. V.** Expert research of meat and meat products // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 74–77.

The article contains research results of quality and safety of meat and sausages of Ukrainian producers on organoleptic, physical-chemical and microbiological parameters. We analysed basic parameters of safety products that are sold in the trading network. The results studies found the main causes of non-compliance under the current standards – a measure of total microbial contamination (MAFAM) and excess amounts of *E. coli* bacteria, indicating a violation of technological regimes and hygiene requirements of production, storage, transport and sale.

### AGRICULTURE. ECOLOGY

**Pysarenko P. V., Samoylik M. S.** Multifunctional modeling of regional solid waste management system taking into account synergistic effect // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 78–87.

The article formulates the balance scheme of the solid waste of life cycle in the region, which allowed the ecological and economic model development of waste management optimal control and to determine the scope of the management scenarios optimization at the theoretically optimal values of the parameters.

Based on the model management area solid waste management offered algorithm for determining the optimal management strategies and mechanisms for their implementation, which allows you to solve the problem of optimizing the development of waste circulation of the sphere for a given set of variables and system state parameters for a particular type of the life cycle sphere. The developed model has a set of feasible solutions and, therefore, offers a selection of the best of them, taking into account the objective functions. Reasonably practical application of this model

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on the example of Poltava region based on the optimization of three objective functions: environmental risks for public health from the scope of solid waste management; maximization profits with minimum investment in this sphere; power consumption of the waste management system.

**Samoylik M. S., Molchanova A. V.** Ecological aspects of influence of solid domestic wastes on the environment. *Filtrate // News of Poltava State Agrarian Academy.* – 2017. – № 1–2. – P. 88–91.

## VETERINARY MEDICINE

**Berdnyk V. P., Bublyk O. O., Marchenko T. N., Scherbak V. I., Tryrog O. G.** Physiological indices of chickens-broilers after internal application of mineral complex Mg<sup>++</sup> in terms of economy // *News of Poltava State Agrarian Academy.* – 2017. – № 1–2. – P. 92–95.

Given results of test on 537 chickens-broilers (635 of control) in terms of economy drug, produced on the basis of the solution of Poltava bishofit (SPB). Drug was given chickens-broilers of 5-day age group method internally with water in 3 cycles of 24-hour intervals over 7 times in each cycle and 7-day interval between cycles. The chicks, which were given the drug, compared with the control, had a greater average live weight of the body in 43-day age of 50 g, 73-day – 128 g and 111-day – 103 g it shows its positive effect on organisms of chicks up to 2,5 months (time of observations) after the last application in 38-th days of their lives. The drugs based on the SPB will have greater efficiency in the application of the repair chicks and adult hens, i.e. those who live more than 2,5 months. The 43-day age 16 broiler died of the calculation of the initial total number (2,9 %) in experimental group and 30 (4,72 %) in the control. On control broilers, compared with research, savings on the drug, which is not used, and smaller amounts of used feed, but we received much more losses due to lower increases in live body weight and more fatalities. The total value of the economic benefits of the drug only to 43-day age of chicks is 5,8 hryvnias on each invested 1 hryvnia.

**Yevstafieva V. O., Klymenko O. S., Melnychuk V. V., Natiahla I. V.** On issues of quality and safety of milk in the territory of Poltava region // *News of Poltava State Agrarian Academy.* – 2017. – № 1–2. – P. 96–99.

In this work we present results of the analysis report documentation concerning the quality and safety of milk in Poltava region. It was established that during the period 2012–2016 years state laboratories conducted 740190 investigations of milk samples. However, according to the results of examination revealed that the 8343 samples of the products do not meet the parameters that are ap-

An increasing number of industrial and food products for the population, respectively, solid waste increases. Nature has no mechanisms of recycling and disposal of waste produced by society, because of it waste accumulate in the biosphere. The problem of waste is currently one of the major environmental problems. The problem of waste is a key environmental issues. Landfill – an example of human activities, pollution of soil, surface water, soil and undergroundwater.

proved by among relevant state standards. The largest number of substandard milk was found by state laboratories in 2012 – 3327, representing 2,83 % of the studied samples. The main reasons for culling of milk were discrepancy for density and acidity, content and mass fraction of protein and fat, and also the excess of number of somatic cells.

**Yevstafieva V. O., Melnychuk V. V., Manoilu Yu. B.** Application of efficacy of enzyme-probiotic means at dehelminthization of pigs // *News of Poltava State Agrarian Academy.* – 2017. – № 1–2. – P. 100–103.

We present the results of research on study the application of efficiency of modern enzyme-probiotic agents means in combination with anthelmintic for spontaneous oesophagostomosis of pigs. It was established that using of probiotic and enzyme-probiotic means in the dehelminthization increases the intensefficacy of anthelmintics «Brovermectin 2 % water-soluble», reduces the time of convalescence of infested sows and improves average daily body weight gain of piglets and preservation of young animals.

**Yevstafieva V. O., Kruchynenko O. V., Klymenko O. S., Melnychuk V. V.** Legal aspects of adaptation of Ukrainian legislation with the demands of European Union's animal cruelty // *News of Poltava State Agrarian Academy.* – 2017. – № 1–2. – P. 104–107.

The results of the analysis of the current state of international normative legal acts and Ukrainian legislation regarding the protection of animals, grounds and types of legal liability for the commission of animal cruelty and ethical attitudes to animals especially specialists in biology, veterinary, medicine. We served information regarding the implementation and observance of ethical standards and legal requirements of bioethics at the experimental research on animals, including in veterinary medicine.

**Morgun O. A., Soroka N. M.** Histological changes in the liver of goby fishes infected by nematodes larvae *Eustrongylides exisus* // *News of Poltava State Agrarian Academy.* – 2017. – № 1–2. – P. 108–112.

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In the article we present histological changes in the liver of goby fishes infected by nematodes larvae *Eustrongylides exisus*. We found out a pathological process and structural changes in an organ that are characteristic for focal hepatitis. Hepatocytes are megascopic in a volume, rounded form, a kernel is pushed back to the shell of cell. Kernels are diminished in a volume, have wrong form (pyknosis). Kupfer's cells are marked in some areas. Lymphoid-leukocytic infiltrations there are in liver parenchyma, perivascular and endovascular couplings. Kernels in hepatocytes are absent in the areas of cellular infiltrations. We marked that hepatocytes are presented by amorphous structureless mass. We found out excrescence of connecting tissue which is the protective reaction of organism in the presence of nematodes larvae *Eustrongylides exisus* in some places round cellular infiltrations.

**Kovpak V. V., Kovpak O. S.** Comparative analysis of phenotypic changes of adipose tissue and bone marrow cell cultures in the course of cultivation // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 113–119.

This article describes the changes in phenotype of cultures of adipose tissue cells (ATCC) and bone marrow cells (BMCC) in the process of cultivation. Study of primary cultures of cells of the bone marrow and adipose tissue of rat has shown that they are morphologically heterogeneous, they included: a small number of cells of polygonal shape, and the bulk was fibroblast-like cells. Process of transition from the heterogeneous cultures at zero passaging to the most homogeneous at the end of the study was noted during further cultivation. We noted differences in immunophenotype of bone marrow and adipose tissue cell cultures that did not disappear with passaging.

**Kone M. S., Zabiaka O. O.** The effectiveness of the treatment and prevention FVR in veterinary clinics of LLC «Biocenter» in city Poltava // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 120–122.

We studied the age and pedigree sensitivity, seasonal occurrence and dynamics of FVR manifestation in veterinary clinics of LLC «Biotcenter» in city Poltava. We offered a variety of

treatment regimens of FVR. We established that FVR is often recorded among cats aged from two months to one year. Outbred animals are more prone to disease. The disease has a pronounced seasonality, shown FVR frequent event of the spring-summer-autumn period. The offered treatment regimen of FVR provides high therapeutic efficacy.

**Kone M. S., Romanova A. L.** The effectiveness of the treatment and prevention of parvovirus enteritis of dog in conditions of veterinary clinics LLC «Biocenter» in city Poltava // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 123–125.

We studied the age and pedigree sensitivity, seasonal occurrence and dynamics of display of parvovirus enteritis in conditions of veterinary clinics LLC «Biocenter» in city Poltava. We established that enzootic of parvovirus enteritis distemper is often seen in spring and summer, dogs of German shepherd breed are more likely to be infected. According to parvovirus enteritis distemper we developed and offered treatment regimen of intestinal form which is much more effective than the conventional basic method. The importance of the use of chemotherapeutic agents at some stages of infection is substantiated. We established that «Nobivak DHPPI» is proved as the most effective vaccine for the prevention of plague in dogs.

**Peredera S. B., Kolotiy M. V., Scherbakova N. S., Peredera Zh. A.** Monitoring of cattle necrobacteriosis in the agricultural company «Maiak» of Kotel'va district, Poltava region // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 126–128.

The article presents the data of the monitoring of herds of cattle animals with hooves lesion pathology in recent years in agricultural farm «Maiak». We revealed that pathology of hooves infectious character was up to 30 % of infected hooves, and in 70 % we experienced a defeat infectious diseases – necrobacteriosis. Among young cattle 8–17 months of age necrobacteriosis was observed in 2013 in 3,6 % of 406 animals, and in 2015 – 2,9 % of 617 animals. It was established that the average age of animals affected by necrobacteriosis is 6–7 years of 939 190 were patients – 20,2 %, and they are high-performance animals.

## TECHNICAL SCIENCES

**Arendarenko V. M., Ivanov O. M.** Screw grinding-polishing machines for surface processing of grain of legumes // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 129–132.

A review of the design and operating principle of a screw grinding-polishing machine for grain of legumes, which enhances the quality of the surface treatment and finishing of grain to the same geometric shape and sur-

face finish. Functional relationship has been formed between the technological performance of the machine and its main geometric parameters of kinematics. In the step algorithm we derived analytical formula for mass, bulk and piece performance of screw grinding-polishing machine.

**Burlaka A. A., Yakhin S. V.** Theoretical aspects of the process of centrifugal grain unloading in the

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elevator of combine harvesters // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 133–137.

The disadvantages of the lifting elevators of KZS-9-1 combine harvesters are imperfections of centrifugal unloading, as a result of which there is increase of energy for transportation, the degree of crushed and damaged grain increases, wear of the elevator's working members is accelerated. Based on theoretical studies, taking into account the oscillations of the chain transmission, it is offered to increase the unloading sectors to the condition that the grain transit time along the scraper and the time for the scraper of the discharge sector to coincide.

**Levchuk V. I., Lyhvenko S. P.** Study of loading and operational mode of transmission of tractor class 14 KN with system of transverse blocking // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 138–142.

The results of experimental research work as part of an arable unit MTZ-80 with mounted plow PN-3-35 on sandy loam soil in Belarus in the differential and locked rear axle of cross-axle drive in acceleration mode with a deep plow on the go and pre-recessed plow. Using strain gauges, the torque on the clutch shaft and the axles of the tractor rear axle. An analysis of average and peak values of moments we found that when a blocked drive total points on the semi-axes were 5,9–31,3 % more than the differential drive. Over-loaded on all test conditions was the right half. Maximum points on it were greater than on the left on 4,6–20,3 % at lock off and 12,1–32,5 % when enabled.

The calculations of the strength of the semi-axes tractor for peak and average load were completed.

Research loads on the primary and secondary shafts of the tractor gearbox bearing blocks have not found a significant effect of the differential lock on the load.

**Prasolov Ye. Ya., Belovol S. A., Belovol Yu. Yu., Matsakov A. V.** Improving vertical milling adapter for strip tillage // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 143–150.

The article presents an analysis of existing technologies, machinery construction and working parts for pre-treatment of the soil; expediency of terraced cultivation technologies in the Forest-Steppe zone of Ukraine; we identified promising areas of improvement tillers. For the offered technical solutions of vertical milling adapter we determined optimal performance of the kinematic mode and the number of work items, which guarantees evenness of tillage. The introduction of vertical milling adapter of offered design with reasonable parameters provides a high quality and uniformity of treatment of the working area, effectively loosening the soil, leveling the profile of the bottom of the furrow and the treated surface with rational energy intensity and efficiency of the process.

**Petrovs'kyj O. M., Kuznetsova T. Yu., Kurys' Yu. O.** Theoretical simulation of the physical processes of environment ionization // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 151–156.

We have analyzed the principles of air disinfection by combining two radiation methods – ionizing and ultraviolet (UV). Key air ionizer designs have been described to select the most effective system of disinfection and physical and mathematical simulation of ionizer functioning.

We have suggested an electrophysical model of an ionic wind UV air disinfecting ozonator, which takes into account electrical wind creation processes, negative air ions, ozone, and disinfection using UV-radiation, which can be used when designing the respective equipment.

## THE YOUNG SCIENTIST'S PAGE

**Dovhal' H. P.** The evaluation of winter wheat depending on the influence of meteorological factors in the conditions of Forest-Steppe zone // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 157–160.

In the article the complex analysis of climatic factors and productivity of agro-ecosystems was made by the example of typical Forest-Steppe zones of agricultural enterprises. The studies found the correlation dependence of crop capacity of winter wheat yield of some climatic factors for the 20-year period (1997–2016). By certain mathematical models the graphics features that enable us to predict the level of productivity of various crops by the impact of climate factors were built. It is found that the most significant meteorological factors for winter wheat are rainfalls in May and June, and pro-

ductive moisture reserves in the soil layer 20 cm in April and May.

**Ivanova K. A.** Phenology and features of the spread of pests of sorghum in the Forest-Steppe of Ukraine // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 161–166.

The article describes the features formation of the modern structure of the sorghum entomological complex. The dominant and most harmful insect species on sorghum crops have been found. The biology and phenology of the main pests of sorghum, which were observed in the research area, were specified. The current state and prospects of introduction of the newest technologies of sorghum protection in the Forest-Steppe have been analyzed. The time and the period of reproduction and distribution of individual pests species and

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their harmfulness to sorghum are estimated. Indicators of sorghum hybrids stability to a complex of harmful insects of the Forest-Steppe of Ukraine are determined.

**Lotysh I. I.** The formation of the leaf surface of soy seeding depending on the variety, method of sowing and seeding rate in low moisture of Forest-Steppe // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 167–171.

Getting the maximum possible productivity of any sort of soybeans depends on the component technologies that provide optimal formation of leaf surface and duration of photosynthetic activity. The study of photosynthetic potential of crop soybean sorts showed that the highest rate was in the areas with a seeding rate of 800 thousand/ha: row planting sowing – 2,19–2,34 million M<sup>2</sup> days/ha for sowing in wide row – 2,16–2,27 million m<sup>2</sup> day/ha. The intensity of photosynthesis depending on the options ranged experiment: the row planting method in the range of 11,55 to 12,40 mg CO<sub>2</sub> dm<sup>2</sup>/day wide row planting way – from 11,33 to 12,06 mg CO<sub>2</sub> dm<sup>2</sup>/h. Depending on the seeding rate and method of sowing was layered index according to the sorts: Romantyka – from 3,89 to 4,13 m<sup>2</sup> leaf/m<sup>2</sup>, Ustyа – from 3,88 to 3,99, Vorskla – from 3,80 to 3,92 leaf m<sup>2</sup>/m<sup>2</sup>.

**Yeres'ko V. I.** Influence of capillaries on hematological parameters of infested geese // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 172–174.

The article presents the results of studies on the influence of different types of capillaries: Capilaria obsignata and Capilaria anseris on hematological parameters of infested geese. For the first time in Poltava region we proved parasitizing species of C. obsignata in geese. It was found that this species was less pathogenic than C. anseris. Parasitism of water fowl species C. anseris led to a significant reduction of hemoglobin in their blood, number of erythrocytes, significant increase number of leukocytes and we set growth percentage of

**Zaika O. A.** The influence of melanin on the productivity of store pigs at weaning // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 175–176.

The data on studying the effectiveness of adding melanin produced from yeast-like fungi Nadsoniella nigra strain X-1 to the feed ration of piglets are presented. The positive effect of the given supplement on raising the average daily weight gains of store pigs has been found. In the experimental groups of animals to the feeds of which melanin with produced yeast-like fungi Nadsoniella nigra strain X-1 was added, the average daily weight gains of piglets during the period of weaning, and namely, at 45 days of age were 13,7% higher comparatively to the index of the control group. Weighing of store pigs at 50 days of age, during the period of adaptation after weaning, has shown that the average daily weight gains in the experimental group of animals have raised and constituted 445 grams, which is 25% higher compared to the indices of the control group. This is connected with the fact that melanin is a strong adaptogen.

**Polischuk V. A.** Formation of the effective innovation system as a way of improvement of agrarian enterprises competitiveness // News of Poltava State Agrarian Academy. – 2017. – № 1–2. – P. 177–179.

One of the main and the most effective directions of an agrarian sector development is innovative one, as it positively effects the modernization of an agribusiness industry, improves a competitiveness on the basis of a technical and technologic renovation of production. The main components of the innovation system are business and scientific-research sectors. In the process of this system formation it is necessary to take into account peculiarities of an economic development as well as geographical and business conditions of the production. The efficiency of the innovation system is primarily associated with a number of advantages which it has: firstly, it is oriented on market needs that exclude the possibility to develop outdated innovations; secondly, the access to scientific research results will be available to not only big agrarian enterprises but small and individual agricultural producers; thirdly, that will be attracted to the work with new technologies of production, machinery, or modern organizational and economic forms, will have the opportunity to study both at educational institutions and scientific-research structures.

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