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## SUMMARY

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**Bazaliy V.V., Boychuk I.V., Teteruk O.V., Bazaliy G.G. Analysis, development and improvement of adaptive soft winter wheat breeding in the Southern Barrens**

The complex measure selection - genetic processes in hybrid populations of soft winter wheat, used modern approach of determining the parameters of plasticity and stability of genotypes for targeted use in adaptive breeding of winter wheat and alternative types.

**Keywords:** breeding wheat hybrid populations, varieties, yield.

**Averchev O.V. Effect of saline soils on the process of growth and intensity of productive activity of buckwheat and millet plants**

The article presents the results of many years of experiments on the effects of saline soils on the productive capacity of buckwheat and millet plants. It shows that unlike buckwheat, millet plants support their vital functions by increasing assimilation processes, which gives them the opportunity to accelerate the pace of development in the second half of the vegetation period and intensively accumulate dry matter during grain filling.

**Keywords:** buckwheat, millet, photosynthesis, saline soils, irrigation.

**Aliokhin O.O., Aliokhina N.M. Biological characteristics of seeds of some species of *Allium***

The article provides the biological characteristics of seeds of 14 out of 25 species of *Allium* introduced in the botanical garden of the V.N. Karazin Kharkiv National University. The description of a seed is presented according to the following pattern: dimensions (length, width), position in space relative to its axis, surface shape, color; size, position and shape of the scar; endosperm existence; embryo's size and shape, position in the seed, position relative to its vertical axis.

**Keywords:** *Alliaceae*, *Allium*, biological characteristics of seeds.

**Belemets N.M., Grakhov V.P., Bonyuk Z.G., Fedoronchuk M.M. Study of phenolic compounds and other metabolites in leaves of *Spiraea media* Franz Schmidt**

The secondary metabolites of *Spiraea media* Franz Schmidt have been investigated by HPLC. The characteristic feature revealed in this *Spirea* is the great content of flavonoids – quercetin and kaempferol glycosides (the four major substances) and more than a dozen minor substances. Moreover, there is substantial amount of flavan-3-ol compounds (catechins and proanthocyanidins) and phenylpropanoids (neolignans, cinnamic acid derivatives). Last but not least important metabolites characterized in leaves of *S. media* are polar hemi- and monoterpenoids, probably in the form of glycosides and cinnamic acid conjugates, also characteristic of some species belonging to this genus. All of these components are known of their biologi-

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cal activity, and it provides the basis for further study and use as promising pharmaceutical raw material and source of medications and dietary supplements.

**Keywords:** *Spiraea media*, leaves, secondary metabolites, phenolic compounds, HPLC.

**Bulba I.A. Water consumption of spring rape under different methods and depth of the basic treatment of irrigated soil in southern Ukraine**

The experiments conducted determined the characteristics of accumulation and consumption of productive moisture of the soil by spring rape under different soil tillage methods and depth. The study also determined water consumption coefficients.

**Keywords:** spring rape, soil tillage methods, soil tillage depth, irrigation, water consumption coefficient, productive moisture.

**Vasylenko N.E. Reproduction of linear material, varieties, F2, F3**

Cucumber is a widely consumed product with high palatability both fresh and pickled. The correct proportion of different varieties allows getting high yields of high-quality cucumber in different seasons of the year.

Currently, there is a question of getting high yields of this crop at a relatively low energy cost. Increases in cucumber yield largely depend on the proportion of female flowers in plants.

**Keywords:** cucumber, hybridization, selection, variety, hybrid, female lines.

**Voitsekhovska O.S., Voitsekhovskiy I.O. State and prospects for high-oleic sunflower development in Ukraine and in the world**

In recent years, high-oleic sunflower has been considered and evaluated from two perspectives: nutritional value and suitability for processing into biodiesel. The latter circumstance has caused an active expansion of acreage under high-oleic sunflower both in the world and Ukraine. As to its use for food, here also comes a targeted increase in its presence due to the already mentioned special consumer properties. The economic aspect of this issue is more attractive, because a net profit on growing high-oleic sunflower hybrids is 1200 UAH per 1 hectare, the cost being the same as for classical sunflower hybrids.

**Keywords:** high-oleic, sunflower, world, Ukraine, economic profit.

**Haidarzhy M.M., Bahlai K.M. Initial stages of ontogenesis of plants of the Cactaceae family**

The article studies the features of growth and development of Cactaceae plants at early stages of ontogenesis, and shows that sprouts of representatives of different subfamilies and even genera differ in hypocotyl size, in shape and longevity of cotyledons.

**Keywords:** introduction, Cactaceae family, growth and development, ontogenesis.

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**Gamaiunova V.V., Khonenko L.G., Kovalenko O.A., Hyrlia L.M. Yielding capacity of mustard depending on weather conditions and seeding rate on southern black soils**

At the present stage of crop growing development there is a need to diversify the group of oilseed crops through the introduction of 'protective' and less profitable oil crops, especially mustard, into crop rotations. This is confirmed by the results of our research on the productivity of Chinese mustard (*Brassica juncea* Czern.) and white mustard (*Sinapis alba* L.) depending on the growing conditions in the southern steppe zone of Ukraine. The observations during 2006-2008 show a change in development phases, growing season length, and yield depending on climatic factors.

We also studied mustard seeding rates and their impact on productivity. The findings show that a higher yield of Chinese mustard is formed at a seeding rate of 2.0-2.5 million seeds/ha, Chinese mustard being more plastic than white mustard.

**Keywords:** Chinese mustard, white mustard, weather and climatic conditions, phase of development, seeding rate, structure, productivity.

**Hrevtsova H.T., Harkava K.G., Mykhailova I.S. Effects of water-salt bud extracts of cotoneaster introduced in the O.V. Fomin Botanical Garden on the metabolic action of phagocytes and erythrocytes**

The article presents the results of studying the influence of water-salt extracts of cotoneaster buds of Adpressi, Bullati, Dielsiani, Franchetioides, Melanocarp, Zabelioides, Microphylli, Salicifoli series on the functional activity of phagocytes and erythrocytes.

**Keywords:** cotoneaster, series, buds, water-salt extracts, phagocytes, erythrocytes.

**Hrevtsova H.T., Nuzhyna N.V., Kubinskyi M.S. Testing cotoneaster as drought – resistant undersized stock for pome fruits**

The paper presents data on 20 years of research on the use of introduced species of the genus *Cotoneaster* Medik. as drought-resistant undersized stock for quince, apple, and pear trees in the situation of climate xerophytization.

**Key words:** stock, graft, cotoneaster, quince trees, apple trees, pear trees, biochemical composition.

**Hrytsaienko Z.M., Datsenko A.A. Formation of the leaf area apparatus of buckwheat under the effect of biological preparations**

The article presents the results of studies on the effect of various rates of the microbiological preparation Diazobaktery (150, 175, 200 ml) and application methods of the plant growth regulator Radostim (seed treatment before sowing – 250 ml/t spraying – 50 ml/ha) on the formation of the leaf area of buckwheat plants. It shows that the microbiological preparation applied both separately and in mixtures with the plant growth regulator, affects the activity of the photosynthetic apparatus formation. In particular, a 20–30% increase in the leaf area apparatus is observed under the combined use of the preparations. This suggests the improvement of the conditions of plant growth and development due to the stimulating properties of the

growth regulator, and improvement of soil nutrition conditions due to the bacterial preparation.

**Keywords:** leaf area, plant growth regulator, microbiological preparation.

**Domaratskyi E.O. Analysis of the resistance of winter wheat varieties to major diseases depending on sowing time and seed treatment with biological grain protectants**

The article presents the results of studying the effect of pre-sowing treatment of soft winter wheat with biological preparations on the degree of damage to winter wheat by fungal diseases under different growth conditions. It provides a comparative description of soft winter wheat varieties as to the reduction of damage to winter wheat by fungal diseases depending on planting dates and use of biologics.

**Keywords:** biological preparations, winter wheat, leaf rust, powdery mildew.

**Dudchenko V.V., Dudchenko T.V., Tselinko L.N. A weed complex in the rice agrocoenosis and the protection system**

The study analyzes species diversity of weeds in the rice agrocoenosis. It proposes basic agrotechnical and chemical measures to control the numbers of the most harmful species. It also identifies new species – India lovegrass (*Eragrostis pilosa* (L.) Beauv.) and meadow foxtail (*Alopecurus pratensis* L.) that appear in rice crops and affect the yield.

**Keywords:** agrocoenosis, weeds, crop rotation, species composition, rice, herbicides.

**Dudchenko V.V., Morozov R.V., Vozhehov S.G. Formation of the mechanism of public-private partnership in the rice production industry of Ukraine**

The paper reveals structural components of the mechanism of interaction of public and private partners in rice growing. It proposes a model of the structure of the concession mechanism in rice growing within the framework of the implementation of the public-private partnership.

**Keywords:** rice production, public-private partnership, concession.

**Zaitseva I.O., Vovk L.V. Application of mineral fertilizers when growing ornamental tree seedlings in the steppe region of the Dnieper**

The study investigates the influence of mineral fertilization on vital functions of ornamental tree seedlings under droughty conditions in the introduction region. It determines species-specific physiological reactions to nitrogen, phosphorus and potassium fertilization. It shows that mineral fertilizers increase drought resistance of plants at the initial stage of ontogeny. The paper provides recommendations on the differentiated care of tree seedlings in order to get resistant planting material of rare trees and shrubs in the dendrological collection of the botanical garden of the Oles Honchar Dnipropetrovsk National University.

**Keywords:** mineral fertilizers, ornamental plants, physiological reactions, tree seedlings.

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**Ivaniv M.O., Sydiakina O.V. Formation of grain yield of mid-season and late hybrids, economic and energy efficiency of their cultivation under irrigation in the Southern Steppe of Ukraine**

Corn hybrids of different maturity groups exhibit a specific reaction to agro-ecological factors of the productive process. Under more favorable soil and environmental conditions and with optimal agrotechnical provision, corn hybrid Borisfen 433MB shows the highest productivity, economic and energy efficiency of cultivation among mid-season and late hybrids.

**Keywords:** corn, productivity, agro-ecological conditions, hybrids, economic and energy efficiency.

**Ivanova I.E., Pokoptseva L.A., Herasko T.V., Dolhova S.V. Using the multicriteria optimization method for choosing the best cherry variety for freezing**

Using the multicriteria optimization method, the study makes a scientifically substantiated evaluation of the suitability of 6 zoned late varieties of cherries (Melitopolskaya Black, Mirazh, Orion, Prazdnichnyi, Siurpriz, Kosmicheskaya) grown under the southern Ukrainian steppe conditions to freezing and storage at low temperatures.

**Keywords:** freezing, variety, storage, physical and biochemical parameters, geometric makeup of criteria, target function, rank, multicriteria optimization.

**Ilnytskyi O.A., Pali I.M., Bondarchuk S.V., Radchenko S.S. Changes in leaf thickness as a function of ecological and physiological characteristics of plants**

The paper studies water regime dynamics and drought resistance of different plant species and their relationship with blade thickness. The research conducted in different geographic regions on different species of plants allowed developing a universal method in the study of the water regime and drought resistance of plants. The changes in leaf thickness in different vegetation periods of plants differ significantly; the range of these changes is reduced with leaf ageing; however, the scale of drought resistance of different plant species remains the same. The methods developed are promising both in theoretical and practical aspects.

**Keywords:** water regime, drought resistance, leaf thickness, vegetation period of plants.

**Markova N.V. Increasing the competitiveness of sunflower seed production under the conditions of the Southern Ukrainian Steppe**

Based on research results, the article generalizes ways to enhance the competitiveness of sunflower in the economic market through the introduction of its hybrids with high levels of plant productivity and oil quality.

The study highlights the importance of varietal technological features of sunflower hybrids production, which contributes to a high level of their adaptation to the respective conditions and competition in the biocenosis of modern agricultural crops of the Southern Ukrainian steppe.

**Keywords:** sunflower hybrids, competitiveness, productivity, seed quality, economic efficiency.

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**Mikheiev E.K. Information component of precision farming. Part 2: Decision-making support systems (DSS) as an agro-information component of precision farming**

Decision-making support systems (DSS) are the basis of the intellectual component of precision farming systems (PFS), and they carry practically the whole semantic load. A modular approach proved to be effective in the development and use of DSS. Control in this case can be performed in an off-line mode or on-line.

**Keywords:** agricultural needs, data, knowledge, information, computer, model, positioning, system, GPS-receivers, experts.

**Mishchenko S.V. Specific features of ontogenetic sex manifestation in *Cannabis sativa* L. dwarf plants**

For the first time, dwarf plants, removal of which is not associated with the pleiotropic action of male sterility genes, have been found in the population of the Glukhivski 58 variety of monoecious hemp. Specific features of ontogenetic sex manifestation of hemp dwarf plants are identified.

**Keywords:** *Cannabis sativa* L., hemp, variety, dwarf plants, sex, ontogenesis.

**Mykolaichuk V.H. Characteristics of growth and development of *Trifolium rubens* L. (Fabaceae) plants in different years of vegetation at the N.N. Hryshko National Botanical Garden of NAS of Ukraine**

The paper studies and analyzes the effect of age of *Trifolium rubens* L. (Fabaceae) plants on the passing and duration of phenological phases and habitus of plants under *ex situ* conditions. It shows that plants of the sixth year of vegetation have a significantly greater number of shoots, which affects their habitus.

**Keywords:** *Trifolium rubens*, *ex situ*, phenological stages, introduction, habitus, Right-Bank Forest-Steppe of Ukraine.

**Morozov V.V., Morozov O.V., Dudchenko K.V., Kornberber V.H. The impact of irrigation with drainage and discharge water on rice yield**

Based on the investigation results, the paper develops a technology of using drainage and discharge water of the rice irrigation system for rice irrigation. Field trials show that the technology reduces rice irrigation rates by 1000-1300 m<sup>3</sup> per hectare, discharge volumes by 750-1000 m<sup>3</sup> per hectare, and increases rice yield by 8-10 c/h. The technology enhances the efficiency of irrigation water application and improves ecological condition of rice rotations and nearby territories.

**Keywords:** rice, rice irrigation system, drainage and discharge water, yield.

**Morozov O.V., Beznitska N.V., Nesterenko V.P., Pichura V.I. Formation of winter wheat productivity depending on climate changes (by the example of the Kherson region)**

The study presents a model of winter wheat productivity formation both for the Kherson region and for its administrative districts depending on agroclimatic indices. One of the measures to increase winter wheat production is the adaptation of cultivation technology elements to changes in agroclimatic parameters.

**Keywords:** productivity, wheat, climate, Kherson region.

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**Ovcharuk O.V. Varietal characteristics of kidney beans under the conditions of the Ukrainian forest-steppe**

The article considers the results of research on high-yielding varieties of kidney beans (*Phaseolus vulgaris* L.), their productivity under the conditions of the Western forest-steppe.

**Keywords:** kidney beans, variety, biometric parameters, productivity.

**Ogurtsov Y.E. The use of plant growth regulators and micronutrient fertilizers at cultivation of spring barley on different backgrounds mineral nutrition**

In the paper the influence of growth regulators for growing spring barley. The most effective method of application of plant growth regulators and micronutrients during the growth of spring barley is spraying plants in the flag leaf stage.

**Keywords:** spring barley, growth regulators, spraying, fertilizer.

**Panfilova A.V. Content of nutrients in the aboveground mass of spring barley depending on mineral fertilization**

The article provides the results of studying the effect of mineral fertilization rates and soil tillage method on nutrients content in grains and aboveground mass of spring barley. It shows that mineral fertilizers significantly affect the content of total nitrogen and phosphorus in the grain, and that of potassium in the aboveground plant mass. Their content increases with higher nitrogen rates in the nitrogen-phosphorus fertilizer.

**Keywords:** spring barley, soil tillage method, mineral fertilization rates, grain, aboveground mass, nutrient elements.

**Rabotiahov V.D., Aksenov Yu.V., Fedorchuk M.I. Features of the component composition of essential oil of *Nepeta cataria* in culture and in places of natural occurrence**

The article provides the results of studying the chemical composition of essential oil of *Nepeta cataria* var. *citriodora* under the conditions of the southern coast of Crimea. It singles out two groups of plants: one with high content of nepetolactones (40-97%) and the second with a total amount of nepetolactones less than 20% and high citral content.

**Keywords:** *Nepeta cataria*, essential oil, nepetolactones, development phases.

**Rudik H.O. Peculiarities of ontogeny of *Calamintha nepeta* (L.) Savi (*Clinopodium nepeta* (L.) Kuntze) ex situ**

The paper presents the results of research into the ontogeny of *Calamintha nepeta* (*Clinopodium nepeta*) under the conditions of the O.V. Fomin Botanical Garden. It shows that the plants are characterized by a rapid rate of development: during the first year of life, they passed three periods of ontogeny (latent, virginile and generative). The characteristics of some age states of plants are provided.

**Keywords:** *Calamintha nepeta* (L.) Savi (*Clinopodium nepeta* (L.) Kuntze), ontogeny, periods of ontogeny, age states.

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**Svydenko L.V., Rabotiahov V.D., Fedorchuk M.I. Introduction of the new hybrid lavender variety Snihovyi Bars in the Kherson region**

The paper presents data on biomorphological characteristics and utility characters of the new hybrid lavender variety Snihovyi Bars introduced in the Kherson region. The plants of this variety have white flowers and compact habitus. The share of essential oil is 5.1% of dry weight. The main components are linalool (57.8%) and linalilacetate (11.1%).

**Keywords:** Kherson region, introduction, new hybrid lavender variety, essential oils, ornamental traits, landscaping.

**Skrypchenko N.V., Dzhurenko N.I., Palamarchuk O.P., Moroz P.A. A study of the composition of essential oil of SCHIZANDRA CHINENSIS**

The paper studies the qualitative and quantitative composition of the essential oil of *Schizandra chinensis* (*Schizandra chinensis* (Turcz.) Baill.), introduced in Grishko National Botanical Garden of NAS of Ukraine. The oils of different organs of plants vary significantly in their quantitative and qualitative composition. The most diverse component composition of the essential oil was observed in seeds (75 components), the main components of which are  $\beta$ -elements (11.0 %) and nerolidol (13 %).

**Keywords:** *Schizandra chinensis*, essential oil, qualitative and quantitative composition.

**Trubilov O.V. Productivity and economic efficiency of corn cultivation depending on the technology elements**

The study determines the effect of basic tillage and mineral nutrition level on biometrics and grain yield of mid-ripening corn hybrid Monica 350 MB. It presents data on the effect of the studied factors on economic indices.

**Keywords:** corn, soil tillage, fertilizer, productivity, economic efficiency.

**Ushkarenko V.O., Fedorchuk V.H., Filipova I.M., Kisnichan L.P. Optimization of the technology of growing *Silybum marianum* (*Silybum marianum* (L.) Gaertn.) fruit on irrigated lands of Southern Ukraine**

The article presents the results of research on irrigated *Silybum marianum* grown in southern Ukraine. It determines the impact of the optimal depth of soil treatment, sowing time, interrow spacing and mineral fertilizer rates on the productivity of the crop under study. Using variance and correlation-regression analyses, the study shows the share of factors in the productivity and determines the optimal interrow spacing and fertilization rates.

**Keywords:** *Silybum marianum*, soil tillage, interrow spacing, sowing time, mineral fertilizers, productivity.

**Fazylova E.S., Ivanova I.E., Dolgova S.V. Analysis of biochemical parameters of fresh cherry fruit grown in Southern Ukraine**

The study makes biochemical assessment of fresh cherry fruit of zoned late-ripening varieties - Melitopolskaya Black, Mirazh, Orion, Prazdnichnyi, Siurpriz, Kosmicheskaya grown under the southern Ukrainian steppe conditions.

**Keywords:** zoned cultivars, cherry, dry soluble substances, sugars, phenolic substances, ascorbic acid, titrable acids.

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**Fedorchuk M.I., Harmashov V.V., Filipov Ye.H. Productivity of *Carthamus tinctorius* plants under irrigation in Southern Ukraine**

The article provides the results of research on the influence of agrotechnical practices on the formation of green yield, dry matter and seed yield of *Carthamus tinctorius* grown under irrigation in Southern Ukraine. It proves that the best results are provided by ploughing at a depth of 20-22 cm, interrow spacing of 30 cm, early sowing (20-31 March) and mineral fertilization (N<sub>60</sub>P<sub>60</sub>).

**Keywords:** *Carthamus tinctorius*, irrigation, sowing time, green yield, dry matter, seed productivity.

**Fedorchuk M.I., Filipov E.G., Harmashov V.V., Fedorchuk V.H. Programming the productivity of *Carthamus tinctorius* plants depending on the influence of natural and agrotechnical factors**

The article provides the results of research on the effect of agrotechnical methods on seed yield formation in irrigated *Carthamus tinctorius* grown in southern Ukraine. It shows that the best results are provided by ploughing at a depth of 20-22 cm, interrow spacing of 30 cm, early sowing (20-31 March) and mineral fertilization N<sub>60</sub>P<sub>60</sub>. Yield programming allowed determining the effect of agrotechnical practices on the productivity of plants.

**Keywords:** *Carthamus tinctorius*, irrigation, sowing dates, height of plants, productivity, yield programming.

**Khomina V.Ya. Agroecological aspects of growing safflower in the western Ukrainian steppe**

The paper presents the results of research on the effects of temperature regimes on laboratory germination power of safflower seeds. The study shows the dependence of plant stand (field germination power and survival rate) on interrow spacing, seeding rate and application of growth regulators.

**Keywords:** safflower, germination power, survival rate, interrow spacing, seeding rate, growth regulator.

**Tsytsiura Y.H., Tsytsyura T.V. Formation of plant stem diameter of oil radish depending on cultivation technology and fertilization under the conditions of the right-bank Forest-Steppe**

The paper presents the results of studying the influence of seeding rates, sowing method and fertilization on the formation of the diameter of the stem at its basis in oil radish varieties grown under the conditions of the right-bank Forest-Steppe. The study evaluates the phase character of diametral stem growth taking into account the technological features of cultivation.

**Keywords:** oil radish, seeding rates, sowing method, fertilizers, stem diameter.

**Shyshman T.V. Genotypic variety of paternal lines of sunflower by morphological and economic characters**

The study of genetic control and features of the formation of quantitative traits is of primary importance for plant selection. The paper makes a comparative study of 50 lines of the collection of sunflower by morphological and economic

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traits. It singles out groups of lines by the minimum period of "germination-flowering" - 717-07, 704-07, 07-3, 07-8 and by the greatest number of flowerets in a calathide - 07-13, 07-39, X-526B, X-134B. The same groups were also characterized by high viability and thermo resistance of pollen, which is no less important for the productivity, and allows recommending them as paternal components of hybrids that will provide quality pollination on reproduction and hybridization plots.

**Keywords:** *Helianthus annuus* L., morpho-biological characters, heterosis, combining ability, pollen productivity.

**Burak V.H., Riapolova I.O. Comparative evaluation of the quality and safety of cooked sausage products with different food supplements**

The paper presents data on quality (organoleptic, physical and chemical) and safety (microbiological) characteristics of cooked sausage "Doktorskaya" produced using different food supplements.

It shows that sausages made with conventional supplements regulated by the state standards had better organoleptic characteristics, in particular a more saturated color, better taste, texture and smell.

Using complex food supplements extends the shelf life of sausages by 2-3 days.

**Keywords:** meat products, food additives, national standard quality.

**Debrov V.V. Rating egg production curves of egg-laying crosses using mathematical models**

The study evaluates egg production curves of crosses High sex Brown and White using mathematical models of T. Bridges, McMillan, McNally.

It finds that these models reliably describe egg production curves, in particular, such important elements as increment and fall rates, and the ratio of constants. Using mathematical models allowed determining that High sex Brown hens have a high rate of egg production increase and fall, while High sex white have a high rate of increment and a moderate rate of fall. The highest level of egg production of class M- of High sex Brown is due to a moderate rate of increase and fall; that of class M+ of cross High sex white is due to a high rate of increment and a moderate rate of egg production drop.

**Keywords:** egg production curve, increase rate, fall rate, description of egg production curves, equal-weight group.

**Ivanov V.O., Arkhanhelska M.V., Vohnivenko L.P., Popova N.V., Plaskalniyi A.I. Biochemical indicators of blood serum of young Landrace boars of different levels of adaptation under the conditions of intensive technologies**

The study finds that during the adaptation to technological stresses young Landrace boars with a different adaptive rate reveal typical deviations in biochemical parameters of blood serum caused by a change in the flow of metabolic processes and physiological state of the internal organs.

**Keywords:** total protein, calcium, phosphorus, albumin, glucose, Landrace, young boars, adaptation.

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**Ivanov V.O., Ivanova L.O., Pohrebna N.M., Novikova N.V. – The evaluation of boars by the adaptability of their offspring under the conditions of Freedom Farm Bacon LTD**

The article features the example of evaluating boars by stress sensitivity of their offspring in litters produced by sows inseminated by them. The method is of great importance for breeding and further prediction of production traits in pigs.

**Keywords:** stress, adaptation, growth intensity.

**Karatieieva O.I., Zhuravliov M.O. The use of entropy and information analysis in selection and breeding**

The paper studies statistical parameters of the biological system, the degree of its entropy, the level of absolute and relative organization of the system of cows belonging to different lines of the red steppe cattle.

**Keywords:** entropy and information analysis, absolute entropy, red steppe cattle.

**Lisnyi V.A., Matsiuk V.A. Reproductive traits of sows belonging to the breeds of the promising gene pool**

The paper presents data on the comparison of reproductive traits of breeds belonging to the promising gene pool: Duroc and Pietren.

**Keywords:** reproductive traits, Pietren, Duroc.

**Nazarenko S.O. The use of alternative light modes to enhance the efficiency of rearing broiler chickens of cross Cobb 500**

The paper analyzes the effectiveness of different light regimes for broiler chickens of cross Cobb 500. The highest zootechnical effect was achieved using a light regime with a long 6-hour period of darkness from the 8th to the 38th day of chickens rearing (mode 2). There was observed an increase in the live weight of broilers, feed saving, increased meat production by 2.82 tons and 19.03 tons respectively on the same production site in comparison with the use of a light mode with a 9-hour period of darkness (mode 1) and a longer period of illumination (mode 3). The light regime with a long 6-hour period of darkness provided a greater share of revenue from the sales of meat by 59.22 and 399.62 thousand UAH, respectively, per 279.5 thousand chickens under rearing, compared to the use of light modes 1 and 3.

**Keywords:** broilers, live weight gain, safety of young chickens, meat productivity, meat production efficiency.

**Pelykh V.G., Chernyshev I.V., Levchenko M.V. Influence of large-fruited and floor on the growth and development of the piglets during the suckling the period**

The article presents the influence of large-fruited and floor on the growth and development of the piglets during the suckling the period, pigs Ukrainian meat breed.

**Keywords:** large-fruited genotype, mathematical models, average daily gain, sex, ukrainian meat breed.

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**Riapolova I.O., Burak V.H. The possibility of using HACCP concept in meat production**

The given system is an effective means of product quality management with the aim of protecting production processes against biological (microbiological), chemical, physical risks of contamination. It also provides an opportunity to manage meat product quality at all the stages: rearing, slaughter, processing.

**Keywords:** bacterial contamination, risks, product safety.

**Grynyk O.I. Ecological and economic bases of using of agricultural land for the contaminated territories**

The article reviews the state of Ukraine, which suffered radioactive contamination from the Chernobyl disaster. Analyzed the monetary value of arable land, as well as basic economic indicators of economic activity farms as an example of the Zhytomyr region. A factors radiological environmental monitoring.

**Keywords:** land, agriculture, environmental and economic assessment, contaminated site.

**Drebot O.I., Vysochanska M.Ya. Ecological and economic provision of efficient land use in Ukraine**

The article examines ecological and economic features of the efficient use of land resources from the viewpoint of spatial and territorial conditions. It analyzes a number of indices reflecting the percentage of ploughland used in agricultural production in Ukraine and Europe.

**Keywords:** land resources, nature management, agriculture.

**Kyseliova R.A. Environmental insurance as an innovative tool to regulate economic activity in the irrigation zone of Ukraine**

The paper scientifically substantiates the system of environmental security risks in the process of economic activity on the reclaimed lands of Southern Ukraine; proposes a methodological approach to the formation of the system components, as well as unconditional franchise the size of which is affected by the number of years of a continuous contract between the insurer and the insured.

**Keywords:** environmental insurance, risks, water management, reclaimed land, the sum insured, insurance rates, insurance payment, environment fund.

**Lysak O.O., Harina S. M., Shevchenko P.H. Implementation of artificial intellect methods in the systems of decision-making support during differentiation according to morphometric attributes between color forms of Carp Koi (*Cyprinus carpio koi*)**

Up-to-date researches of variative changes of basic morphometric indexes of attributes of colorful this year fish offsprings of carp koi (*Cyprinus carpio koi*) in equal and different conditions of keeping were conducted. In the process of research artificial intellect methods were implemented, and their computer realization in the environment of mathematical processor MathCAD for formalization of decision-making processes according to results of ichthyologic researches was accomplished. The effectiveness of implementation of distance functions at the stage of choosing the best variant according to results of experimental researches and availability of number of effective attributes was established. Authors accomplished the ranging of

experimental variants according to the magnitude of scalar distance from sample form of carp koi (*Magoi*).

**Keywords:** *Cyprinus carpio koi*, carp koi, forms, branches, ponds, vector-precendent, vector-image, distance, scalar multiplications.

**Lianzberg O.V. Ecological assessment of the lower reaches of the Dnieper in connection with the anthropogenic load**

Within the integrated environmental monitoring, the study conducted environmental assessment of the current state of the lower reaches of the Dnieper River in the Kherson region based on relevant criteria. The ecological condition of the water body was evaluated using the environmental regulations on surface water quality.

**Keywords:** water resources, environmental indexing, anthropogenic load, trophicity, saprobity.

**Mukhina I.A., Khorunzhiy I.V. The basic strategy of the stabilization of fishing industry performance in the Kherson region**

The article presents the basic strategy developed by the authors for the stabilization of the performance of fishing enterprises in the Kherson region. It relies on the assessment of the economic environment components identified in previous studies. For the first time, the study proposes a technique that can improve the quality of strategic planning through the use of SWOT-analysis. The research carried out will form the basis for the development of tactics of the realization of the strategic objective, and consideration of alternatives to achieve it taking into account management issues.

**Keywords:** fishing industry, strategy, enterprise, analysis, economics.

**Ridei N.M., Kucherenko Y.A. On the question of socio-economic and environmental monitoring of rural areas**

The article analyzes the theoretical aspects of socio-economic and environmental monitoring presented in scientific and methodological literature; proposes schemes of structurally logical development of the system of environmental, economic and social monitoring; provides the authors' formulation of the definition, purpose, objects, tasks of socio-economic and environmental monitoring in rural areas, and specifies its types.

**Keywords:** monitoring, observation systems, socio-economic and environmental monitoring, rural areas.

**Samoilik M.S. A strategy for ensuring resource and environmental safety in the region**

The article develops strategic principles of ensuring resource and environmental safety in the region. It includes three stages: hazard identification and determination of areas of resource and environmental safety; strategy selection for ensuring resource and environmental safety in the region; correction and coordination of solutions. Practical implications of the study are the optimization of the strategy for ensuring resource and environmental safety in the region. Its realization will help to improve resource availability and enhance the competitiveness of the region; to make additional profit from the use of the recycled resources; to preserve primary

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resources and improve their quality; to ensure preservation and restoration of the natural environment of the region; to improve social and psychological climate and public health.

**Keywords:** resource and environmental safety, region, resource substitution, solid wastes.

**Chaban V.O. Purification of the aquatic environment using water hyacinth (*Eichhornia sp.*)**

The paper presents data on the causes of water pollution and on plant species that are biological filters. Those plants additionally purify sewage wastewater that brings into water bodies and groundwater organic, phosphorus, nitrogen, sulfur, heavy metal compounds in high concentrations hazardous to aquatic ecosystems. The study reveals the property of water hyacinth to oxidize and break up industrial and organic fertilizers, additives into simple harmless elements.

**Keywords:** water hyacinth (*Eichhornia sp.*), ecology, water pollution from harmful substances, ways to reduce the ecological load on the aquatic environment.

**Valter A.O. State and prospects for the development of meat processing industry of Ukraine**

The article investigates the state and trends in the meat processing industry of Ukraine from the perspective of its future joining the European Economic Community.

**Keywords:** meat processing industry, agricultural enterprises, raw materials market, import, export.

**Kyrylov Yu.E. A free trade zone with the European Union: prospects for domestic producers**

The study reveals the essence and features of the provisions of a deep and comprehensive free trade area between the EU and Ukraine, and analyzes the opportunities it offers for domestic producers.

**Keywords:** European Union, free trade zone, domestic producers, quotas, duties, globalization, integration, agricultural products.

**Koval S.V. Organizational and methodological issues of auditing leasing operations in Ukraine**

The paper investigates organizational and methodological issues of auditing leasing operations in Ukraine. It formulates proposals for improving the methodology of leasing auditing, separate audit procedures and structural elements of audit. The study develops the main points of the program of auditing leasing operations taking into account their specific features, which leads to an increase in inspection quality.

**Keywords:** leasing, auditing, leasing operations, contract, lease payments, depreciation.

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**Kuzkina T.V., Imshenytska I.H. Theoretical essence of travel service marketing**

The paper studies some aspects of the theoretical nature of marketing of tourist services, and provides the author's definition of travel service marketing.

**Keywords:** marketing, travel service marketing, tourist enterprise, tourist market, tourist product, tour operator, travel agency.

**Petina L.V. The influence of socio-economic factors on social security of rural population**

The article investigates factors influencing the social security of rural population, and outlines directions of the effective development of rural areas.

**Keywords:** social security, social development, integration, investment activity, social security, economic policy.

**Sysoienko I.A., Karliuka D.O., Bembel O.K. Methods and approaches to the diagnostics of economic security**

The paper studies techniques and approaches to the diagnostics of economic security, identifies their advantages and disadvantages, determines directions for further research.

**Keywords:** economic diagnostics, economic security, methods, threats, economic security components.

**Fedorchuk O.M. The influence of the state of social infrastructure on the development of human capital in the agricultural sector of Ukraine**

The article investigates the effects of the state of social infrastructure on human potential development in the agricultural sector of Ukraine. The author examines key infrastructure factors affecting the quality of human resources of the agricultural sector, proposes their scientific classification. The article also examines the specificity of the impact of social infrastructure on the formation of human resources of the agricultural sector.

**Keywords:** human resources, human capital, social infrastructure of the agricultural sector, reproduction of human potential

**Fomishina V.M., Karina O.S. Product quality management in the management of international economic activity of the food industry**

The paper considers the functioning of the domestic food industry oriented towards foreign trade. It investigates consumer needs in terms of providing the production of quality products; analyzes and summarizes the views of researchers on the concept of quality from the viewpoint of meeting consumer needs, and considers classifications of wants. It shows that without providing consistent quality, relevant to the requirements of consumers it is impossible to rationally integrate national economies into the global economy and take the rightful place in it. The findings indicate that for products to be successful and competitive they must satisfy consumer needs. To achieve this, the government should consider both the needs of the market in the development of quality standards, and direct producers in the process of production management and marketing.

**Keywords:** product quality, foreign markets, customer requirements, needs, characteristics, standard.

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**Shepel I.V. Domestic and international experience of pension insurance: advantages and disadvantages**

The article considers the pension system in Ukraine and corresponding means of accounting. It proposes to introduce separate sub-account payments to private pension provision in one installment. The article also highlights the advantages and disadvantages of both compulsory state pension insurance and private pension funds.

**Keywords:** pension insurance, single social contribution, social insurance, social security, private pension fund, state pension provision.

**Shepel T.S. Increase in enterprise management efficiency based on the controlling concept**

The article analyzes the opportunities of using the concept of controlling in the system of management of Ukrainian enterprises. It also substantiates approaches to the implementation of controlling functions on the basis of existing functional subsystems of management for ensuring the strategic development of enterprise management system.

On the basis of the analysis conducted, the study provides measures to introduce the system of controlling to enterprises.

**Keywords:** controlling, controlling concept, control, planning, monitoring, analysis, managerial decisions.

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