

## **OPTIMIZATION OF CULTIVATION CONDITIONS OF QUINCE VE GETATIVE STOCKS *IN VITRO***

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The optimum sterilization conditions for primary explants of quince plants were selected. The maximum explants sterility was determined on quince BA 29 in variant with using 0,6 % silver nitrate solution at exposition 45-60 sec. The mineral and hormonal content of nutrient mediums for quince plants proliferation stage were modified. The optimum BAP (2 mg/l) and kinetin (3,0 mg/l) concentrations were offered which increase quince types propagation coefficient. The optimum nutrient medium for rhizogenesis *in vitro* of quince types was M-S (modified), which contained 9,8 mkM IBA and 10,0 mkM NAA. The authentic correlational dependence between auxins content in nutrient medium and basic and additional roots quantity –  $r = 0,87$  and  $r = 0,67$  was established.

## **IDENTIFICATION OF IMPROVED WINTER WHEAT VARIETIES THROUGH EVALUATION OF DISEASE RESISTANCE AND YIELD UNDER THE CONDITIONS OF GEORGIA**

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Evaluation of wheat varieties Lomtagora 123, Robigus, Saul-9, TNMUI6/PEL144, KS91W and Bezostaya-1 to major diseases under natural infection showed that varieties TNMUI6/PEL74144 and Sauli-9 stand out as moderately resistant to all diseases in all locations of Georgia, while KS91W is affected only by stripe rust. All tested varieties, as compared with the check variety Bezostaya-1, were characterized with higher tillering ability and higher number of heads. In most of the trials varieties TNMUI6/PEL74144 and Saul-9 performed better than the other varieties in terms of grain yield and adaptation to biotic stresses. Therefore these two varieties were selected for release and multiplication.

## **EFFECT OF SEPARATE AND COMBINED APPLICATION OF CHEMICAL AND ORGANIC FERTILIZERS ON POTATO YIELD QUANTITY AND QUALITY**

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The paper is dedicated to the study of the effect of separate and combined application of chemical and organic fertilizers on the yield and quality of potato. The results of field experiments on applying chemical fertilizers at equal rates and different doses of organic fertilizers, as well as their combined use showed that the best effect can be obtained at treatments: 7 t/ha biohumus and 5 t/ha biohumus + N<sub>50</sub>P<sub>50</sub>K<sub>50</sub>, which, compared with control, provided increase in the yield by 185,0 and 195,8 c/ha, respectively, or 95,4 and 100,9 % (while in control the yield made 194,0 c/ha) with quite higher taste and quality of potato.

# **TECHNOLOGY OF CROP CULTIVATION: ENVIRONMENTAL STANDARDIZATION REGARDING THE DEGREE OF IMPACT OVER AGRO-ECOSYSTEM CONDITION**

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The paper presents the results of development of scientific approaches to the impact of environmental standardization of agricultural crop-growing technologies over agro-ecosystem condition. The results of approbation of these approaches on example of lucerne growing technology in the zone of right coast forest-steppe of Ukraine are shown.

## **THE INFLUENCE OF ENDOGENOUS AUXINS AND *MORUS ALBA* (MAL) LECTIN ON THE GROWTH AND ELONGATION OF WHEAT COLEOPTILES**

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Activity of endogenous auxins and lectin-like proteins were investigated in leaves and inflorescence of Georgian mulberry (*M. alba* var. *Gruzia* L.) at the different stages of plant ontogenesis. Highest activity of endogenous auxins (225-300%) and lectins (256 000 ml/mg) were exposed in inflorescence and leaf buds during the active growth period in compare to that of leaf and fruit formation. Correlation between the quantity of lectins and activity of endogenous auxins was shown. Affinity purified galactose-specific lectin from mulberry seeds (MAL) initiated the promotion of rapid elongation of wheat coleoptile when applied at 50 µg/ml concentration.

## **WATER EROSION AS THE MAIN FACTOR OF THE DEGRADATION OF THE CINNAMONIC SOILS OF THE REPUBLIC OF ARMENIA**

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The Republic of Armenia is a typical mountainous country with highly fragmented relief, where almost all the lands are subjected to different types of water erosion. From this point of view one of the most vulnerable regions is the mountain forest soil zone. The main causes of the degradation of the erosion of the cinnamonic and desertification have been investigated, the direction and intensity of the changes of their agro-industrial features have been revealed. A number of agro-technical measures directed on the increase of fertility and prevention of other negative phenomena and erosion observed in soils have been offered.

## **USAGE OF ONION AND GARLIC RESIDUES AGAINST THE PLANT DISEASES IN GLASS HOUSE CONDITIONS**

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In greenhouse conditions *Myzodes Persicae* were found on cucumber; against the parasite were used tincture, broth and extract from onions and garlic remains. Vegetable preparations were characterized by high efficiency against a greenhouse plant louse. As the results of research have shown, the most effective concentration of solution for tincture and broth of onions is equal 0,05:1; the mortality rate of a parasite after sprinkling by this solution reached 57.1-59.2%. Extremely high efficiency was defined for pure extract of garlic and onions. During research mortality of a parasite after spraying with these extracts reached 75.0-84.2%. Garlic extract was used against ashes on plants of a cucumber and tomatoes. The solution was prepared in concentration of 20 ml: 1 liter of water. After processing of plants, the intensity of development of the illness on cucumbers was reduced from 8% to 4%, and on tomato plants - from 34,8% to 14%. Impact on wreckers proceeded 8-10 days from the moment of dusting; on the basis of the research it is possible to conclude that in case of reusable processing of plants we can sharply reduce the use of fungicides.

## **N-GLYCOSYLATION OF AMINOPHENOLS BY SOME CARBOHYDRATES**

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The N-glycosylation of o-, m- and p-aminophenols by mannose, rhamnose and maltose is described. The composition of the synthesized products is established by microchemical analysis, and their IR and <sup>13</sup>C NMR spectra are investigated. As a result of the N-glycosylation of isomeric aminophenols, the anomeric effect is observed: N-o-hydroxyphenylmannosylamine and N-o-hydroxyphenylrhamnisy lamine appear only as b-anomers, and the other N-hydroxyphenylglycosylamines appear as a mixture of a- and b-anomers.

## **DETERMINATION OF THE HEIGHT CHANGE OF GROUND WATER LEVEL AT THE HORIZONTAL DRAINS**

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The paper examines the rupture of the water table at the horizontal drain, noting its importance in determining the depth of this drain to provide the drainage value in the reclaimed area. With the help of Darcy's law and the continuity equation of ground water flow are derived formulas for calculating the height of the water table see page from perfect and imperfect systematic horizontal drains. Here are also given and evaluated Vedernikov's formula to determine the height of the seepage.

## **SOIL FERTILITY MANAGEMENT IN ORGANIC AND CONVENTIONAL FARMS**

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Recent findings of some scientists revealed that soils under organic production systems are generally rich in organic matter and biological activity in comparison to conventional farming system. Current study aimed to clarify present conditions in Georgia, where organic farming is just expanding and the population as well as farmers are not always aware what kind of benefit organic production brings and what is a real difference in farm management system giving priority to organic system over conventional one in long term perspective. Conducted research compared two different, organic and conventional, farming systems by chemical indicators of soil fertility under vegetable production. Our study has shown a significant improvement in soil fertility under organic production system, which is a long term effect of organic management practice.

## **EMPIRIC APPROXIMATION FOR THE CARBON FOOTPRINT DETERMINATION FROM A SEMI INTENSIVE DAIRY FARM IN CHILE**

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There is great concern in determining carbon footprint in livestock, due to the growing demand for food of animal origin as well as an increase in the world population, and the large amount of greenhouse gases (GHG). Chile has signed international agreements to mitigate global warming resulting from greenhouse gas emissions. Studies are scarce at national level, and no regional or local works have been carried out, although they are required to develop and implement effective mitigation strategies. The objective of this empirical study was to determine the amount of GHG emissions and the carbon footprint of a semi intensive dairy farm of the Central Irrigated Valley, Bio-Bío Region, Chile. We used the methodology proposed by the Intergovernmental Panel for Climate Change (IPCC), which is accepted for the determination of GHG emissions in the case of absence of local emission factors. Methane (CH<sub>4</sub>) from bovine enteric fermentation (Me), CH<sub>4</sub> and nitrous oxide (N<sub>2</sub>O) from manure management (Ma), N<sub>2</sub>O soil emissions (Es), carbon dioxide (CO<sub>2</sub>) from organic soils (Cs), fertilizer production (Ff), as well as CO<sub>2</sub> emitted by fossil fuels (Cf), were considered in the determination of greenhouse gases. The amount of greenhouse gases and the mass of dairy produced at farm level were used to determine the carbon footprint. The total GHG emissions of the dairy farm were 671.8 Mg CO<sub>2</sub>-eq. The greater emissions corresponded to Me (39%), followed by Es (26%) and Ma (20%). The carbon footprint was 2.3 kg CO<sub>2</sub>-eq kg<sup>-1</sup> milk, which is higher than most of the dairy farms from European and Oceania countries.

## **SELECTION AND ESTIMATION OF ISSR-MARKER SYSTEMS FOR HORSES**

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By the ISSR-PCR method 7 populations of horses (Arabian breed, the Orlov Trotter, Trakehner, Thoroughbred, Novooleksandrivska draft breed, Ukrainian race breed, Przewalski horses) were studied and the most informative ISSR-marker systems were selected. It is showed that the number of amplification products and their polymorphism vary considerably depending on the micro satellite motifs used as a primer. ISSR-S2 and S10 systems are the most informative for the analysis of DNA polymorphism of horses. About 20 genomic loci are amplified and interbreeding and inbreeding differentiation are observed.

## **THE SPREAD OF MIXED INVASIONS IN HENS IN PRIVATE FARMS IN AZERBAIJAN**

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Eimeriosis, the associative form with the ascaridiosis, capillariosis and heterakidosis, was found in hens during the investigations for the first time in Azerbaijan. 250 birds at different ages were inspected to investigate the spread of eimeriosis, ascaridiosis, capillariosis and heterakidosis depending on age in the spring season on the farm. As a result of the caprological inspections, the oosistas of the reproductives of the *Eimeria tenella*, *E. acervulina*, *E. maxima*, *E. mitis*, the reproductive of ascaridiosis – *Ascaridia galli*, the reproductive of capillariosis – *Capillaria obsignata*, the reproductive of heterakidosis - *Heterakis gallinarum* were found. It has been determined that, the highest infection with the eimeriosis is 56,0 % among the chickens of 30 days, the weaker infection is 40,0 % among the chickens of 90 days, the highest infection with the capillariosis is 38,0 % among 1-year-old chickens, the weaker infection is 24,0 % among the chickens of 60 days, the highest infection with the ascaridiosis is 44,0 % among 1-year-old chickens, the weaker infection is 24,0 % among the chickens of 60 days, the highest infection with the heterakidosis is 36,0 % among the chickens of 120 days, the weaker infection is 20,0 % among the chickens of 60 days. It has been investigated that, the associative infection on the farm is 44,8 % with eimeriosis, is 33,5 % with ascaridiosis, is 31,5 % with the capillariosis, and is 28,0 % with the heterakidosis.

## **SPRING MALTING BARLEY PRODUCTIVITY DEPENDING ON FERTILIZATION AND SEEDING RATES UNDER CONDITIONS OF NORTHERN PART OF UKRAINIAN FOREST-STEPPE**

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Average yield of spring malting barley in Ukraine is comparatively low because of imperfect cultivation technology. Possible ways to increase spring barley productivity by improving of main technological elements according to the demands of modern malting varieties are stated in the article. It was established that high yields of malting grain can be reached by increasing of fertilization rate up to N<sub>90</sub> P<sub>60</sub> K<sub>60</sub> without any losses in quality if modern varieties with high ecological plasticity were used.

## **THE INVESTIGATION OF THE INFLUENCE OF SOY PROTEIN ISOLATES ON THE QUALITY OF WHITE BREAD**

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Authors have developed recommendations for the use of soy protein to increase the protein value of bread. To increase the protein content, soy isolate was added to a bread recipe. It was revealed that the introduction of the optimal amount of additives cannot only preserve the traditional consumer properties of bread, but also to improve them. Development of new technology in production of functional bread allows you to create new high-quality product.

## **THE ARMENIAN REALITIES: ECONOMIC GROWTH WITHOUT QUALITY OF PRIVATE BUSINESS**

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The paper involves retrospective analysis of economic growth in the Republic of Armenia, strategic direction and serious shortcomings of implemented from the beginning of nineties economic reforms. Author has substantiated the interconnection between qualitative economic growth and quality of private business, stated methodological and practical thesis that non-qualitative economic growth in the country is conditioned by the lack of the private business quality. In turn the latter is characterized by availability of the following attributes: free and independent business, competitive and effective business, developed small and medium business, non-polarized and protected business. The ways of forming qualitative business and reaching qualitative economic growth are revealed.

## **THE PROBLEMS OF DAIRY CATTLE BREEDING AND ITS SPECIFIC FEATURES IN RA SHIRAK MARZ**

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The conducted studies have revealed that the solution of various problems of dairy cattle breeding is connected with the provision of efficient resource use including fodder production and supply, utilization of natural meadowlands, improvement of the pedigree and productive characteristics of the animals, organization of production process, initial processing of milk and organization of its realization. Besides, it is necessary to solve the problems of milk realization which are conditioned by technological, economical, territorial and infrastructural factors. The studies of a number of rings in the productive chain of “milk producer – consumer” in the RA Shirak Marz have shown that the level of their functional state is extremely low. This negatively influences the level of milk marketability, its realization and profitability of cattle breeding farms.

## **GEORGIA SHOULD ADOPT A NEW LAW ON LAND USE**

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Every Georgian citizen, despite the sex, race, nationality, affiliation, skin color, place of birth and etc. is entitled to consider the natural resources of Georgia and the rural land on the first place, at a guaranteed base of feeding for his/her descendants, from now on and till forever. The fact of taking Georgian agricultural land to the open market, where practically no competitive Georgian citizens exist, is the state betrayal from the administration of Saakashvili. The decision of Georgian constitutional court of June 26<sup>th</sup>, 2012, #3/1/5/512, which cancelled the last restrictions on alienating the rural lands to people without citizenship, is one of the main, crowning parts of this betrayal and this process in general. Authors justify the faultiness of this act of the constitutional court from the point of view of law, and its catastrophism from the agrarian point of view.

According to the authors, such legislation can be formed, which allows foreigners to own land, but only with certain restrictions. It is necessary to make a number of changes in the Georgian law “about

the agricultural land” in which will be reflected limitations which are adjusted to the modern terms and cover the alienation of the agricultural land to the foreigners.

## **THE CONCEPT OF AUTOMATING OF THE REGULATION PROCESS OF NATURAL MONOPOLIES**

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One of the objectives of the “electronic government” is to automate the process of determining the tariffs for services of natural monopolies. The solution to these problems is possible with the help of the automated control system (ACS ENERGY), which provides for the implementation of works to create an ideology construction scheme, algorithms and programs.

## **THE ESSENCE AND PECULIARITIES OF STATE ANTI-CRISIS ECONOMIC POLICY**

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