

COMPLEX ASSESSMENT OF THE BIOINDICATIVE AND BIOREMEDIATIVE POTENTIAL OF THE SOME PLANT'S SPECIES

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The phytoindicative and phytoremedative properties of the following species of plants: trees (*Olea europaea* L., *Quercus ilex* L., *Eucalyptus camaldulensis* Dehn.), bush (*Ligustrum japonicum* Thunb.), and grasses (*Vicia faba* L., *Triticum aestivum* L., *Arabidopsis thaliana* Mull., *Hordeum crinitium* Schreb, *Cicer arietinum* L.) have been studied. The results of experiment demonstrate that *Quercus ilex* L., *Eucalyptus camaldulensis* Dehn. and *Hordeum crinitium* Schreb. more resistant to the environmental contamination can be able to be mobilized for bioremediation.

PEST PSYLLID (*HEMIPTERA, PSYLLOIDEA*) COMPLEX OF HORTICULTURE (PEAR TRESS PLANTATIONS) OF GEORGIA AND THE WAYS TO AVOID OF INTERSPECIES COMPETITION AMONG SOME SPECIES

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Psyllids are an important group of phytophagous insects. Life history of the world's psyllids are largely integrates in Hodkinson's monographical work [1]. The same data concerning to Caucasus region depicting in Gegechkori [2]. This group of insects includes a rather large number of pest species of economic significance [2-9]. Instead of nine species known earlier in the Caucasus [5], 17 locally or largely economically important pest species were found in this region during our studies in 1963-1990 [2,4,10]. In the North Hemisphere among horticulture domestic trees pear trees plantations are considerably populated by pest psyllids [11-13]. Thirteen species are recorded for Georgia, three of them occur only in cultured landscapes (*Euphyllura phillyreae* Förster, *Trioza brassicae* Vasiljev., *T. crithmi* Löw), nine species are recorded as a pest in horticulture. The most abundant harmful species (5) are associated with pear trees (wild and domestic): *Cacopsylla pyri* (Linnaeus), *C. pyricola* (Förster), *C. pyrisuga* (Förster), *C. permixta* (Burchardt & Hodkinson), *C. bidens* (Šulc). In the past, *C. pyricola* was confused with *C. permixta* [14,15]. According to Burchardt and Hodkinson [16] the status and taxonomy of these psyllids were clarified, so *C. simulans* (Förster) [2,17] belongs to *C. permixta*, and *C. vasilevi* (Šulc) to *C. bidens*. Some of the mentioned species include an extraordinary information with respect to their life history (extinction) host plant range and interspecies competition.

REGENERATION OF CHICKPEA GENETIC RESOURCES COLLECTION IN GEORGIA

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A set of 46 chickpea accessions maintained in the collection of the Legume's Genebank of the Georgian State Agrarian University (GSAU) was regenerated using advance growing technology of seed pilling. For GSAU grain legumes are mandatory crops in the frame of country regulations. The level of genetic diversity and the affectivity of new germplasm acquisition for the collection enrichment were evaluated. All of them, collected last time in 2003 needed regeneration for future breeding works, as well as for sending (as exchange) to genebanks of our collaborators and breeder in abroad. A new material was obtained from all the accessions special pilot plots of chickpea. Recently acquired new germplasm contributed all of new entire collection, i.e. almost 100% of collected diversity originated from the recently acquired accessions. Remarkable is also, that all accession carries a unique germination, not present in the remaining collection. Field and lab analysis revealed the importance of collecting missions for the enrichment of collections of genetic resources.

GEOECOLOGICAL STATE OF MOUNTAIN-ORE REGIONS OF GEORGIA AND OPTIMIZATION OF THE ENVIRONMENT

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The paper deals with several landscape-geochemical peculiarities of Georgia. The dependence of the duration of the recultivation process on the physical geographic factors has been investigated through the method of multi-factorial regressive analysis. The paper focuses on the optimizing ways of soil efficiency in the ore regions, having been damaged by technogenesis.

THE BIOPRODUCTIVITY OF FODDER GRASSES OF SUBALPINE HAYFIELDS OF CENTRAL CAUCASUS

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The bioproductivity of fodder grasses of subalpine hayfields depends on the fertility of soil, the degree of erodibility and herbage thickness, the soil rockiness and the specific composition of vegetation. The bioproductivity of grassy phytocenosis fluctuates from 8 to 21 tons. In fractional structure the greatest part from the general biomass comes on cereals. They are followed by motley grasses, leguminous plants (beans) and sedge. The overground phytomass of motley grasses is more than the phytomass of cereals in all cases, but in an underground part the phytomass of cereals exceeds the phytomass of motley grasses. The quantity of underground phytomass 3.8-7.0 times more than the quantity of overground phytomass and makes 81-88% of the general biomass. The abundance of leguminous plants increases not only the reserves of roots but the soil fertility and the fodder quality of grassy communities as well.

ARSENIC IN SOILS AND PLANTS FOOD PRODUCTS OF MINING AND PROCESSING REGION OF ARSENIC SULFIDE ORE IN GEORGIA

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The distribution of arsenic has been studied in the soil of arsenic sulfide ore mining and processing region and vegetable products. The arsenic content detected in soil of village Ambrolauri and river Lukhuni was near the background value. The arsenic content increases in the upper part of the ravine and achieves the maximum in arsenic sulfide ore mining-processing zone, then it decreases to background value. Arsenic content has been studied in vegetable products too. The results show, that the concentration of arsenic in the river Lukhuni ravine is observably increased in comparison with other regions, although with the rare exception it does not exceed maximum permissible concentration (0.02-2.00 mg/kg).

THE EXPOSURE OF MINERAL FEATURES OF THE MAIN TYPES OF SOILS OF SHIRVAN LOWLAND IN THE CASE OF LONG-TERM AGRICULTURAL USAGE

M.A. Akhmedova

The paper gives the results of mineral researches of the meadow-grey soil of Shirvan lowland in the case of long-term agricultural usage. Among fine-grained minerals in irrigated meadow-grey soil montmorillonite, illite and compound layer formations were exposed, which in the case of little content of humus in meadow-grey soil promote the formation of soil crust that destroy cotton sprouts.

INTENSIVE METHODS OF GROWING TOMATO SEEDS IN CONDITIONS OF GANJA-KAZAKH ZONE OF THE REPUBLIC OF AZERBAIJAN IN VERY EARLY AND REPEATED SOWINGS

Z.J. Allahverdiyeva

The paper deals with the reception of two yields of tomato seeds during one natural vegetation on the basis of the investigations carried on early tomato species – Utro, Elnur, Leila using very early sowing and planting periods, polyethylene covers and repeated sowings with newly harvested seeds. The amount of seed yield made 111,2-157kg/ha i.e. 2 times more than through ordinary cultivation.

THE COMPARATIVE ANALYSIS OF METHODS OF INVESTIGATE TEXTURE (ON EXAMPLE OF THE ANDOSOLS OF GEORGIA)

T.F. Urushadze, T.O. Kvrivishvili, E.V. Sanadze

In the article, N. Kachinski's soil texture classification to the International (USDA) standards has been adjusted. In this reason, it was studied texture (granular) of Andosols, spreading on the Tsalka volcanoes plateau which had been defined by the method of sodium pyrophosphate. According to N. Kachinski's soil texture classification, Andosols belong to medium, heavy loam or slightly clay soil texture. On the other hand, it has been ascertained amount of clay fraction (<0,002 mm) by the amounts of fine silt (<0,005mm) and clay (<0,001mm) fractions as well as using of regressive formula ($\Phi_{<0,002} = -1,148 + 0,43 \Phi_{<0,005} + 0,53 \Phi_{<0,001}$). In comparison with two fractions - clay of the N. Kachinski

classification and clay of the USDA classification – some regularity has been fixed. Texture of Andosols on the base on < 0,002 mm fraction results has been defined. In the Article also have been introduced differences between mechanical fractions of Kachinski and USDA classifications. Differences are noticeable in the gradation of skeleton, fine earth, silt and clay particle sizes.

DEFINITION AND MANIFESTATIONS POLYVALENT BIOACTIVE GA ISOLATED IN SUSPENSION CELL CULTURES IN *IUCCA GLORIOSA L (= I. ACUMINATES SWEET)*

M. N. Oziashvili

This paper considers the impact of isotope-modified GA obtained by the method of microbial biosynthesis in isolated cell culture, the characteristics of mass spectra of methylated and leaded Fragment ions. It also deals with a direct isotopic analysis of plant morphogenesis and stimulation of various concentrations of GA in culture cells.

AMPELOECOLOGICAL PECULIARITIES OF THE SOILS OF THE KVARELI ENVIRONS (GEORGIA)

L.A. Gamsakhurdia

The paper presents the results of the researches and the comparative ampelographic -ecological characteristics of soils of Kvareli region on which the vineyards of "Saperavi" variety grow, giving an ordinary wine material in Kvareli vine-growing economy, and branded wine material "Kindzmarauli" in Kindzmarauli vine-growing economy. Distinction of ampelographic-ecological indicators of soils of "Kindzmarauli" and "Kvareli" vine growing economies is basically in stoniness. Soils of Kindzmarauli economy are characterized by higher stoniness, that causes more favorable thermal and water conditions of these soils during the summer period. All this positively influences sugar accumulation in grape juice and quality wine material.

WAYS OF ALLEVIATING DISASTERS CAUSED BY MOUNTAINOUS RIVERS FLOODING

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During the last two decades, losses caused by high waters and floods resulting from significant climate changes have considerably increased. The cause of this, besides the scope of the elements, is widespread deforestation taking place almost anywhere including Georgia. Among other reasons are unprotected river banks and dumping of river-beds. With the view of alleviating disastrous consequences of flooding, reforestation of mountain slopes, recurrent cleaning of river-beds, safeguarding river banks, and construction of small reservoirs is the solution. Besides the above listed approaches one of the most efficient ways is working out methods for long-term forecasts of flooding and short-term forecasts of high waters. These methods are also vital for rational utilization of water resources and safe exploitation of reservoirs. For the economic hydro ranges of Georgia maximum norms of water expenditure as well as extreme and probable significance have been provided, which are of vital importance in determining technical and economic indexes of facilities.

ABOUT BUILDING SEMISELF MOVING PLOUGHS ON HYDROENGINE DRIVE

A.A. Hovhannisyan

In order to reduce the resistance of a tractor unit it has been suggested by us to reconstruct a common plough into a semiselfmoving one by placing a hydroengine transmission with proper parameters. The process of interinfluence both of plough wheels and the soil has been considered in the paper by a theoretical analysis. As a result of the theory the calculating parameters of driving wheels of a semiselfmoving plough has been elaborated. The dependence of the analysis between jolt moment of the resistance of the basic driving wheels of a plough and the turning one of the source of energy of a hydroengine has been established. Thus, it has become possible to assemble a plough with tractors with lower power.

ENERGY SAVING TECHNOLOGIES MACHINE ON A REHABILITATION OF TEA PLANTATIONS

Z.K. Makharoblidze, I. M. Lagvilava, R. M. Khazhomiya, B. A.Goshadze

At renewal and rehabilitation of tea plantations basic processes are heavy paring and deep treatment of close-up settled in spaces between rows of soil. Machine technologies are developed for the light, heavy weight, heavy and half heavy overgrown bushes with the front and back of the location of paring vehicles on a tractor. In both cases working organs are rotary blade knives. For disintegration of soil in spaces between rows of plantations technologies have been developed, which provide for one passage-way of tractor in a heavily cut row, treatment of two spaces between rows with the simultaneous bringing of mineral fertilizers. A process is carried out by taps application of Russian flat cutting deep loosening of original construction.

MATHEMATICAL MODELING OF CONTAMINATING AGENTS' PERCOLATION IN THE SOIL DURING ACCIDENTAL SPILL OF OIL

N. A. Begalishvili, N.N. Naskidashvili, L. U. Shavliashvili, D. M. Shavladze

The paper gives the results of mathematical modeling of oil contamination spread in the soil in case of accidental spill of the substance (crude oil, oil-water emulsion) from temporarily inactive oil well. Vertical profiles of oil relative mass concentration according to depth in one meter soil layer at different points of time are represented. Task solutions are obtained depending on the input parameters of the model – physical and hydro physical characteristics of the soil and of the contaminating agent.

THE APPLICATION OF USEFUL FEATURES OF NATIVE HENS FOR EGGS AND MEAT PRODUCTION

M.G. Gajiev

According to the basic zootechnical indices young native hens have the best parameters. The hens with high economical and useful qualities were got after selecting and breeding native hens. As the result of the research were prepared recommendations for applying the native hens in the farms and in the small holdings.

SPECIFICATION OF FORMATION OF THE ICHTHYOFAUNA IN THE ARMENIAN RESERVOIRS

S. Kh. Pipoyan

While planning the reservoirs of Armenia possible changes of the ichthyofauna, with few exceptions, were not taken into account, and the ichthyofauna of these reservoirs, undergoing the impact of quite different biotic and abiotic factors, has faced radical changes. The result is that fishes living in many reservoirs in present are mainly represented with less valued and weed species appeared from other geographical locations. Such development of the situation can cause an irretrievable loss of separate native valued fish species and an essential change of the ichthyofauna of Armenia.

MORPHOLOGICAL AND HISTOLOGICAL STUDY OF RABBITS DURING IMMUNIZATION WITH ANTHRAX VACCINE I-17 STRAIN

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The paper describes the study of macro-morphological and hysto-morphological changes in the rabbits organism of Shinshilla species induced by vaccination with the STI and new I-17 anthrax vaccines on the 3rd, 5th, 9th and 15th day after vaccination. Pathologic-anatomic changes in general were observed in the areas of vaccine strains injection and regional lymph nodes in form of inflammatory swelling. There was an increased number of neutrophiles in the exudates approaching maximum on the 5th day after vaccine stain injection, where the changes take downward trend on the 15th day after injection.

CURRENT PROBLEMS OF SHEEP BREEDING IN GEORGIA

A. P. Dolmazashvili, G. I. Macharashvili, K. J. Natsvaladze

Sheep breeding in Georgia has long traditions. According to natural-climatic and geographical conditions, three main types have been developed - nomadic, stationary and half stationary keeping, from which nomadic sheep keeping is in the first place. According to immemorial time researches our ancestors raised two unique breeds of sheep: Tushuri and Imeruli. They are famous for their unique properties and they easily adapt to local extreme conditions. In Georgia sheep breeding was successful in second part of XX century, but at the end of the century due to the hard economic conditions it underwent terrible crisis which is still going on. Great number of researches and practical field works showed the way how to get from these crises. In Georgia nowadays it is possible to grow up 1,4 million sheep, there will be lambs 75-78% which exceeds the second half of XX century by 21,2% and milk enterprise by 34,4%. To achieve this task authors believe that pastures productivity must be improved in the aim to use them rationally and to improve sheep breeding productivity.

RELATION BETWEEN THE LIVE WEIGHT OF YEUNG AND THE INTENSITY OF GROWTH OF THE TAIL FEATHER

B. G. Davitashvili, R. S. Mitichashvili, A. A. Chagelishvili

The researches carried out on the quails of Pharaoh-breed for the purpose of the establishment of relationship between the length of the third tail feather and growth and development of quails having different live weight have shown that the quails having low live weight in an initial period (at two-month of age) of their growth and development further overtake the quails of the same age and sometimes exceed them not only by absolute but also by average daily growth of live weight. The measurement of the third tail feather has shown that its growth is in positive interrelation with live weight, so it is possible to select quails for the replacement according to the length of the third tail feather.

CULTIVATION OF EUCALYPTUS AS VERDURE CULTURE

N.Sh. Baghaturia, E. A. Uturashvili, N. A. Begiashvili, B. N. Baghaturia

The paper gives the results of many years' investigations on the optimum cultivation technologies of Eucalyptus in the conditions of humid subtropics of Georgia. The authors prove the favourability of cultivation of Eucalyptus as a verdure crop, that will considerably increase the yield of cineol per planting unit.

THE INVESTIGATION OF BASIC QUALITATIVE INDEXES OF QUINCE JUICE FOR THE PRODUCTION OF DRINKS

G. N. Kaishauri

The paper gives the results of the research of basic qualitative indexes of quince species "Malachina" grown in Gori district. The species is characterized by high quality indexes. The fruit stored at 0 °C - 1 °C and at 80% - 85% relative humidity of air almost preserves its organoleptic indexes. After storage the fruits of quince were submitted to the technological tests. In ready-made products the basic qualitative (standard) indexes were determined. The juice made from the stored sort of quince species "Malachina" is biologically valuable product. This product can be used as natural fresh juice or can further be processed for production of drinks.

PHILOSOPHY OF FINANCIAL ANALYSIS AND ORGANIZATION CULTURE

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All types of human behavior is connected with the analysis that is the part of perception of the greatest phenomenon of a human being and the basis of material outcomes. According to the dictionary definition, analysis is fragmentation of concepts and ideas into the constituent elements and their separate study. It is an accompanying process of the occurring changes worldwide and characteristic to all living organisms. Exact understanding and delivery of separate financial processes plays an important role during financial analysis and renders the analysis the nature of concreteness, explains the essence of financial analysis and is revealed in the organizational culture of subject's economic activities.

VALUE OF MATHEMATICAL MODELLING OF ECONOMIC EVENTS AND PROCESSES IN AGRICULTURE

T.R. Kvaratskelia

At the present stage of development of a society, the problems of perfection of processes of economic research have a great value. Hence, a wide application of modern achievements of mathematics in economy is necessary. In this connection, there are problems of studying, ordering, perfection and working out of economic-mathematical methods and choosing of ways for their application.

THE PROBLEMS OF THE SUSTAINIBLE DEVELOPMENT OF THE MOUNTAINOUS REGIONS OF THE REPUBLIC OF ARMENIA

M.G. Manasyan

During the implementation of the regional policy it is necessary to take in to consideration the originalities and the peculiarities of the high mountainous regions. In spite of the big reassuring potation they yielded to in social-economic grow the lowlands and plain territories. In the article discussed those problems and terms which studying and solution depends largely on sustainable and rapid development of mountainous areas of the country.