

HETEROTIC AND HETEROBELTIOTIC STUDIES IN *FLUE CURED VIRGINIA (FCV) TOBACCO*

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The experiment was conducted at Khan Gari Station Mardan-KPK-Pakistan during 2008 to evaluate the heterotic performance of some tobacco genotypes. Seven tobacco genotypes (KHG22, Spt G 126, K399, NC606, KHG21, KHG24 and Spt G 28) were crossed in all possible direct and reciprocal combinations. Forty two direct and reciprocal crosses along with their seven parents were space planted in randomized complete block design. Data were collected for days to flowering, leaf area, leaves plant⁻¹, green leaves kg⁻¹, green leaves weight plot⁻¹, plant height, internodal length, cured leaves kg⁻¹ and yield kgha⁻¹. Desirable heterotic effects were observed in all the traits studied. Greater values were observed for yield and green leaves weight plot⁻¹. The cross NC606 x KHG21 showed high values for yield and leaf area. Spt G 126 x KHG22 gave high values for days to flowering, Spt G 126 x KHG24 was best for leaves plant⁻¹ and green weight plot⁻¹ and KHG21 x K399 was best for cured leaves kg⁻¹. Generally, the heterotic effects of traits indicated the possibility of exploiting the hybrid vigour of the tobacco genotypes for yield and its components. Based on the findings of this study, the above mentioned crosses have potential for the improvement of various traits like yield and leaf area.

NEGATIVE INFLUENCE OF MISTLETOE LECTIN ON SURVIVAL OF *APAMEA SORDENS* AND *AGROTIS SEGETUM* (LEPIDOPTERA, NOCTUIDAE)

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Insecticidal activity of *Viscum album* chitin-binding lectin (MChbL) against *Apamea sordens* Hufn. And *Agrotis segetum* Schiff. larvae was investigated. MChbL exhibited proteinase inhibitory and chitinase activities and affected larval development and survival at different growth stages. N-terminal amino acid sequencing of MChbL showed homology to osmotin-like protein from *Hevea brasiliensis* and α -amylase/trypsin inhibitor from *Zea mays* with 60% homology. The results show that mistletoe chitinbinding lectin has potential as entomotoxic agent for the control of Lepidoptera pests.

THE OPTIMAL DEPTH OF PROCESSING SODA SALINE SOILS OF THE ARARAT VALLEY TO CHEMICAL MELIORATION DEPENDING ON THE MECHANICAL COMPOSITION AND LITHOLOGICAL STRUCTURE OF THE PROFILE

V.A.Papinyan

Development of saline lands of the Ararat valley has certain difficulties caused by the great heterogeneity of the mechanical composition. Before chemical melioration, the processing of soda saline - salt licks were carried out, depending on lithological structure and mechanical composition. The optimum depth of processing the soils is established, at the surface (0-25 cm) the location of the clay layer is proposed to make the usual size to a depth of 25 cm), with the power of the clay layer from the surface to 50 cm - implement a loosening of the specified depth, and in the presence of the clay layer around the profile of meter column - it is recommended to deepen loosening of the soil to a depth of 100 cm.

FLOROCOENOTIC COMPLEX OF CAUCASIAN RHODODENDRON (*Rhododendron caucasicum* Pall.) IN HIGH-MOUNTAIN ECOSYSTEMS ON THE GREATER CAUCASUS AND ITS BOTANIC-GEOGRAPHICAL DIVERSITY

Sh.K.Shetekauri, D.G. Chelidze

Botanic-geographical diversity of floristic complex of the Caucasian rhododendron (*Rhododendron caucasicum* Pall.) on the Greater Caucasus has been studied. When specifying typical, characteristic species of the florocoenotic complex (thickets) of Caucasian rhododendron the distribution range of each species, coenotic role and coenotic links were taken into account. The research results have proved that despite quite frequent occurrence of around 100 species of various plants in *Rhododendron* thickets on the Caucasus, the number of typical constant species of this complex is mainly composed of 14 species. These species are united in 11 genera and 8 families. The majority of these species (8 species) belong to Palearctic type of distribution range. In spite of the fact that by its bioecology *Rhododendron caucasicum* is close to *Rh.ponticum*, related to it and even often found in the composition of the Colchian forest as underwood, it cannot be considered to be a typical species of the Colchian forest. Typical hypsometric area of its distribution is subalpine and alpine zone between 1800-2700 m a.s.l.

PHOSPHORUS REGIME OF GREY-BROWN SOILS OF ABSHERON

A.P.Alieva

Data of the study of the influence of the different kinds and doses of the organic and mineral fertilizers on revealing of mineral forms of phosphorus in carbonate grey-brown soils of Absheron are adduced in the article. It was established that the predominating form of phosphorus in the investigated soil is calcium-phosphate, which was distinguished by its stability and in accessibility for plants. The study of the degree of mobile phosphates "intensity" of the solution in the investigated soil creates possibility of prognosis of the provision of soils in phosphorus nourishment at the beginning period of the plant development. Application of the organic and mineral fertilizers in soil accelerates a process of self-diffusion, transformation of phosphate-ions form hard phase into soil solution.

TOMATO CROP VARIETIES AND PECULIARITIES IN ARMENIA

S.V. Karapetyan

In order to study agro-biological peculiarities of local and introduced tomato varieties, the experiments were conducted in Vegetable-Melon and Industrial Crop Research Center of Ministry of Agriculture in Armenia. 16 sample varieties were investigated from which 7 are introduced and 9 are local. The result of studying was complex assessment according to main economic indicators and selecting varieties for purposeful use in canning industry. The varieties with high qualitative characteristics were selected from local tomato varieties.

SOME ASPECTS OF LAND RESOURCES DEGRADATION IN GEORGIA DUE TO TEMPORARY CLIMATE CHANGE

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The paper deals with the increase of salinization and alkalization of soil due to water influence and desertification followed on wind impact on the background of modern climate change in certain regions of Georgia. Adaptation measures for provision of sustainable management and development of the land resources in Georgia that will facilitate reduction of land degradation, improvement of social-economic conditions of the population and alleviation of poverty are considered.

**BIOLOGICAL AND AGROPHYTOCENOLOGICAL CHARACTERISTICS
OF THE *ANABASIS APHYLLA* (*CHENEPODIACEAE*)
IN THE CONDITIONS OF DESERTS OF AZERBAIJAN**

F.G. Movsumova

The information on the study of ecological-biological and agrophytocenological properties of *Anabasis aphylla* L. spread in saltwort deserts of Azerbaijan has been provided for the first time. Ecology, biology and agrotechnology of the *A. aphylla* thicket in the condition of the researched areas of the republic as well as use of *A. aphylla* in different fields of agriculture and industry of the region were considered. It was stated that phytocenotic structure depends on the relief and anthropogenic loads.

**LOCAL ORES OF GEORGIA AND PROSPECTS OF THEIR USE
FOR FERTILIZATION OF AGRICULTURAL CROPS**

O.Y. Zardalishvili, T.T. Urushadze, M.O. Zardalishvili

Local ores of Georgia (phosphorite, limestone, mergel, chalk, dolomite, gypsum, magnesium containing ore), organic fertilizers (bog peat, brown coal, bitum and loam slate), micro fertilizers (boron, manganese, copper, cobalt, molybdenum, zinc) and other local agronomic raw materials (bentonite clay, zeolites) are analyzed in the article. It shows the ways of their rational use.

ABOUT PRODUCTIVITY OF ALLUVIAL SOILS IN SAMEGRELO (GEORGIA)

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Alluvial soil of Samegrelo (Nosiri) region is developed on old Alluvial Deposits. It is characterized by average and great thickness profile, it is stony, mild, consisting of carbonates and is fissuring. According to mechanic consistence the soil is mainly clayed. The quantity of physical clay fraction is about 32-67% which defines water, air and thermal features of this soil.

**SHEET DIAGNOSTICS OF APPLICATION OF COMPOUND FERTILIZERS
ON TEA PLANTATIONS**

I.T. Burchuladze, V.P. Tsanova, F.Sh. Chanukvadze

Tests of new and perspective forms of compound fertilizers in the conditions of red soils of tea plantations have shown their high efficiency in comparison with equal quantity of applied agrotechnical norms of simple (standard) fertilizers. Crop growth fluctuates within 13-22%. Appreciable improvement of a phosphorous nutrition of plants (increasing contents of P₂O₅ in flushes) in comparison with standard fertilizers is noted. However, in tea plants essential distinctions in NPK indicators between forms of compound fertilizers was not revealed.

EFFICIENCY OF APPLICATION OF THE NITRIC FERTILIZER RECEIVED ON THE BASIS OF SMOKE GAS EMISSIONS OF THE POWER ENTERPRISES UNDER AGRICULTURAL CROPS

M.C. Seyidov

In our country the heat electric station manufactures the main part of electrical energy. HES of Ali-Bayramly throws out 120mlnm₃ of smoke-gasto atmosphere, pollutes the environment every day. In Calculation of nitrogen fertilizers it forms 300000 ton of nitrogen fertilizer energy year. At present works are being carried out to develop the technology of getting nitrogen fertilizer from smoke-gas of waste of heat electric station and getting nitrogen fertilizer on the basis of connection of the electrochemical and chemical reactions, the advantage of which is completed in minimal loss of electrical energy and getting nitrogen fertilizer.

INFLUENCE OF ORGANIC AND MINERAL FERTILIZERS ON INCREASE OF FERTILITY OF THE COUNTRY SIDE LANDS OF APSHERON

S.X. Shukurov

The article deals with positive outcomes achieved at a result of long-termed cultivation and fertilization of soils used in gardening sector of Apsheron peninsula. Application of organic and mineral fertilizers improves not only fruitfulness of fruit and vegetables, but also the physical and chemical composition of soil. For this purpose the efficiency of combined application of organic and mineral fertilizers was proved with tests and the good results have been shown in the table given in the article. In the article fertility of the garden soils of Apsheron peninsula is substantiated through important agrotechnical measures. In the article it is substantiated that the combined usage of organic and mineral fertilizers in order to raise the fertility of the garden soils of Absheron peninsula can be considered important agrotechnical measure.

ROTARY TYPE INTERNAL COMBUSTION ENGINE

G. G. Manasaryan

There is no crank mechanism, a flywheel and unbalanced masses in the offered four-stroke internal combustion engine. It allows to rotate blades of the engine with the speed close to speed of emission of a flame front. Besides, sixteen driving strokes per one rotation of the shaft has been put into effect. It allows to increase effective power of the engine in comparison with the piston engine.

DETERMINATION OF RESISTANCE OCCURRING IN A BLENDER AND CALCULATION OF STRENGTH

O.T. Akopyan

The paper deals with the determination of resistance on the blades of the screw and the wall of the mixer for mixing the feed mixes and updated safety factor of working organs of the mixer.

THE DEPENDENCE OF OPERATIONAL INDICES OF MACHINE-TRACTOR AGGREGATES (MTA) ON THE LOCATION OF RECTANGULAR PLOT ON THE SLOPE

S. X. Papyan, A. A. Akopyan, V. L. Badalyan

The complex outline of plot has a negative influence on the operational indices of machine-tractor aggregate, especially if the plot is located on the slope because in the latter case the power stroke of aggregate is limited by the fact that it moves parallel to the horizons of the slope. In this respect, the connection between the MTA operational indices (particularly the coefficient of power stroke) and the loss coefficient of the curves with arbitrary location of rectangular plot on the slope (under some angle formed by any side of the plot and the slope horizon) are of great importance. It is revealed, that under this location of area those indices are getting worse.

CHARACTERISTIC FEATURES OF PERMANENT TEETH PLACEMENT AND NERVE SUPPLYING OF A CAUCASIAN SHEPHERD AND A JACKAL

A. G. Patieshvili, G. T. Ramishvili

On the material of 10 heads of Caucasian shepherds and jackals there was studied the placement of permanent teeth and nerve supply characteristics. It is stated that the cutting teeth on both jaw arcades on the right as well as on the left are three, and one – on the fang. There are 6 permanent teeth on the shepherd's upper jaw teeth edge, and 7 ones on that of a jackal. In both species there are 7 permanent teeth on the teeth edge of the mandibule. The first four are premolars, and 2 or 3 are molars. The permanent teeth have one, two or three roots, neck and crown. The belt is located at the root zone of the crown, from which the tooth cones branch out in different directions. In adult animals the surface of the cones is small. The upper jaw arcade teeth take nerves from inferior orbital nerve. 2 or 4 alveolar nerves go out of the lower orbital into the homonymous channel; number of alveolar nerves in a shepherd more often is 3, and 4 in a jackal. Mandibular arcade teeth take nerves from the mandibular alveolar nerve. In the shepherd mandibular alveolar nerve is divided into: descending, transversal and final parts, and in transversal and final parts in the jackal samples.

METHOD OF ISOLATION OF CLOSTRIDIA RECOMBINANTS OF ESCHERICHIA FROM THE HEARTS OF DEAD MICE

J. V. Nachkebia, K.J. Nachkebia, E.J. Nachkebia

We offered the method of isolation of clostridial recombinants of Escherichia. The advantage of this method is that it gives us the possibility, in comparison with the other methods of conjugation, to select recombinants, which have the toxigenic features with the higher frequency. Clostridia are donors passing to Escherichia, the other features, such as hemolytic activity, antigen features, possibility of sugar decomposition, resistance against the antibiotics. White mice were infected with the mixture of cells of toxigenic clostridia (donors) and Escherichia (recipients), with the following isolation of recombinants from the hearts blood of dead animals. The recombinants of Escherichia, with the toxigenic and hemolytic activity were isolated with the greater frequency than during the other methods of conjugation.

METHODS OF CORRECTION OF ENERGY METABOLISM IN ANIMALS IN HYPOKINESIA

A.G. Grigoryan

The restriction of muscular activity is an important part of the hypokinetic syndrome. Hypokinesia leads to a reduction of energy consumption, reduction in bio-energy and intensity of structural metabolism in the muscles, the weakening of tonic impulses from the muscles, reducing the load on the skeletal system. The purpose of this paper is to study the dynamics of changes of some parameters of energy metabolism in rats and bulls with limited physical activity, approbation, and in an

industrial environment adaptogenic drug Eleutherococcus extract. As a result of our studies, we observed a significant decrease in oxygen consumption, increased activity of catalase and glutathione content in the blood of experimental animals that is apparently due to a violation of mechanical ventilation and a decrease in the use of oxygen by the body tissues and cells, as well as changes in metabolism, indicating that shifts in the oxidation - reduction processes in the body and Eleutherococcus extract is the corrector of these negative changes.

DNA METHYLATION LEVELS IN COMMENSAL *Escherichia coli* ISOLATES FROM GUT MICROFLORA OF CROHN'S DISEASE PATIENTS

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The results showed differences in DNA methylation levels of fecal *E. coli* isolates obtained from healthy individuals and patients with CD, growth both in aerobic and anaerobic conditions. Differences in DNA methylation in the commensal *E. coli* from the gut microflora of healthy and Crohn's disease patients may be related to disease duration and stage of disease, as well as surgical treatment. These studies indicate the possibility of diagnosis of diseased state of organism based on features of DNA methylation levels of gut bacterial isolates of the patient.

MONITORING OF ACCLIMATIZATION OF HOLSTEIN BREED OF CATTLE IN SUBTROPICAL ZONE OF WESTERN GEORGIA

L.A. Tortladze, T.G. Gabisonia, I.E. Antia, J.H. Javarashvili

The scientific researches have shown that Holstein breed of cattle successfully adapted to the new conditions in subtropical zone maintains peculiarities of build of the breed, good reproduction capacity, health, lifetime and in heifers and cows the exterior and interior indices characteristic of dairy cattle. Milk productivity of cows corresponds to the level of feeding and the bull calves when raising intensively reach 500kgs at the age of 19 months. In case of having good fodder resources the breed should be recommended for wide area of distribution.

PRESENT STATUS OF BUFFALO BREEDING IN GEORGIA AND ITS DEVELOPMENT PROSPECTS*

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Buffalos are distributed in all ecology-economic zones of Georgia. They belong to river buffalos. Caucasian buffalo is distinguished by high live weight and satisfactory dairy efficiency. According to recent data the number of buffaloes in Georgia is 29.5 thousand. Basically, they are bred in small backyard farms, their number in farms is up to 50 heads. In the scientific experiments we studied the economic and biological characteristics of the buffalo, including reproductive ability, milk production, growth and development of young animals, adaptability to changes. It was stated that while feeding with a small amount of silage and grain yield, average milk yield of dairy buffalos increased by almost 50% compared to pastures.

DYNAMICS OF DETOXIFICATION OF CONFIDOR AND TOPAZ IN LEAVES AND FRUIT OF APRICOT

L.H. Atshemyan, V.S. Mirzoyan, R.M. Hanisyan

The experiments were conducted on the apricot trees in Kotayk marz. The dynamics of detoxification of the most frequently used pesticides in Armenia (Confidor and Topaz) was studied in leaves when spraying both individually and jointly. The residual amount of the pesticides in the leaves and fruits of apricot was determined with the help of thin layer chromatography after 2 hours, then 7, 14, 21, 28, 35 days of treatment. The study on detoxification dynamics of apricot leaves of different pesticides showed a full detoxification of Confidor and Topaz within 25-28 days after the second application, while upon their integrated control - within 30-35 days.

CHARACTERISTICS OF STONE-FRUITS PACKAGE IN POLYMERIC PELLICLES

E.G. Mailova

Changing lifestyle requires the usage of packaged food that is the most convenient and efficient to use. Over time unpackaged fruit loses its quality as a result of physical, chemical and biological processes that constantly occur within food. With the aim to prevent spoilage and increase shelf life, fresh fruit is packed in polymeric pellicles/sheets the usage of which is growing worldwide. In the paper the weight change of packed peaches and apricots within 30 days is considered depending on the type of polymeric materials.

DETERMINING CARBON STOCK IN FOREST STANDS OF CAUCASIAN PINE AND ORIENTAL SPRUCE IN GEORGIA

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The research studied the amount of deposited carbon in Borjomi-Bakuriani forest stands of Caucasian Pine (*Pinus hamata* (Stev.) D. Sosn.) and Oriental Spruce (*Picea orientalis* Link) in various stand age classes. Carbon stock was also determined in young growth, sub forests, in soil's live and dead covers, in soil's humus. Annual wood increment in region is 3.85 m³/ha., annually fir stands from atmosphere absorb 2.48 tone CO₂, in which deposited carbon stock is 0.675 tone. Annual wood stock in spruce stands is 2.68 m³/ha., annually absorb 1.126 t/ha. CO₂, deposited carbon stock is 0.56 t/ha. By fir and spruce stands of Borjomi-Bakuriani district from atmosphere is absorbed and in biomass as carbon is concentrated 14856.01 thousand tone CO₂.

NEW DATA OF SPREADING EUROPEAN WHITE BIRCH (*Betula pendula* Roth) IN THE SURROUNDINGS OF TBILISI

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Area of *Betula pendula* Roth in the surroundings of Tbilisi has been studied. New sites of its spread in the gorges of the rv. Vere and Digmistskali have been observed. About 140 grown ones are registered in the gorge of Vere, and 14 - in the gorge of Digmistskali. They are spread as the small numbers of groups and as unit of individuals in the abolished structure coenoses of different formation of the forest. We meet them rarely in the rank of edipicator. Renovation does not go. General conformity with a law of spreading of *B. Pendula* in the surroundings of Tbilisi, small phytocoenological description of habitats, participation and its ceonotic role in different communities is given as well as some parameters (height, diameter, age) of its individuals.

THE PROBLEMS CONCERNING THE CORPORATIVE ETHIC IN JOINT STOCK COMPANIES OF THE REPUBLIC OF ARMENIA

A.A.Arshakyan, A.Azakharyan

This paper is devoted to the problems of the corporative ethic in joint stock company of the Republic of Armenia. Taking into consideration the essence of problems concerning the construction of civilized corporative relations and improvement of the activity in the majority of joint stock companies of the Republic of Armenia there is an attempt to identify the key factors which influence the improvement of the quality of corporative management and corporative ethic. There is a great emphasis on the basic problem of corporative ethic which is to provide the necessary level of honesty, assurance and justice in joint stock company. The essence of the above mentioned values may fundamentally promote the development both in joint stock companies and economy in general. The paper provides a table which characterizes the basic moral obligations in joint stock companies and entrepreneurs. As the improvement of the quality of corporative management and corporative ethic has strategic meaning both for the further development and economy in general, State and joint stock companies should be interested in them.

THE THEORETICAL BASES OF STATE REGULATION OF AGRARIAN SPHERE

M. E. Badalyan

The state regulation of agricultural sphere was analyzed and justified in the article and the theoretical basis of realization of this function was suggested connected with the specific distinctions of land resources.

THE SIGNIFICANCE OF THE MAIN FINANCIAL INDICATORS OF THE REPUBLIC OF ARMENIA IN THE REGULATION OF ECONOMIC AND BUDGETARY PROCESSES

A. G. Safaryan

For the countries going through transitional economy such as the Republic of Armenia, economic growth is closely linked with the increase of the consumption of gross domestic product, state budget tax revenue, purposeful use of intended overall spendings as well as reduction of foreign debts. These are the issues considered in the above paper.

PRINCIPLES OF BASE INDEX DETERMINATION FOR CADASTRAL VALUATION OF PLOUGH LANDS

A.S. Ezekyan

Cadastral valuation is performed according to the defined sequence: land-valuating zoning of territory, soil appraisal and grouping, processing of numerous data for land valuation. The above mentioned values are required to define the size of land tax, rent-charge and regulation of land relations.

RENTAL INCOME FORMATION AND THE WAY OF ITS DETERMINATION FOR LAND ESTIMATION

A. S. Ezekyan

Land cadastral valuation provides acquisition of required and true data on land capability of agricultural holdings. It is performed based on the land aggregate rental income. The valuation is required to solve numerous production and managerial targets aiming at efficient use of land resources.

ACCOUNTING ISSUES OF BIOLOGICAL ASSETS

A .G. Tshughuryan, G. B. Gevorkyan

The paper deals with the issues, related to the accounting by an enterprise of the biological transformation of living animals or plants (biological assets) for sale, into agricultural produce, or into additional biological assets. Basically, fair value can be measured reliably for a biological asset only on initial recognition for such market-determined prices. However, during the future period of exploitation, the fair values are not available and consequently suggested alternative estimates. In such a case, IAS 41 requires an enterprise to measure that biological asset at its cost less than any accumulated depreciation and any accumulated impairment losses. Once the fair value of such a biological asset becomes reliably measurable, an enterprise should measure it at its fair value less estimated point-of-sale costs.

THE PROBLEMS OF EXPENDITURE CALCULATION OF THE CONSTRUCTION OF MAJOR MEANS OF PRIVATE USE

M. B. Poghosyan

The paper deals with the problems of expenditure accounting of the construction of major means of private use in correspondence with the active regulations. It considers a number of bases that disclose the discussion of construction expenses for the organizations of RA, the financial –economic activities which do not have constructive direction

WAYS OF IMPROVEMENT OF CALCULATING OF THE ESTIMATE VALUE OF CONSTRUCTION SITES

M. B. Poghosyan

This article is dedicated to the construction of the legal acts in force in order to calculate the cost of construction of the improvement and its compliance with the requirements of international standards of accounting of Republic of Armenia and expense plan in accordance with the classification of costs and expenses properly.