ABSTRACTS

EDUCATION: PROBLEMS AND PERSPECTIVES

УДК 159.93

V.D. Zemzyulina
M.V. Koksharova

INFLUENCE OF MODULE-RATING TECHNOLOGY ON PROMOTION OF COGNITIVE ACTIVITY OF AGRICULTURAL UNIVERSITY STUDENTS WITHIN MATHEMATICS COURSE

The problem of cognitive activity of the person draws attention of researchers of many fields of scientific knowledge.

Quality of knowledge and skills of students at mastering the module was evaluated by various quality monitoring methods: oral and written interrogation, examination, individual assignment, etc. Besides, we applied a method of testing.

Monthly monitoring of students' success of studying promoted their independent work.

УДК 378:007.2:51

I.K. Shalayev,
O.V. Tsymbalist

FORMATION OF MATHEMATICAL THINKING CULTURE AS FACTOR TO IMPROVE QUALITY OF PROFESSIONAL EDUCATION OF ENGINEERS IN MODERN CONDITIONS

According to the carried out analysis it may be concluded that culture of mathematical thinking of an engineer completely complies with the new education paradigm which is aimed at personal interests, development if personal creative abilities, high professionalism, enrichment of thinking, broad fundamental education.

To improve quality of mathematical education of engineers the whole educational process should be based on principles of fundamentality, integration and humanitarisation of knowledge. In pedagogic practice a mechanism to form mathematical thinking of an engineer may be building of mathematical education based on the fundamental course of Higher Mathematics, special course of mathematical modelling and integration of professional and fundamental knowledge by solution of complex social problems.

THEORETICAL DEVELOPMENTS

УДК 54:631.8

L.P. Kozhevina

D-ELEMENTS: FEATURES OF STRUCTURE, PROPERTIES AND AGRICULTURAL VALUE

The paper reveals tendency of D-elements to complex-formation through availability of significant number of free atomic orbitals, as well as tendency to oxidation-reduction processes since they are capable to exhibit various degrees of oxidation. Due to those features, in small content they reveal significant chemical effect, thus determining the role of microelements in agriculture.

УДК 556:631.6:631.95:001.891.573

Y.D. Kosheleva,
A.A. Tskhai,
K.B. Koshelev

NUMERICAL MODELLING OF COMBINED MOVEMENT OF SURFACE AND GROUND WATER IN THE SYSTEM OF SUPPORT OF DECISION MAKING

The authors have completely simulated combined movement of ground and surface water. The algorithm is implemented as computer software, and allows using necessary empirical data in conditions of the Altai Region.

The research was carried out with the grant of the President of the Russian Federation to support leading scientific schools of the Russian Federation (№ НШ-22.2003.5).

Areas of application of this research include forecasts related to the condition of ecological system "ground water-soils-surface run-off" connected with industrial and economic activity in rivers' catchment basins (irrigation, pollution), and connected with various climatic factors (flood, drought).

AGROECOLOGY

УДК 613.26/.29:541.43

G.G. Morkovkin,
E.V. Panova

INFLUENCE OF RECEIPT OF CHEMICAL ELEMENTS BY HUMAN ORGANISM WITH DAILY DIET ON MORBIDITY RATE OF RURAL POPULATION OF THE ALTAI REGION

Daily receipt of chemical elements with food affects human health. Formation of chemical composition of food is much dependent on functioning of the trophic chain "soil-plants-animals". Studies revealed that soils of the arid zone are characterised by medium levels of Zn and Cu content, and low content of Ni and Cr. Soils of arid and temperate arid steppe zone chernozems' are characterised by higher levels of Zn and Cr content, and medium Cu, Ni content. In soils of intermediate forest-steppe zone higher levels of Zn (maximal compared to other zones of the Region), Cr content and medium levels of Cu, Ni content are observed. Higher levels of Zn and Cr content, medium levels of Cu, Ni content are observed in soils of chernozems zones of foothill plains, foothills and low hills of the Altai Mountains; levels of Cu, Ni and Cr content being higher, than in soils of other zones. In certain zones of the Altai Region there is pollution of some major vegetable crops with heavy metals. They observe average positive correlation relation between Zn, Cu and Ni content in diets with respiratory diseases, blood circulatory diseases, and congenital anomalies; Cu content with urogenital system diseases. Average negative correlation ratios are determined for Zn, Cu and Ni by musculoskeletal system diseases, malignant tumours.

УДК 631.416.9 (571.15)

E.A. Lesnykh

BEHAVIOUR OF MICROELEMENTS IN SOIL AT HUMUS LOSS WITH EXAMPLES OF SOILS OF THE PRIOBSKOYE PLATEAU OF THE ALTAI REGION

Humus status of soils is an important indicator of fertility. The probability of accumulation of microelements in humus increases with increase of humus biophile degree. Our research proved that relation between humus content in horizon AB + A and mobile forms of Cu, Mo, Zn, Co and B is curvilinear. The content of mobile forms of Zn, Co and B is considerably lower when humus is lost in more erosive soils of the Priobskoye plateau of the Altai Region. Zn and Mo are most biologically significant since their coefficient of biological adsorption is more than 1. Mobile forms of copper and boron are not lost due to soil erosive processes in the Priobskyoe plateau, since they are regularly distributed in all horizons.

УДК 636.082.2+636.083

G.D. Tolkushkina,
N.G. Sarychev,
A.S. Kashin

CONCENTRATION OF TOXIC ELEMENTS IN SOIL, WATER AND FEEDS IN THE FOREST-STEPPE ZONE OF THE ALTAI REGION

The paper deals with monitoring of mercury, cadmium, lead and arsenic content on farms of the forest-steppe zone of the Altai Region. It is revealed, that in the area of maximal anthropogenic impact and in the zone of pollution accumulation and redistribution at natural barriers, higher content of cadmium, lead and arsenic in soil, water and feeds is observed.

УДК 631.6:911.52:550.4

Y.D. Kosheleva,
L.G. Kazantseva

LANDSCAPE-GEOCHEMICAL ZONING AS FOUNDATION FOR DESIGNING THE BURLA IRRIGATION SYSTEM AND THE BURLA BASIN GEOSYSTEMS MONITORING

The paper deals with the issues of designing the Burla irrigation system, and proposes new approach for the Burla basin zoning and geosystems monitoring based on the landscape-geochemical method. Defining processes of chemical elements' migration and accumulation in the soils of the Burla river basin provides possibility to evaluate applicability or non-applicability of particular soils for irrigation; thus ecological risks will be reduced.

УДК 631.4

L.M. Tatarintsev

NATURAL DYNAMICS OF PHYSICAL AND THERMAL PHYSICAL SOIL PROPERTIES

The paper provides the results of dynamics study of soil physical condition parameters during moistening-dehydration process. Based on significant number of examinations, applying information logical method, there was investigation of interrelations between physical properties and soil humidity, in particular, between aggregate contents at dry sieving, composition density, composition porosity, other properties and moisture with the account of granulometric composition and humus content. The paper provides interesting data on specific change of properties depending on moisture change.

УДК 631.445.157:636.086.15

I.T. Trofimov,
Y.A. Gladkov,
V.S. Kursakova,
O.A. Yelchaninova

EXPERIENCE OF INTRODUCTION OF WILD-GROWING BARLEYS ON SALINE SOILS

Barleys Hordeum brevisubulatum and Hordeum bogdanii Wilensky are valuable salt-tolerant species to establish hayfields and pastures. The sample of Hordeum brevisubulatum collected on saline soils on terraces of the Gorkoye lake is the most high-yielding, and it may be used as material for selection.

ANIMAL PRODUCTION

УДК 616:15:636.92:615.814.1

Y.V. Bobchuk,
M.Y. Ostyakova,
A.V. Samorokovskiy

HEMATOLOGIC DATA OF RABBITS BY THE ACTING UPON BIOLOGICALLY ACTIVE POINTS

Acting upon acupuncture points L.8-8'; L.9-9'; L. 10-10' by reflexochemocauterization for seven days totally contributed to increase in number of erythrocytes, hemoglobin, leukocytes and lymphocytes in peripheral blood after the experiment, respectively, by 7,61; 5,91; 14,46 and 8,22%, compared to the background data before the experiments. That allows recommending this method to increase natural resistance and stimulation of immune, hemopoietic, digestive systems of rabbit's organism.

УДК 636.082.2+636.083

N.I. Ryadinskaya

PANCREAS EXCRETORY DUCTS MORPHOLOGY OF MOOSE AND ROE DEER

Pancreas excretory ducts of moose and roe-deer were investigated. Intralobular, interlobular ducts are structural elements of secretory tree, the initial zone of which is intercalated portion. Some variants of it branching are distinguished: multibranchy, low-brahchy and moderate. The type of branching determines the form of pancreas. It is observed, pubescent moose and roe-deer may have all three types of secretory part's branching.

VETERINARY MEDICINE AND BIOLOGY

УДК 611.3636.4-053.81

Y.V. Kuryatova

APPLICATION OF PREPARATION "MALAVIT" AT ACUTE DIGESTIVE DISORDERS OF PIGS

Application of a homeopathic preparation "Malavit" to treat acute gastroenteritis of pigs promotes easier course of disease and fast convalescence process with minimum loss of animals. During treatment 6 animals died in the study group, 14 animals died in the check group.

УДК 619:616.089

N.A. Malygina

DYNAMICS OF MORPHOLOGICAL CHANGES OF WOUND CICATRIX AFTER APPLICATION OF VARIOUS SUTURES AND SUTURELESS REPAIR IN CATS AND DOGS

The paper describes histologic examinations of uterine cicatrices after carrying out Caesarian section in dogs and cats. According to the examinations' data there is the longest (up to 21 days) and acute cellular infiltration when traditional two-line suture is applied. There is minimal residual cellular infiltration, but also up to 21 days when we tested other sutures.

When glue composition "Sulfakrilat" was used, there was residual cellular infiltration on the 21st day of the postoperative period in cats observed, infiltration included giant polynuclear cells. In dogs, when the glue was used, there were no giant polynuclear cells observed neither on the 11th day, nor on the 21st day of the postoperative period. We believe it is related to the glue removal from the animal's organism

When one-line sutures, sutureless repair and suture-glue combination were used, better blood supply is observed, there is no significant amount of suture material, the wound heals faster.

УДК 619:616.99

N.M. Ponamarev
Y.V. Ryabtseva

INFLUENCE OF ALBEN ANTHELMINTIC ON QUANTITATIVE AND QUALITATIVE CONTENT OF ANIMAL GASTROINTESTINAL TRACT MICROFLORA

The study of Alben influence on microbe status of animal organism revealed that this anthelmintic suppresses useful microflora and at the same time promotes growth of pathogenic microflora (salmonella, staphylococci), which is constantly present in intestines, thus causing dysbacteriosis condition.

УДК 619:616.3:246.2:017.1:615.246.2:636.7

A.N. Chubin,
L.A. Naboka

CYTOGRAM OF RESIDENT LEUKOCYTES OF GASTRIC MUCOSA OF DOGS AT EXPERIMENTAL STOMACH ULCER ON BACKGROUND OF COMBINED TREATMENT BY ENTEROSGEL, RIBOTAN AND LASER RADIATION IN CONSTANT MAGNETIC FIELD

To study cytogram of resident leucocytes in gastric mucosa in dogs at experimental ulcer on the background of combined treatments by enterosgel, ribotan and laser radiation in constant magnetic field histological examination was carried out. It was determined that on the background of combined treatment by enterosgel, ribotan and laser radiation in constant magnetic field reduction of lymphocytes, neutrophils, eosinophils, erythrocytes, labrocytes, plasmatic and degenerating cells number is observed, and increase of monocytes and macrophages number in proper gastric mucous plate is observed.

УДК 619:616.3:246.2:017.1:615.246.2:636.7

A.N. Chubin,
L.A. Naboka

STRUCTURAL ORGANIZATION OF PROPER GASTRIC MUCOUS PLATE IN DOGS WITH EXPERIMENTAL ULCER ON BACKGROUND OF COMBINED TREATMENT BY RIBOTAN, ENTEROSGEL AND LASER RADIATION IN CONSTANT MAGNETIC FIELD

To study structural organization of proper gastric mucous plate in dogs with experimental ulcer on the background of combined treatment by ribotan, enterosgel and laser radiation in constant magnetic field histological examination of biopsy material was carried out.

The examination revealed that this particular procedure of combined treatment of ulcer in dogs during the experiment allows to stop symptoms of inflammation and to restore microcirculation in proper gastric mucous plate.

MACHINERY

УДК 631.3

V.S. Krasovskikh,
T.V. Dobrodomova

SKIDDING MACHINE MT-5 AS TRACTIVE-TRANSPORT-DRIVING UNIT TO WORK WITH TILLAGE-SEEDING COMPLEX

The paper provides evaluation of expediency to apply crawler skidding machine MT-5 for work with tilling seed drill; the unit's parameters and operation regimes recommended to the manufacturer are determined.

PROCESSING: TECHNOLOGIES AND EQUIPMENT

УДК 637.02 (075,8)

N.I. Kapustin

AUTOMATION OF CHEESE PLANT OPERATION REGIME

The paper deals with technology of cheese grains production, it provides functional scheme of automated control of cheese plant operation regime based on developed algorithm. The plant's design and operation are described. Such approach allows reducing labour costs while improving cheese quality.

ECONOMICS AND MANAGEMENT

УДК 63:368

G.M. Gritsenko,
A.P. Zimina

PROSPECTS OF CREATION OF NEW AGRICULTURAL INSURANCE SYSTEM

The paper reveals peculiarities of agricultural production risks, which prove necessity of agricultural insurance development; related domestic and foreign experience is summarized; issues of agricultural insurance development in Russia are considered, and prospects of creation effective insurance system taking into account requirements and peculiarities of protection against risks in agriculture are determined.

УДК 631.15/. 16:637.1:658.8

A.I. Kolobova,
O.A. Kosintseva

ORGANIZATION OF SALES AND PROCESSING OF MILK IN MARKET CONDITIONS (ON EXAMPLE OF AGRICULTURAL ENTERPRISES OF THE ALTAI REGION)

The paper deals with development tendencies of the dairy industry in Region, dairy products supply and demand dynamics, use of raw material by the processing enterprises, and interrelations of agricultural enterprises with processors.

УДК 631.15/. 16:637.1:658.8

R.I. Samokhvalova

WAYS OF INCREASING PRODUCTION EFFICIENCY AT DAIRY PROCESSING ENTERPRISES

The Altai Region is a leading region of Russia in dairy processing. However, for the recent years in the Region there was decrease of milk production that caused underutilization of processing capacities of the enterprises, and rise in prices of dairy products. The author examines the reasons of crisis condition of dairy cattle breeding, reveals reserves to increase efficiency of dairy processing, and offers ways of resolution the existing problem situation.

FINANCE AND ACCOUNTING

УДК 631.15/. 16:605.03(571.15)

A.I. Kolobova,
S.P. Vorobyov

FINANCIAL LOSSES OF THE ALTAI REGION'S AGRICULTURE IN SITUATION OF PRICES DISPARITY IN THE SYSTEM OF AGRICULTURAL INDUSTRY COMPLEX

The paper discusses the issues of lack of exchange equivalence in system of agricultural industry complex. Losses of the agriculture caused by disparity in relative and balanced variants are justified. Measures to restore interrelations' parity in the system of agricultural industry complex are proposed.
