

**EDUCATION: PROBLEMS AND PERSPECTIVES**

УДК 378.004.12

V.D. Zemzyulina

**HIGH-QUALITY MATHEMATICAL EDUCATION IN AGRICULTURAL UNIVERSITY  
AS ONE OF DIRECTIONS TO IMPROVE QUALITY OF SPECIALISTS' TRAINING**

Issues of mathematical education in an agricultural university. Ways to improve quality of mathematical education in a university. Formation of educational motivation and mathematical culture among the students of an agricultural university. The factors that influence quality of mathematical education.

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УДК 378:63 (571.15)

A.A. Fannenshtil,  
Y.N. Nazarkina

**EDUCATIONAL LEVEL OF THE MANAGERS AND SPECIALISTS  
AS THE FACTOR OF AGRICULTURAL INDUSTRY EFFICIENCY**

Higher education is a prerequisite to improve living standards of the population. The authors carried out research of the dependence of the outputs of activity of the agricultural enterprises of the Altai Region from the level of availability of managers and specialists with higher education. The analysis confirms that qualification improvement of the managers and specialists positively affects development of production. The structure and extent of higher education in the Altai Region are focused on the requirements of the agricultural industry production.

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**THEORETICAL DEVELOPMENTS**

УДК 631.3.004.67: 621.758

V.Y. Derizin,  
B.S. Ozhgibitsev

**ON DIMENSIONAL ANALYSIS AS A STAGE OF SOLUTION OF DIMENSIONAL CHAIN**

Modern domestic agricultural machinery repair facilities do not provide high quality repairs of the machinery. There are number of attempts to eliminate this drawback including attempts using theses of the theory of dimensional chains. However, according to the authors, the technique to identify the linking components is not advanced enough, and that is why it needs to be updated. The paper suggests approaches, which will allow carrying out the dimensional analysis more thoroughly, thus providing quality improvement of the repaired machinery.

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**RESEARCH METHODOLOGY**

УДК 636.085/.087:546.15:547

A.M. Bulgakov

**NEW TECHNIQUE OF IODINE DETECTION IN FEEDS AND TISSUES**

To achieve a result, a technique was developed, which includes preparing the material for ashing (crushing, mixing with potash, wetting, predrying at temperature 105-110°C, ashing at temperature 500-550°C) with subsequent extracting, filtration, evaporation and drying of the deposit; during preparing the material for ashing, potash is used as 10% solution mixed with ethyl alcohol in 7:1 proportion with subsequent holding the material in it for 20-30 hours; wetting the material before predrying and extracting after the ashing is carried out by ethyl alcohol. The extracting is carried out by thrice-repeated action of ethyl alcohol.

The use of the suggested technique increases reliability of iodine detection that is proved by the increase of likeness of iodine detection tests results.

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**AGRONOMY**

УДК 631.811.98

O.I. Antonova,  
G.Y. Stetsov,  
A.P. Gershovich**INFLUENCE OF TIMING OF GROWTH REGULATORS APPLICATION TO THE CROP ON SUMMER WHEAT YIELDS**

It is suggested to apply growth regulators to the plants during the critical phases of plant development (bifurcation phase). In 2004 an experiment with a preparation Larixin was carried out. The influence of application timing on quantitative figures of wheat yield, and on agrochemical parameters of grain composition was revealed.

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**AGROECOLOGY**

УДК 631.436

S.V. Makarychev,  
S.V. Velichkina**INFLUENCE OF FALLOW TILLAGE TECHNIQUES ON HEAT AND MOISTURE RESOURCES IN CHERNOZEMS OF FORESTATED STEPPE OF THE ALTAI REGION**

Technological practices of a fallow field preparation for grain crops significantly influence on the dynamics of hydrothermal regimes in a soil profile. The most positive effect at that is provided by surface tillage, which allows optimal use of heat and moisture resources increasing yields of summer wheat.

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УДК 631.4:631.8:572.1/.4

Y.G. Pivovarova

**INFLUENCE OF ANTHROPOGENIC IMPACTS ON CHANGE  
OF NUTRIENTS CONTENT IN SOIL**

Under conditions of forage and field crop rotation, influence of various anthropogenic effects on nutrients content in soil was studied. With the help of information analysis, quantity content indicators were established for mobile forms of nitrogen, phosphorus and potassium in soil, all depending on variants of fertilization, irrigation, preceding crop, and the major tillage technique.

Soil nutrients unbalance, arising at alternation of crops in crop rotation, may be eliminated by rational selection of various agricultural practices (irrigation, tillage and fertilization techniques). Chemical land improvement and various systems of organic and mineral fertilizers, making positive effect on nutrient regime and crop yields, simultaneously raises nutrients level in soil, promoting recovery of its fertility.

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УДК 631.95(517.5)

L.M. Tatarintsev

**ECOLOGICAL SUBSTANTIATION OF THE ALTAI REGION'S LAND RESOURCES USE**

The paper provides the results of ecological evaluation of land use in administrative subdivisions of the Altai Region. It is established, that in the majority of subdivisions in modern conditions the use of land resources is carried out with violation of ecological requirements. The ratio of lands is disturbed in favour of arable lands, thus essentially reducing stability of agricultural landscapes and promotes development of negative processes. The main directions to change the land use modes and to increase ecological stability of the municipal subdivisions' areas are proposed.

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УДК 630\*611(571.15)

V.I. Chukanov,  
A.A. Malenko

**OPTIMIZATION OF PARAMETERS OF MULTI-PURPOSE FORESTS' USE  
IN THE ALTAI REGION**

The paper deals with the necessity of optimization calculations which can provide precise guiding lines at rational and integrated use of forest resources of the Altai Region under the condition of profits increase at forestry enterprises, improvement of living standards of the population, preservation of a biodiversity and ecological balance.

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**ANIMAL PRODUCTION**

УДК 636.39.082.13:612.396:591.133.2

A.I. Afanasyeva

**LEVEL AND DYNAMICS OF GLUCOSE OF BLOOD IN GOATS  
OF THE GORNOALTAISKAYA DOWN BREED IN THE AGE ASPECT**

Age dynamics of glucose in the blood reflects the rate of carbohydrate homeostasis. The maximum concentration of glucose is found in the age of 1-3 days. Glucose stabilization on the level of the adult organism is observed at the age of 13-18 months.

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УДК 636.082.45

N.G. Sarychev,

**V.V. Kravets,  
N.P. Shvets**

**INCREASE OF REPRODUCTIVE POTENTIAL OF REPLACEMENT SOWS  
BY COMPLEX APPLICATION OF HORMONE-CONTAINING PREPARATIONS  
AND VITAMINS**

Preparing of replacement sows for insemination by 15-day's contact with a boar, and subsequent single treatment in 24 hours by synthetic progesterone in a doze 10, 30 and 6 mg/head, and then by pregnant mare's serum in a doze of 1500 IU per head in 48 hours after moving sows to reproduction unit, reduces length of the period from the beginning of breeding till fertilization by 7,5-7,7 days.

Subsequent daily feeding the sows with folic acid (vitamin B<sub>9</sub>) supplemented to the ration in a doze of 15 mg/head, or injections by Tetravit in a doze of 2,5 mg/head with 7 days' interval starting from the 4th till the 60th day of gestation, both treatments allow to increase the litter of sows at the first farrow by 0,8-0,9 pigs, fertilization rate is maintained at the level of 85,0-90,0%.

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**УДК 636.082.2+636.083**

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

**THE CONTENT OF TOXIC ELEMENTS IN BLOOD, ORGANS AND TISSUES  
OF LACTATING COWS IN THE FOREST-STEPPE ZONE OF ALTAI**

The paper deals with the results of testing lactating cows kept in the forest-steppe zone of the Altai Region for the contents of heavy metals and arsenic in blood serum, in muscle tissue and spleen, according to ecological systems of various pollution levels. It is revealed that in a highly polluted zone the content of Cd and Pb in blood serum, in muscle tissue and spleen somewhat exceeds the allowable limit of their concentration. In the agricultural zones considered as conditionally satisfactory by ecological state, the content of the specified heavy metals in tested samples does not exceed the allowable limit values.

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**VETERINARY MEDICINE**

**УДК 619:612.017.11/12.616.24-002.153:636.2**

**K.N. Kozhanov**

**CORRECTION OF SECONDARY IMMUNE DEFICIENCY  
AT BRONCHOPNEUMONIA IN CALVES**

Necessity of complex treatment of bronchopneumonia in calves with application of etiotropic, pathogenic and immunity stimulating therapies is experimentally confirmed.

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**УД 619:615.7:616:636.7**

**O.A. Kostyleva**

**STAPHYLOCOCCOSIS IN DOGS AND CATS (CLINICAL ASPECTS, TREATMENT)**

Making use of significant clinical material (760 animals, including 395 dogs, 365 cats), the author identified peculiarities of pathogenetic process and clinical symptoms of staphylococcosis, manifested by bacteremia and sepsis diagnosed at these species of animals.

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**УДК 619:618.1:636.2****E.V. Kuryatova****CORRECTION OF VAGINAL MICROBIOCENOSIS DISORDERS IN COWS  
IN CALF BY "MALAVIT" PREPARATION**

Estimation of bacteriological status of vagina of cows in calf revealed that all examined animals had various vaginal microbiocenosis disorders.

The tests of vaginal microflora before and after application of "Malavit" preparation revealed significant increase of quantitative contents of lactobacilli, bifidobacteria and lactic acid streptococci alongside with reliable reduction of concentrations of practically all types of conditionally pathogenic microorganisms and pathogenic staphylococci upon completion of therapy cure.

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**УДК 636.2:616.5****Y.M. Malofeyev,  
S.P. Yermakova,  
P.B. Shestun****DERMATOGLYPHS OF PLANUM NASOLABIALE OF COWS AT THE TRAINING FARM  
«PRIGORODNOYE» OF THE ALTAI STATE AGRICULTURAL UNIVERSITY**

Studying dermatoglyphs of planum nasolabiale of 46 cows black-and-white holstein cross-breeds on the Training Farm "Prigorodnoye" of the Altai State Agricultural University was carried out. Four types of dermatoglyph pattern of planum nasolabiale were identified: "grain" ("зерно"), "spikelet" ("колосок"), "combi" ("комби"), "crown" ("крона"). Animals with dermatoglyph pattern "crown" and "grain" have the highest milk yields (5124-5886 kg for the second lactation). Cows with other dermatoglyph patterns had lower milk yields (4135-4449 kg for 305 days of a lactation). It should be taken into account when carrying-out selection breeding work with animals.

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**УДК 619:615. 37/614****N.A. Malygina****NEW METHODS OF UTERUS WOUND REPAIR AT CAESARIAN SECTION  
OF DOGS AND CATS**

The paper deals with description of new methods of uterus wound repair at Caesarian section: one-line suture Gély's suture modified by N.A. Malygina, stitchless repair with the use of new glue composition "Sulfakrilat", and a stitch-glue combination by N.A. Malygina. The paper deals with stitching technique and techniques of the glue composition use for stitchless wound repair of a uterus and hermetic sealing of Schmieden suture.

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**УДК 619:616****L.V. Medvedeva**

**DETERMINATION OF PHYSICAL AND BIOLOGICAL TIGHTNESS  
OF ONE-LINE INTESTINAL STITCHES IN THE EXPERIMENT**

The article informs about the investigation results of physical durability of one-line intestinal stitches, developed at the Chair of Surgery and Obstetrics in the Institute of Veterinary Medicine of the Altai State Agricultural University. The used methods are also described in the article.

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УДК 619:616-089

L.V. Medvedeva,  
A.S. Kashin

**ONE-LINE INTESTINAL STITCH OF KASHIN-MEDVEDEVA**

The article describes one-line, serous, muscular and submucous intestinal stitch according to the modification of Kashin-Medvedeva.

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УДК 619:616.99

N.M. Ponamaryov,  
E.V. Ryabtseva

**EFFECT OF ALBEN ANTI-HELMINTH ON CLINICAL  
AND HAEMATOLOGY PARAMETERS OF HENS' ORGANISM**

The research carried out to evaluate effect of different Alben dozes on the immune status of hens infected by ascarides and heterakis, enabled to establish its general positive effect. Results of experimental research confirm that twice-repeated oral Alben application in doze of 0,2 g per 1 kg of a bird's weight does not cause essential disorders of cordial function, respiratory system, and also evident and persistent changes in morphological structure of blood. This fact agrees with the clinical state of the bird's health.

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УДК 619:616.3:246.2:017.1

A.N. Chubin,  
L.A. Naboka

**EFFECT OF RIBOTAN APPLICATION ON SECRETORY FUNCTION  
OF GASTRIC GLANDS AT EXPERIMENTAL STOMACH ULCER OF DOGS**

Overall aim of our research was observation over change of secretory reaction of gastric glands caused by ribotan effect at experimental peptic ulcer of dogs.

As the result of the research it is established, that ribotan possesses insignificant oppressing action on secretory elements of stomach, and in particular, on the main and parietal cells of glands.

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**MACHINERY**

УДК 631.31

V.I. Belyaev,  
S.A. Loktionov,  
D.V. Belyaev

**COMPARATIVE EFFICIENCY OF USE OF TECHNOLOGICAL COMPLEXES  
OF DOMESTIC AND FOREIGN MACHINERY FOR GRAIN FARMING  
IN THE ALTAI REGION**

The paper deals with the results of comparative technical and economic evaluation of technologies' implementation in grain farming with the use of technological complexes of domestic and foreign machinery in the central zone of the Altai Region.

It is established, that application of foreign machinery complex would allow to guarantee saving of fuel in 2,4 times, reduction of wages fund - in 4.6 times. The amount of amortized deductions at that increases in 1,6 times, deductions for repair - in 1,2 times, and total capital investments - in 1,9 times.

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УДК 621.695

V.N. Ekshibarov,  
N.M. Kalenyuk,  
A.V. Skripnik,  
I.V. Dyomina

**WINDMILL-DRIVEN WATER LIFT OF CYCLIC ACTION**

Designed efficiency of windmill-driven water lift is 0,4 m<sup>3</sup>/hour. The estimated cost of the lift is 10000 rubles. One of such lifts is enough to provide water supply for an animal production facility of 100 heads of cattle.

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УДК 631.3

V.S. Krasovskikh,  
T.V. Dobrodomova

**MATHEMATICAL MODEL OF FUNCTIONING  
OF A TRACTIVE-DRIVING MACHINERY-TRACTOR UNIT**

Mathematical model "soil-tillage seed drill-propelling unit-transmission-engine" was developed, allowing to determine output of parameters of a tractive-driving machinery-tractor unit.

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УДК 631.3

V.S. Krasovskikh,  
T.V. Dobrodomova,  
D.V. Sinogeykin

**RESULTS OF FIELD TESTS  
OF A TRACTIVE-DRIVING MACHINERY-TRACTOR UNIT**

In Siberian conditions it is necessary to use new energy and resources saving technologies. At grain crops planting operations there were tests of the unit consisting of the carrier 521M1 with PPK-12.4. Ratio of operating time use and its components were determined.

УДК 631.3.004.67

V.N. Chizhov,  
O.G. Belchikova,  
M.V. Selivyorstov**CALCULATION OF METAL VOLUME FOR RESTORATION  
OF DISKS AGRICULTURAL MACHINERY**

The paper deals with problem solution by calculating the weight of metal displaced at restoration of disk tools cutability with use of electromechanical metal deformation technique.

Besides, an effective energy saving technique of restoration of that group parts is proposed, which application will allow to considerably increase service life of disk tools of tillage equipment.

The paper provides basic conclusion that having determined the weight of displaced metal, we can determine for our technological process the amount of heat required for heating-up this weight, the value of mechanical energy for its deformation, and number of other technological parameters. In future this will allow to determine their rational values at realization of process of sharpening disks of agricultural implements.

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**ECONOMICS, MARKETING**

УДК 338.433:631.14

O.B. Borisova,  
G.M. Gritsenko,  
S.A. Fisak**USE OF MARKETING METHODS BY DEVELOPMENT OF DIVERSIFICATION  
STRATEGY OF AGRICULTURAL ENTERPRISE ACTIVITY**

The authors of the paper introduce a category "diversification strategy of agricultural enterprise activity" and propose methodology of diversification strategy activity development within corporate strategy of an agricultural enterprise. The paper deals with the features of analysis of marketing potential of an agricultural enterprise and rural administrative subdivision, technique to determine prospects of industry development by an example of animal industry, estimation criteria of recreational potential of rural administrative subdivision's territory are introduced. Variants of matrix method application at planning diversification strategy activity of an agricultural enterprise are examined.

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**PHILOSOPHY AND POLITICAL STUDIES**

УДК 1

A.F. Upravitelev

**INTUITION IN SCIENTIFIC CREATIVITY**

The author of the paper points out marks that intuition is an unintentional, and difficult to rationalize process, but nevertheless, intuition can be controlled. It is achieved by development of feeling of integrity, and in transcendental reflection of informational and semantic fields.

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**UNIVERSITY LIFE**

УДК 53.000.93

N.G. Deyev

**45 YEARS IN SERVICE FOR THE ALTAI AGRICULTURAL INSTITUTE-ALTAI STATE  
AGRICULTURAL UNIVERSITY**

Foundation of our university newspaper "Za Selskokhozyaystvenniye Kadry" ("For Agricultural Specialists") dates back to the 4<sup>th</sup> of July 1960, when its first issue was published. Getting young people to take part in publications, the newspaper helped to discover new talents. Special contribution in establishing of our newspaper was made by such experienced editors as K.A. Chistyakova, V.S. Bunyayeva, N.Y. Popova, who by turn worked at that position 28 years altogether.

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УДК 06.091.5

**QUARTER OF A CENTURY HEADING THE CHAIR!**

The paper is dedicated to the creative path of a scientist and a pedagogue, the Head of the Chair of Philosophy, Boris Pavlovich Gusev.

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**JUBILEES**

УДК 06.091.5

**70<sup>TH</sup> ANNIVERSARY OF NIKOLAI VLASOVICH YASHUTIN**

About the creative path of a scientist and a pedagogue Nikolai Vlasovich Yashutin.

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УДК 06.091.5

V.A. Elchaninov

**LIFE, WORTH FOLLOWING**

About a scientist, Doctor, Professor Alexandr Sergeevich Kashin.

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