V INTERNATIONAL SCIENTIFIC CONFERENCE

CONSERVING SOILS AND WATER

PROGRAM

ORGANIZER:

SCIENTIFIC -TECHNICAL UNION OF MECHANICAL ENGINEERING

26.08. – 29.08.2020

BOROVETS, BULGARIA

TIME SCHEDULE

25.08.2020 (TUESDAY)

PUBLICATION OF ALL PAPERS Proceedings "International Scientific Conference "Conserving Soils and Water 2020"	17:00	http://conserving-soils.eu

27.08.2020 (THURSDAY)

OPENING OF THE CONFERENCE	10:00	http://conserving-soils.eu
QUESTIONS TO THE AUTHORS OF ALL PAPERS	10:00-16:00	office@conserving-soils.eu
PUBLICATION OF ALL QUESTIONS	16:00	http://conserving-soils.eu

28.08.2020 (FRIDAY)

ANSWERS TO THE QUESTIONS	08:00-12:00	office@conserving-soils.eu
PUBLICATION OF ALL ANSWER	12:00	http://conserving-soils.eu
CLOSING OF THE CONFERENCE	17:00	http://conserving-soils.eu

time for presentation 10-12 minutes,
questions after each presentation

26.08.2020 (WEDNESDAY)

10:00 **OPENING OF THE CONFERENCE**

http://conserving-soils.eu

SOIL				
1	EFFECT OF CLAY ON THE FRACTIONS OF POTENTIALLY TOXIC ELEMENTS IN CONTAMINATED SOIL	Ing. Vejvodová K., doc. Ing. Ph.D. Drábek O., Ing. Ph.D. Ash C., RNDr. Ph.D. Tejnecký V., Ing. Němeček K., prof. Dr. Ing. Borůvka L. Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences, Prague	10	CZ
2	MICROBIAL INDICATORS AND THEIR RELATIONS WITH HYDROPHOBICITY IN SPOLIC TECHNOSOLS UNDER DIFFERENT VEGETATION	Kostadinka Nedyalkova, Galina Petkova, Irena Atanassova Nikola Poushkarov Institute of Soil Science, Agrotechnologies and Plant Protection, Sofia	26	BG
3	PHYSICO-CHEMICAL PROPERTIES OF LIGNITE MINE RECLAIMED SOIL FORMED UNDER 19 DIFFERENT TREE SPECIES IN SOKOLOV, CZECH REPUBLIC	Ing. Spasić M., doc. Ing. Ph.D. Drábek O., RNDr. Ph.D. Tejnecký V., RNDr. CSc. Vacek O., prof. Dr. Ing. Borůvka L. Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences, Prague	11	CZ
4	ANALYSIS OF METHODS FOR ASSESSMENT OF SOIL POLLUTION	Borisov, I. E., Eng. Nalbatski, T. V. Rakovski National Defence College, Sofia	14	BG
5	APPROACHES FOR RECLAMATION OF EMBANKMENTS FROM THE EXTRACTION OF POLYMETALLIC ORES WITH SOIL IMPROVERS FROM WASTE AND R. ACETOSELLA, AND R. PATIENTIA	Ekaterina Serafimova[1], Veneta Stefanova[2] [1]University of Chemical Technology and Metallurgy, Sofia [2]University of Forestry, Sofia	18	BG
6	GROWTH ANALYSIS OF SWEET PEPPER FOR INVESTIGATION EFFECT OF WOOD ASH AND POULTRY LITTER ON PLANT	Ekaterina Serafimova University of Chemical Technology and Metallurgy, Sofia	19	BG
7	THE INFLUENCE OF LONG-TERM AGRICULTURAL USE OF SOILS OF THE DRY SUBTROPICAL ZONE OF AZERBAIJAN ON ITS MORPHOLOGICAL AND AGROCHEMICAL PROPERTIES	PhD., Assist.Prof., Ramazanova F. M. National Academy of Sciences of Azerbaijan, Institute of Soil Science and Agrochemistry, Baku	21	AZ
8	EFFECT OF THE IMPLEMENTATION OF AGRO-TECHNICAL AND AMELIORATIVE MEASURES IN SOILS WITH POOR TECHNOLOGICAL AND PEDOLOGICAL PROPERTIES	Ivan Dimitrov, Martin Nenov, Vanya Lozanova, Iliyana Gerasimova N. Poushkarov Institute of Soil Science, Agrotechnologies and Crop Protection	25	BG
9	ASSESSMENT OF CHEMICAL COMPOSITION OF SOIL SOLUTION OF WATER REPELLENT SOILS FROM MARITZA-IZTOK COAL BASIN	Assoc. Prof. PhD Tsetska Simeonova, Assoc. Prof. PhD Maya Benkova, Assis. Prof. PhD Luyba Nenova, Prof. Dr. Irena Atanassova Nikola Poushkarov Institute of Soil Science, Agrotechnologies and Plant Protection	33	BG
10	EROSION STATUS OF SOILS IN THE LAND OF GENERAL TOSHEVO	Avgusta Stepchich, Milena Mitova Nikola Poushkarov Institute of Soil Science, Agrotechnologies and Plant Protection	37	BG

WATER				
11	EVAPOTRANSPIRATION AND BIOPHYSICAL COEFFICIENTS OF LARGE-FRUITED TOMATOES GROWN IN UNHEATED GREENHOUSES UNDER DRIP IRRIGATION	Assoc. Prof. PhD R. Kireva, Prof. PhD M. Mihov Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov", Sofia	1	BG
12	WATER - YIELD RELATIONSHIPS OF LETTUCE PLANTS FOR DIFFERENT IRRIGATION	Bilal Acar Department of Farm Building and Irrigation,	5	TR

time for presentation 10-12 minutes,
questions after each presentation

	STRATEGIES	Faculty of Agriculture, University of Selcuk, Konya		
13	ANALYSIS OF CLIMATIC VARIABILITY AND DETERMINATION OF THERMAL AND PLUVIOMETRIC LIMITS IN ALBANIA'S SOUTHWESTERN LOWLAND AREA (VLORA)	Adrian Doko[1], Simir Krasniqi[2], Ada Fyshku[3], Ilir Topi[1], Albert Kopali[1] [1]Department of Agro-environment and Ecology, Agricultural University of Tirana, Albania [2]Department of Vocational Education, Prizren, Kosovo [3]Department of Science and Plant Technologies, Agricultural University of Tirana, Albania	7	AL/XK
14	STUDY OF THE INFLUENCE OF THE IRRIGATION REGIME ON THE QUANTITY AND QUALITY OF TOMATOES GROWN IN PLASTIC GREENHOUSES	Assoc. Prof. PhD R. Kireva, Prof. PhD M. Mihov Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov", Sofia	2	BG
15	ENVIRONMENTAL CONSEQUENCES OF WATER POLLUTION	Eng. Nalbatski, T. V., Borisov, I. E. Rakovski National Defence College, Sofia	15	BG

MACHINES AND TECHNOLOGIES

16	EXPERIMENTAL RESEARCH OF AGRICULTURAL BRIDGE UNIT IN THE STATE OF HARROW AGGREGATE	Prof. Eng. Volodymyr Bulgakov[1] PhD., Prof. Eng. Semjons Ivanovs[2] PhD., Prof. Eng. Valerii Adamchuk[3] PhD., Prof. Eng. Volodymyr Kuvachov[4] PhD., Prof. Eng. Zinoviy Ruzhylo[1] PhD., Eng. Yevhen Ihnatiev[4] PhD. [1]National Scientific Centre “Institute for Agricultural Engineering and Electrification”, Ukraine, [2]Latvia University of Life Sciences and Technologies, Latvia, [3]National University of Life and Environmental Sciences of Ukraine, [4]Dmytro Motornyi Tavria State Agrotechnological University, Ukraine	3	UA/ LV
17	DRONES IN THE AGRICULTURE SECTOR	Borisov, I. E. Rakovski National Defence College, Sofia	16	BG
18	DATA ANALYSIS REQUIRED FOR VINEYARD DISEASE PREDICTION	MSc. Elena M. Jovanovska, Prof. PhD. Eng. Ivan Chorbev Faculty of Computers Science and Engineering, Ss. Cyril and Methodius University in Skopje	23	MK
19	CHANGES IN THE AGROCHEMICAL STATUS OF HAPLIC VERTISOLS DEPENDING ON THE AGRO-TECHNICAL MEASURES	Vanya Lozanova, Ivan Dimitrov, Iliyana Gerasimova Institute of Soil Science, Agrotechnologies and Plant Protection "N. Poushkarov"	27	BG
20	CONSTRUCTION OF A NEW CALCULATION MATHEMATICAL MODEL OF THE VIBRATION PROCESS OF EXCAVATION OF THE ROOT BODY FROM THE SOIL, TAKING INTO ACCOUNT ITS ELASTIC DAMPING PROPERTIES	Prof. Eng. Volodymyr Bulgakov[1] PhD., Prof. Eng. Ivan Holovach[1] PhD., Eng. Volodymyr Volskyi[2] PhD., Eng. Yevhen Ihnatiev[3] PhD. [1]National University of Life and Environmental Sciences of Ukraine [2]National Scientific Centre “Institute for Agricultural Engineering and Electrification” [3]Dmytro Motornyi Tavria State Agrotechnological University	32	UA
21	APPLICATION OF RECYCLED PLASTICS IN TRIBOSYSTEMS OF SEEDING MACHINES	Assoc. Prof. Derkach O.[1], Makarenko D.[1], Assoc. Prof. Kabat O.[1], Kachanov V.[1], Apanovich A.[1], Derkach P.[1,2]	29	UA

time for presentation 10-12 minutes,
questions after each presentation

		[1]Dnipro State Agrarian and Economic University [2] Borys Grinchenko Kyiv University		
22	INVESTIGATION OF THE POWER INTERACTION OF THE PLOUGHSHARE DIGGER WORKING BODY WITH THE SOIL AND SUGAR BEET ROOT FOR THE CONDITIONS OF ITS VIBRATORY DIGGING	Prof. Eng. Volodymyr Bulgakov[1] PhD., Prof. Eng. Ivan Holovach[1] PhD., Prof. Eng. Zinoviy Ruzhylo[1] PhD., Eng. Yevhen Ihnatiev[2] PhD. [1]National University of Life and Environmental Sciences of Ukraine [2]Dmytro Motornyi Tavria State Agrotechnological University	35	UA
23	MICROWAVE-POWERED COLD PLASMA SURFACE TREATMENT OF FRESH PLANT PRODUCTS: CURRENT STATE AND FURTHER STEPS TOWARD APPLICATION IN AGRICULTURE	Ivan Atanassov[1], Mila Rusanova[1], Todor Bogdanov[2] , Krasimir Rusanov[1], Plamena Marinova[3], Evgenia Benova[4] [1]AgroBioInstitute, Agricultural Academy; [2]Medical Faculty, Medical University–Sofia; [3]Faculty of Forest Industry, University of Forestry; [4]Faculty of Physics, Sofia University	38	BG
24	TECHNOLOGIES FOR MAINTAINING THE SOIL SURFACE OF PERENNIALS	Ivan Mortev Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov", Sofia	39	BG
25	SOIL CULTIVATION MACHINES FOR PERENNIALS	Ivan Mortev Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov", Sofia	40	BG
26	COMPARISON OF THE PRECISION OF DRY SIEVE ANALYSIS VERSUS WET SIEVE ANALYSIS FOR SOME SELECTED NATURAL CLAY VERITIES	Eng. Suresh Aluvihara University of Peradeniya	6	LK

MANAGEMENT

27	INTEGRATED POLICIES AND PRACTICES IN SOIL AND WATER MANAGEMENT TO ACHIEVE THE OBJECTIVES OF THE EUROPEAN GREEN DEAL	Prof. Dr. Ognyan Kostov, Eng. Jechko Iordanov National Association "Green Sarnitsa", Pazardzhik	13	BG
28	SCIENTIFIC TECHNOLOGIES AND THEIR TECHNICAL SUPPORT - MAIN FACTORS OF EFFICIENCY OF PLANT PRODUCTS PRODUCTION	DrSc., Prof. Adamchuk V. PhD., Prof. Eng. Hrytsyshyn M. PhD., Prof. Eng. Perepylytsia N. PhD. National Scientific Centre “Institute for Agricultural Engineering and Electrification	36	UA
29	COMPUTERIZED ECOTECHNOLOGY FOR MANAGING CROP WATER STATUS MAKING AGRICULTURAL ACTIVITIES MORE EFFICIENT AND PROTECTING THE ENVIRONMENT	Prof. Ilia Christov, Ph.D. and D.Sc. Poushkarov Institute for Soil Science, Agrotechnology and Plant Protection, Sofia	28	BG
30	THEORETICAL AND METHODOLOGICAL FEATURES OF SOIL WATER REGIME OPTIMIZATION IN PEDAGOGICAL TECHNOLOGIES OF AGROENGINEERS TRAINING FOR INNOVATIVE PROJECT ACTIVITY	Candidate of Technical Sciences, Associate Professor Viktor Pryshliak	30	UA
31	THEORETICAL AND METHODOLOGICAL FEATURES OF SOIL WATER REGIME OPTIMIZATION IN PEDAGOGICAL TECHNOLOGIES OF AGROENGINEERS TRAINING FOR INNOVATIVE PROJECT ACTIVITY	Dr. in Agriculture, Prof., Corresponding Member of the National Academy of Agrarian Sciences of Ukraine Vasyl Kurylo Vinnytsia National Agricultural University	31	UA
32	UTILIZATION OF TRACTORS AND AGRICULTURAL MACHINERY	Prof. PhD M. Mihov Institute of Soil Science, Agro-Technology and Plant Protection “Nikola Pushkarov", Sofia	9	BG

time for presentation 10-12 minutes,
questions after each presentation

33	THE AGRO-ECOLOGICAL POTENTIAL FOR GROWING SUNFLOWER OF BULGARIA'S AGRICULTURAL LANDS	PhD Rositsa Mikova Institute of Agricultural Economics	34	BG

NEXT CONFERENCE „Conserving Soils and Water 2021"

25.08 - 28.08.2021, BOROVETS, HOTEL "ELA"

time for presentation 10-12 minutes,
questions after each presentation

VI INTERNATIONAL SCIENTIFIC CONFERENCE

MATERIAL SCIENCE. NONEQUILIBRIUM PHASE TRANSFORMATIONS 2020

07-10.09.2020, VARNA, HOTEL AQUA AZUR

www.material-science.eu

XVII INTERNATIONAL SCIENTIFIC CONGRESS - SUMMER SESSION

MACHINES. TECHNOLOGIES. MATERIALS 2020

09-12.09.2020, VARNA, HOTEL AQUA AZUR

www.mtmcongress.com

IV INTERNATIONAL SCIENTIFIC CONFERENCE

CONFSEC 2020

07-10.12.2020, BOROVETS, HOTEL ELA

www.confsec.eu

V INTERNATIONAL SCIENTIFIC CONFERENCE - WINTER SESSION

INDUSTRY 4.0

09-12.12.2020, BOROVETS, HOTEL ELA

www.industry-4.eu

IV INTERNATIONAL SCIENTIFIC CONFERENCE

MATHEMATICAL MODELING

09-12.12.2020, BOROVETS, HOTEL ELA

www.mathmodel.eu

VI INTERNATIONAL SCIENTIFIC CONFERENCE

HIGH TECHNOLOGIES. BUSINESS. SOCIETY 2021

08-11.03.2021, BOROVETS, HOTEL ELA

www.hightechsociety.eu

XIV CONFERENCE FOR YOUNG RESEARCHERS

TECHNICAL SCIENCES. INDUSTRIAL MANAGEMENT 2021

10-13.03.2021, BOROVETS, HOTEL ELA

www.youngconference.com

XVIII INTERNATIONAL SCIENTIFIC CONGRESS - WINTER SESSION

MACHINES. TECHNOLOGIES. MATERIALS 2021

10-13.03.2021, BOROVETS, HOTEL ELA

www.mtmcongress.com

THEORETICAL AND METHODOLOGICAL FEATURES OF SOIL WATER REGIME OPTIMIZATION IN PEDAGOGICAL TECHNOLOGIES OF AGROENGINEERS TRAINING FOR INNOVATIVE PROJECT ACTIVITY

Candidate of Technical Sciences, Associate Professor Viktor Pryshliak
Dr. in Agriculture, Prof., Corresponding Member of the National Academy of Agrarian Sciences of Ukraine Vasyl Kurylo
Ukraine, Vinnytsia National Agricultural University
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Innovative scientific-technical and pedagogical bases of studying in higher education institutions by future specialists in agroengineering of the theory and calculation fundamental questions of sprinkler nozzles and devices of machines for irrigation of agricultural crops are presented. Some constructive schemes of nozzles, namely, deflector, crack, etc. are analyzed. Graphs for determining the range of the jet and determining the rational shape of the nozzle are given. It is proved that all this can be effectively applied both in the educational process during the study of agricultural machinery and equipment by students and in research and production practice. Depending on the purpose, tasks, methods of technological processes of irrigation disintegration of a water jet on drops is analyzed. An algorithm for calculating the working bodies of sprinklers is presented, it can be used by agricultural engineers during their design activities. It is established that it is effective when students first study and analyze the state of agricultural production, for example, during internships, identify shortcomings of technological processes, opportunities for improvement, level of technical support, and then, using theoretical knowledge, mastered methods of engineering calculations, design and construct working bodies of sprinklers. Formulas for determining the radius of the irrigation sector, the maximum angle of the rocker arm at which the nozzle is attached, the total travel time of the rocker arm in both directions, the speed of the liquid in the jet and more are given. The methodological features of functioning of various designs of nozzles of sprinklers are theoretically described. The results of scientific research presented in the article can be used as didactic material in lectures, during laboratory-practical classes, independent work of students, as well as graduate students and scientists at the stage of design and

construction of reclamation machines. The main theoretical provisions are recommended to be included in the list of test tasks for assessing the readiness of agricultural engineering for innovative project activities. It is noted that the study of the basics of designing the working bodies of irrigation machines is one of the factors of a holistic conceptual system of protection of soils and water resources. Emphasis is placed on the fact that soil and water resources are important objects and prerequisites for the development of reclamation machines and the formation of special design competencies of agricultural engineers.

In almost all countries of the world work is being carried out on the development of land reclamation - part of methods aimed at optimizing agricultural production and the general rise in soil productivity. Under hydraulic reclamation is understood a system of measures that regulate the water regime of the territory. Irrigation, drainage, flooding, delay of surface runoff and control of soil erosion belong to hydraulic reclamation and are carried out with the help of hydraulic structures. The change of water regime should be carried out both at excess, and at insufficient moistening of the soil as for normal development of plants the soil should be moderately moistened. [Mac488].

One of the reasons for the insufficient development of technical means of reclamation in Ukraine, including irrigation machines, is the lack of highly qualified agro-engineering personnel [Pr.Soil], able to design machines with optimal parameters and use them efficiently. In this regard, it is advisable to conduct special technical and pedagogical research aimed at developing modern machines for irrigation, improving the methodological support of the educational process, improving its quality, development of professional competencies [Stand] of agricultural engineers.

The developed pedagogical technology should provide continuity of educational process in designing and designing of cars, studying of soil and water resources, their protection and preservation [Pr.The main, Pr.Pro].

Curricula for future agricultural engineers provide the study of problematic issues of land reclamation, soil protection and water resources. As it is noted in [Pr.Soil, Pr.Pro,] throughout the period of study during lectures, laboratory-practical classes, practitioners, students study these issues relevant to modern agricultural production systematically and consistently.

During the design of reclamation and tillage machines, agrochemical, mechanical-technological and other characteristics of soil and water resources are taken as initial data. For example, the agrochemical properties of soils that students study, use in their project activities include - the content of humus, nitrogen, phosphorus, potassium, soil acidity; and to the physical and mechanical properties - the specific gravity of the soil, the angles of internal and external friction, particle size, ultimate bearing capacity, modulus of elasticity, humidity, etc. [Panch].

During the lectures future agricultural engineers receive general theoretical knowledge, get acquainted with the algorithms for calculating machines. Laboratory-practical classes expand and deepen their knowledge of the basics of the theory, calculation and design of reclamation machines, irrigation systems, land protection and protection of soil and water resources, etc. Students develop the ability to innovative project activities especially deeply during the course and master's theses [Pr.Soil, Des.Agr].

At the initial stage of training, future agricultural engineers study the general concepts of erosion processes.

Many scientific conferences have addressed the issue of soil and water protection. For example, at the II International Scientific Conference "Protection of Soils and Water Resources", the report was presented − «The main components of studies and research of conserving soils and water in technologies of agroengineers training" [Pr.The main]. This report partially discloses the scientific and methodological bases for soil and water exploration by future specialists in agroengineering in higher education institutions. Innovative pedagogical technology of development of project activity is based on the method of a consistent cross study of the material based on the objective relationship of disciplines and provides a qualitatively higher level of professional competencies formation of agroengineers on the basis of preservation and even multiplication of natural resources. The report of [Pr.The main] states that the current issues of soil science are devoted to many works by well-known scholars, for example, P. Zaicka [Zai444], M. Manojlovič [Mano], R. Meissner [Mei15] and others.

At the IV International Scientific Conference "Soil and Water Resources Protection 2019" candidate of Technical Sciences, Associate Professor Viktor

Pryshliak, Dr. in Agriculture, Prof., Corresponding Member of the National Academy of Agrarian Sciences of Ukraine Basil Kurylo a report was made on the topic: «Soil and water resources as important objects and prerequisites for the design of agricultural machines and the formation of professional competencies of an agricultural engineer». The report notes that in pedagogical technologies for the formation of professional competencies of future agricultural engineers in agricultural institutions of higher education, much attention is paid to the problematic issues of soil and water resources. Some concepts and categories used in the educational process during the study of agricultural machinery and equipment by students are analyzed. Depending on the purpose, tasks, receptions of technological processes types of reclamation actions are pointed out, the example of calculation of working bodies of cars is resulted. In general, an innovative pedagogical technology of cross training has been developed, aimed at the formation of professional competencies of future agricultural engineers. It is noted that their activity will be successful provided the efficient use of soil and water resources as important objects and prerequisites for the development of machines.

An important research and production problem is the optimization of nutrient and water regimes of the soil on the slopes. There are different scientific works devoted to the peculiarities of soil preparation for sowing crops on sloping lands, optimization and management of technological processes in these conditions.

Analysis of agricultural land reclamation measures, features of the educational process in agricultural institutions of higher education showed that the theory and calculation of sprinklers for irrigation machines in the technology of agricultural engineers training for innovative project activities require further scientific development.

Creating an optimal water regime for seed germination, growth and plant development is a very important factor that affects crop yields, quality of products grown. During their training, students study the optimal water regimes for different crops, irrigation technologies and design features of sprinklers. Scientific and pedagogical research has shown that future agricultural engineers have difficulties in calculating the working bodies of sprinklers and it should be noted that the search for optimal design parameters is important for agricultural machinery, and optimal

operating modes for agricultural machinery.

High quality of the educational process is achieved when students conduct engineering and technological calculations, participate in laboratory and field research. We will give an example of the theory and calculation of nozzles and devices of sprinklers and installations which is used in scientific and technical activity and pedagogical technologies of preparation of agroengineers for innovative design activity.

The temperature is regulated by moving the handle of the rheostat slider, the extreme positions of which are marked with the inscriptions "Input" and "Output" on the right wall of the stand.

After loading the cabinet, the thermometer is installed in the upper hole of the ventilation cap so that its lower end does not touch the samples placed on the upper board. During heating, the temperature is controlled. If it is necessary to reduce the temperature, change the resistance of the rheostat by moving the slider from right to left.

After studying the mechanical and technological properties of soil and other agricultural materials, students conduct engineering, technological and energy calculations of machinery and equipment for agricultural reclamation. As an example, we will partially consider the laboratory-practical work "Development of complete and incomplete schedules of water supply for crop rotation", which is performed by students of the speciality 208 "Agroengineering", while studying machinery and equipment in agricultural reclamation [Mac488]. Purpose: To study the features and master the method of calculating the internal economic network and the method of drawing up incomplete and complete schedules of water supply in irrigation processes.

In these works related to the operation of the on-farm irrigation network, farm workers - irrigators, must take an active part. They must not only irrigate crops, but also repair and prepare irrigation networks and structures for irrigation, mow and spray canal slopes with herbicides; make sure that the canals and structures are in good condition; participate in the preparation of internal water use plans.

The knowledge that students aquire in lectures and laboratory-practical classes are used during course and diploma design, research work [20]. Topical issues of soil and water protection must be highlighted here.

The investigation presents the results of research of innovative scientific, technical and pedagogical bases of study by future specialists in agroengineering of fundamental questions of the theory and calculation of sprinklers and devices of machines for irrigation of crops. In these innovative pedagogical technologies for the formation of professional competencies of future agricultural engineers, much attention is paid to the problematic issues of optimizing the water regime of seed germination, plant growth and development, protection of soils and water resources. An algorithm for calculating the working bodies of sprinklers is presented, it can be used by agricultural engineers during their design activities. The obtained results of scientific research can be used as didactic material in lectures, during laboratory-practical classes, independent work of students, as well as graduate students and scientists at the stage of design and construction of reclamation machines.

SCIENTIFIC TECHNICAL UNION OF MECHANICAL ENGINEERING BULGARIA

AWARDS

A

DIPLOMA

FOR THE PARTICIPATION IN THE

V INTERNATIONAL SCIENTIFIC CONFERENCE

CONSERVING SOILS AND WATER

TO

Assoc. Prof. Viktor Pryshliak

FOR THE REPORT

OPTIMIZATION IN PEDAGOGICAL TECHNOLOGIES OF AGROENGINEERS TRAINING FOR INNOVATIVE PROJECT ACTIVITY

НАУЧНО ТЕХНИЧЕСКИ СЪЮЗ ПО МАШИНОСТРОЕНЕ · СОФИЯ ·

26.08. – 29.08.2020
BOROVETS,
BULGARIA

Prof. D.Sc. Eng. Georgi Popov
President of the Scientific-Technical Union of Mechanical Engineering