



CONTENTS

| | |
|---|-----------|
| USING SIMULATION TO OPTIMIZE PREVENTIVE MAINTENANCE INTERVAL | 2 |
| <i>Zdeněk ALEŠ, Jan NOVÁK, Marián KUČERA, Jindřich PAVLŮ</i> | |
| KNOWLEDGE OF PACKAGING WASTE IN THE CZECH REPUBLIC: A STUDENT'S AWARENESS STUDY | 8 |
| <i>Vlastimil ALTMANN, Shuran ZHAO</i> | |
| A REVIEW ON ORGANIC FARMING IN SUSTAINABLE ENVIRONMENT | 12 |
| <i>Elnaz AMIRAHMADI, Jan MOUDRÝ</i> | |
| A COBOTIC AND FLEXIBLE SOLUTION FOR HANDLING OF HEAVY LOADS | 18 |
| <i>Vigen ARAKELIAN</i> | |
| INFLUENCE OF SOIL COMPACTION ON GROWTH OF SPRING BARLEY | 22 |
| <i>Marek BARÁT, Miroslav MACÁK, Vladimír RATAJ, Jana GALAMBOŠOVÁ, Róbert LÁMOŠ</i> | |
| TENSILE TESTING AND FEA SIMULATION OF A 3D PRINTED ONYX SPECIMEN | 26 |
| <i>Martin BARÁTH, Martin KOTUS, Patrik KÓSA, Danica ČERVINKOVÁ</i> | |
| QUANTIFYING THE TRAFFIC FOOTPRINT OF ZERO-TILLAGE SYSTEMS | 32 |
| <i>Guido F. BOTTA, Gustavo F. NARDON, David RIVERO, Mauro E. REMERSARO, Enrique E. CONTESSOTTO, Fernando BIENVENIDO, Diego G. GHELFI, Diogenes L. ANTILLE</i> | |
| EXPERIMENTAL DETECTION OF THE PELLETS DRYING CHARACTERISTICS | 36 |
| <i>Monika BOŽIKOVÁ, Matuš BILČÍK, Ján CSILLAG, Tomáš HOLOTA, Maroš SZENTESI</i> | |
| SOIL EROSION DURING SECONDARY TILLAGE | 42 |
| <i>Pavel BROŽ, Josef HŮLA, Petr NOVÁK, Jitka EDROVÁ, Jaroslav KORBA, Václav NOVÁK</i> | |
| THE EFFECT OF FIELD ROBOT PARAMETERS ON WEED CONTROL EFFICIENCY | 50 |
| <i>Indrė BRUČIENĖ, Egidijus ŠARAUSKIS</i> | |
| FIELD INVESTIGATIONS OF THE EXPERIMENTAL CLEANER OF THE ROOT CROP HEADS FROM THE TOP RESIDUES | 54 |
| <i>Volodymyr BULGAKOV, Ivan HOLOVACH, Valerii ADAMCHUK, Yevhen IHNATIEV, Aivars ABOLTINS, Semjons IVANOVŠ</i> | |
| COMPARISON OF TWO METHODS FOR TREE UPROOTING FORCE MEASUREMENT | 60 |
| <i>Jakub ČEDÍK, Radek PRAŽAN, Marian RYBANSKY, Ladislav JÍLEK, Vladimír ŠLEGER, Martin HAVLÍČEK</i> | |
| COMPUTATIONAL FLUID DYNAMICS ANALYSIS FOR GREENHOUSE WITH DIFFERENT VENTILATION OPENINGS AND ORIENTATIONS IN SAMSUN, TURKEY | 68 |
| <i>Bilal CEMEK, Muminah MUSTAQIMAH, Erdem KÜÇÜKTOPCU, Gürkan Alp Kağan GURDIL</i> | |
| ANALYSIS OF FLUID FLOW IN RADIAL CENTRIFUGAL PUMP | 78 |
| <i>Jan ČERNÝ, Martin POLÁK</i> | |



| | |
|--|------------|
| USING ARTIFICIAL NEURAL NETWORK APPLICATION IN MODELLING THE MECHANICAL PROPERTIES OF LOADING POSITION AND STORAGE DURATION OF PEAR FRUIT | |
| <i>Elçin YEŞİLOĞLU CEVHER, Demet YILDIRIM, Gürkan Alp Kağan GÜRDİL</i> | 84 |
| SPATIO-TEMPORAL VARIABILITY OF RICE CROP FROM REMOTE SENSING | |
| <i>Fiorentino COSTANZA, Barracu FRANCESCO, Spanu ANTONINO, D'Antonio PAOLA, Francesco TOSCANO</i> | 90 |
| RHEOLOGICAL PROPERTIES OF FRUIT DISTILLATES | |
| <i>Ján CSILLAG, Daniela KUNECOVÁ, Tomáš HOLOTA, Matúš BILČÍK, Monika BOŽIKOVÁ</i> | 98 |
| EFFECT OF SELECTED FACTORS ON WOOD DUST EMISSION FROM CHAINSAW | |
| <i>Miroslav DADO, Marián KUČERA, Richard HNILICA</i> | 106 |
| INVESTIGATION OF INFRARED AND HOT AIR OVEN FOR DRYING FRESH APPLE SLICES AT DIFFERENT TEMPERATURES | |
| <i>Oldřich DAJBÝCH, Abraham KABUTEY, Čestmír MIZERA, David HERÁK</i> | 112 |
| STRUCTURE AND TRIBOLOGICAL PROPERTIES OF SINGLE AND DOUBLE LAYER DEPOSITS | |
| <i>Róbert DRLIČKA, Radovan ŠOŠKA, Martin KOTUS, Peter ČIČO</i> | 120 |
| POSSIBILITIES OF SAR IMAGES FOR POPPY EVALUATION | |
| <i>Jakub DVOŘÁK, Kristýna BALÁŽOVÁ, Karel STARÝ, Zdeněk JELÍNEK, Jan CHYBA, Jiří MAŠEK, Jitka KUMHÁLOVÁ</i> | 126 |
| A META-ANALYSIS ON INFLUENCE OF OXIDIZED-BIOCHAR ON CROP YIELD | |
| <i>Mohammad GHORBANI, Petr KONVALINA, Marek KOPECKÝ, Ladislav KOLÁŘ</i> | 132 |
| WATER TREATMENT TECHNOLOGY SUPPLEMENTED BY ELEMENTS FROM INDUSTRY 4.0 – A REVIEW | |
| <i>David GUTH</i> | 140 |
| ACQUISITION OF 3D MODELS OF PARTS BY REVERSE ENGINEERING PROCESS | |
| <i>Martina HAJKOVÁ, Róbert DRLIČKA, Martin KOTUS, Monika TÖRÖKOVÁ, Juraj CANDRÁK</i> | 144 |
| STUDY OF CONTINUOUS SENSING OF THE SPEED OF BELTS IN A HOP DRYER | |
| <i>Petr HEŘMÁNEK, Adolf RYBKA, Ivo HONZÍK</i> | 148 |
| TEMPERATURE RELATIONS OF SOME MUSTARDS RHEOLOGIC PROPERTIES | |
| <i>Peter HLAVÁČ</i> | 154 |
| WHEAT AND LEGUMES MIXTURES INFLUENCE GRAIN QUALITY | |
| <i>Trong Nghia HOANG, , Marek KOPECKÝ, Mohammad GHORBANI, Yves Theoneste MURINDANGABO, Dang Khoa TRAN, Karel SUCHÝ, Petr KONVALINA</i> | 160 |
| ENERGY ANALYSIS OF COOLING SOURCES IN DISTILLATION COLUMN | |
| <i>Tomáš HOLOTA, Mária HOLOTOVÁ, Ján CSILLAG, Matúš BILČÍK, Peter KUCHAR</i> | 166 |



DESIGN OF A LABORATORY TEST EQUIPMENT FOR MEASURING AND TESTING MOBILE ENERGY MEANS WITH SIMULATION OF OPERATING CONDITIONS

Lubomír HUJO, Jozef NOSIAN, Sylwestwer BOROWSKI, Marietta MARKIEWICZ-PATALON, Milan TOMIČ, Peter KOŽUCH **172**

CHARACTERISTICS OF ECOLOGICAL ENERGY CARRIERS USED IN AGRICULTURAL TECHNOLOGY

Lubomír HUJO, Romana JANOUŠKOVÁ, Mirko SIMIKIĆ, Marcin ZASTEMPOWSKI, Matej MICHALIDES, Monika HAJDÁKOVÁ **180**

DISCRETE ELEMENT MODELS OF A COHESIVE SOIL

Rostislav CHOTEBORSKY, Jiří KURE, Egidijus KATINAS **186**

APPLICATION OF DIGITAL TECHNOLOGY IN AGRICULTURE: POTENTIAL SUPPORT FOR WINEGROWERS

Oskars JAVA, Bernward ASPIRION, Torsten PRIEBE, Eszter SÁRKÖZI, Rui Neves MADEIRA **196**

A REVIEW OF ENVIRONMENTAL IMPACT OF MOTORIZED VEHICLE ON HUMAN

Debela JIMA, Tibor SIPOS, Retta ZEWDIE **202**

ASSESSMENT OF THE POSSIBILITY OF EXTENDING THE INTERVALS BETWEEN ENGINE OIL CHANGES ON BIOGAS POWERED UNITS

Jerzy KASZKOWIAK, Marcin ZASTEMPOWSKI, Lubomir HUJO **208**

EFFECT OF MAP-BASED SITE-SPECIFIC SEEDING USING PROXIMAL SENSING DATA ON WHEAT YIELD PARAMETERS AND ECONOMY

Marius KAZLAUSKAS, Egidijus ŠARAUSKIS, Kęstutis ROMANECKAS, Vilma NAUJOKIENĖ, Indrė BRUČIENĖ, Sidona BURAGIENĖ, Dainius STEPONAVIČIUS, Algirdas JASINSKAS, Dovydas VAICEKAUSKAS, Abdul Mounem MOUAZEAN **214**

DIGESTATE APPLICATION RATES WITH REGARD TO EMISSION OF GREENHOUSE GASES

Jaroslav KORBA, Petr ŠAŘEC, Václav NOVÁK, Pavel BROŽ, Antonín DOLAN **218**

USE OF AERIAL APPLICATION OF POD SEALANTS IN CANOLA CROPS

František KUMHÁLA, Jitka KUMHÁLOVÁ, David BEČKA, Martin MADĚRA **224**

A QUALITATIVE AND ECONOMIC EVALUATION OF THE SPREADING OF DIFFERENT ORGANIC FERTILIZERS

Kristina LEKAVIČIENĖ, Raimonda ZINKEVIČIENĖ, Eglė JOTAUTIENĖ, Vilma NAUJOKIENĖ, Zita KRIAUCIŪNIENĖ, Algirdas JASINSKAS, Egidijus ŠARAUSKIS **230**

INNOVATIONS OF BARN CONSTRUCTIONS FOR BETTER PARAMETERS OF THE BREEDING ENVIRONMENT

Jana LENDELOVÁ, Ingrid KARANDUŠOVSKÁ, Milada BALKOVÁ, Miroslav ŽITŇÁK **236**

DYNAMIC BIAXIAL LOA DYNAMIC BIAXIAL LOADING OF CAR SEATSDING OF CAR SEATS

Petr LEPSŠÍK, Vítězslav FLIEGEL, Aleš LUFINKA **242**

COMBINING THE SURVEILLANCE OF UNMANNED AERIAL VEHICLE AND DEEP LEARNING METHODS IN SAGO PALM DETECTION

Sri Murniani Angelina LETSOIN, Ratna Chrismiari PURWESTRI, David HERÁK **248**

THE TEMPERATURE OF PHOTOVOLTAIC PANELS AND THE EFFECT ON THEIR EFFICIENCY

Martin LIBRA, Sona GRIGORYAN, Vladislav POULEK, Tomáš PETRÍK, Pavel KOUŘÍM, Jan SEDLÁČEK, Václav BERÁNEK **254**



| | |
|--|------------|
| LOADING ACCURACY OF TOTAL MIXED RATION COMPONENTS AS A DIGITAL TOOL ENSURING THE OPTIMAL BREEDING CONDITIONS AND WELFARE IN DAIRY FARMING <i>Gabriel LÜTTMERTDING, Roman GÁLIK, Štefan BOĎO, Jana LENDELOVÁ</i> | 260 |
| GEOSPATIAL DATASET FOR EVALUATION OF FIELD SCALE EXPERIMENT <i>Miroslav MACÁK, Jitka KUMHÁLOVÁ, Jana GALAMBOŠOVÁ, František KUMHÁLA, Marek BARÁT, Vladimír RATAJ, Jan CHYBA</i> | 266 |
| ANALYSIS OF ULTRASOUND SIGNAL ON REFLECTION FROM A SHARP CORNER SURFACE <i>Vladimír MADOLA, Vladimír CVIKLOVIČ, Stanislav PAULOVIČ</i> | 272 |
| INFLUENCE OF HEAT PUMP CONTROL ON PERFORMANCE PARAMETERS <i>Pavel MÍŠEK, Radomír ADAMOVSÝ, Pavel NEUBERGER</i> | 278 |
| MODELLING OF COMPOSITE REINFORCEMENTS IN AGRICULTURAL EQUIPMENT <i>Jaroslav MLÝNEK, Michal PETRŮ, Roman KNOBLOCH</i> | 284 |
| EVALUATION OF ELECTRODES WITH CONDUCTIVE INK FOR FLEXIBLE TACTILE SENSOR <i>Viktor NOVÁK, Jaromír VOLF, Vladimír RYŽENKO, Stanislava PAPEŽOVÁ</i> | 290 |
| THE BRAKE DECELERATION OF THE FORKLIFT TRUCKS AND THE WAREHOUSE SAFETY <i>Eva OLMROVÁ, Martin PEXA, Jan PALÁTKA</i> | 296 |
| MULTI-CROP BIOMASS UTILIZATION FOR BIOENERGY PURPOSES AND EVALUATION OF PRESSED BIOFUEL PROPERTIES <i>Rita PETLICKAITĚ, Algirdas JASINSKAS, Rolandas DOMEIKA, Kęstutis ROMANECKAS, Jiri MAŠEK</i> | 302 |
| DESIGN OF SERVICE UNIFYING INFRASTRUCTURE FOR CHARGING OF ELECTRIC VEHICLES <i>Štěpán PÍCHA, Martin KOTEK, Veronika HARTOVÁ, Veronika ŠTEKEROVÁ, Tomáš PÍCHA</i> | 308 |
| THE IMPORTANCE OF THE INFORMATION PROVIDED BY THE VEHICLE FROM THE DRIVER'S POINT OF VIEW <i>Jakub POVÝŠIL, Sudeep Sangamesh BABU, Michal HRUŠKA, Stanislav JELEN, Petr VACULÍK, Petr BENDA, Anna Maria ZIFIA</i> | 312 |
| MOISTURE CONDITIONING OF BULK RAPESEEDS AND DETERMINATION OF MECHANICAL PROPERTIES AND PERCENTAGE OIL YIELD UNDER UNIAXIAL COMPRESSION LOADING <i>Nor Hafiy Adli RAZALI, Emir Asyraf AGUS, Je Zen CHEONG, Abraham KABUTEY, David HERÁK, Čestmír MIZERA</i> | 318 |
| MODELLING OF SHAFT TRAJECTORY IN SLIDING BEARING LUBRICATED WITH DIFFERENT LUBRICANTS <i>Jozef RÉDL, František TÓTH, Davood KALANTARI, Jozef BANGO</i> | 324 |
| MULTI-CROP BIOMASS PRODUCTION FOR ENERGY PURPOSES <i>Kęstutis ROMANECKAS, Jovita BALANDAITĚ, Austėja ŠVEREIKAITĚ, Algirdas JASINSKAS, Saira KALIJEVA</i> | 334 |
| INCREASE IN THE HOP BELT DRYER DRYING INTENSITY <i>Adolf RYBKA, Petr HEŘMÁNEK, Ivo HONZÍK</i> | 340 |



| | |
|--|------------|
| SPECTRAL INDICES AS A TOOL FOR HOP GROWTH EVALUATION <i>Jana SEIDLOVÁ, Pavel PROCHÁZKA, Jitka KUMHÁLOVÁ</i> | 346 |
| APPLICATION OF ARTIFICIAL NEURAL NETWORK IN PREDICTING THE DRYING KINETICS AND CHEMICAL ATTRIBUTES OF LINDEN (TILIA PLATYPHYLLOS SCOP.) DURING THE INFRA-RED DRYING PROCESS <i>Kemal Çağatay SELVI, Alfadhl Yahya KHALED, Taner YILDIZ</i> | 352 |
| THE PROBLEMATIC OF PRECISION SOWING <i>Ladislav ŠEVČÍK, Michal PETRŮ</i> | 362 |
| COMBINING SIMULATION AND MTM TO IMPROVE GLASS EYES PRODUCTION <i>Vladimír SOJKA, Petr LEPŠÍK</i> | 366 |
| LANDFILLING OF BIODEGRADABLE WASTE AND GENERATION OF LANDFILL GAS <i>Jan ŠONSKÝ, Shuran ZHAO, Petr VACULÍK, Vlastimil ALTMANN</i> | 372 |
| PARAMETERS OF HEMP OIL FILTRATION USING A PLATE FILTER <i>Jiří SOUČEK, Petr JEVIČ, Martin DĚDINA, Veronika TOMÁNKOVÁ, Kornél SZALAY, Vladimír MAŠÁN, Algirdas Jasinskas</i> | 378 |
| DEVELOPING OF CONTROL SYSTEM FOR INDOOR HYDROPONIC VERTICAL FARMING <i>Miroslav STROB, Jiří ZHOŘ, Pavel OLŠAN, Martin FILIP</i> | 384 |
| MECHANICAL PROPERTIES OF BIOMASS PELLETS <i>Maroš SZENTESI, Viera KAŽIMÍROVÁ, Lubomír KUBÍK</i> | 390 |
| SUSTAINABLE IRRIGATION USING INTERNET OF THINGS <i>Zisis TSIROPOULOS, Vasilios LIAKOS, Athanasios MAKRIS, Georgios PROIAS, Ioannis RAPTIS, Eleni WOGIATZI, Ioannis GRAVALOS</i> | 394 |
| MEASUREMENT OF THE PROCESS OF MAKING WINE WITH THE HELP OF IOT <i>Jakub VOŠAHLÍK, Jan HART</i> | 402 |
| NEW DESIGN SOLUTIONS FOR WORKING UNITS OF MACHINES IN TERMS OF EFFICIENCY OF THEIR OPERATION <i>Marcin ZASTEMPOWSKI, Andrzej BOCHAT, Jerzy KASZKOWIAK, Lubomir HUJO, Maciej JANIEC</i> | 408 |
| AN EVALUATION OF THE GRAPE VINE GROWTH AFTER DEEP COMPOST INCORPORATION <i>Patrik ZATLOUKAL, Vladimír MAŠÁN, Patrik BURG, Alice ČÍŽKOVÁ</i> | 414 |
| QUANTIFICATION AND DETERMINATION OF MUNICIPAL WASTE AND ITS RELATION TO HOUSEHOLD SIZE IN THE CZECH REPUBLIC <i>Shuran ZHAO, Vlastimil ALTMANN, Jan ŠONSKÝ, Petr VACULÍK</i> | 420 |