



Sveučilište u Zagrebu  
Agronomski fakultet



University of Zagreb  
Faculty of Agriculture



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**FACULTY OF AGRICULTURE ZAGREB  
AGRICULTURAL ENGINEERING DEPARTMENT  
FACULTY OF AGRICULTURE OSIJEK  
FACULTY OF AGRICULTURE AND LIFE SCIENCES  
UNIVERSITY OF MARIBOR  
INSTITUTE OF AGRICULTURAL ENGINEERING, BOKU, VIENNA  
AGRICULTURAL INSTITUTE OF SLOVENIA  
NATIONAL INSTITUTE FOR AGRICULTURAL MACHINERY - INMA BUCHAREST  
CROATIAN AGRICULTURAL ENGINEERING SOCIETY**



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***46<sup>th</sup> International Symposium "Actual Tasks on Agricultural Engineering"***

**SYMPOSIUM PROGRAMME**

***27<sup>th</sup> February – 1<sup>st</sup> March 2018, Grand hotel "Adriatic" Opatija, Croatia***

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**MONDAY - 26<sup>th</sup> February 2018.**

**18.00-19.00 Registration of participants**

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**TUESDAY - 27<sup>th</sup> February 2018.**

**8.00-9.00 Registration of participants**

**Moderator: Assistant professor Nikola Bilandžija**

**9.00-9.30 OFFICIAL OPENING**

**Prof. Zoran Grgić, Dean of Faculty of Agriculture University of Zagreb**

**Prof. Silvio Košutić, President of Scientific Committee of ATAEE**

**Prof. Istvan Szabo, CASEE representative, Faculty of Mechanical Engineering SZIE, Hungary**

**Prof. Andreas Gronauer, BOKU, Vienna, Head of Institute of Agricultural Engineering**

### 9.30-11.00 PAPER PRESENTATIONS

**Milan MARTINOV, Andreas GRONAUER, Silvio KOŠUTIĆ**

Highlights of 27<sup>th</sup> club of Bologna meeting

**Josip TOMIĆ, Krešimir ČOPEC, Dubravko FILIPOVIĆ, Stjepan PLIESTIĆ, Neven VOĆA**

Collection and disposal of waste lubricant oils in the Republic of Croatia with a view to state in agriculture

**Fabrizio MAZZETTO, Raimondo GALLO**

Solutions to automate operational monitoring activities of agro-forestry tasks

**Anamarija BANAJ, Đuro BANAJ, Vjekoslav TADIĆ, Davor PETROVIĆ, Dario KNEŽEVIĆ**

Comparison of standard and twin row seeding on sunflower yield

**Davor PETROVIĆ, Đuro BANAJ, Vjekoslav TADIĆ, Dario KNEŽEVIĆ, Anamarija BANAJ**

Impact of technical spraying factors on ground and air drift in cherry orchard

**Javier LIZASOAIN, Jonas LEBER, Susanne FRÜHAUF, Kwankao KARNPAKDEE,**

**Bernhard WLCEK, Andreas GRONAUER, Alexander BAUER**

Demand driven biogas production by discontinuous feeding strategies

**Jaroslav ČEPL, Pavel KASAL, Milan ČÍŽEK, Andrea SVOBODOVA, Václav MAYER, Daniel VEJCHAR**

The effect of drip irrigation on potato yield and quality

**Georgiana MOICEANU, Mihai CHIȚOIU, Gheorghe VOICU, Gigel PARASCHIV,**

**Valentin VLĂDUȚ, Iulia GĂGEANU, Mirela DINCĂ**

Comparison between miscanthus and willow energy consumption during grinding

**George IPATE, Gabriel-Alexandru CONSTANTIN, Gheorghe VOICU, Gabriel MUSUROI,**

**Mariana-Gabriela MUNTEANU, Elena-Madalina STEFAN**

Real-time measurement of solar ultraviolet exposure in a plastic greenhouse

### 11.00-11.30 COFFEE BREAK

### 11.30-13.00 PAPER PRESENTATIONS

**Denis STAJNKO, Miran LAKOTA, Damijan KELC, Rajko BERNIK**

Possibilities for introduction of wood gas generator on a family farm – Slovenia case study

**Nikola VAJDA, Damijan KELC, Peter VINDIŠ, Peter BERK, Jurij RAKUN, Denis STAJNKO, Miran LAKOTA**

Increase of soil tillage efficiency with using of RTK - navigation

**Tomáš LOŠÁK, Jaroslav HLUŠEK, Ivana LAMPARTOVÁ, Lubica POSPÍŠILOVÁ, Pavel ČERMÁK, Gabriela MÜHLBACHOVÁ, Ladislav VARGA, Július ÁRVAY, Boris LAZAREVIĆ**

Phosphorus fertilization as a component of growing technology of barley

**Damijan KELC, Peter VINDIŠ, Peter BERK, Jurij RAKUN, Denis STAJNKO, Miran LAKOTA**

Testing lettuce, cultivar 'Ljubljanska ledenka', for 'baby leaf' production

**Ranko KOPRIVICA, Jan TURAN, Biljana VELJKOVIĆ, Dušan RADIVOJEVIĆ, Nikola BOKAN, Dragan ĐUROVIĆ, Dragoljub ĐOKIĆ, Igor BALALIĆ**

Physical properties of oil rapeseed kernels at different moisture content and varieties

**Alberto BARBARESI, Daniele TORREGGIANI, Viviana MAIOLI, Patrizia TASSINARI**

Assessment of building solution effectiveness on a winery thermal behaviour

**Mariana FERDEȘ, Mirela DINCĂ, Bianca ZĂBAVĂ, Gigel PARASCHIV, Mariana MUNTEANU, Mariana IONESCU**

Laccase enzyme production and biomass growth in liquid cultures of wood-degrading fungal strains

**Mirela DINCĂ, Mariana FERDEȘ, Bianca ZĂBAVĂ, Gigel PARASCHIV, Nicoleta UNGUREANU, Valentin VLĂDUȚ, Georgiana MOICEANU**

Lignocellulosic biomass pretreatment by hydrolytic fungal strains

**Mariana-Gabriela MUNTEANU, Gheorghe VOICU, George IPATE, Nelus Evelin GHEORGHITĂ, Gabriel-Alexandru CONSTANTIN, Iulian-Claudiu DUTU, Irina-Aura ISTRATE**

Aspects regarding the flow of the mixture flour-water at different temperatures, through small diameter channels

### **13.00-15.00 LUNCH BREAK**

### **15.00-17.00 PAPER PRESENTATIONS**

**Carmen Otilia RUSĂNESCU, Marin RUSĂNESCU, Mihaela BEGEA, Gigel PARASCHIV, Sorin Ștefan BIRIȘ, Gheorghe VOICU, Ileana Nicoleta POPESCU**

Assessing the risk of aridity: a case study Bucharest – Romania

**Edmond MAICAN, Sorin-Ștefan BIRIȘ, Cătălin PERȘU, Mihaela DUȚU, Mihai Gabriel MATAACHE, Sorin IORDACHE, Călin ALFIANU**

Nonlinear impact resistance simulation of a newly designed roof from an agricultural tractor cabin

**Alina OVANISOF, Ovidiu VASILE, Maria DRAGOMIR**

Analysis of human whole-body vibration exposure on a U650 tractor

**Dorel STOICA, Iulian-Claudiu DUȚU, Gheorghe VOICU, Mihaela-Florentina DUȚU**

Influence of the oscillation frequency on the separation process at the conical sieves

**Nicoleta UNGUREANU, Valentin VLĂDUȚ, Cătălin PERSU, Dan CUJBESCU, Marius Remus OPRESCU, Iulian VOICEA**

Study on the compaction under front and rear wheel of a 40 kW tractor on plowed soil

**Nicoleta UNGUREANU, Valentin VLĂDUȚ, Sorin-Ștefan BIRIȘ, Gigel PARASCHIV, Mirela DINCĂ, Bianca Ștefania ZĂBAVĂ, Vasilica ȘTEFAN, Neluș EVELIN**

FEM modelling of machinery induced compaction for the sustainable use of agricultural sandy soils

**Gheorghe VOICU, Magdalena - Laura TOMA, Elena - Madalina ȘTEFAN, Paula TUDOR, Mihaela - Florentina DUTU**

Grain pile stratification process on sieves of harvester cleaning system

**Gabriel-Alexandru CONSTANTIN, George IPATE, Gheorghe VOICU, Gabriel MUȘUROI, Mariana-Gabriela MUNTEANU, Maria DRAGOMIR**

Evaluation of hand-arm vibration transmitted during soil tillage based on Arduino and MPU9250 motion sensor

**Bernard GOYETTE, Rajinikanth RAJAGOPAL, Jean-François HINCE, Md. Saifur RAHAMAN**

A scale-up procedure for processing high-solid content food waste and dairy manure in a low temperature anaerobic digester

### **17.00 WELCOME RECEPTION**

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**WEDNESDAY - 28<sup>th</sup> February 2018.**

**Moderator: Assistant professor Krešimir Čopec**

### **9.00-11.00 PAPER PRESENTATIONS**

**Heinz BERNHARDT, Michael MEDERLE, Maximilian TREIBER, Sascha WÖRZ**

Aspects of digitization in agricultural logistics in Germany

**Martin HÖHENDINGER, Sascha WÖRZ, Hans-Jürgen KRIEG, Reinhard DIETRICH, Lorenz FRECH, Jörn STUMPENHAUSEN, Heinz BERNHARDT**

Integration of weather influences into an on-farm-energy management system

**Aleksandra DIMITRIJEVIĆ, Brankica ŠUNDEK, Nikola MATOVIĆ, Zoran MILEUSNIĆ, Rajko MIODRAGOVIĆ**

Spinach production conditions in the different types of greenhouse constructions

**Mihai Gabriel MATACHE, Corina MOGA, Cristina COVALIU, Iulian VOICEA, Catalin PERSU**  
Flotation system for agricultural wastewater treatment

**Cristian SORICĂ, Mariana FERDES, Ion PIRNĂ, Valentin VLĂDUȚ Elena SORICĂ, Ion GRIGORE**  
Effects of UV-C irradiation upon the reference strains of some food-associated microorganisms

**Cristian SORICĂ, Marian VINTILĂ, Valentin VLĂDUȚ, Mihai MATACHE, Elena SORICĂ, Ion GRIGORE**  
Energy indices of an equipment during fast freezing of berries

**Simina MARIS, Lavinia Maria CERNESCU, Stefan-Alfred MARIS, Doina DARVASI, Titus SLAVICI**  
Determining efficient mixtures of biomass for pellet production

**Dina STATUTO, Martina BOCHICCHIO, Carmela SICA, Pietro PICUNO**  
Experimental development of clay bricks reinforced with agricultural by-products

**Pietro PICUNO, Dina STATUTO**  
New curricula and teaching programmes on sustainable agriculture: the “Sagri” project

#### **11.00-11.15 COFFEE BREAK**

#### **11.15-13.00 PAPER PRESENTATIONS**

**Augustina PRUTEANU, Valentin VLĂDUȚ, Mihai MATACHE, Mihaela NIȚU**  
Experimental researches on the quality of sorting process of medicinal plants

**Mateja GRUBOR, Ana MATIN, Nikola BILANDŽIJA, Vanja JURIŠIĆ, Ivan KOPILOVIĆ, Tajana KRICKA**  
Comparison of energy properties of wheat variety „Kraljica“ with unregistered varieties „Brkulja“

**Roxana Mihaela BABANATIS MERCE, Theoharis BABANATSAS, Stefan MARIS, Dumitru TUCU, Oana Corina GHERGAN**  
Study of an automatic olives sorting system

**Gabriel GHEORGHE, Cătălin PERSU, Dan CUJBESCU, Marinela MATEESCU**  
Influence of attack angle to draft force variation of a furrow opener at mulch foil planter

**Adriana MUSCALU, Mariana BIRSAN, Ladislau DAVID, Ion GRIGORE, Ana Cristina FATU, Catalina TUDORA**  
Harvesting and processing of french marigold to obtain products with new uses

**Gabriel GHEORGHE, Cătălin PERSU, Marian MIHAI, Dan CUJBESCU, Sorin BIRIȘ, Edmond MAICAN**  
Theoretical simulation for protective structure of operator cabin against falling object

**Dragoș MANEA, Costin MIRCEA, Eugen MARIN, Petru CÂRDEI, Gabriel GHEORGHE, Florin POP**  
The effect of roots area cooling on tomatoes yield in solar

**Dan VIDREAN, Florinel Cosmin BOJA, Alin TEUȘDEA, Cristina Ioana DRAGOMIR, Nicușor Flavius BOJA**  
Assesment of soil impact after using a vibro-combinator

**Tajana KRIČKA, Mateja GRUBOR, Ivana TADIĆ, Vanja JURIŠIĆ, Ana MATIN**  
Changes in physical and chemical characteristics of coffee beans after thermal processing by roasting

#### **13.00-15.00 LUNCH BREAK**

#### **15.00-15.30 COMMERCIAL PRESENTATIONS**

#### **15.30-17.10 PAPER PRESENTATIONS**

**Rares HALBAC-COTOARA-ZAMFIR, Cristina HALBAC-COTOARA-ZAMFIR**  
Adapting to climate changes – a challenge for Romanian agriculture

**Rares HALBAC-COTOARA-ZAMFIR**

Brief introduction on water harvesting and its potential in western Romania

**Petre-Florinel NENU, Luisa-Izabel DUNGAN, Lavinia CERNESCU, Titus SLAVICI**

Energetic and economic considerations on thermal regime effectiveness in a greenhouse

**Alina MĂRGEAN, Vasile PĂDUREANU, Mirabela Ioana LUPU**

Application of ultrasound in winemaking process

**Nelus-Evelin GHEORGHITĂ, Sorin-Stefan BIRIȘ, Nicoleta UNGUREANU, Sorin IORDACHE, Maria PRUNĂU**

Study on adapting the parameters of vibratory tillage to the resonance frequency of the agricultural soil

**Tomaž POJE**

Analysis of traffic accidents with tractors in Slovenia

**Dan CUJBESCU, Gheorghe BOLINTINEANU, Cătălin PERSU, Iuliana GĂGEANU, Mihaela NIȚU, Augstina PRUTEANU, Gheorghe VOICU, Nicoleta UNGUREANU**

Assessing the quality and energy indices of precision planters

**Gheorghe BOLINTINEANU, Dan CUJBESCU, Cătălin PERSU, Iuliana GĂGEANU, Laurentiu VLĂDUȚOIU, Mihaela NIȚU, Augstina PRUTEANU, Nicoleta UNGUREANU**

Researches of the bulb planting process in field and laboratory conditions

**Baldwin G. JALLORINA, Victorino T. TAYLAN, Ireneo C. AGULTO, Helen F. GAVINO, Vitaliana U. MALAMUG, Emmanuel V. SICAT**

Harnessing the irrigation water flows for micro-hydro power generation

**Viktor JEJČIČ, Fouad AL-MANSOUR, Tomaž POJE**

Carbon footprint of final wheat products from family farms

**20.00 OFFICIAL DINNER**

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**THURSDAY - 1<sup>st</sup> March 2018**

**Moderator: Assistant professor Igor Kovačev**

**9.00-11.20 PAPER PRESENTATIONS**

**Tomaž POJE**

Analyse of registered tractors in Slovenia in the year 2016

**Zlatko KORONC, Dubravko FILIPOVIĆ, Goran FABIJANIĆ**

Tractor DI diesel engine performances using different types of diesel fuel

**Petru Marian CÂRLESCU, Vlad Nicolae ARSENOAIA, Ioan ȚENU, Adriana Teodora MUSCALU, Mariana Silvia BÂRSAN**

Researches of mass and heat transfer of an innovative vertical dryer

**Petru Marian CÂRLESCU, Ioan ȚENU, Radu ROȘCA, Adriana Teodora MUSCALU, Nicolae Valentin VLĂDUT**

CFD simulation of an innovative vertical dryer for agricultural seeds drying

**Vergil MURARU, Petru CARDEI, Sebastian MURARU, Cornelia MURARU-IONEL, Paula CONDRUZ**

Convergence of different models for the same structure in computer aided engineering

**Dan-Teodor BALANESCU, Vlad-Mario HOMUTESCU**

Agricultural machinery hybrid propulsion system based on combined cycle gas and steam turbines

**Lucian V. FECHETE TUTUNARU, Nicolae FILIP, Elena Mihaela NAGY, Mihai MATACHE**

Influence of input flow over grain mill efficiency utilisation

**Ivo GRGIĆ, Lari HADELAN, Josip GUGIĆ, Paula JURJEVIĆ, Magdalena ZRAKIĆ**

Foreign trade of the Republic of Croatia with economic groups in selected agricultural and food products from 2010 to 2017

**Ivo GRGIĆ, Jernej PRIŠENK, Vladimir LEVAK, Tea KOVAČ, Magdalena ZRAKIĆ**

Production prices of selected agricultural products in the Republic of Croatia and reference prices of European Union

**Ioan ȚENU, Oana-Raluca COORDUNEANU, Petru CÂRLESCU, Radu ROȘCA**

Design and construction of a fertilizer spreader for glass houses and greenhouses

**Viktor JEJČIČ, Aleksandar CVETANOVSKI**

Smart vibration control system for farm machines

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Registration fee payment information is accessible on website of the Symposium: <http://atae.agr.hr/>

All authors are kindly asked that any of coauthors of the paper have the oral presentation and to limit the time of presentation at **10 minutes!**

Information about hotel accommodation You can get directly from hotel's booking service:

Grand Hotel Adriatic

tel: +385 51 719-010, fax: +385 51 719-015

web: <http://www.hotel-adriatic.hr/en/> mail: [info@hotel-adriatic.hr](mailto:info@hotel-adriatic.hr)

Congress package 1 or Congress package 2 prices include official dinner fee.

We wish You a pleasant time in Opatija and useful contacts during Symposium.

Organiser of ATAE\_2018

**46<sup>th</sup> International Symposium “Actual Tasks on Agricultural Engineering”**

| <b>EUR</b>  | <b>Adriatic I****</b> |             |
|---|-----------------------|-------------|
|   | Single room           | Double room |
| Congress package 1<br>(breakfast and dinner)      | 71,00                 | 50,00       |
| Congress package 2<br>(breakfast+ lunch + dinner) | 84,00                 | 62,00       |

- Prices expressed in EURO per person/day
- Visitor's tax € 1,00 per person daily
- Payment should be effected directly on the reception in cash (in HRK) or by credit card (AmEx, Diners, Visa, EC/MC )

**IMPORTANT:**

**When you are making the reservation of the accomodation, note that you are participating at the ATAE symposium.**