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4th International Symposium
Agricultural Engineering

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Agricultural Engineering

BOOK OF ABSTRACTS

**The Fourth International Symposium on
Agricultural Engineering**



ISAE 2019
Belgrade, Serbia
31.October - 2.November 2019

Univerzitet u Beogradu – Poljoprivredni fakultet
IV MEĐUNARODNI SIMPOZIJUM O POLJOPRIVREDNOJ TEHNICI
(The Fourth International Symposium on Agricultural Engineering)
"ISAE 2019 - Book of Abstracts"

Urednici/Editors:

Dr Aleksandra Dimitrijević
Dr Ivan Zlatanović

Izdavač:

Univerzitet u Beogradu – Poljoprivredni fakultet

Za izdavača:

prof. dr Dušan Živković

Glavni i odgovorni urednik:

prof. dr Radojka Maletić

Tehnički urednik:

Dr Ivan Zlatanović

Štampa:

INTERKLIMA-GRAFIKA d.o.o.,
Kneza Miloša 161, Vrnjačka Banja, Srbija

Izdanje:

Prvo

Tiraž:

100 primeraka

Odlukom Odbora za izdavačku delatnost Poljoprivrednog fakulteta Univerziteta u Beogradu od 22.10.2019. godine, br. 231/8, odobreno je izdavanje i štampanje Zbornika abstrakata IV MEĐUNARODNI SIMPOZIJUM O POLJOPRIVREDNOJ TEHNICI (The Fourth International Symposium on Agricultural Engineering) "ISAE 2019 - Book of Abstracts".

Zabranjeno preštampanje i fotokopiranje.
Sva prava zadržava izdavač.

Beograd 2019



The Fourth International Symposium on
Agricultural Engineering
ISAE-2019



31st October-2nd November 2019, Belgrade – Zemun, SERBIA
<http://www.isae.agrif.bg.ac.rs>

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Support:

- Balkan Environmental Association – BENA
- Research Network on Resource Economics and Bioeconomy Association – RebResNet
- Association for Medicinal and Aromatic Plants of Southeast European Countries – AMAPSEEC

ISAE-2019

BOOK OF ABSTRACTS

RESULTS ON THE USAGE OF UAV IN CHEMICAL PLANT PROTECTION

**Pajić Miloš, Bošković Biljana*, Gligorević Kosta,
Dražić Milan, Zlatanović Ivan, Žujović Jovanović Suzana**

University of Belgrade, Faculty of Agriculture, Nemanjina 6, Zemun – Belgrade

E-mail: biljana.boskovic@agrif.bg.ac.rs

Abstract: *The usage of UAV - Unmanned Aircraft Vehicle in the precision agriculture creates numerous opportunities for detecting and informing farmers about the current state of cultivated crops, and the quality of the implementation of certain agro-technical operations during production. In recent years, UAV have been used in chemical plant protection, in the application of mineral fertilizers, in the detection of pests, diseases, and other aspects of agricultural production. The importance of the usage of UAV in agricultural production is becoming bigger and more significant, which could, in the long term, affect the more efficient and productive agricultural production, with a significant reduction in the consumption of the inputs of production.*

This study describes two types of UAV used in the chemical plant protection, which were analyzed according to the technical characteristics of the UAV, as well as the precision of the spray coverage of the protective liquid. The precision of distribution of the protective liquid is monitored at different ground speeds and heights during chemical protection. The MG-1 model UAV achieves the best quality of the application of protective liquid at a flight groundspeed of 3 ms^{-1} (largest effective swath of 6.8 m) and a flying height of 2 m (largest effective swath of 7.3 m). The V6A model UAV achieves the best application quality of the protective liquids at a flight groundspeed of 7 ms^{-1} (largest effective swath of 5.8 m), and at a flying height of 2 m (largest effective swath of 5.6 m). The results of the UAV analyzed showed that the uniformity of the application of the protective liquid directly depends on the model of the UAV and its technical characteristics.

Key words: *precision agriculture, application quality, chemical protection, flight ground speed, flying height, tank capacity*

ISAE – 2019

The Fourth International Symposium on Agricultural Engineering,
31st October-2nd November 2019, Belgrade–Zemun, Serbia



CIP – Каталогизacija y publikaciji
Народна библиотека Србије, Београд

631.3(048)
631.17(048)

INTERNATIONAL Symposium on Agricultural Engineering (4 ; 2019 ; Beograd)

Book of Abstracts / The Fourth International Symposium on Agricultural Engineering, ISAE-2019, 31st October-2nd November 2019, Belgrade - Zemun, Serbia ; organizer University of Belgrade, Faculty of Agriculture, Department for Agricultural Engineering, Belgrade, Serbia ; co-organizers University of Basilicata - School for Agricultural, Forestry, Food and Environmental Sciences, Potenza, Italy ... [et al.] ; [urednici/editors Aleksandra Dimitrijević, Ivan Zlatanović]. - 1. izd. - Beograd : Univerzitet, Poljoprivredni fakultet, 2019 (Beograd : Interklima-grafika). - [7], IV, 45 str. ; 21 cm

Tiraž 100. - Preface: str. [6].

ISBN 978-86-7834-341-4

a) Пољопривредне машине -- Апстракти б) Пољопривреда -- Механизација -- Апстракти

COBISS.SR-ID 280469260