



ISSN 1311-0489 (Print)  
ISSN 2367-8364 (Online)

**Agricultural Academy**

**JOURNAL  
OF MOUNTAIN AGRICULTURE  
ON THE BALKANS**

**Volume 21**

**Number 4, 2018**

**Published by  
Research Institute of Mountain Stockbreeding and Agriculture  
Troyan, Bulgaria**

**AGRICULTURAL ACADEMY, SOFIA, BULGARIA**

**JOURNAL OF MOUNTAIN AGRICULTURE  
ON THE BALKANS (JMAB)®**

**ISSN 1311-0489 (Print); ISSN 2367-8364 (Online)**

**JOURNAL OF MOUNTAIN AGRICULTURE ON THE BALKANS** is a bilingual journal issued six times a year by the Research Institute of Mountain Stockbreeding and Agriculture (RIMSA) in Troyan, Bulgaria. Its scope includes basic and applied researches relevant to agriculture and stockbreeding in the mountain, hilly and lowland areas in Bulgaria and abroad. JMAB is an international free open access web based scientific journal dedicated to the publication and discussion of high-quality research in the field of Stockbreeding, Forage Production and Grassland Management, Annual and Perennial Plants and General Agriculture. It publishes original scientific papers, overviews and short communications which are doubleblind peer reviewed.

*For contributions and subscription information, please contact the Editorial Office:*

*RIMSA, 281, Vasil Levski Str.*

*5600 Troyan, Lovech District*

*Bulgaria*

*Tel.: +359/670/66914*

*Mobile: +359/877/743604*

*E-mail: [jma@mail.bg](mailto:jma@mail.bg)*

*Website: <http://www.rimsa.eu/index.php/journal>*

**Editorial Board**

**Editor-in-Chief:** Assoc. Prof. Diyan Georgiev, PhD (Troyan, Bulgaria)

**Deputy Editor-in-Chief:** Assoc. Prof. Maria Georgieva, PhD (Troyan, Bulgaria)

**Managing Editor:** Diana Todorova (Troyan, Bulgaria)

**Members:**

Prof. Stefan Gandev, DSc (Plovdiv, Bulgaria)

Prof. Hristina Yancheva, PhD (Plovdiv, Bulgaria)

Prof. Maria Ivanova-Kicheva, PhD (Sofia, Bulgaria)

Prof. Aneliya Katova, PhD (Pleven, Bulgaria)

Prof. Tsvetoslav Mihovski, PhD (Troyan, Bulgaria)

Prof. Boryana Churkova, PhD (Troyan, Bulgaria)

Prof. Ivan Minev, PhD (Troyan, Bulgaria)

Assoc. Prof. Penko Zunev, PhD (Troyan, Bulgaria)

Assoc. Prof. Gercho Gerchev, PhD (Troyan, Bulgaria)

Assoc. Prof. Teodora Spasova, PhD (Troyan, Bulgaria)

Assoc. Prof. Boryana Stefanova, PhD (Troyan, Bulgaria)

Assist. Prof. Svetoslava Stoycheva, PhD (Troyan, Bulgaria)

Prof. Milan Petrović, PhD (Belgrade-Zemun, Republic of Serbia)

Prof. José Leitão (Faro, Portugal)

Dr. habil. István Tóbiás, DSc (Budapest, Hungary)

RNDr. Jan Nedřík, PhD (Toužimsko, Czech Republic)

Res. Assoc. Milan Lukić, PhD (Niš, Republic of Serbia)

ISSN 1311-0489 (Print)  
ISSN 2367-8364 (Online)

**Agricultural Academy**

**JOURNAL  
OF MOUNTAIN AGRICULTURE  
ON THE BALKANS**

Volume 21

Number 4, 2018

**Published by  
Research Institute of Mountain Stockbreeding and Agriculture  
Troyan, Bulgaria**

## C O N T E N T S

<b>Stockbreeding</b>	
,	<p><b>Genoveva Staykova, Pencho Penchev</b></p> <ul style="list-style-type: none"> <li>- Lineage as source of specific variance</li> <li>- of productive traits in autochthonous sheep breeds</li> </ul> <p style="text-align: right;"><b>1-14</b></p>
, , , , , F1	<p><b>Gercho Gerchev, Nikolina Naydenova, Tsvetelina Dimitrova, Gyurga Mihailova, Nikolay Markov</b></p> <p>Fatty acid composition of milk of Tsigai and Karakachan sheep and meat of their lambs F1 crossbreeds of Awassi</p> <p style="text-align: right;"><b>15-28</b></p>
	<p><b>Tsvetelina Dimitrova</b></p> <p>Dynamics of chemical indicators in milk of Bulgarian White Dairy breed and its crossbreeds with Anglo-Nubian and Toggenburg breeds in the lactation period</p> <p style="text-align: right;"><b>29-40</b></p>
, , ( <i>Apis mellifera</i> L.)	<p><b>Rositsa Shumkova, Ivanka Zhelyazkova</b></p> <ul style="list-style-type: none"> <li>- Investigation of the impact of some stimulant products on the total protein content in worker bee hemolymph (<i>Apis mellifera</i> L.)</li> </ul> <p style="text-align: right;"><b>41-4</b></p>
SWOT	<p><b>Lyubomir Lyubenov</b></p> <p>SWOT analysis of the Bulgarian beekeeping</p> <p style="text-align: right;"><b>50-72</b></p>
, , ,	<p><b>Vanya Mladenova, D sislava Abadjieva</b></p> <p>Research on genes responsible for eggshell structure and quality</p> <p style="text-align: right;"><b>73-82</b></p>
<b>Forage Production</b>	
, , ,	<p><b>Daniela Kertikova, Anna Ilieva, Todor Kertikov</b></p> <p>Crude protein content in nine alfalfa cultivars and its relationship with dry matter yield</p> <p style="text-align: right;"><b>83-92</b></p>

		<b>Ivelina Nikolova, Natalia Georgieva, Viliana Vasileva</b> Chemical composition of perennial forage crops depending on the system of cultivation and correlative relationships with root pests damage	<b>93-105</b>
			<b>106-117</b>
Care	Total	<b>Diana Marinova, Iliana Ivanova</b> Effect of foliar fertilization with Total Care on some morphological traits and forage productivity in Prista 5 alfalfa ( <i>Medicago sativa</i> L.) variety	<b>118-131</b>
5	( <i>Medicago sativa</i> L.)		
In situ	ex situ	<b>Tzenka Radoukova</b> In situ and ex situ study on the possibilities for generative propagation of <i>Juniperus sibirica</i> Burgsd. (Cupressaceae)	<b>132-144</b>
<b>Perennial Plants</b>			
		<b>Milan Luki, Sla ana Mari, Nebojša Miloševi, Ivana Gliši, Mira Milinkovi</b> Modern trends in the assortment and growing technology of pome fruit species in the Republic of Serbia	<b>145-165</b>
<i>in vitro</i>	Pyrodwarf	<b>Tatjana Vujovi, Radosav Cerovi, ur ina Ruži, Tatjana Marjanovi</b> An assessment of genetic integrity of <i>in vitro</i> shoots of Pyrodwarf pear rootstock	<b>166-182</b>
		<b>Žaklina Karaklaji -Staji, Jelena Tomi, Marijana Pešakovi, Svetlana M. Paunovi, Mira Milinkovi</b> Effects of rain-shield cultivation system on generative potential of blackberries a anska Bestrna	<b>183-191</b>

					<p><b>Ivana Gliši , Gorica Paunovi , Ivan Gliši , Nebojša Miloševi , Branko Popovi</b></p> <p>- The production and properties of some autochthonous plum cultivars suitable for brandy production in Serbia</p> <p style="text-align: right;"><b>192-206</b></p>
					<p><b>Olga Mitrovi , Branko Popovi , Miodrag Kandi , Aleksandar Leposavi , Nemanja Mileti</b></p> <p>Dipping effect on drying kinetics of plum fruits</p> <p style="text-align: right;"><b>207-219</b></p>
<b>E</b>					<p><b>Denitsa Hristova, Diyan Georgiev, Evlogi Markov, Boryana Stefanova</b></p> <p>Agrochemical soil status for 'Stanley' cultivar plantation</p> <p style="text-align: right;"><b>220-227</b></p>
					<p><b>Marian Pashev</b></p> <p>Influence of liquid organic fertilizers 'Aminobest' and 'Ecosist-Arbanassi' on the yield and biometric indicators of 'Stanley' plum cultivar</p> <p style="text-align: right;"><b>228-239</b></p>
					<p><b>Nedyalka Stoyanova, Diyan Georgiev</b></p> <p>Comparative investigation of black currant varieties – phenology, yield, fruit weight</p> <p style="text-align: right;"><b>240-248</b></p>
					<p><b>GeorgiKornov, KumanKumanov, Irina Staneva, Daniela Germanova</b></p> <p>State-of-the-art of actinidia (kiwi) production and perspectives for development in Bulgaria</p> <p style="text-align: right;"><b>249-256</b></p>
<b>General Agriculture</b>					
					<p><b>Elena Grancharova, Galina Patamanska, Georgi Kostadinov, Antoaneta Gigova, Daniela Miteva, Iliana Nacheva, Krasimir Dimov</b></p> <p>Quality of greenhouse tomatoes cultivated under different irrigation levels</p> <p style="text-align: right;"><b>257-264</b></p>

<p>,</p> <p><i>Ocimum americanum</i> L. ( )</p>	<p>, <b>Katya Uzundzhalieva, Nikolay Solakov, Stanislava Stateva</b></p> <p>- Obtaining of bioactive extract from <i>Ocimum americanum</i> L. using the method of extraction in low temperatures with the view of its practical application</p> <p style="text-align: right;"><b>265-272</b></p>
<p><i>Calendula officinalis</i> L.</p>	<p><b>Stanislava Stateva</b></p> <p>Regeneration of explants of the species <i>Calendula officinalis</i> L.</p> <p style="text-align: right;"><b>273-279</b></p>
<p>,</p>	<p><b>Bistra Atanassova, Iskra Filipova</b></p> <p>Study on the effect of organic fertilizer in indoor azaleas</p> <p style="text-align: right;"><b>280-286</b></p>