



SLOVAK UNIVERSITY OF AGRICULTURE IN NITRA
FACULTY OF HORTICULTURE AND LANDSCAPE ENGINEERING



VEDA MLADÝCH 2017 - SCIENCE OF YOUTH 2017

proceedings

ISBN 978-80-552-1688-1

ISSN 2585-7398

June 26 - 28, 2017, Ráztočno, Slovakia



Veda mladých 2017, Science of Youth 2017

PROCEEDINGS OF REVIEWED CONTRIBUTIONS

Remata, Ráztočno, Slovakia

26.06. - 28.06.2017

Reviewers

Ing. Tomáš Urban, PhD.
Ing. Martin Landa, PhD.
Mgr. Miloslav Ofúkaný
RNDr. Karol Weis, PhD.
Ing. Eliška Belaňová, PhD.
Ing. Denisa Halajová, PhD.
Ing. Jana Moravcová, PhD.
Ing. Dagmar Dobiášová, PhD.
Ing. Jana Domanová, PhD.
Ing. Ján Kollár, PhD.
Ing. Gabriel Kucman, PhD.
doc. Ing. Zlatica Muchová, PhD.
doc. Ing. Ľuboš Jurík, PhD.
doc. Ing. Peter Halaj, CSc.
Ing. Mária Bihúňová, PhD.
Ing. Karol Šinka, PhD.
Ing. Ladislav Bakay, PhD.
Ing. Tatiana Kaletová, PhD.
Ing. Elena Kondrlová, PhD.
Ing. Miroslav Šlosár, PhD.
Ing. Ján Horák, PhD.
Dr inž. Edyta Kruk
Ing. Yvetta Veselíková, PhD.
Ing. Eva Kučerová
Dr. Mile Markoski

ISBN 978-80-552-1688-1

Editors: Ing. Mária Leitmanová, PhD., Ing. Andrej Tárník, PhD.

Schválil rektor Slovenskej poľnohospodárskej univerzity v Nitre dňa 6.7.2017 ako zborník prác z vedeckej konferencie na CD.

CONTENT

THE FERMENTATION OF WINE EXPOSED TO MAGNETIC FIELDS AND ITS BIOLOGICAL REACTIONS Jakub DOBŠINSKÝ, Jaroslav JEDLIČKA.....	5
VISUALIZATION OF THE SMALL WATER RESERVOIR BOTTOM Peter BOOR, Jakub FUSKA, Lenka LACKÓOVÁ, Veronika VACULOVÁ.....	15
LAND USE CHANGES FROM 1949 UNTIL PRESENT FOR CADASTRAL AREA MECHENICE Jozef HALVA, František CYPRICH.....	24
SOCIAL FARMING AND ITS VISION IN THE CZECH REPUBLIC Marcela HROMADOVÁ.....	31
THE ASSESSMENT AND MANAGEMENT OF FLOOD RISKS BY SLOVAK WATER MANAGEMENT ENTERPRISE Peter IVAN.....	37
DROUGHT INFLUENCE ON LATE PHENOLOGIC PHASES OF ZEA MAYS GROWTH Vladimír KIŠŠ, Alan KLIMAJ, Viliam BÁREK.....	45
COMPARISON OF CHANGES IN GRAIN COMPOSITION OF THE WIND ERODED SOILS IN THE CADASTRAL AREA OF KOPČANY Veronika KRUIŠINOVÁ, Lenka LACKÓOVÁ, Jozef STREĎANSKÝ.....	58
POSITIVE ASPECTS OF THE PRESENCE OF INVASIVE PLANTS IN THE RIVERBANK VEGETATION Martina MAJOROŠOVÁ, Barbora VASEKOVÁ.....	64
MERCURY CONTAMINATION IN TOP SOIL AND PLANTS IN AREA OF VEĽKÁ STUDŇA HG-DEPOSIT AT MALACHOV (CENTRAL SLOVAKIA) Pavol MIDULA, Ingrid TURISOVÁ, Peter ANDRÁŠ.....	71
GSAA - GEOSPATIAL AID APPLICATION Peter MICHAL, Jakub PAGÁČ.....	78
ASSESSMENT OF EFFECT OF LAND MANAGEMENT ON RUNOFF GENERATION ON A SLOPE Zuzana NĚMETOVÁ, Mária ĎURIGOVÁ, Zuzana STUDVOVÁ.....	86
THE DESIGN OF THE SOIL EROSION AND FLOOD CONTROL SYSTEMS IN THE VILLAGE SEBEDÍN - BEČOV Jakub PAGÁČ, Peter MICHAL.....	99
ANNUAL FLOWER BED IN LANDSCAPE ARCHITECTURE – TYPOLOGY AND ASSORTMENT Barbora PILUŠOVÁ.....	109
METHODS AND APPROACHES TO PLANNING AND DESIGN OF THE GREEN SPACES IN CITIES Ján SUPUKA, Peter UHRIN.....	116
BRYOPHYTES OF TWO ABANDONED MINE HEAPS NEAR BANSKÁ BYSTRICA (CENTRAL SLOVAKIA) Pavel ŠIRKA, Ingrid TURISOVÁ.....	126

GSAA - GEOSPATIAL AID APPLICATION

Peter MICHAL¹, Jakub PAGÁČ¹

¹Slovak Agriculture University in Nitra

Abstract

GSAA – geospatial aid application represents an application for farmers in conditions of the Slovak Republic. It was created as an application by the Agricultural Paying Agency under the authority of the Ministry of Agriculture and Rural Development, serving primarily to draw cultivated parcels as well as the control of the individual applicants in the process of the submitting and administering the applications. Geospatial aid application is available since 2016 due to Slovakia's obligations to the European Union in agricultural policy. GSAA allows applicants to draw the cultivation of agriculture land easily and accurately and to eliminate deficiencies in comparison to graphical drawing into analog maps and estimating land area sizes. Along with IACS (Integrated Administration and Control System), GSAA represent the next level of control mechanism to make the European Community funds used as efficiently as possible.

Keywords: GSAA, IACS, Agricultural Paying Agency,

Introduction

On the basis of Regulation (EU) No 1307/2013 of the European Parliament and of the Council, Commission Delegated Regulation (EU) No 639/2014, Commission Delegated Regulation (EU) No 640/2014, Council Regulations (EC) No 73/2009 and Commission Implementing Regulation (EU) No 809/2014 of 17 July 2014 are laying down rules for the application of Regulation (EU) No 1306/2013 of the European Parliament and of the Council with regard to the integrated administration and control system, rural development measures and cross compliance and with regard to Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008, relating to, among other things, the obligations of the Member States to protect the financial interests of the European Union. In the case of applications for support within area-related aid schemes or payment claims within area-related support measures, the applicant must be provided with a pre-prepared form in electronic format and relevant graphic material through software application based on Geographical Information System (GIS). Geospatial aid application forms help to prevent errors

by applicants to declare agricultural areas and make administrative cross compliances more effective. In addition, more accurate spatial informations provided through geospatial aid application forms are the source of more reliable data for monitoring and assessing the eligibility of beneficiaries requirements. For this reason, the GSAA application has been developed which includes all the necessary parameters to accomplish these commitments and objectives.

Material and Methods

Geospatial Aid Application (GSAA) is a web-map application that allows you to view and edit borders of cultivated area of the applicants. The application accesses various functionalities for different user roles.

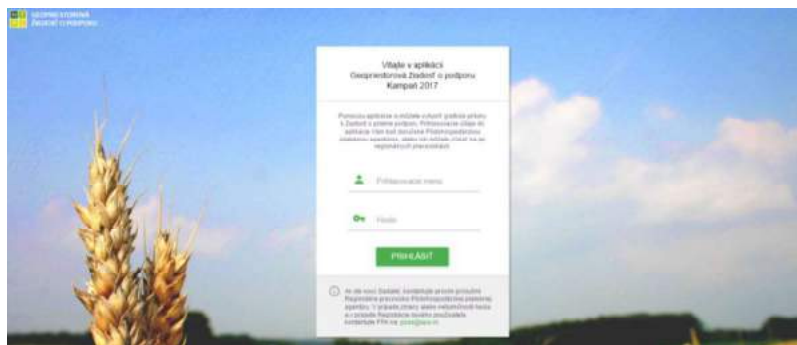


Figure 1 Sign in to Geospatial Aid Application (Michal, 2017)

Only registered users can log in to the application after receiving acces rights (username and password). Once signed in, they are automatically redirected to the parcels they cultivate if they were already drew in 2016, otherwise it is necessary to find appropriate ground-plot name as well as the LPIS (Land Parcel Identification System).



Figure 2 Drawing the borders of cultivated agriculture land (Michal, 2017)

| Veda mladých 2017

The LPIS borders are drawn in the GSAA by a red line, which is cyclically updated during the year by employees of the National Agriculture and Food Centre or Agricultural Paying Agency. The yellow border with appropriate label (1-A, 1-B) shows the borders of cultivation by applicants. In case the LPIS borders and cultivated area overlap, the applicant uses the whole area. After clicking on a particular area it is possible to obtain the basic information about the LPIS (identification, area size, name of the user, location, crop, parcel number and order number of cultivated area). In addition, applicants have the opportunity to find basic data about agricultural land (Estimated Pedologic-Ecological Unit categories, Sites of Community Importance, distribution of landscape elements, etc.).

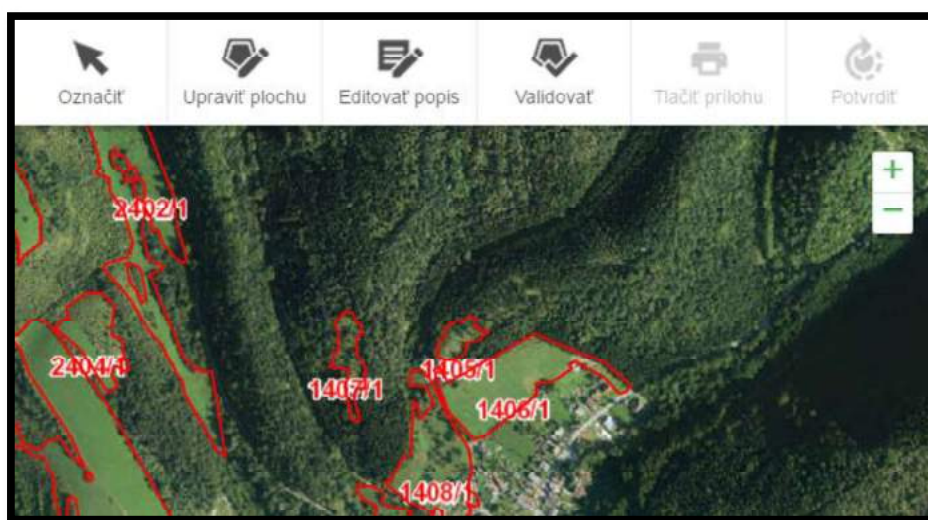


Figure 3 GSAA tools (Michal, 2017)

Table 1 Functionality GSAA (Michal, 2017)

GSAA – work with the application				
Map work tools	Tools for border editing	Validation	Printing	Confirmation
Zoom in/Zoom out	Choose of cultivated borders	Check the overlap of the cultivated area	Graphical attachments	Confirm entered data and areas
Identification of elements	Copy borders from LPIS			
Turn on/off the outer layers	Edit description of cultivated borders			
	Adjust cultivated area			
Search – identifier of cultivated areas	Split			
	Cut			
	Aggregate			
Search – applicant area	Delete		Tables with LPIS data	
	Draw			
	Edit vertex			

Results and discussion

GSAA 2016

Since the applicants' requirement for 25% of the total area estimated for the single area payment scheme in the previous year to be covered was not accomplished, it was necessary for this legislative requirement drew concerned areas by employees of the National Agriculture and Food Centre – Soil Science and Conservation Research Institute (NAFC-SSCRI), in the form of vectorization from the graphical attachments to single application for 2016 submitted by applicants into digital form in the GSAA.

Applicants, whose areas have been drawn in the GSAA from graphical attachments and applications in Integrated Administration and Control System (IACS), have subsequently been detected with irregularities, the APA has sent notifications about that. These notifications contain errors resulting from comparison of the area sizes in application and drawing from graphical attachments to GSAA. Goal was to ensure that areas with provided support are recorded in the GSAA. Any differences could have been removed as follows:

- If the area size in the application (reported area size or area size reduced by response to a previous notification about irregularity or reduced after decreasing) is larger than the GSAA area size (and the GSAA area size is correct), it is possible to respond to the notice by confirming the GSAA area size and thereby removing difference. If the GSAA area size is not correct, the difference can be removed by increasing the GSAA area.
- If the GSAA area size is larger than the area size of the application (reported area size or area size reduced by response to a previous notification about irregularity or reduced after decreasing), it is possible to reduce area in GSAA and eliminate the difference. However, after submitting an application after 30 May, it is no longer possible to increase the area size in application by adding the area size.
- If GSAA find multiple applicants sketches on the same area, it is possible to modify their areas in the GSAA so that they do not overlap with another applicant. If such border adjusting decrease area size in the GSAA, it is also necessary to respond to the notification of irregularities and to indicate reduced area size for all payment schemes to which the application is submitted and which are affected by the reduction.

However, this procedure was only applied in 2016 for applicants who had been redrawn through SSCRI. Applicants who have used the possibility to draw through an application individually are responsible for submitting the application themselves.

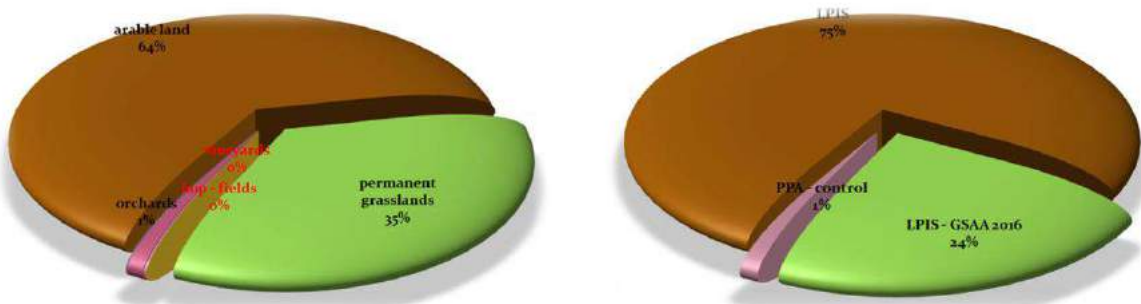


Figure 4 Representation of land types and redrew applications into the GSAA in 2016 (Michal, 2017)

It is clear from the graph above that the obligation to redraw the 25% of the total area for the Trenčín region was observed. Since the applicants were not interested in drawing into the application, the National Agriculture and Food Centre redrew 24% of the area's graphical attachments. The other percentage was drawn after an on-the-spot check by the APA employees. The second graph demonstrates land types representation of agricultural land in the Trenčín region. Figure 4 shows area representation of redrew agricultural land in the Trenčín region in 2016. The map output was created in the ArcMap from the data provided by the Agricultural Paying Agency.

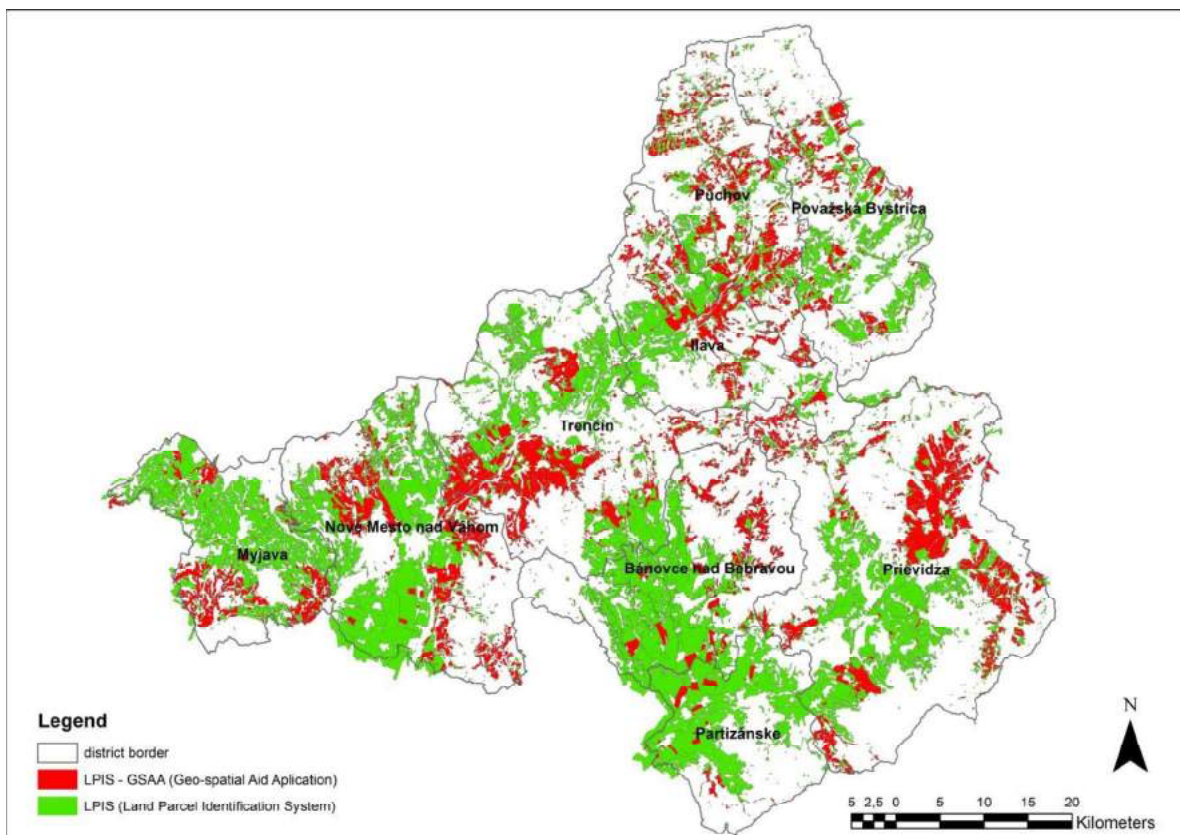


Figure 5 Cultivated area drawn from LPIS into the GSAA 2016 (Michal, 2017)

GSAA 2017

In 2017, the number of applicants is legally determined, which corresponds to the number needed to cover at least 75% of the total area, which is approximately 1,400,000 ha. In order to fulfill this legislative requirement, the Ministry of Agriculture and Rural Development of the Slovak Republic, NAFC-SSCRI and APA prepared a procedure for the processing of spatial data on reported areas regarding to the submission of applications 2017. Given the time and technical difficulty of the activity, the selection process focused on applicants who are likely to have sufficient staff capabilities and technical skills to draw through the GSAA web interface. In accordance with the above mentioned procedure, applicants whose reported area size in the year 2016 for the purposes of the single area payment scheme was a minimum of 400 ha and applicants who had their areas drawn by NAFC-SSCRI in 2016 will not be provided by the APA graphic material (graphic attachments) in paper form and available to them through the GSAA web interface. Other applicants who do not have to fulfill the redraw condition have the option to remain in the analogue application form by 2018.

However, as the transition must be smooth, a bridging period of three years from the initial submission of applications to the digital environment was established. The Agricultural Paying Agency, in cooperation with the Soil Science and Conservation Research Institute and National Agriculture and Food Centre, has begun to redraw applications from the map form to the GSAA digital environment since 2016 to draw 25% area size of the submitted applications in first year, 75% in 2017 and 100% in 2018 and complete transition from analogue to digital form submitting applications to observe commitment. These redrew were complemented by measurements made by the Agricultural Paying Agency, in particular Department of Direct Support and Market Organization Measures during the on-the-spot checks in 2016. For applicants who were drawn in 2016, or on-the-spot checks was carried out there, the 2016 drawing of cultivated area will automatically pass to the 2017 campaign. Of course, they have the possibility of making edits and adjust borders of cultivated area before submitting the application, as opposed to the previous year.

Advantages and disadvantages of GSAA

- ✓ Automatic calculation of the area sizes of rural development program layers, cross-compliance and elements of ecological interest needed to correctly complete the list of agricultural parcels and list of areas of ecological interest
- ✓ Reducing the number of irregularities after cross-compliance
- ✓ Showing common borders of cultivated area with neighboring applicant
- ✓ Option in the next year only to confirm your lands (or modify only change of cultivated area)

| Veda mladých 2017

- ✓ Reducing the administrative burden on applicants who do not have to manually rewrite data into pre-generated lists
- ✓ Reducing the number of incorrect entry
- ✗ Insufficient hardware equipment – server
- ✗ Limited number of logged-in users at one time
- ✗ Possibility to add additional parameters for LPIS before application (crop, LFA/ANC)

Conclusion

Observing the commitment of 75% of the draw area in 2017 foresees an area draw of subjects with a cultivated area over 400 ha. On May 10, 2017, the 556 single applications were submitted at the APA regional office in Trenčín. Compared to 2016, it is a decrease of 61%. One of the main reasons for the low number of applications so far is the fact that the GSAA system is currently highly underdeveloped in terms of hardware because the maximum number of logged users is limited and the purchased server is unable to cover the current number of applicants. The second reason is the fact that the application has been made available for drawing cultivated land since February 2017, but the most applicants left their application submitting on the final deadline of May 15. For this reason, the deadline for submission of applications was shifted to May 30 to satisfy all applicants for support. Altogether in 2016, a single application was submitted by more than 19,000 applicants within the Slovak Republic, representing over 78,000 applications for various fund titles.

Acknowledgment

Results obtained in the research projects VEGA no. 1/0673/16 and KEGA no. 008SPU-4/2017 have been used in this paper.

References

Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009 (Ú. V. EÚ L 347, 20.12.2013, s. 608).

Commission Delegated Regulation (EU) No 639/2014 of 11 March 2014 supplementing Regulation (EU) No 1307/2013 of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and amending Annex X to that Regulation (Ú. V. EÚ L 181, 20.6.2014, s. 1).

Commission Delegated Regulation (EU) No 640/2014 of 11 March 2014 supplementing Regulation (EU) No 1306/2013 of the European Parliament and of the Council with regard to the

| Veda mladých 2017

integrated administration and control system and conditions for refusal or withdrawal of payments and administrative penalties applicable to direct payments, rural development support and cross compliance (Ú. V. EÚ L 181, 20.6.2014, s. 48).

Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007 and repealing Regulation (EC) No 1782/2003 (Ú. V. EÚ L 30, 31.1.2009, s. 16).

Commission Implementing Regulation (EU) No 809/2014 of 17 July 2014 laying down rules for the application of Regulation (EU) No 1306/2013 of the European Parliament and of the Council with regard to the integrated administration and control system, rural development measures and cross compliance

Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008

Contact address: Ing. Peter Michal, Slovak University of Agriculture in Nitra, Horticulture and Landscape Engineering Faculty, Department of Landscape Planning and Land Consolidation, Hospodárska 7, 949 76 Nitra, Slovakia, petomichal1@gmail.com

| Veda mladých 2017

SCIENCE OF YOUTH 2017 - PROCEEDINGS OF REVIEWED CONTRIBUTIONS

**Remata, Ráztočno, Slovakia
26.06. - 28.06.2017**

Held under the auspices

doc. Ing. Klaudia Halászová, PhD., dean of FZKI SPU in Nitra.

Edition: first

Year of publication: 2017

Printing: 50 pieces

Editors: Ing. Mária Leitmanová, PhD., Ing. Andrej Tárník, PhD.

Publisher: Slovenská poľnohospodárska univerzita v Nitre

ISBN 978-80-552-1688-1

It didn't go through editorial editing in the publishing house.