

Péter HEGYES*
Legal Responses to the Challenges Facing the Young Agricultural Generation**

Abstract

This paper introduces the legal responses to the challenges facing the young agricultural generation. The young generation of farmers is facing several challenges that make production difficult. Farmers will only be able to farm successfully in the face of such challenges if a supportive and enabling legislative environment is in place.

Keywords: risk factors, rainfall shortages/drought, agricultural irrigation, irrigation communities, labour shortage, unmanned aircraft

Introduction

The promotion of generational change in the agricultural sector, together with predictable regulation of farm transfers and the widest possible support for young farmers, is undoubtedly a necessary and welcome objective. In my view, however, maintaining the quantity and quality of agricultural production is a constantly growing challenge. It is essential that legislators at different levels keep up to date with these challenges and create a regulatory environment that is flexible and responsive, such that farmers can more effectively tackle various challenges. What challenges should we think about? A few major examples include: rainfall shortages/drought; labor shortages; limited availability of land; deterioration of land quality; complex and ever-changing and tightening regulatory environment; vulnerability of supply chains; limited marketing opportunities; implementation of the land-to-table concept; increasing consumer expectations. In this paper, I present the need for legislative preparedness in relation to the first two, that is, rainfall shortages/drought and labor shortages.

1. The need for legislation to address rainfall shortages/drought

Water shortages, drought, and rising temperatures as a result of climate change are posing serious challenges to agricultural production worldwide. The Working Group II contribution to the Sixth Assessment Report of the UN Intergovernmental Panel on

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* dr. jur., PhD, assistant professor, University of Szeged, Faculty of Law and Political Sciences, Institute of Business Law, email: hegyes.peter@juris.u-szeged.hu

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Climate Change – IPCC¹ highlighted four main risk factors for Europe (a) heat, (b) declining agricultural production, (c) water shortages, and (d) floods.²

The primary risks and severe consequences are mainly related to heat extremes of increasing frequency, intensity, and duration as well as rising average temperatures.

The report paints a gloomy picture of the world's grain fields. As climate change intensifies, about a third of currently arable land is expected to become unsuitable by the end of the century, and global yields of four crops – maize, rice, wheat and soya, that provide nearly three-quarters of the world's calories – could fall by as much as 10-30% by the end of the century. Increasing heat, drought, water shortages and their combined effects are increasingly making production impossible in many places, which could drive up food prices and lead to a food crisis.

According to the measurements of the Hungarian Meteorological Service, the summer of 2021 in the country was 1.2 degrees Celsius warmer than average, the fifth hottest since 1901. The two-month period from mid-June to mid-August was largely dominated by heat waves, while the beginning and end of the season were cooler than usual. Summer rainfall was significantly below the 1991-2020 average. The last time we had a similarly dry summer was in 2015. Rainfall was below normal in all three months. June was unusually dry; so much so that it was the driest June in 121 years. Only 22% of the monthly average rainfall. Precipitation in July was 13% below normal and in August 8%.³

Under these circumstances, it is of crucial to have a transparent legal environment for irrigation. In recent years, the legislature has sought such implementation on several points. Among these, the new provisions on agricultural irrigation wells and the main provisions of Act CXIII of 2019 on Irrigation Management are presented below.

The re-regulation of irrigation wells is the result of a long legislative process. In the past, the possibility of establishing wells up to a depth of 80 meters without notification or authorization was raised. The President of the Republic sent the relevant Bill No T/384 to the Constitutional Court to declare its non-conformity with the Fundamental Law. In its decision No 13/2018 (IX.4.), the Constitutional Court made the following main observations: (a) groundwater under exclusive state ownership is protected under both Article 38 (1)⁴ and Article P (1)⁵ of the Fundamental Law; (b) the state can only manage it in a way that accounts for only the common needs of present generations, but also those of future generations, and the preservation of natural

¹ Working Group II contribution to the Sixth Assessment Report: Climate Change 2022: Impacts, Adaptation and Vulnerability.

² For a summary of the Report, see: Lehoczky A 2022.

³ OMSZ 2021

⁴ Article 38 (1) of the Fundamental Law: *“The property of the State and of local governments shall be national assets. The management and protection of national assets shall aim at serving the public interest, meeting common needs and preserving natural resources, as well as at taking into account the needs of future generations. The requirements for preserving and protecting national assets and for the responsible management of national assets shall be laid down in a cardinal Act.”*

⁵ Article P (1) of the Fundamental Law *“Natural resources, in particular arable land, forests and the reserves of water; biodiversity, in particular native plant and animal species; and cultural artefacts, shall form the common heritage of the nation, it shall be the obligation of the State and everyone to protect and maintain them, and to preserve them for future generations.”*

resources; (c) the need not only to maintain but also, where appropriate, to tighten the water licensing regime, given the strategic need to protect the quantity and quality of groundwater resources; (d) if the activity can be carried out without authorization and notification, this in itself constitutes a step backward. To violate the principle of non-regression,⁶ environmental degradation is unnecessary; the risk of deterioration is sufficient.

Following an unsuccessful bill, Act LVII of 1995 on Water Management (Vgtv.) was amended in 2020. Consequently, the concept of agricultural irrigation wells, as well as the specific provisions for their installation, were defined. According to Annex 1, point 35 of the Vgtv., agricultural irrigation wells are: "*a groundwater abstraction facility that provides water exclusively for agricultural purposes on agricultural land.*" For the installation of these wells, under certain conditions, a water installation permit is not required, and administrative approval after prior notification is sufficient. Conjunctive conditions for approval are: (a) the well is installed without using the internal, external, and hydrogeological protection dams, protection areas, karst or stratified water resources designated, under designation, or previously delimited, in accordance with the Government Decree on the Protection of Aquifers, Remote Aquifers and Water Facilities for Drinking Water Supply, and on an area not affected by soil or groundwater contamination as recorded in the official register, (b) the depth to the bottom of the well does not exceed 50 meters and does not reach the first waterproof layer, (c) the irrigation system connected to the well is used exclusively for the irrigation of areas under the cultivation of the installer or operator, (d) the well has been previously registered in the official register by the installer in accordance with the Government Decree on the Exercise of the Authority's Powers in the Field of Water Management and, after approval of the registration, the well has been equipped during the installation with a digital well water meter to measure water volume.⁷

The Act also allows farmers to register their agricultural irrigation wells installed without a permit until the end of 2023 without imposing a fine, provided that the well meets the following conditions: (a) the well was installed before 1 January 2021 without using the internal, external and hydrogeological protection dams, protection areas, karst or stratified water resources designated, under designation or previously delimited in accordance with the Government Decree on the Protection of Aquifers, Remote Aquifers and Water Facilities for Drinking Water Supply, and on an area not affected by soil or groundwater contamination as recorded listed in the official register, and has been installed without a permit or by derogation from the permit, contrary to the legislation in force at the time of its installation (b) the depth to the bottom of the well does not exceed 50 meters and does not reach the first waterproof layer, and (c) the irrigation system connected to the well is used exclusively for the irrigation of areas under the cultivation of the installer or operator.⁸

Act CXIII of 2019 on Irrigation Farming (Ögtv.) was adopted to preserve natural resources, strengthen the adaptability of agriculture, promote irrigation farming, and establish irrigation communities. According to the Act, an irrigation community is a business association or cooperative whose members are farmers with a right to use a

⁶ On the principle of non-regression, see: Bándi 2017, 9–23.

⁷ Vgtv. 28/A. § (1a)

⁸ Vgtv. 45/N. § (1)-(3)

parcel of land in the irrigation district.⁹ The area used for the operation of the irrigation community and including the parcels of non-residential land that the members of the irrigation community wish to irrigate is called the irrigation district.¹⁰ The irrigation community in the irrigation district provides the possibility for irrigation: (a) for arable crops and industrial vegetables, at least 100 hectares, (b) for horticultural crops and industrial arable crops, at least 10 hectares.¹¹

In 2020, around 180 thousand hectares of land had a water permit for irrigation. The number of communities is still growing. In September 2021, the number of recognized irrigation communities was over 70.¹²

Applications for recognition of irrigation communities must be submitted to the irrigation management body,¹³ which submits the applications, together with its professional opinion, to the Minister responsible for agricultural policy. The Minister shall then designate the irrigation district in the decision, recognizing the irrigation community, and considering the hydrographic, hydrogeological, and topographical conditions within the boundaries of the irrigation development area.¹⁴

Getting irrigation water to an investor's land is often a barrier to investment. Therefore, the Act states that irrigation is in public interest. That is, the water transfer must be solved and an irrigation easement must be granted. Under this provision, the owner or occupier of the servient estate must tolerate the construction and operation of an irrigation water facility on their property, if it does not preclude the proper use of the real estate.¹⁵ The owner of the property is entitled to compensation corresponding to the extent of the restriction.¹⁶

2. Labor shortage, legislative environment for technological developments¹⁷

To the same extent as climatic problems, farmers are affected by labor shortages and difficulties in retaining labor. Agriculture involves hard physical work, which

⁹ Ögtv. 7. § (1)

¹⁰ Ögtv. 1. § 5.

¹¹ Ögtv. 7. § (2)

¹² Infojegyzet 2021.

¹³ currently: National Land Centre

¹⁴ Ögtv. 9. § (1)

¹⁵ Ögtv. 2. § (1)

¹⁶ The parties may agree on the amount of compensation. Lacking this, the compensation amounts set out in the implementing decree of the Act (Government Decree 302/2020 (29.VI.)) shall apply. Under Annex 1 of the Decree, the compensation for the establishment of an irrigation easement shall be calculated in the following way for land used for agriculture and forestry: $K = 50.000, - Ft * AK * T * G$, where: K – the amount of compensation, AK - the average gold corona value of the area concerned, T – the size of the area concerned in hectares, G – land-use multiplier, which is (a) in the case of areas above-ground and areas registered in the Hungarian National Forest Inventory, in the case of areas to be used for above-ground and below-ground irrigation investments $G = 1$; (b) for areas to be used for below-ground irrigation investments, with the exception of forests $G = 0,3$

¹⁷ I have dealt with the legislative processes arising from the development of agricultural technology and the development of the regulation of unmanned aircraft in several studies in Hungarian. This chapter provides an English summary based on these.

nowadays requires multi-faceted skillset, such as technological skills. Labor shortages are also exacerbated by the outflow of potential workers.¹⁸

In the face of obstacles, such as labor shortages, deepening challenges, and the security of supply, ensuring the sustainability of agricultural production will require heavy reliance on technological developments that can fundamentally change traditional agricultural activity. Technological developments and robotization can also alleviate labor shortages. Therefore, it is essential to monitor developments and create an appropriate regulatory environment to ensure that the relevant legislative environment does not become obsolete, acting as a barrier in the application of innovative opportunities.

The need to link agriculture to technological developments is already reflected in documents at the EU and national levels, which can certainly be the first step towards an appropriate regulatory environment.

At the EU level, reference can be made in this context to the European Parliament's resolution on Enhancing innovation and economic development in future European farm management.¹⁹ The resolution gives priority to the need to disseminate innovative technologies in the field of agriculture, and in my view, it is a document that rightly anticipates the future of EU agricultural policy.

The impact of technological development on sustainability is also highlighted by the European Commission in its Communication, *The Future of Food and Farming*.²⁰ The Commission emphasizes that technological development and digitalization are major enablers, advancing resource efficiency and aiding development of environmentally and climate-conscious agriculture, thereby reducing environmental and climate change impact on agriculture, improving resilience and land quality, and reducing costs for farmers.

The Communication sets out the following benefits of smart agriculture: (a) increased production: optimized planting, caring, and harvesting improves yields; (b) real-time data and product information: real-time access to information on sunlight intensity, soil moisture, markets and livestock etc. to help farmers make better and faster decisions; (c) better quality: accurate information on production processes and product quality helps farmers to adapt and improve product characteristics and nutritional content; (d) improve livestock health: sensors can detect and prevent deterioration in animal health at an early stage, reducing the need for treatment; (e) less water consumption: thanks to soil moisture sensors and more accurate weather forecasting, water consumption can be reduced; (f) lower production costs: automated processes improve resource efficiency in crop and livestock production, leading to lower production costs; (g) accurate analysis of farms and agricultural areas: historical yield data helps farmers plan and forecast future yields; (h) reduced environmental, energy and climate footprint: increased resource efficiency reduces the environmental and climate impact of food production.

¹⁸ See more: Csizmadia 2022.

¹⁹ 07 June 2016., 2015/2227 (INI).

²⁰ *The Future of Food and Farming* - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions; Brussels, 29. 11. 2017, COM(2017) 713 final.

At the national level, the Digital Agricultural Strategy of Hungary (DAS), established in the framework of the Digital Welfare Program is worth highlighting.²¹ The Strategy sets the objective of promoting the use of the benefits of digital technological development. The areas covered by the DAS include agricultural production, farms, product trajectories, as well as human resources development, research, development and innovation, public administration and public services, development policy, and aid systems.²²

In recent years, the development of regulation of unmanned aircraft has received particular attention, which illustrates my point made at the beginning of this chapter that the slowness of the legislative process may be an obstacle to the rapid application of emerging new technologies. I will introduce the legal problems and solutions to the issues related to the use of unmanned aircrafts, i.e. drones, in agriculture, and the development of the regulation. Drones can be used in agriculture for a wide range of purposes. To illustrate it with a few examples: (a) damage assessment; (b) mapping; (c) search for bee pastures; (d) spraying in places difficult to access with conventional machinery; (e) data collection and analysis; (f) protection of plantations;²³ (g) facilitating certain management activities.²⁴

The above examples show that drone use can facilitate and make farming more efficient. However, the legal provisions for their operation were the result of a very long process.

The starting point should be spring 2019. Two Commission Regulations were published in March and May 2019, respectively, which laid down provisions specifically related to unmanned aircraft. The power to adopt implementing regulations is laid down in EU Regulation 2018/1139 on common rules in the field of civil aviation.²⁵ Commission Regulations (EU) 2019/945²⁶ and (EU) 2019/947²⁷ were also published. Regulation (EU) 2019/945 establishes provisions for unmanned aircrafts as products (product requirements, obligations of economic operators, product conformity, notification of conformity assessment bodies, EU market surveillance). The measures of

²¹ Legal basis: Government Decree No 1470/2019 (VIII.1.) on the promotion and coordination of the digitalization of Hungarian agriculture, on the Digital Agricultural Strategy of Hungary

²² DAS point 2.2. first paragraph

²³ See: Scarecrow from the air: In Germany, one of the largest blueberry plantations has recently been protected from ravenous starlings by an eagle-shaped drone, Szalay & Szentpéteri 2019.

²⁴ See for example: Szalay & Szentpéteri 2019.

²⁵ Regulation (EU) 2018/1139 of the European Parliament and of the Council (4 July 2018) on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91; HL L 212, 22 08 2018, 1–122.

²⁶ Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems HL L 152., 11 06 2019, 1–40.

²⁷ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft, HL L 152., 11 06 2019, 45–71.

Regulation (EU) 2019/947 establishing provisions on drone operations will be directly applicable in all Member States from 31 December 2020.²⁸ The Regulation authorizes the Member States to promulgate detailed rules concerning the registration, rules on flights performed by unmanned aircraft, the detailed rules of registration and training of unmanned aircraft pilots, the rules for designating training organizations, the detailed rules for the operation of unmanned aircraft, and rules for their maintenance.

Prior to the applicability of Regulation (EU) 2019/947, the Hungarian regulation on the operation of drones – at least for agricultural use – was practically unenforceable. The central element of the legislation was the obligation of prior notification of use. When using Hungarian airspace, a so-called *ad hoc* airspace use permit had to be applied for. The application for the designation of *ad hoc* airspace had to be submitted to the military aviation authority at least thirty days before the planned use, using the form provided by the military aviation authority and published on its website. An *ad hoc* airspace could be designated for the duration of the event that gave rise to the airspace designation, but for a maximum of 30 days, provided that no *ad hoc* airspace could be designated at the same time if it overlapped in space and time.

In most cases, this rule has led to unrealistic or difficult enforcement or abusive behavior in drone use.²⁹

This was also true for agricultural applications. An example is the legislation on the prevention of wildlife damage and the procedure for assessing it. According to the Hungarian Hunting Act (hereinafter: Vtv.),³⁰ wildlife damage is defined as over the ten per cent (natural self-sustaining value) of the damage caused³¹ by (a) red deer, fallow deer, roe deer, wild boar and mouflon in agriculture and forestry, and (b) roe deer, hares and pheasants in vineyards, orchards, arable land, afforestation and nurseries.

Regarding damage prevention, both the user of the land³² and the holder of the hunting rights, who is liable for the damage,³³ have a preventive obligation. In this context, it should be highlighted that the rules applicable to land users include the obligation to control the areas cultivated by them using professional agrotechnology and protect against wildlife damage to the extent and in the manner they can be expected,

²⁸ The original content of the Regulation was to apply directly from 1 July 2020, but the Commission decided to postpone the date of application in view of the COVID-19 pandemic. See Commission Implementing Regulation (EU) 2020/746 of 4 June 2020 amending Implementing Regulation (EU) 2019/947 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic (Text with EEA relevance), C/2020/3599, HL L 176., 05 06 2020, 13–14.

²⁹ An example of this is the case, which has been widely reported in the press, of a private individual who applied for and received an *ad hoc* permit to use the entire airspace above Lake Balaton for the duration of the traditional and widely publicized Blue Ribbon sailing race held in July 2018 and then wanted to sell his right to use the airspace for a financial consideration. See HVG Tech 2018.

³⁰ Act LV of 1996 on Wildlife Protection, Wildlife Management and Hunting

³¹ Vtv. 75. § (2)

³² See Vtv. 78-79. §

³³ Pursuant to Article 75 (5) of Vtv., the person who carries out wildlife management activities with the wildlife species causing the damage and is entitled to hunt it, and on whose hunting grounds the damage occurred, is obliged to compensate the wildlife damage.

during critical periods.³⁴ This obligation could be fulfilled in an automated way through the continuous use of unmanned aircraft, but, by definition, a take-off should not be preceded by the acquisition of an ad hoc airspace use permit.

Vtv. lays down mandatory time limits for the assessment of damages as follows: (a) fifteen days notification period from the occurrence or discovery of the damage;³⁵ (b) a settlement period of five days from the date of notification of the damage;³⁶ (c) a five-day deadline for requesting a damage assessment procedure under a notary's jurisdiction;³⁷ (d) three working days for the secondment of experts;³⁸ (e) five-day deadline for expert assessment of the damage.³⁹

Following the above steps, the procedure ends with an attempt to reach a settlement before the notary, failing which the injured party may apply to the courts for compensation.⁴⁰ In this case, too, it can be seen that the deadlines set by Vtv. and the deadlines for obtaining the *ad hoc* airspace permit were incompatible.

With Regulation (EU) 2019/947 on operations and the Hungarian legislation laying down detailed rules,⁴¹ the previous regulation has been improved. The starting point of the regulation is that unmanned aircraft can operate in the Single European Sky airspace⁴² in the same way as piloted aircraft. However, operators or remote pilots conducting operations must comply with predetermined conditions, depending on and proportionate with the level of risk associated with the equipment used.

³⁴ See Vtv. 79. § (1) d)

³⁵ Vtv. 81. § (1): “*Claims for compensation for wildlife damage, hunting damage and damage caused to the wildlife (for the purposes of this Section, hereinafter referred to collectively as ‘damage’) shall be submitted in writing to the person responsible for the damage within fifteen days of the occurrence or discovery of the damage.*”

³⁶ Vtv. 81. § (2)

³⁷ Vtv. 81. § (2): “*If the injured party and the person liable for the damage do not reach a settlement on the compensation for the damage and the amount of compensation within five days of the notification pursuant to paragraph (1), the injured party may request the notary of the municipality competent for the place where the damage occurred (hereinafter referred to as ‘notary’) within five days, in writing or orally, to conduct a damage assessment procedure for the establishment of a settlement between the injured party and the person liable for the damage.*”

³⁸ Vtv. 81. § (3): “*The assessment of the damage may be carried out by a damage expert (hereinafter referred to as ‘expert’) who is qualified in accordance with the Minister's decree. The expert shall be appointed by the notary within three working days.*”

³⁹ Vtv. 81. § (4): “*The damage assessment must be carried out within five days from the date of secondment, in accordance with the simplified rules for wildlife damage assessment laid down by the Minister's decree.*”

⁴⁰ Vtv. 81. § (5)-(8)

⁴¹ Act XCVII of 1995 on Air Transport (hereinafter Lt.); Government Decree 4/1998 (I.16.) on the use of Hungarian airspace; Government Decree 39/2001 (III.5.) on compulsory liability insurance for air transport; Government Decree 532/2017 (XII.29.) on the additional procedural rules of the air transport authority; Joint Decree 26/2007 (III.1.) GKM-HM-KvVM on the designation of Hungarian airspace for air transport; 6/2021 (II.5.) ITM Decree on the designation of organizations for the training and examination of remote pilots, the detailed rules for the training and examination of remote pilots and the fees for participation in the examination

⁴² Single European Sky airspace: the airspace above the territory to which the Treaties apply and any other airspace to which Member States apply Regulation (EC) No 551/2004 in accordance with Article 1(3) of that Regulation - Article 3 33. of Regulation (EU) No 2018/1139

In the light of the above, the Commission Regulation defines three categories of operations: open, special, and subject to authorization.⁴³

According to Article 4 of the Regulation, an operation is considered an open category UAS operation only if the following requirements are met: (a) the UAS belongs to one of the classes defined in Regulation No 2019/945 or is self-built;⁴⁴ (b) the maximum take-off weight of the unmanned aircraft is less than 25 kg; (c) the remote pilot ensures that the unmanned aircraft remains at a safe distance from people and does not fly over crowds;⁴⁵ (d) the remote pilot keeps the unmanned aircraft in VLOS⁴⁶ as a general rule at all times; (e) as a general rule, during flight, unmanned aircraft are kept within 120 meters of the nearest point on the ground; (f) during flight, the unmanned aircraft is not carrying dangerous goods or spraying any material.

The above requirements are conjunctive conditions, so if any of them are not met, the operation will be considered a special category. The most fundamental difference between the two categories is that an open UAS operation is not subject to prior authorization, while a special operation, as a general rule, can only be launched with an operation permit issued by the competent authority of the Member State.⁴⁷

An operation is only considered as a UAS operation of the category requiring authorization if the following requirements are met: (a) the UAS used belongs to the certified and special category⁴⁸ according to Regulation No 2019/945; and (b) the

⁴³ Regulation No 2019/947 Article 3

⁴⁴ Under certain conditions. according to the decision no 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC (HL L 218., 82. p.), operations of UAS types placed on the market before 1 July 2022 are considered also as open category.

⁴⁵ Crowd: a gathering where, due to the dense location of the participants, the movement of individuals is restricted - Article 2 3. of Regulation No 2019/947

⁴⁶ The regulation distinguishes between VLOS, i.e. within line of sight, and BVLOS, i.e. out of the line of sight. In VLOS, the remote pilot is able to maintain continuous, unassisted visual contact with the unmanned aircraft, which allows the remote pilot to influence the flight path of the unmanned aircraft in relation to other aircraft, persons and obstacles in order to avoid collisions - Article 2 7-8. of Regulation No 2019/947.

⁴⁷ Regulation No 2019/947 Article 3 a)-b) and Article 5(1)

⁴⁸ Regulation No 2019/945 Article 40 *“(1) The design, manufacture and maintenance of a UAS shall be certified if the UAS meets any of the following conditions: (a) a feature is of a size equal to or greater than 3 m and is designed to operate above a congregation of people; (b) designed for the transport of persons; (c) it is designed for the carriage of dangerous goods and must be designed to be highly resistant to reduce the risk to third parties in the event of an accident; (d) it is used in a specific category of operation as defined in Article 5 of Implementing Regulation (EU) No 2019/947 and the competent authority, following the risk assessment provided for in Article 11 of Implementing Regulation (EU) No 2019/947, considers that the risk associated with the operation of the UAS cannot be adequately mitigated without certification of the UAS.*

(2) UAS subject to certification shall comply with the applicable requirements of Commission Regulations (EU) No 748/2012 (15), (EU) No 640/2015 (16) and (EU) No 1321/2014.

(3) If a UAS used in the special category is not required to undergo certification as referred to in paragraph (1), it shall have the operation permit issued by the competent authority, and have the technical functions set out either in the standard scenario in Appendix 1 to the Annex to Implementing Regulation (EU) 2019/947 or in the light UAS operator certificate (LUC) set out in Part C of the Annex to Implementing Regulation (EU) 2019/947.”

operation is carried out under at least one of the following conditions: over a crowd; involving the transport of persons; involving the transport of dangerous goods that may present a high risk to third parties in the event of an accident.

For open category UAS operations, the minimum age for remote pilots is 16 years.⁴⁹ Although Regulation (EU) 2019/947 empowered the Member States to reduce the minimum age for open category operations by up to four years,⁵⁰ the Hungarian legislator did not make use of this possibility, so in Hungary, only persons aged 16 or over may perform open category operations.

Under the current legislation, ad hoc airspace does not need to be designated for open category operations as a general rule. Exceptions to this rule are (a) it cannot be performed in accordance with the flight rules of Regulation (EU) 2019/947 and the general rules on the use of airspace by unmanned aircraft set out in Government Decree 4/1998 (16 January), or (b) an Act or Government Decree requires the designation of *ad hoc* airspace.⁵¹

An example of the latter is that under Lt. Article 5 (3) the Hungarian airspace may be used for UAS operations over populated areas by an unmanned aircraft in the case of the designation of *ad hoc* airspace.

Compared to the previous regulation, detailed and essentially predictable rules have been established for the use of unmanned aircraft. The question arises, however, as to what objectives in the field of agriculture could be achieved. The above-listed, typically mapping and survey purposes can be performed with open category operations, but the problem is more complex if a spraying drone is to be used. In this case, rules applicable to unmanned aircrafts and pilots are no longer the only ones that apply.

The use of spraying drones, in addition to what has been explained so far, faces further legal obstacles. Pursuant to FVM Decree No 43/2010 (IV.23.) on plant protection, plant protection machinery with a tank of a nominal volume of more than 5 dm³ - with the exception of plant protection machinery for research, testing, experimental or exhibition purposes - must undergo a type certification procedure for droplet formation and spray technology before being placed on the market.⁵² The mandatory type certification procedure is carried out by the National Agricultural Research and Innovation Centre Institute of Agricultural Engineering (NAIK MGI).

The above-mentioned plant protection machinery may be placed on the market in Hungary only if a marketing authorization has been issued on the basis of a type certification procedure carried out by the NAIK MGI.⁵³

⁴⁹ Regulation (EU) 2019/947 Article 9(3) Member States may lower the minimum age using a risk-based approach, taking into account the specific risks associated with operations on their territory: a) for remote pilots performing UAS operations in the open category, up to 4 years; (...)

⁵⁰ Regulation (EU) 2019/947 Article 9(1)

⁵¹ Government Decree 4/1998 (I. 16.) 1. § (3a) d)

⁵² FVM Decree 43/2010 (IV. 23.) § 32 (1). An exception is made in paragraph 2, which provides for the administrative certification of plant protection machinery with an internationally valid quality certificate.

⁵³ Summary of Placing on the Market and the Registry of Plant Protection Machinery Authorized for Placing on the Market.

There is currently no valid type certification standard for spraying drones, so they cannot be placed on the market in Hungary or used for pesticide application.⁵⁴

In addition to the lack of certification requirements, a further problem was that spraying drones were not covered by the joint FVM-GKM-KvVM Decree 44/2005 (V. 6.) on aerial work in agriculture and forestry. According to the Decree, agricultural aviation is defined as the use of agricultural aircraft for crop protection and nutrient management activities in agriculture or forestry using plant protection products, products with plant protection effects other than plant protection products, or fertilizer products.⁵⁵ Agricultural flights may be carried out by agricultural aircraft, which under the previous legislation could only be a closed-cabin aircraft for agricultural flights with a corresponding airworthiness certificate. This definition by default excluded unmanned aircraft from the Decree's scope; therefore, its rules on pilots and crew were not applicable/enforceable for spraying drones. This legal limitation was only lifted by the legislature in 2022. The amending decree⁵⁶ adopted in February 2022 integrated the category of unmanned aircraft into the legislation. As a result, the definition of an agricultural aircraft has been changed to either a closed-cabin aircraft for agricultural flights or an unmanned aircraft for agricultural flights.⁵⁷ In addition to the basic training courses set out above, pilots of agricultural unmanned aircrafts must also complete basic unmanned aircraft plant protection training.⁵⁸ Unmanned aircraft used for agricultural flights may only be flown from the area within the authorized airspace.⁵⁹ Plant protection products and products with plant protection effects other than plant protection products authorized for application by unmanned aircraft may be applied by unmanned aircraft.⁶⁰ The activity poses an increased risk, so it was established including a guarantee that, in the case of agricultural flights by unmanned aircraft, the flight path must not pass over any inhabited area, livestock area, surface water, water abstraction plant, water protection area, municipal wastewater treatment plant, nature reserve, the core area of a forest reserve, or a biosphere reserve.⁶¹

3. Summary

In this paper, I wanted to draw attention to the fact that the young generation of farmers is facing a number of challenges that make production difficult. Farmers can farm successfully in the face of challenges if a supportive and enabling legislative environment is in place. I have tried to demonstrate through two examples how complex it is to legislate such problems; nevertheless, it is essential that the legislative process does not involve multi-year delays, because then it becomes an obstacle to farming, lagging behind technological progress.

⁵⁴ See: Agroforum 2019.

⁵⁵ Joint FVM-GKM-KvVVM Decree 44/2005 (V.6.) 2. § 1.

⁵⁶ AM Decree 4/2022 (II.8.)

⁵⁷ Joint FVM-GKM-KvVVM Decree 44/2005 (V.6.) 2. § 2.

⁵⁸ Joint FVM-GKM-KvVVM Decree 44/2005 (V.6.) 3. § (10)

⁵⁹ Joint FVM-GKM-KvVVM Decree 44/2005 (V.6.) 4. §

⁶⁰ Joint FVM-GKM-KvVVM Decree 44/2005 (V.6.) 9. § (1a)

⁶¹ Joint FVM-GKM-KvVVM Decree 44/2005 (V.6.) 13. § (1a)

Bibliography

1. Agroforum (2019) *Figyelem! Egyelőre szigorúan tilos a permeteződrónok használata a magyar földeken!*, <https://agroforum.hu/agrarhirek/novenyvedelem/figyelem-egyelore-szigoruan-tilos-a-permetezodronok-hasznalata-a-magyar-foldeket/> [22.04.2019]
2. Bándi Gy (2017) A visszalépés tilalma és a környezetvédelem, in: Gellén K, Hegyes P & Farkas-Csamangó E (eds.) *Honori et virtuti*, Jurisperitus, Szeged, pp. 9–23.
3. Csizmadia M (2022) *Agricultural labor market situation*, <http://www.mosz.agrar.hu/munkauegy/1579-agrar-munkaero-piaci-helyzet> [13.04.2022]
4. HVG Tech (2018) *Egy magyar drónos befoglalta a Balaton fölötti légtérét, ilyenkor sneki más nem szállhat fel*, https://hvg.hu/tudomany/20180720_dron_reptetes_engedely_eseti_legterhasznalat_balaton_kekszalag_besenyei_peter [05.06.2019]
5. Infojegyzet (2021) *Öntözéses gazdálkodás*, https://www.parlament.hu/documents/10181/39233854/Infojegyzet_2021_68_ontozeses_gazdalkodas.pdf/c6fef512-f7e4-d3c9-4748-36be6e87f67e?t=1636038056391 [20.04.2022]
6. Lehoczky A (2022) *IPCC: Climate change could destroy the world's food pantries, with maize the big loser in Hungary*, <https://masfelfok.hu/2022/03/11/ipcc-jelentes-klimavaltozas-vilag-cleskamrai-magyarorszag-kukorica-mezogazdasag/> [25.03.2022]
7. OMSZ (2021) *Az ötödik legmelegebb nyár – előzetes elemzés*, https://www.met.hu/omsz/OMSZ_hirek/index.php?id=3083&hir=Az_otodik_legmelegebb_nyar_%E2%80%93_elozetes_elemzes [10.03.2022]
8. Szalay L & Szentpéteri T. (2019) *Drónok az ültetvény fölött? Avagy mi az a precíziós gyümölcsstermesztés?*, <https://agroforum.hu/agrarhirek/zoldseg-gyumolcs/dronok-az-ultetveny-folott-avagy-mi-az-a-precizios-gyumolcstermesztes/> [12.10.2019]