stage (BBCH 89) made up 116 days. **Conclusions.** 'Vik 2020' is a new variety of industrial hemp with a high content of cannabigerol (a non-psychotropic component of cannabinoids that has a number of medicinal properties). It is characterized by almost zero content of tetrahydrocannabinol, increased inflorescence size, high seed yield, improved fibre quality characteristics, homogeneous sex structure, resistance to abiotic and biotic environmental factors. The variety is recommended for growing in order to obtain seeds, fibre, and, potentially, cannabigerol (given the respective changes in Ukrainian regulation).

Keywords: *hemp; cultivar; breeding; self-pollination; cannabigerol; tetrahydrocannabinol; correlation; productivity.*

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Humus effect on Agriculture Tile Drainage

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Purpose. Soil moisture is very important for plant productivity, as well amount of fertilize depends on the soil moisture. Drainage is the tool for productive farming in the wet fields, but drainage accelerates leaching biogenus from the soil, so, it is very important the right management of drainage discharge. Drainage discharge depends not only of the temperature, precipitation, but also of the amount of humus in the soil. **Methods.** Field experiments, data comparison, generalization and evaluation by statistical analyses. **Results.** The results of daily temperature, precipitation and drainage discharge in the object with different hummus thickness layers (bold - up to 40-50 cm - thick and natural – 20-30 cm - layer) on 2018-2020 are presented. The weather was drought (about 15% less as Climatic Normals), and hot (the temperature was about 1,8°C above Climatic Normals) the last 3 years in the Kaunas, Lithuania. The drainage system was working quite short period of investigation time, mainly during winter and early spring only. **Conclusions.** In case of thickened humus layer annual drainage discharge was higher compare with drainage discharge with natural humus layer.

Keywords: *drainage discharge, humus layer, soil moisture.*

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Seeding Density Influence on Grain Yield and Agro-Physiological Parameters of Bread Wheat Genotypes under Rainfed Condition

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Purpose. Planting density is an important factor that influences the yield and yield component of bread wheat (*Triticum aestivum* L.) genotypes. The objective of this study was to determine the influence of the seeding rate on the grain yield and yield component of winter wheat genotypes. **Methods.** In the experiment, a total of 8 genotypes and three seeding density (400, 500 and 600 seed per square meter) were evaluated during the 2015-2016 and 2016-2017 growing season. The experiment was conducted in the randomized completely blocks design in the split block with three replications. Grain yield, number of spike per square meter, number of kernel and spikelet per spike, peduncle length, spike length, flag leaf area, and normalized difference vegetative index (NDVI) were investigated. **Results.** Analysis of the variance showed that there were significant differences between years, among genotypes and their interaction. Genotype G6 had a higher grain yield (7730 kg ha^{-1}), and G1 the lowest yield (4994 kg ha^{-1}). Genotype G2 had a higher spikelet number per spike (19.28), G4 kernel number per spike (44.78), G3 spike number per square meter (592.9), and G1 had a higher flag leaf area (26.20 cm^2) and NDVI. The data showed that the seeding density differed non-significantly for the grain yield. The use of 500 seeds per square meter produced a higher grain yield of 6280 kg ha^{-1} than other seeding density used. The use of 400 seed per square meter produced higher peduncle length (31.04 cm) and spike length (8.94 cm). In the case of seeding rates, the maximum spikelet

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number per spike (17.90) was observed with a seeding density of 400 grain per square meter. Among seeding densities, the maximum spikelet number per square meter (535.6) and flag leaf area (24.51 cm^2) was obtained when a seeding density of 500 kernel numbers per square meter was used. **Conclusion.** Although the effect of seed density was not significant, the highest yield was determined in 500 seeds. The use of 400 seed per square meter produced higher peduncle length and spike length. The maximum spikelet number per spike was observed with a seed rate of 400 grain. Among seeding rates, the maximum spikelet number per square meter and flag leaf area was obtained when using seeding densities of 500 kernel numbers per square meter was used.

Keywords*: bread wheat, seeding density, grain yield, yield component*

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Weed control of maize (*Zea mays* L.) in university farming

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Regarding the area of maize in Hungary, we can state that it is one of the largest crops grown in the area. Maize was grown on 1,048,070 hectares in Hungary in 2019. The purchase price depends, among other things, on the size of the sown area and the yields, but many other things can also have an impact in either a positive or negative direction. In recent years, the purchase price of maize has been around HUF 50,000 / tonne. Maize is one of the heat-demanding plants that needs 500 mm of rainfall during its growing season to develop smoothly. The expected yield is significantly influenced by the type of soil grown. Meadow chernozem and brown forest soil are the most favorable for maize. **The purpose** of our experiment was to learn about weeds in maize culture, which was established by multiple weed surveys. Furthermore, the effectiveness of the herbicides used in controlling harmful weeds. The maize was sown on April 17, 2020. In the experimental area were selected 5 squares. A square has a floor area of 4 m^2. In the research area were conducted three weed surveys. The dates were: May 18, June 22, and July 29, 2020. The following herbicides were released on 15th May: Sulcotrek (sulcotrione and terbuthylazine); Tegoplant (trisiloxane); Trend (adjuvant). The maize harvest took place on September 21.

Keywords: *weed control, maize (Zea mays L.), experiment, square, herbicides*

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UDC

Sampling for vegetative propagation: A phytosanitary status survey of grapevines collection by One Step RT- PCR method

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Grapevines (*Vitis* spp.) are affected by many viral diseases causing serious pathological problems. Among the most widespread leafroll viruses is GLRaV-3 meanwhile, grapevine fanleaf virus (GFLV) is a destructive viral disease that reduce longevity of vineyards. Considering the impact and the spread of these diseases, we have analysed for viral presence several grapevine varieties in grapevine collection at ATTC Vlorл, in order to estimate whether it is feasible sampling for vegetative propagation, due to mandatory rules for usage of certified plant material for propagation purposes, as an effective way to prevent spread of pathogens. The presence of two common viruses were tested using virus specific primers; LC1/ LC2 primer pair designed in the hHSP70 gene for detecting Grapevine Leafroll-associated Virus-3 (GLRaV3) and Grapevine Fanleaf Virus (GFLV) was tested with C3390/H2999 primer pair, in six varieties: 'Merlot', 'Kallmet', 'Shesh i zi', 'Shesh i bardhл', 'Debinл', 'Pulлz', provided through a randomised sampling procedure. One Step Reverse Transcription Polymerase Chain Reaction assay was used to detect presence of two viral diseases. The results showed a high prevalence of GLRaV3 virus (100%) in all of samples analyzed, resulting as the most outspread infection among analyzed samples. Analysis for the presence of GFLV vi-

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