



16th WELLMANN
INTERNATIONAL SCIENTIFIC
CONFERENCE

BOOK OF ABSTRACTS



9th May 2018
HÓDMEZŐVÁSÁRHELY
HUNGARY

**University of Szeged Faculty of Agriculture
Hódmezővásárhely (Hungary)**

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(Hungary)**

**Foundation for Agricultural Modernization and Rural Development,
Hódmezővásárhely (Hungary)**

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"Hello Modern Agriculture!"

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Brad I., Gherman R., Dincu A.: Entrepreneurship an ideal solution for young people in Romania.....	36
Csambalik L., Ladányi M., Tóth E., Divéky-Ertsey A.: Advantageous traits of Hungarian tomato accessions for future utilization.....	37
Csonka J., Friedrich L., Pásztor-Huszár K., Hidas K., Visy A., Zeke I.: Effect of freeze-thaw on the texture of gluten-free pie crust dough.....	39
Endre G., Hegedűs Zs., Varga M., Vágvölgyi Cs., Szekeres A.: Separation of aflatoxins with centrifugal partition chromatography.....	40
Fekete K., Honfi R., Pap Z.: Mycorrhizal inoculation of onion (<i>Allium cepa</i> L.) in the early development stages.....	42
Gherman R., Brad I., Dincu A.: Human resources in public administration from Romania.....	44
Gombkötő N.: Underlying causes of global food price changes.....	45
Herczeg E., Monostori T., Hódiné Szél M., Csontos Gy., Pap L., Szarvas A.: Sweet potato [<i>Ipomoea batatas</i> (L.) Lam.] yield influenced by slips' origin on alluvial soil in South Hungary.....	46
Hidas K. I., Visy A., Csonka J., Friedrich L., Németh Cs., Zeke I. Cs.: Prolongation of liquid whole eggs' shelf life with different methods.....	48
Jakab P., Jusztin Á., Baranyi A., Kristó I., Hódiné Szél M.: The effect of fertilization on the yield and yield components of winter wheat.....	49
Jakab P., Masa N., Baranyi A., Kristó I., Hódiné Szél M.: Study of different fertilizer doses on the yield and some quality parameters of winter wheat.....	50
Jankulovski N., Bojkovska K., Dojchinovski T., Mihajlovski G.: Agricultural financing in the EU: the CAP framework.....	51
Jantyik L., Török Á.: The recognition of the EU organic label among the Hungarian consumers.....	52
Jolánkai M., Kassai M. K., Eser A., Kempf L., Tarnawa Á.: Water footprint of protein yield of field crop species based on evapotranspiration patterns.....	53
Kádár Sz.: Comparison of environmental effects of conventional and organic farming with material flow analysis.....	54
Kecskeméti S., Fail J., Geösel A.: Development of <i>Lycoriella ingenua</i> and <i>Bradysia impatiens</i> on different phases of agaricus composts.....	55
Keller N., Ujhegyi N., Biro Zs., Báthory Gy., Szemethy L.: Home range of the brown hare (<i>Lepus europaeus</i>) in an agricultural environment.....	57
Kovács I., Schally G., Csányi S.: Analysis of trophy parameters in fallow deer (<i>Dama dama</i>) in Hungary, 1998-2016.....	58
Krisch J., Vucseta K.: Antioxidant properties of different apple cultivars.....	60

Kristó I., Vaczkó G., Tar M., Jakab P., Hódi L.: The effect of different weed control technologies on yield of maize and profitability of maize production.....	61
Mahjoub S., Kristó I., Tar M.: Genetic diversity of linseed accession.....	62
Mandić V., Bijelić Z., Krnjaja V., Simić M., Ružić Muslić D., Škrbić Z., Stanojković A.: Sowing date and nitrogen rate effects on qualitative parameters of maize grain.....	63
Márki J., Csanádi J., Deim Z., Koller A., Szűts R., Szegetes Zs., Otvos F., Seres Z., P. Szabó B., Véha A., Szuts V.: Seasonal effect of quality of milk in cow.....	64
Mihalkó J., Rajkó R.: Possible use of multivariate statistical process control in food industry.....	66
Mikó E., Gráff M., Süli Á., Szabina Szilágyi Sz., Tóth Zs., Pinney Sz.: The effect of milking technology on the behaviour pattern of dairy cows.....	68
Molnár L.: Certain parasitosis of the wild boar and their importance in wildlife management in Hungary and in certain hunting regions of Heves county.....	69
Németh Dzs., Kappel N., Balázs G.: Influence of plastic mulch between rows on the yield and quality of watermelon (<i>Citrullus lanatus</i> L.).....	70
Noori Hussein K., Friedrich L., Kisko G., Nemeth Cs., Dalmadi I.: Microbiological status and oxidation properties of minced chicken breast meat treated with different concentration of Allyl-isothiocyanate.....	72
Pap L., Szarvas A., Herczeg E., Csontos Gy., Hódiné Szél M., Monostori T.: The influence of nutrient sources on the yield and marketability of sweet potato [<i>Ipomoea batatas</i> (L.) Lam.].....	73
Papp O., Jung T., Drexler D.: Research of midseason potato varieties suitable for organic growing.....	75
Pepo P.: Relation of wheat species and genomes in amino-acid composition.....	77
Rakk D., Vigneshwari A., Škrbić B., Varga M., Vágvölgyi Cs., Szekeres A.: Effect of different extraction methods on the metabolite profile of <i>Aspergillus</i> sp. isolated from <i>Juniperus communis</i>	78
Ružić-Muslić D., Petrović M. P., Bijelić Z., Škrbić Z., Caro Petrović V., Maksimović N., Cekić B.: The effect of replacing fish meal with herbal protein in the lamb diet.....	80
Sallai L.: Co-fermentation of agricultural organic waste, main and by-products.....	81
Sipos Á.: Development of melatonin level in bovine's milk.....	82
Szigeti M., Zsótér B.: Examinations related to the investments in Sarkad.....	83

INFLUENCE OF PLASTIC MULCH BETWEEN ROWS ON THE YIELD AND QUALITY OF WATERMELON (*CITRULLUS LANATUS* L.)

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The watermelon (*Citrullus lanatus*, L.) is an important and valuable vegetable crop that has in Hungary the 3rd largest cultivated area in open field.

Melon growers face continuous challenges, one of the main problems is the lack of labor. Growers are increasingly looking for technology solutions that have the least manual labor needs. The appearance of the plastic mulch between the rows was a major step forward in the growing technology.

The main objective of our two-year (2016, 2017) experiment was to compare the effects of different colored plastic mulches between rows on the quantitative and qualitative values of the yields. Our experiment was set up in the largest and most intensive melon growing area in Hungary, at Dombegyháza in Békés County. 5 rows were planted out, in 2016 with 4, in 2017 with 3 repetitions. 35 plants per repeat were used. Between the rows was 2,2 meter and inside the rows between two plants the distance was 0,5 meter. After planting, the seedlings were covered with a lowplastic tunnel.

Our investigations were carried out with the *Grizzly* watermelon variety and during the experiment 5 different colors of plastic mulch (purple, transparent, green, black, and butter coloured) were used, the control was uncovered. The width of the foils was 180 cm in both years with 0,02 mm thickness.

In the field we examined the average weight of the fruits. The fruits were balanced, in both experimental years the values ranged from 7,5 to 8 kg. In the case of purple and green covers, the average values were around 8 kg in both test years.

During our laboratory measurements we examined the following nutritional characteristics: invert and reducing sugar content, refraction and acidity. Reducing sugar content was 4-6% in both experimental years and invert sugar content in 2016 was over 8% except for green covering, in 2017 was also over 8% except for purple covering. Highest reducing sugar (5,41%) and invert sugar (8,67%) content were obtained on the transparent foil. The refraction was between 10-12 Brix ° in both experimental years, with the highest average in 2017 on transparent colored coverage. The acid content was between 0,08 –

0,1% in each test year, except in the case of in 2017 on purple cover, where a slightly lower value were obtained.

For the statistical evaluation of our field and laboratory results, IBM SPSS 23.0. statistical software package were used. Our experimental results were evaluated by two-factor variance analysis (ANOVA) for all variables.

Based on the results of the two years of our study we can state that the different color of the plastic mulch did not show significant differences in the examined quantitative and qualitative parameters. Using plastic mulch soil covering between the rows in the watermelon production is likely to continue due to the fact that the fruits remain clean, between the rows the soil remain weed-free, and the problem of labor shortage can be solved with this technology.

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