FRI-ONLINE-1-AMT&ASVM-06

THEORETICAL AND EXPERIMENTAL RESEARCH OF TECHNOLOGICAL PROPERTIES OF THE AGRICULTURAL BRIDGE AGGREGATES⁵

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Abstract: The physical objects of the study were an agricultural bridge tool, a structure developed by us with a track gauge of 3.5 m, and the aggregated agricultural implements, used for surface tillage: a tooth harrow, a rotary harrow and an S-shaped spring loosener. The experiments proved good adaptability to work of the aggregate of controlled traffic and bridge farming, and high quality of the technological soil tillage processes in the agrotechnical area of the field. The variation coefficient of fluctuations in the resistance of agricultural implements on the hook of the agricultural bridge tool was no more than 10%.

Keywords: Bridge aggregate, soil irregularities, profile, traction resistance.

REFERENCES

Bulgakov V, Melnik V., Kuvachov V. & Olt J. (2018). Theoretical study on linkage unit of wide span tractor // 29TH DAAAM International symposium on intelligent manufacturing and automation, Zadar, Croatia, EU, 24h-27th October 2018, 10 p.

Bulgakov V., Adamchuk V., Kuvachov V., Ivanovs S. (2017). Research of possibilities for efficient use of wide span tractor (vehicle) for controlled traffic farming. Engineering for rural

⁵ Докладът е представен на онлайн сесията на секция "Земеделска техника и технологии, аграрни науки и ветеринарна медицина" на 13 ноември 2020 г. и номиниран за публикуване в Compiled edition of Reports Awarded with "Best Paper" Cristal Prize'20, as a hard copy (ISBN 978-954-712-826-2) and on-line on the Conference Website (http://conf.uni-ruse.bg/bg/?cmd=dPage¬&pid¬=bestPapers).

development: 16 International Scientific Conference, Proceedings, Volume 16. – Jelgava, Latvia, May 24 – 26, 2017. – P. 281-287.

Bulgakov V., Adamchuk V., Kuvachov V., Ivanovs S. (2017). Research of possibilities for efficient use of wide span tractor (vehicle) for controlled traffic farming. ENGINEERING FOR RURAL DEVELOPMENT: 16 International Scientific Conference, Proceedings, Volume 16. - Jelgava, Latvia, May 24 – 26, 2017. – pp. 281-287.

Bulgakov V., Kuvachov V. et al. (2019). Pat. the invention №120299 (Ukraine). Transport energy means. Publ. 11/11/2019, Bul. № 21/2019.

Bulgakov V., Kuvachov V. et al. (2019). Pat. the invention №120388 (Ukraine). Transport energy means. Publ. 25/11/2019, Bul. № 22/2019.

Bulgakov V., Kuvachov V., Olt J. (2019). Theoretical study on power performance of agricultural gantry systems. Proceedings of the 30th International DAAAM Symposium "Intelligent Manufacturing & Automation", 23-26th October 2019, Published by DAAAM International, Vienna, Austria, EU, 2019, Zadar, Croatia, Volume 30, No.1. – pp. 0167-0175.

Chamen T. (2015). Controlled traffic farming – from world wide research to adoption in Europe and its future prospects. Acta Technologica Agriculturae Nitra 3, pp. 64-73.

Chamen W.C.T. (1992). Assessment of a Wide Span Vehicle (Gantry), and Soil and Cereal Crop Responses to Its Use in a Zero Traffic Regime. Soil & Tillage Research 24(4). – pp. 359-380.

Derkach O. D., Makarenko D.O., Litvintseva Yu.O., Derkach V.D. (2018). Upgrading of machines for surface tillage (for cultivators). Collected Scientific Papers "Geo-Technical Mechanics". 138, pp. 260-270.

Gmurman V.E. (2004). Probability theory and mathematical statistics: A textbook for universities. 10th edition, stereotyped. Moscow: Higher School, 479 p.

Kuvachov V., Shulga A. (2018). Pat. the utility model №124946 (Ukraine). Treatment tools for road and bridge agriculture. Publ. 25/04/2018, Bul. № 8/2018.

Mitkov V., Kuvachov V., Ihnatiev Ye., Mitkov V. (2016). New approach to the choice of way of mechanical processing of soil in the south of Ukraine. International Scientific Journal "Mechanization in agriculture" (Bulgaria). Issue 1/2016. pp. 29-31.

Mitkov V., Kuvachov V., Ihnatiev Ye., Mitkov V. (2016). New approach to the choice of way of mechanical processing of soil in the south of Ukraine. IV Scientific Congress "Agricultural machinery". Varna, Bulgaria. Vol. 2, 22-25 June 2016. pp. 66-68.

Onal I. (2012). Controlled Traffic farming and Wide Span Tractors. Journal of Agricultural Machinery Science Vol. 8, No 4, pp. 353-364.

Ormadzhi K.S. (1991). Quality control of field work. – 191 p.

Pedersen H.H., Oudshoorn F.W., McPhee J.E., Chamne W.C.T. (2016) Wide span – Remechanising vegetable production. Acta Horticulturae, Vol. 1130, pp. 551-557, ISSN: 05677572, DOI: 10.17660/ActaHortic.2016.1130.83.