Academicia Globe:
Inderscience Research

ISSN: 2776-1010 Volume 2, Issue 8, Aug, 2021

RESULTS OF A STUDY OF THE EFFECT OF PLOW PARAMETERS ON PERFORMANCE ON THE FRONT AND REAR OF A TRACTOR

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Annotation
It consists of working parts that are hung on the front and rear of the tractor, which allows to reduce energy consumption and increase productivity in the main tillage, ie a plug in the "push-pull" system was developed and tested. The plug developed in the tests performed the technological process reliably, and its performance was at the level of the requirements placed on it.

Keywords: Push-pull plug, working parts of the plug that hang on the front and back of the tractor, housings, support wheels.

Introduction

One of the most important ways to reduce energy consumption and increase productivity in tillage is to use push-pull tillage machines, which are mounted on the front and rear of the tractor. At the same time, due to the optimal distribution and increase of loads on the moving parts of tractors, their traction properties with the soil are improved, which results in increased productivity and reduced fuel consumption [1-4].

Based on the above, in collaboration with scientists of our institute and KXMITI conducted research on the development and justification of their parameters of tillage machines in the "push-pull" system, which can be used in agricultural production in our country. a plug consisting of hanging working parts was developed and an experimental copy of it was prepared and tested [5-7].

This article presents the results of research on the transverse distances between the front and lower suspension points of the plow, consisting of working parts hanging from the front and rear of the tractor, the effect of the number of housings mounted on them on its performance.

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Styles and Materials

The plug developed in the tests was gregated with an AXION 850 tractor.

Results

To conduct experimental studies, change the distances between the front and lower suspension points of the AXION 850 tractor and assign them to the bodies 0 + 5, 1 + 4, 2 + 3, 3 + 2 (the first number is the number of bodies mounted on the front of the plow, the second number on the back). shows the number of housings to be installed) an experimental plug capable of installation according to the schemes was prepared [5-7].

The results obtained in the experiments are presented in Tables 1 and 2.

Table 1 The effect of the transverse distances between the lower hanging points of the front and body parts of the plug on the push-pull system on its performance

№	Naming of indicators	The transverse distance between the lower hanging points of the front part of the plug, cm			The transverse distance between the lower hanging points of the plow body part hanging device, cm		
		46	56	66	71	81	91
1.	Operating speed, km / h	6,53	6,74	6,38	6,61	6,78	6,43
2.	The total coverage width of the plug: M average, cm ±σ, cm	 218,4 6,57	 226,4 4,48	 231,2 6,83	 221,4 6,41	 227,2 4,23	 232,9 7,02
3.	Pulling resistance of the plug, кН: general front part part of the organ	 40,9 12,8 28,1	 39,4 14,1 25,3	 42,3 15,7 26,6	 41,4 13,6 27,8	 38,7 13,8 24,9	 42,8 16,3 26,5
4.	Fuel consumption, kg / ha	31,1	29,2	32,7	31,4	28,8	32,1
5.	Basic time productivity, ha / h	1,43	1,53	1,47	1,46	1,54	1,50

Table 2 The results of experiments to study the effect of the number of housings mounted on the front and body parts of the plug in the "push-pull" system on its performance

№	Naming of indicators	Values of indicators according to the scheme of installation of housings			
		0+5	1+4	2+3	3+2
1.	Operating speed, km / h	5,72	6,38	6,67	6,57
2.	The total coverage width of the plug: M average, cm ±σ, cm	228,2 4,83	226,7 4,62	227,8 4,43	226,4 4,34
3.	Pulling resistance of the plug, кН: general front part part of the organ	41,6 0 41,6	40,3 7,2 33,1	38,1 13,4 24,7	36,4 19,8 16,6
4.	Fuel consumption, kg / ha	32,6	30,2	28,4	29,2
5.	Basic time productivity, ha / h	1,30	1,45	1,51	1,49

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The tables show that the transverse distances between the front and lower suspension points of the plow front and body parts should be 56 and 81 cm, respectively, to ensure linear movement of the unit consisting of an AXION 850 tractor and a push-pull system, high productivity and energy efficiency. two bodies should be mounted on the front of the plug and three on the body.

Conclusions, Suggestions and Recommendations

Based on the research, it can be noted that the plug in the "push-pull" system designed for aggregation with tractors of 3-4 classes and the plow between the front and lower suspension points of the body parts to ensure high linear motion, high productivity and energy efficiency the transverse distances should be 56 and 81 cm, respectively, two bodies should be mounted on the front of the plug and three on the body.

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