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Obosnovana physical and mehanycheskaya model opysыvayuschaya vozmozhnыe typы movements bunk, podveshennoho at Mount the bending, when turning the tap. For analysis of power characteristics and kinematically ukazannыh movements yspolzovan method fazovыh portretov (klassycheskoho and More HIGH line). Using poluchennыh models cranes for optimum motion control allows us to Significantly povыsyt s proyzvodytelnost and reliability.

MoDel, motion, cargo, Mount the bending, rotation, grapple.

Mechanical and physical models describing possible types of movements of grapple suspended on flexible suspension during process of crane`s turning are proposed. One may use for analysis of kinematic and force characteristics of these movements method of phase portraits (classical and of higher order as well). Using the obtained models of cranes for optimal motion control can significantly improve their performance and reliability.

Models, Movement, cargo, flexible suspension, turn, grapple.

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EFFECT PARAMETERS movers wheeled tractor INDICATORS FOR compaction

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Statementbut the results of experimental studies that have established that when equipment wheeled tractors HTZ Class 3 tires 15,5R38 soil density was 1.63 ... 1.65 g / cm3 in the layer 0-10 cm, replacement tire 15,5R38 tire 23 1R26 density has reduced by 6% as replacement tires 15,5R38 tire 66h43.00LR25 has reduced density 7 ... 13%. The same dynamics obtained in the 10-20 cm layer, but with a smaller increase, and the layers of 20-30, 30-40 and 40-50 cm ratio is not significantly different from control.

Co.forest tractor chassis, engine area of contact with the supporting surface, tire, size tires, ground, layers of soil density.

Resolutionska problem. One of the main factors that affect the physical properties of the soil, is a man-made impact on them from the machine and tractor units (AIT). Background anthropogenic impact on soil increases as the intensification and mechanization of agricultural production. Under these conditions, studying and minimization of anthropogenic impact of mobile energy resources (MEW) on physical and mechanical properties of soil is an important scientific problem and equivalent to the state target program implementation technology policy in agriculture.

AnaLiz recent research. Prand performing various process operations uschilnyayetsya 20-80% of the field, and the total Sectionloscha tracks several times exceed an area of the field [1].

Tractors, Cars, combines and farm machinery are on the field 5-15 times [2]. Motive Power AIT fertilization and pesticides, as well as transport units during the summer and autumn periods exceeding allowable soil pressure in 2,4-3,0 times [3]. In the topsoil compaction is a temporary transitional phenomenon, as a result of further cultivation rozuschilnyuyetsya to optimal values. Especially dangerous is subsoil compaction of soil. This forms the most compacted layer at a depth of 25-40 cm, the generation of which is not fully understood. Several researchers [2, 4] call this layer Plou, Cherzhnoyu sole and believe that it is formed by the permanent annual soil plow to the same depth. Other researchers [5, 6] believe that the sealing action is the result of running the MTA. In [7] indicated that the formation of the most compacted soil layer is the result of cumulative action of MTA running and working bodies tillage machines and tools. Based on the results of experimental studies states that the contact pressure on the surface of the working tillage machines and fromAttire greater than the pressure of whatever drivers of tractors and agricultural machines and this leads to the formation of plow sole.

Metand research - determine the effect of wheel options propellerI MEW indicators for soil compaction.

Rezultaty research. About'Yektamy studies were KhTZ-16 131 and 17 221 HTZ-equipped tires of different sizes and namely: 15,5R38, 23,1R26 and 66 x 43.00LR25.

DFor research use of the field, which had previously plowed and her Pre-tillage. Before commencing work tractor tires equipped with the required size and dare. In the tire pressure was set according to current guidelines [8, 9], then prints determined by the square bearing surfaces of each of the wheels. Further research on the tractor breezing area and driving control area. On the track wheel tractor between the wheel tracks, 2 meters of track (side) and in the control region, located away from the tractor tracks and dug pit depth of 60 cm of soil sampling to further determine its density. One side had a hole step height of 10 cm. Thus, the layers were separated 0-10sm, 10-20cm, 20-30sm, 30-40sm, 40-50sm where soil samples were taken in accordance with the method laid down regulations. Volumetric weight was determined by known methods. The treatment of experimental data was performed by standard methods.

Resultand experimental studies are presented in Table. As the table shows, the maximum soil compaction occurs when passing tractors HTZ-16 131 and 17 221-HTZ
aboutladnanyh.

InAmongpared the density of the soil on the trail of tractors equipped with engines of different assembly.

The depth of soil layer under study, see	The density of the soil, g / cm3						
	HTZ-16 131 tire sizes			HTZ-17 221 tire sizes			
	15,5R38	21,3R26	66x4300LR25	15,5R38	21,3R26	66x4300LR25	Kontrol
0-10	1.63	1.53	1.51	1.65	1.55	1.44	1.24
10-20	1.52	1.52	1.49	1.60	1.53	1.50	1.48
20-30	1.54	1.61	1.64	1.60	1.67	1.51	1.54
30-40	1.66	1.63	1.66	1.68	1.62	1.65	1.67
40-50	1,59	1,55	1,54	1,64	1,44	1,69	1,56

TireWe 15,5R38. In this case, soil bulk density amounted to 1.63 g / cm3 and 1.65 g / cm3 in the layer 0-10 cm. Replacement tires 15,5R38 23,1R26 tire has reduced density in both cases by 6% and replacement tires 15,5R38 on wide-66h43.00LR25 has reduced density of 7 and 13% respectively.

Andnalohichne reduce the density of the soil occurs in 10-20 cm layer, but with a much smaller increase. In layers of 20-30, 30-40 and 40-50 cm soil density is significantly higher than in the previous layers. In addition, the ratio is in these layers are not significantly different from the control, where suspension system effects on soil not commit.

One explanation The results may be that at the experimental area for many years, the main technological operation was plowed to a depth of 20-22 cm, which led to the formation of a strong pereuschilnennya subsoil,
the upper part of which is located at a depth of 20-22 cm.

In theformation of the effect of individual factors that determine the degree of soil compaction ("tractor bearing surface area" - *F*"Tractor weight" - m_T) In its separate layers *S*ProvoDili by constructing regression. Found that 95% density in soil layer 0-20 cm. Describes the relationship:

$$\rho = 1.65 - (0.13 \times 10^{-4}) \times F, \quad (1)$$

where *F*- Supporting surface area undercarriage (drivers) tractor cm2.

The dependence of (1) has shown that a layer 0-20 cm for both tractors significant difference between density no difference because no materiality of
weight (only 490 kg), which withdrew from consideration factor "tractor weight."

Under these conditions, the density of the soil on the trail HTZ-16,131 tractors and HTZ- 17 221, depending on size tire (15,5 R38, 23,1 R26, 66x43.00LR25), will be under 1.59; 1.56 and 1.48 g / cm3 at the control layer for 0-10 and 10-20 cm respectively equal to 1.24 and 1.48 g / cm3.

As you know, most compacted soil moisture at 18- 25% matched typical of early spring. The research results are presented above, conducted with a moisture content of 9-16%, which again
Sectionidtverdylo feasibility of using of wide tires on early spring work.

Conclusion. Stillm, as a result of the research
coforest tractors HTZ-16 131 and 17 221 HTZ-tires 15,5R38, 23,1R26 66x43.00LR25 and found that the maximum soil compaction occurs at the device of wheels with tires 15,5R38. Bulk density of soil, obtained in the study of these tractors amounted to 1.63 g / cm3 and 1.65 g / cm3 in the layer 0-10 cm. Replacement tires 15,5R38 23,1R26 tire has reduced density (volume weight) in both cases, 6%, and the replacement tires 15,5 R38 Categoriesand wide-66h43.00LR25 has reduced soil density on 7 and 13% respectively. The same dynamics
frommenshennya soil density occurs in the layer of 10-20 cm, but with a much smaller increase. In layers of 20-30, 30-40 and 40-50 cm

uilnist soil significantly higher than in the previous layers and the ratio is not significantly different from the control, where chassis impact on soil not do, which can be explained by the influence of tillage machines working and can make the direction of further research in this direction.

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AndResults of research zlozhenы эksperymentalnыh, allowed the kotorыe establish, something with equipment tractors HTZ class 3 tires 15,5R38 soil density sostavlyala 1.63 ... 1.65 g / cm3 in sloe 0-10 cm, replacement tire 15,5R38 on bus 23 , 1R26 umenshyt allowed the density of 6%, replacement tire 15,5R38 on the same bus 66h43.00LR25 allowed the density umenshyt 7 ... 13%. Analohychnaya dynamics will provide a sloe and a 10- 20 cm, but with less growth, and sloyah 20-30, 30-40 and 40-50 cm
pokazately density is not significantly otlychalys from control.

Roadhe kolesnыy, hodovaya part, Plosad contact with dvyzhytelya opornoy poverhnostyu, bus, bus typorazmer, soils, soil Layers, density.

The results of experimental studies that have established that equipment tractors HTZ Class 3 tires 15,5R38 soil density was 1.63 ...

1.65 g/ Cm3 in 0-10 cm layer, tire 15,5R38 tires on 23,1R26 possible to reduce the density of 6%, the same replacement tires 15,5R38 tires on 66h43.00LR25 possible to reduce the density of 7 ... 13 %. A similar pattern was obtained in the 10-20 cm layer, but with a smaller increment, and the layers 20-30, 30-40 and 40-50 cm densities did not significantly differ from control.

***Wheeled tractor, chassis, area of contact with supporting surface propulsion, tire, tire size, soil, layers of soil density*.**

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621.87

ECSPERYMENTALNE ANALYSIS OF CHANGES departures tower crane with boom hinge-jointed SYSTEM

VS Loveykin, PhD OH Shevchuk, MA

In the article the method of experimental studies departure changes crane with sharnirno- Rigid boom system and filing equipment vymiryuvalno- the used

Eksperyment, research, crane, vibrations sensor, force, motion, speed.

Resolutionska problem. Change departure hinge-articulated jib tower crane system is implemented in the mechanism of lifting boom system and mechanism for moving trolley [1].

Prand changing departure dynamic loads occur in metal levels and mechanisms as well as fluctuations in load which lasts for steady motion mode. To determine the real nature of the change dynamic loads, and whenWan cargo crane with hinged rigid-boom system is necessary to conduct experimental analysis
entFirst movement. Experimental analysis of changes in departure crane with hinge-Rigid boom system can be compared with the theoretical [2] to confirm the adequacy of the chosen theoretical model that describes the process of changing departure.