The chart of determination of coefficient terms of oridin of decisions of weaknonlinear regional tasks for systems with impulsive influence in fixed moments of time is offered.

Matrix Green, Cauchy problem, matrix-ortproektor, Green operator, line-Lyusternik method.

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Determination of harvesting-transport complex WITH TRUCK Tipper trucks

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The technique determination of assembly-transport complex for cerealsusing variables automotive semi trucks.

Grain, carriage, Car trailers, minimizing downtime transport performance.

Problem. It is known that the introduction of technology line between harvesters and vehicles intermediate reloading link allows significantly compared with direct road transport, reduce time harvesting and transport operations.

Along with the significant advantages of handling technology using specialized trailers - Conveyors it causes significant (36%) of simple cars [1]. Another method of handling technology implementation is to use compensators as motor vehicle (NP) trucks. This option becomes practical application of technology in recent years due to the development and

industrial introduction of a special truck tractor unit similar in design to the car. This device significantly reduces time spent on coupling - vidchiplennya emergency and improves the efficiency of grain transportation technology by eliminating downtime vehicles. Therefore, an important development methods of study options harvesting and transport complex (ZTK) for transshipment version of this technological scheme.

Analysis of recent research. The role of compensators can perform automobile and tractor trailers conveyors (PP), semi-variable body, various bunkers [2-4]. The most common compensator in manufacturing is a tractor trailer-reloader. Analysis of circuits transporting grain from harvesting using PE reveals a number of

shortcomings, preventing maximum effect separation of transport operations, among which are the following:

- the need to overload the grain of one vehicle (trailer-conveyors) to another (heavy ATZ);
- the need for timely entrance to a private ATZ compensator makes simple ATZ.

These shortcomings are eliminated when using a transport module - AC Tipper trucks.

The purpose of research. Determining ways to improve efficiency reloading ZTK for cereals by rational justification of its operating parameters.

Results. The peculiarity of this process scheme is to apply emergency working consistently at two levels:

- "Combine harvesters (HCC) - Semi (NP) with a tractor, equipped with a special automatic truck coupling device";
- "NP - car trailer (BP) of emergency."

This option includes the following technology operations. The transport unit containing NP with a tractor equipped with coupling device, truck, moving across the field, drove up to the next granule cells, which is filled with grain silo and loaded. Depending on the capacity of the body and emergency bunker filling HCC performed two - three grain silos. Then tractor carrying emergency to the edge of the field, and his vidchiplyaye prychiplyaye empty state of emergency, which is located there, and returned to the field to harvesting. The completed emergency grain prychiplyayetsya to avtotyahacha (BP) with saddle device that transports grain to collection point, unloads a dump, and returns the state of emergency on the edge of the field. Consider the rhythm of the first team, "HCC - NP with a tractor." Based on the basic requirements for a potochnosti harvester and a Chamber of Commerce, we have:

$$R1 = I1, \quad (1)$$

where R1 - the rhythm of the combine, h .;

I1 - interval receipt to the place of emergency interaction with technological machines - combine, h.

The rhythm of a combine is its duration, theobochoho cycle and contains a loading hopper - $t_Б$ and duration of idling t_X Which refers to the load time [2, 5]:

$$R_1 = t_Б + t_X = 1{,}11 t_Б, \quad (2)$$

where TB - filling hopper harvester

$$t_Б = \frac{\omega_K \cdot d_B}{W_{KP}}, \text{ H.}$$

W_{KP} - The performance of BK 1 hour of normal time, t / h .;

ωK - volume hopper combine m3;

dB - Grain bulk density, t / m3;

Interval receipt to the place of NP interaction with a combine:

$$I_1 = 0,08 + 0,12\rho + t_{B-П} - \frac{\omega_K d_B}{W_{ШК}}, \text{ H. (3)}$$

where ρ - Keylkist grain bins HCC that is loaded in a location;

$t_{B-П}$ - Average time perechipky (vidchiplennya - coupling) state of emergency;

WSHK - performance vygruznogo screw HCC, t / h.

After substituting the values of (2) and (3) in (1) we obtain:

$$\frac{1,11\ \omega_K \cdot d_B}{W_{KP}} = 0,08 + 0,12\rho + t_{B-П} - \frac{\omega_K d_B}{W_{ШК}}.$$

Hence the number of grain bins HCC that is loaded in a location equals the number of granule cells (mKP) serviced vehicle, and defined as:

$$\rho = INT(8,33\omega_K \cdot d_B(\frac{1,11}{W_{KP}} + \frac{1}{W_{ШК}}) - 8,33t_{B-П} - 0,667), \text{ Ed.} \quad (4)$$

Selecting emergency duty is performed based on the multiplicity of terms carrying the body and emergency bunker HCC:

$$q_H \geq q_Б \rho\ , \quad (5)$$

where q_H - rated load body chosen a location.

The second condition is the brand of choice RS container body ω_H NP chosen to be a multiple hopper capacity harvester

$$\omega_H \geq \omega_K \rho. \quad (6)$$

Based on the expressions (5), (6) select the appropriate carrying capacity for q_H brand of NP.

Number of emergency with tractors that are both working in the field:

$$n_{НП} = \text{CEILING}\frac{m_K}{\rho}, \quad (7)$$

Subject to the conditions potochnosti second link, we receive:

$$R2 = I2, \quad (8)$$

where R2 - the rhythm of the emergency to the tractor, h .;

I2 - BP interval income, hours.

Rhythm of the tractor emergency is defined as:

$$R_2 = 0,08 + 0,12\rho + t_{B-П}, \text{ H. (9)}$$

Interval receipt AT:

$$I_2 = \frac{t_{ВП} + \frac{2l_{ij}}{v_T} + t_{ВИВ}}{n_{AT}}, \text{ H. (10)}$$

After substitution of values (ta10 9) in (8) and the corresponding transformation we obtain the number avtotyahachiv to transport grain from the equation:

$$n_{AT} = CEILING \frac{t_{OБ}}{0,08 + 0,12\rho + t_{B-П}} = CEILING \frac{t_{B-П} + \frac{2l_{ij}}{v_T} + t_{ВИВ}}{0,08 + 0,12\rho + t_{B-П}}, \text{ Ed., (11)}$$

where $t_{OБ}$ - Length sales company;

$t_{ВИВ}$ - Length of stay in blood pressure discharge point, depending on the level of mechanization and Works;

lij - distance transport grain from the field (and point) at the point of discharge (item j);

v_T - Average technical speed car on the way from the field to the floor.

The total number of emergency that required by the ZTK (move and under load) is given by:

$$П = CEILING\ n_{AT}(1 + \frac{n_П(t_H + t_{B-П})}{t_{B-П} + \frac{2l_{ij}}{v_T} + t_{ВИВ}}), \text{ Ed., (8)}$$

where t_H - Average time of loading operations;

$$t_H = 0,08 + 0,12\rho, \text{ H .;}$$

where $n_П$ - The number of load points on the route, $n_П = n_{НП}$.

Conclusion. Based on the theoretical analysis of the transshipment harvesting and transport of complex variables automotive Tipper trucks reasonable method of determining the complex.

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Obosnovana Methods for determining composition uborochno transport complex for grain crops with primeneniem smennыh avtomobylnыh poluprytsepov samosvalov.

Harvest grain, transport of, Automobile semitrailer, mynymyzatsyya prostoev Transportation, proyzvodytelnost.

The technique of determining the composition of harvesting and transport complex for crops with the use of replaceable automotive semi-trucks.

Grain harvest, Transport, car trailer, minimizing downtime transport, productivity.