Key words: milk, primary processing, cooperative, quality, efficiency

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BACKGROUND OF RATIONAL harvesting-transport complex USING NAPIVCHOVNYKOVOHO of the vehicle

SG Fryshev, Doctor of Engineering

Abstract.*The technique of harvesting-determination of the transport sector for sugar beetusing napivchovnykovoho vehicle traffic.*

Keywords:*sugar beet harvest,transport en Executive, Car trailer, performance*

Formulation of the problem. The known method improving the efficiency of harvesting and transport technologies for the use of cereals as compensators motor vehicle (NP) trucks during the organization napivchovnykovoho vehicle traffic [1-3].

This technique becomes practical application in recent years in connection with the development and introduction of special tractor truck coupling similar in design to the car. Along with the significant advantage of this method - combines increased productivity by creating conditions for continuing their work there provided a significant increase in performance vehicles. Due to some differences of harvesting and transport technologies for cereals (for which this method is developed) and sugar beet important development methods of study options harvesting and transport complex (ZTK) with the organization napivchovnykovoho motion trailers for the transport of sugar beet harvesting today.

Analysis of recent research. As compensators for transportation of sugar beet used special trailers, cranes and various bunkers [1-4]. But specialized equipment has limited the annual use in manufacturing because its operation results in increased production costs. Also not solved the main problem - a significant increase in traffic performance ATZ sugar beet.

These shortcomings are eliminated in the organization of transport of sugar beet reversiblesemi-trailers from napivchovnykovoho use of their movement.

The purpose of research. APidvyschennya ZTK efficiency for sugar beet by grounding techniques to determine its management structure.

Results. Some effect in the processing chain ZTK for sugar beet is achieved while ensuring the rational structure of its two parts: "Beet harvesters (BC) - semi-trailers (NP) from the tractor, equipped with a special automatic coupling truck unit", "CS - Car trailer (BP) of emergency. "

This is done following the manufacturing process. The transport unit containing NP tractor equipped truck coupling device moves across the field, drove up to the next BC, which is filled with root vegetables and loading hopper. Capacity is selected basket of emergency bunker capacity equal to BC or BC times the capacity of the bunker, so that the one - two - three - NP is loaded with bunker roots. After loading the tractor emergency transports to the edge of the field, and his vidchiplyaye prychiplyaye empty NP, which is there, and returns to the field for combines. Loaded products to auto emergency prychiplyayetsya tractor (AT) truck with a device that carries beet reception center, a trailer unloaded, and returns to the state of emergency by the field.

Rhythm of the first link ZTK "BC - NP tractor" defines its functions mode rational. Based on the basic requirements potochnosti group combines and emergency, we have:

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

where: R1- the rhythm of the group combines, h; I1 - NP interval income to the point of interaction with the technological machine - combine, hours.

The rhythm of the group combines considers the duration of their pobochoho cycle number harvesting m_K and contains the download bunker - $t_Б$ and idling t_X Which refers to the load time [5]:

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

Where: TB- filling bunker harvester

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

ωK- the volume of bunker harvester m3;

DB- grain bulk density, t / m3;

W_{KP} - Performance BK 1 hour of normal time, which is defined by the equation:

$$W_{\text{KP}} = 0{,}1 B_P v_P U \text{ T / h} \quad (4)$$

where B_P - BC Working width, m; U - yield, t / ha; v_P - pobocha speed of the combine, km / h; she driven by yield Root [6].

Timing of receipt to the place of emergency interaction with a combine is as [1]:

$$I_1 = \frac{0{,}09 + t_{B-П}}{n_H}, \text{ H} \quad (5)$$

where: $t_{B-П}$ perechipky expectancy (vidchiplennya - coupling) NP; n_H - emergency number in ZTK.

After substitution of values (2) and (5) to (1) obtain:

$$\frac{1{,}11t_Б}{m_K} = \frac{0{,}09 + t_{B-П}}{n_H}.$$

Hence the number of semi-tractors, servingcombines group is defined as:

$$n_H = CEILING\frac{(0{,}09 + t_{B-П})m_K W_{KP}}{1{,}11\omega_K \cdot d_B}, \text{ Ed.} \quad (6)$$

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

$$q_H \geq \frac{q_Б}{n}, \text{ T} \quad (7)$$

where q_H - Rated load the selected emergency; $q_Б = \omega_K \cdot d_B$ - Root mass in the hopper; n - integer integer 1, 2, 3 ...

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

$$\omega_H \geq \frac{\omega_K}{n} \text{ M3.} \quad (8)$$

Based on the expressions (7), (8) select the appropriate brand NP.

Given the conditions potochnosti second link, we get:

$$R2 = I2, \quad (9)$$

where: R2- NP rhythm of the group with tractors, hours I2 - BP interval income, hours.

The rhythm of the group with tractors emergency is defined as:

$$R_2 = \frac{0{,}09 + \frac{q_Б}{W_H} + t_{B-П}}{n_H}, \text{ H} \quad (10)$$

Timing of receipt AT:

$$I_2 = \frac{t_{B-П} + \frac{2l_{ij}}{v_T} + t_{ВИВ}}{n_{AT}}, \text{ H} \quad (11)$$

where: $t_{ВИВ}$ - AT length of stay in the unloading point, depending on the level of mechanization and organization of work; lij - Root distance transport from the field (and point) to the point of discharge (item j); n_{AT} - the amount of pressure in ZTK; v_T - average speed AO technology on the way from the field to the collection point.

After substitution of values (10) and (11) in (9) and the corresponding conversion of the number of cars we get trucks for transportation of roots of the equation:

$$n_{AT} = CEILING \frac{n_H (t_{B-П} + \frac{2l_{ij}}{v_T} + t_{ВИВ})}{0,09 + \frac{q_Б}{W_H} + t_{B-П}} \text{ units.} \quad (11)$$

The total number of emergency needed for ZTK (moving are pending and under load) is given by [1, 7]

$$П = CEILING\ n_{AT}(1 + \frac{n_П(t_H + t_{B-П})}{t_{B-П} + \frac{2l_{ij}}{v_T} + t_{ВИВ}}) \text{ units.} \quad (12)$$

where: t_H - the average length of the loading operations:

$$t_H = 0,09 + \frac{q_Б}{W_H} \text{ h} \quad (13)$$

where: $n_П$ - The number of stress points in the field, $n_П = n_H$.

Example calculation. Sugar beets are harvested three combine Ropa Euro Tiger (row 9) with a capacity of 40 m3 hopper (25.6 tons) and productivity at unloading conveyor with hopper beet W_H = 720 t / h. For removal of roots from the combine to the edge of the field with tractors emergency use. BP to take out emergency reception center. The average transportation distance - 16 km, engineering vehicle speed - 40 km / h $t_{B-П}$ = 0.05 h, the car stay on the receiving point - 0.1 hours.

Define: number napivprychepiv with tractors, combines group serving in the field, the total number of current emergency and the number of auto trucks.

Decision.Number of semi-tractors thatserving combines group is defined as:

$$n_H = CEILING \frac{(0,09 + t_{B-П})m_K W_{KP}}{1,11\omega_K \cdot d_B} = CEILING \frac{(0,09 + 0,05)3 \cdot 170}{1,11 \cdot 40 \cdot 0,64} = 3 \text{ units.}$$

BC productivity at work per hour (basic) time:

$$W_{KP} = 0,1 \cdot 4,05 \cdot 7 \cdot 60 = 170 \text{ t / h.}$$

Selecting emergency duty performed considering $n = 1$ the formula $q_H \geq \frac{q_Б}{n} = 25,6$ v. Select the semitrailer ODAZ 950-030 (q_H = 30 tons) tractor K-703 N (A) of the truck coupling device.

Number of car trucks MAZ 64229-027 working with the selected emergency transportation for beets:

$$n_{AT} = CEILING \frac{n_H (t_{B-П} + \frac{2l_{ij}}{v_T} + t_{ВИВ})}{0,09 + \frac{q_Б}{W_H} + t_{B-П}} = CEILING \frac{3(0,05 + 0,8 + 0,1)}{0,09 + \frac{25,6}{720} + 0,05} = 16 \text{ units.}$$

The total number of circulating NP needed for ZTK (moving in the field, on the road and are pending and under load) is defined as:

$$П = CEILING\ n_{AT}(1+\frac{n_{П}(t_{H}+t_{B-П})}{t_{B-П}+\frac{2l_{ij}}{v_{T}}+t_{ВИВ}}) = CEILING\ 16(1+\frac{3(0,126+0,05)}{0,05+0,8+0,1}) = 25$$

units.

where the average length of the loading operations:

$$t_{H} = 0,09+\frac{q_{Б}}{W_{H}} = 0,09+\frac{25,6}{720} = 0,126 \text{ h.}$$

Number of loading points on the route $n_{П} = n_{H}$ = 3 units.

Conclusion. Theoretical analysis of harvesting-transport complex for sugar beet with the use of current road semi trucks allowed to justify the method of determining the complex.

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Abstract.*Obosnovana method for determining composition uborochno transport complex for saharnoy beet with primeneniem poluchelnochnoho movement transportnыh funds.*

Keywords:*saharnoy beet harvest, transport, tyrovka, Automobile semitrailer, proyzvodytelnost*

Annotation.*The* technique of determination of composition of harvesting and transport complex for a sugar beet with application of semishuttle traffic of trasport facilities is proved.

Key words: ***sugar beet crop, transportation, automobile semitrailer, semishuttle traffic, productivity***

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ANALYTICAL MODEL INSTALLATION Ground SPHERICAL DISK for definition of geometrical CHARACTERISTICS AND TECHNOLOGY

SF Pylypaka, PhD
National University of Life and Nature Ukraine
Klendiy MB, Ph.D.
VP NUBiP Ukraine "Berezhany Agrotechnical Institute"

Abstract.*Done analytical model settings spherical disks in the coordinate system of accepted traffic unit along the axis OY. For a given disk size and angles of attack and roll is determined by their position and the band treated soil. According to the agronomic requirements defined angles installations and grinding discs.*

Keywords: Tillager spherical disc, the direction of the unit, the equation of the surface of the disk, the installation angles

Formulation of the problem. Drive design parameters and viewing its settings affect the production process of the unit (kryshinnya rotation and tillage, stubble cutting, mixing them with soil, width disk, etc.). The distance between the wheels, their design parameters and angles of installation depends processed form profile strips of soil and altitude ridges. Each parameter has a certain impact on the process. For example, increasing the angle of attack leads to improved mixing soil with stubble remains, increasing the width disk, but may decrease the angular velocity of rotation by dragging the disc and, consequently, Pile mizhdyskovoho space soil and crop remains. With vertically mounted drives soil perceives mainly job strain and displacement rises at low altitude, causing not mixed with crop remains. In dismissing the plane of the disk blade from the vertical direction to the so-called mixing angle of heel is improving, but to a certain limit growth of this angle. Changing the design parameters of a drive (its diameter and the radius of the sphere) or angles of leading to changes in the shape profile of the treated strips. In this regard, it is advisable to have a mathematical model of the disk surface angle settings, in which the inherent structural and geometric