FEATURES OF CALCULATION OF REQUIREMENTS AGRICULTURAL MACHINES
The supply to consumers

VI Rublev, PhD

In the system of agricultural production significant role is technical service and it includes the supply of agricultural machinery. Stage of supply also determines the cost of the equipment. So important is the need to optimize the calculation of farm machinery for their implementation using commercial enterprises.

Farm equipment, technical services, supply, calculation of requirements, trading companies.

Problem. The value of logistics services for agricultural production specified in legislation and the literature [1-6]. At the same time, are not considered measures to ensure technical trade enterprises material - technical means and appropriate measures of quality customer service farm machinery. Said defines the problem. Problem: Punctual provide consumers Rural-kohospodarskymy machines, but there are no rules for calculating their commercial enterprises need for prompt delivery to consumers.

Analysis of recent research indicates that the total species suppliers out of customer orders. Order based on availability of cars in the household, or the number and need to perform agricultural processes on production of agricultural products. To do this, they use the necessary recommendations, as well as typical calculations necessary agricultural machines (hereinafter - CMB) [6-8].

Calculations agricultural machines set to predict software processes of growing crops in the consumer. However, do not solve the problem of determining the number of cars in dealer consumer for their implementation.

The purpose of research. Develop rules for calculating the necessary machinery for commercial establishments for their prompt delivery to consumers.

Problem: 1. To analyze the rules of calculations necessary for SGM farms.

2. On the basis of the analysis based services vydyv develop rules justification range and number of CMB to implement them for delivery to consumers.

Methods of research. Research carried out on the basis of information retrieval and morphological analysis [9].

Results. There are detailed calculations and justification set of technology and its effective use at the present level of agricultural production. To this end, the justification considered separately for each sector of its climatic conditions in a single system interconnection: a set of crops - crop rotation - the predecessor - Culture - technology - technology operation - car - power tool - machine machine - machinery - park cars [10].

At the same time, does not address the problem of trade organizations operational and comfortable providing consumers. They have specific features and a range of services [11].

They set can be applied to commercial enterprises in the form of the following processes: transport SGM supplier or trade organization; unloading of vehicles; input control for the number of packages and quality; ground transportation to storage or warehouse; storage; doskladannya cars delivered in the form of packages; Pre-sale service; acceptance control; implementation of the buyer; loading vehicle for transportation to the buyer; transportation to the buyer; discharge from the buyer. To optimize these processes should be defined service delivery SGM on the one hand and consumers on the other - the dealer. This is especially important for determining the number of cars on stamps and their size and frequency of deliveries and sales to consumers.

Also significant impact on the supply fleet render change in consumer considering they wear when other factors justification stable range and number of machines in the consumer.

Established that the calculations SGM needs to be sold at the stage of supply standards should be used for general purpose [6]. Later they can be adjusted to the consumer with detailed calculations as mentioned above [10]. They should be used to develop contracts provider.

Production technology of growing crops in the districts of commercial enterprises are defined natural-climatic zones of its location. These include Woodlands, steppe and steppe [6]. List of growing crops for climatic zones and focused sowing arable land for their cultivation are shown in Table. 1. Nomenclature of CMB used in the districts of commercial enterprise in general is given based on the list of growing crops, and customer orders.

1. List of growing crops for climatic zones and focused sowing arable land for their cultivation.

Culture	Ukraine	Including

		Polesie	Forest-Steppe	Steppe
Cereal, including winter	49.7 22.3	47.4 28.3	52.9 21.9	48.7 20.1
Performance including:	13.3	10.3	15.7	13.8
sugar beets	6.9	4.6	13.0	2.9
sunflower	5.1	-	2.7	9.9
flax	1.3	3.8	-	-
Potato	2.8	6.1	2	0.3
Vegetable and melon	1.0	0.8	0.8	1.5
Feed	33.2	35.4	28.6	35.7

Determining the required number of agricultural machinery, which is subject to supply its customers, shall be based on climatic zones, the distribution of arable land (Table. 1) and medium-oriented standards need tractors and agricultural machines main types [6, 11] by the following formulas.

The total number of tractors:

$$Nztr\ Sz = p \cdot nand\ May\ /\ 1000 \qquad (1)$$

where Sz district - the total area of arable land, ha

nand May - specific number of tractors in 1000 ha arable land (Table. 2).

Number of single brand tractors tractor

$$Nimtr = Nztr \cdot \omega itr \ (2)$$

where ωitr - frequency of a particular brand of tractors. Compiled based on a statistical analysis of the distribution warehouse tractors for certain brands of tractors.

The total number of combine harvesters:

$$Nzbkom\ Szl\ p = \cdot nizb\ com\ /\ 1000 \ (3)$$

where Szlr - arable land under cereals;

nand, zbkom - specific number of combine harvesters 1000 ha arable land (Table. 2).

2. Average oriented rules need tractors and agricultural machines.

Tractors and agricultural machines on 1000 ha arable crops or respective cultures pieces.	Polesie	Forest-Steppe	Steppe (Irrigation)
Tractors, total	17,18	17.52	20.1
including general purpose	6.8	5.99	5.93
Plows	8.89	9.04	8.01
Hoeing plow	1.07	1.47	1.1

Cultivators continuous cultivation	4.24	4.76	6.53
Fertilizer making:			
Solid mineral	2.22	1.77	1.35
solid organic	3.95	2.0	2.08
Liquid	0.83	0.73	0.75
Sprayers	2.76	2.15	2.14
Seed crops	14.66	12.78	12.1
Harvesters	9,28	7.89	8.1
Self-propelled forage harvesters and 1000 ha forage crops	25.24	23.88	27.01
Tractor trailers	14.77	16.61	17.63
Cars	21.5	18.0	13.4

Number of individual brands of combine harvesters

$$Nkomi = Nzbkom \cdot \omega ikom \ (4)$$

where $\omega ikom$ - frequency of harvesting a particular brand. Compiled based on a statistical analysis of the distribution of the park combine harvesters by their individual names.

Total forage harvesters and beet Nzkr machines Nzbur given by:

$$Nzkr = Skrr \cdot nand \ CD \ / \ 1000; \ Nzbur = Sburr \cdot nand \ drill \ / \ 1000 \ (5)$$

where Skrr, Sburr - according arable land under forage crops and sugar beet;

nikr, nibur - in accordance with the specific amount of forage harvesters and beet cars on 1000 ha arable land (Table. 2).

Number forage harvesters *Nkri* and beet machines *Nburi* individual marks given by:

$$Nkri = Nzkr \cdot \omega ikr; \ Nburi = Nzbur \cdot \omega ibur \ (6)$$

where ωikr, $\omega ibur$ - frequency of under forage harvesters and beet machines separate brands (Table. 2).

According to the statistical analysis of the distribution of forage harvesters and beet machines on their individual brands.

The total number of agricultural machines for general use:

$$Nzshm \ Sz = p \quad \cdot nand \ SGM \ / \ 1000 \ (7)$$

where Szr - the total area of arable land;

nishm - specific number of general purpose agricultural machines (plows, Hoeing plow, cultivators continuous cultivation, machines for making good and Plant Protection) to 1000 ha arable land (Table. 2).

Number of farm machinery separate brands:

$$Nishm \ SIM = p \cdot \ nand \ mshm \ / \ 1000 \ (8)$$

where p SIM - arable land and for the first crop;

nimshm - specific number of agricultural machines on a single brand 1000 ha arable land for *and*th crop (Table. 2).

The total number of trucks:

$$Nzavt = Szr \cdot nand\ com / 1000 \quad (9)$$

where Szr - the total area of arable land; niavt - specific number of cars on 1000 ha arable land (Table. 2). Number of trucks distributed by 50% and 50% of trucks flatbed. It is best to use a car carrying capacity of 4-8 tons.

Total number of tractor trailers:

$$Nzpch = Szr \cdot IF\ nand / 1000 \quad (10)$$

where Szr - the total area of arable land;

nipch - specific number of tractor trailers on 1000 ha arable land (Table. 2). It is best to use trailers carrying capacity of 6-10 tons.

The results of calculations by formulas (1) - (10) can determine the actual number of agricultural machinery. They are written in column 3 neh actual number of tables 3 - 6 brands of tractors, combine harvesters, agricultural machinery and vehicles.

After the calculation technique determine the need for defect K [11]:

$$K = R - + Nkp\ sleep; \quad (11)$$
$$Nkp = Nk + P - C; \quad (12)$$

where P - a need in the art for the plan year;

Nkp - availability of equipment at the beginning of the planning year;

Cn - the expected write-off technique in the plan year;

Nk - availability of equipment at the end of preplanning year;

P - Plan delivery technology in preplanned year;

C - cancellation technology in the preplanning year.

3. Determination of the number of tractors in the districts of commercial enterprise.

Number p / p	Type Tractor	Number of tractors in area units.		
		In fact, Nfitr	Need, Ritr	Not enough, Kitri
1	2	3	4	5

4. Determination of the number of combines action in the area of commercial enterprise.

Number p / p	Types harvesting	Number of harvesting in the area units.		
		In fact, Nfikom	*Need, Rick*	Not enough Kikom
1	2	3	4	5

5. Determination of the number of agricultural machinery in the districts of commercial enterprise.

Nu	Types of	Number of farm machinery in the area units.

mb er p / p	agricultural machinery	In fact, Nfishm	Need, Rishm	Not enough Kishm
1	2	3	4	5

6. Determination of the number of vehicles in the districts of commercial enterprise.

Nu mb er p / p	Types of vehicles	Number of vehicles in the area units.		
		In fact, Nfiavt	Need, Riavto	Not enough Kiavto
1	2	3	4	5

In the calculations shall be:

$$Nk = neutrophils;$$

$$P = \alpha \cdot Neutrophils,$$

where α - coefficient of increase in neutrophils formation plan delivery on orders of preplanned year.

$$C = \delta \cdot Neutrophils,$$

where δ = 0,1 - coefficient of equipment write-off in preplanned year.

$$Cn = \delta p \cdot P,$$

where δp = 0.1 - factor in the cancellation technology plan year.

$$Neutrophils \; P = (1 + \beta),$$

where β - the enlargement neutrophils order for consumers in the plan year (the "coefficient of order").

Magnification β is determined by two methods:

1. It is set on the basis of retrospective observations.

2. Determine the calculation:

$$\beta = (Hp - NF) / neutrophils,$$

where Hp - results from determining a set of technology and its effective use at the present level of agricultural production. For this, as mentioned above, are considered separately for each sector of its climatic conditions in a single system interconnection changeable set of cultures - rotation - predecessor - Culture - technology - technology operations - power tools - machine aggregates - machinery - park machines [10].

The results of the calculation of "P" are recorded in Table 4 column. 3 - 6, and "K" - in column 5 of Table brands of agricultural machinery.

Conclusion. Shown a significant role in the performance of commercial enterprises of various services to agricultural enterprises, including selling. These features calculating the need for agricultural

machinery trade companies in a sale to consumers. Calculation of the needs of agricultural machines for commercial establishments in the optimization of their sales to consumers differ from calculating machines need to farmers.

References

1. *Letter* President of Ukraine Verkhovna Rada of Ukraine in 2002 - 2008 years
2. *Law* Ukraine "On protection of consumers of agricultural machines"
3. *Prong MV* Actual problems of technology policy in the agricultural sector of Ukraine / *Prong MV Gukov JS, MI Grytsyshyn* - K .: Dia, 2007. - 80 p.
4. *Kravchuk VI* Priority areas of research in predicting, testing and certification of equipment and technologies for agriculture / *VI Kravchuk* // International Scientific Conference devoted to the 110th anniversary of the start of trials in Ukraine and the 60th anniversary of UkrMVS-VNDIVMOT_UKRNDIPVT them. L. Pogorelogo. - P. 103.
5. *Kravchuk VI* Some aspects of logistics research APC / *VI Kravchuk* // International Scientific Conference devoted to the 110th anniversary of the start of trials in Ukraine and the 60th anniversary of UkrMVS-VNDIVMOT - UkrNDIPVT them. L. Pogorelogo. - P. 10.
6. *Material* and technological base of agriculture / edited. And. *Y. Dorosh, OM Golovanov*. - K .: Vintage, 1985. - 296 p.
7. *Exploitation* tractor fleet in agricultural production / *VU Ilchenko, PI Karasev, AS Limont* etc .; Ed. *VU Ilychenko*. - K: "Harvest", 1993. - 288 p.
8. *Bondarenko MG* Acquisition and Use last one-tractor fleet in crop / *MG Bondarenko, VA Demeschuk.* - K .: High School, 1995. - 237 p.
9. *Rublёv VI* Fundamentals of research in the region nauchnыh economy and management in trans: uchebnoe posobye. / *Rublёv VI, Sudakova TV, Saklakova EV* - Sev.Kav.HTU, g Stavropol, 2003. - 200 p.
10. *VD Hrechkosiy* Design processes in crop: a tutorial / *E Hrechkosiy, VD Voytyuk, RV Shatrov, II Miller, JM M..* - K .: Publishing House NUBiP Ukraine, 2011. - 364 p .: ill.
11. *Rublev VI* Quality management and technical service of agricultural machinery: manual / *VI Rublev, VD Voytyuk* ; eds. *VI Rublev*. 2nd edition ext. - K .: Issued. NAU, 2006. - 236 p.

The system Provision selskohozyaystvennoho production znachytelnuyu role yhraet tehnycheskyy SERVICE and in the ego-proof supply agricultural machines. Stage supply determines zatratы Also on sale technology. Therefore vazhnoe importance ymeet optimization raschёta potrebnosty agricultural machines for с s Implementation pomoshchju torhovыh enterprises.

Selskohozyaystvennыe Machines, tehnycheskyy service, delivery, raschёt potrebnosty, Torgovy'j enterprise.

In system of providing of agricultural production considerable part is acted by technical service and in its composition delivery of agricultural

machines. The stage of delivery also determines expenses on sale of machinery. Therefore the important value has optimization of calculation of necessity of agricultural machines for their realization by auction enterprises.

Agricultural machines, technical service, delivery, calculation of necessity, auction enterprises.

UDC 631.22

HEATING SYSTEM Greenhouses
USING VACUUM heliocollector

VA Lazorenko, Ph.D.

The results of development Greenhouse heating systems using vacuum heliosystems and results doslidzhennnya energy efficiency using heat-protective screens in the combined water and solar heating. Determined replacement rate of heat stress.

Greenhouses, heliocollector vacuum, heating, thermal resistance, energy efficiency, the replacement heat load.

Problem. To grow vegetables and sprouts in winter and early-spring periods used cultivation greenhouse facilities, including Hangar and block greenhouses, ranging from 1 to 60 ha. Ensuring appropriate microclimate powerful vegetable plants require significant

of the heat energy. To 1 kg grown in greenhouses agricultural products consumed at 1015kg fuel [2]. To obtain high yields of vegetables should maintain a temperature of 18...26 ° C at a depth of 0.2...0.3 m, ie in the area of the roots.

Analysis ostannыh research. Formation in the volume of greenhouse and soil layer temperature, humidity and gas fields depends on constructive solutions engineering systems microclimate. At the same time ensure proper temperature in the soil can receive 25-30% more compared to early vegetables harvest gathered in a greenhouse without heating subsoil. Greenhouses are among the largest consumers of thermal energy, so it is advisable to concentrate on building their enerhoefektyv heating systems, which do not require large initial costs (FER) and yet can provide the optimal microclimate during the cold season.