Academicia Globe: Inderscience Research
ISSN: 2776-1010 Volume 2, Issue 5, May, 2021

COMPARATIVE EVALUATION OF THE POSSIBILITIES OF THE AGGREGATES

Buriyev Zokir Jumayevich
Teacher of Termez branch of TSAU
Kurbanov Umedjon Nusratulloyevich
Student of Termez branch of TSAU

ANNOTATION
One of the most common operations within machine-tractor units is plowing the land. So let's look at three aggregates to compare aggregates.
For comparative assessments of the main technical and economic indicators of machine-tractor units, the maximum (permissible, actual) performance of the unit is determined taking into account the optimal (acceptable) values of these indicators, ie: hourly performance Wc, ha / h, fuel consumption g, l / ha, labor costs Zm.x, hours / ha, energy consumption Nga, kWh * s / ha and direct costs St.x, soums * l / h. If the given units are given in m / s, 0, At 36 km / h, the hourly productivity is determined by a numerical value of 0.1. [2]

Key words: aggregates, optimal values, technical and economic indicators of machine-tractor units.

The identified performance of the aggregates is represented in tabular and graphical form.
Ws.ga = 0.36 Vishvisht; ha / hour, (1)
There: V_{work} - constructive coverage width of the unit, m; v_{work} - working speed of the unit, m / s;
Features of agricultural tractors The coefficient of utilization of t-working time obtained in this recommended range is 0.5 ... 0.95.
Example: For the best option conditions driven with VT-150, Claas Arion-630C and MTZ-82.10 tractors, this Kpl = 50 kN / m2, a = 0.30 m. get in unity.
The gravitational resistance of a body is calculated by the following formula [1].
Rk = Kplabk, kN (2)
There: Kpl-plug resistance, kN / m2,
a-plowing depth, m; bk-plug coverage width, m.
Then
Rk = 50 * 0.30 * 0.35 = 5.25, kN.
Plug-in resistance is on the rise
Rpl = Rknk, (3)
There: Rk is the resistance of the traction in one housing, kN; nk is the number of bodies. Number of housings: 1 3 4 5 6
Plug torque resistance, kN 5.25 15.8 21 26.3 31.5
Option 1. Tractor VT-150 + PLP-6-35; Vish = 2.1 m, vish = 2.8 m / s, t = 0.84.
2-variant. Tractor ClaasArion-630C + Lemken-4-40; Vish = 1.6 m, vish = 11m / s, t = 0.85.

ISSN: 2776-1010 Volume 2, Issue 5, May, 2021

3-variant. MTZ-82.10 + PLN- 3-35; Vish = 1.05 m, vish = 1.84 m / s, t = 0.86.
Hourly productivity.
Ws1 = 0.36 * 2.1 * 2.8 * 0.84 = 1.7, ha / h;
Ws2 = 0.36 * 1.6 * 11 * 0.85 = 5.3, ha / h;
W s3 = 0.36 * 1.05 * 1.84 * 0.86 = 0.6, ha / h.
Fuel consumption is taken from standard tables or determined by economic expression.
g = Gt.o'r / Ws, l / ga (4)
Here: Gt.or and Gt.n - change in average and nominal hourly fuel consumption of the engine, l / h.
The coefficient of incomplete loading of the Kt-engine in the salt state.
Example: For selected aggregate options.
Gt.n1 = 30 l / s, Kt1 = 0.85;
Gt.n2 = 30 l / s, Kt2 = 0.87;
Gt.n3 = 17.6 l / s, Kt3 = 0.89.
Fuel consumption for plowing one hectare of land.
g1 = 30 * 0.85 / 1.7 = 15.5, l / ha;
g2 = 30 * 0.87 / 5.3 = 5.2, l / ha;
g3 = 17.6 * 0.89 / 0.6 = 26.1, l / ha.
Labor costs.
Zm.x = nish / Ws, hour / ha (5)
nish - the number of workers in the unit.
For example. In the options selected for the operator working on the unit,
in that case
Zm.x.1 = 1 / 1.7 = 0.58, hour / ha;
Zm.x.2 = 1 / 5.3 = 0.18, hour / ha;
Zm.x.3 = 1 / 0.6 = 1.67, h / ha.
Energy consumption.
Nga = Ne / Ws, kW * h / ha (6)
Here: Ne - Engine power, accepted nominal value Nen, kW.
Example: For accepted variants.
Ne1 = 110, kW;
Ne2 = 110, kW;
Ne3 = 60, kW.
The amount of energy expended.
Nga1 = 110 / 1.7 = 64.7, kW * h / ha;
Nga2 = 110 / 5.3 = 20.7, kW * h / ha;
Nga3 = 60 / 0.6 = 100, kW * h / ha.
Direct costs [3].
Stx = Ss / Ws, sum / ha (7)
Here: Ss- the direct cost of the unit during one hour is UZS * l / h.

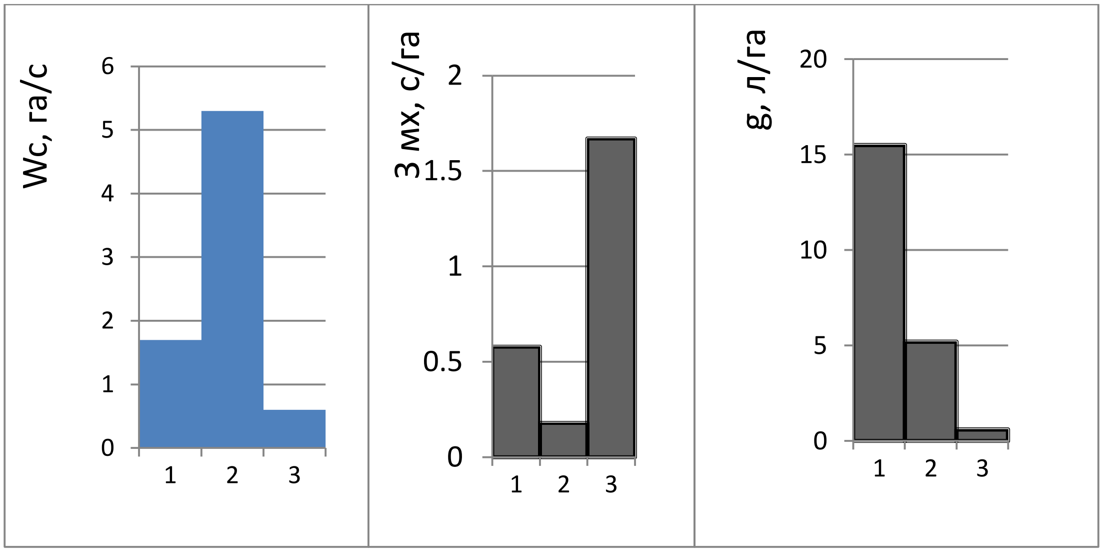
Go to our website https://agir.academiascience.org for more

Academicia Globe: Inderscience Research
ISSN: 2776-1010 Volume 2, Issue 5, May, 2021

Example: For selected options.
Ss = (mop + myoq) * gtrak, (8)
Here: mop and myoq - the cost of the tractor operator and fuel, gtrak - aggregate tractor fuel consumption gtrak1 = 30, gtrak2 = 30, gtrak3 = 17.6.
Ss = (357 + 1673) * 30 = 60900, sum * l
Ss = (739.5 + 1290.5) * 30 = 60900, sum * l
Ss = (943.5 + 1086.5) * 17.6 = 35728, sum * l
Costs per hectare are calculated by formula (7).
Stx1 = 60900 / 1.7 = 35823.5, UZS / ha;
Stx2 = 60900 / 5.3 = 11490.5, UZS / ha;
Stx3 = 35758 / 0.6 = 59546.6, sum / ha.

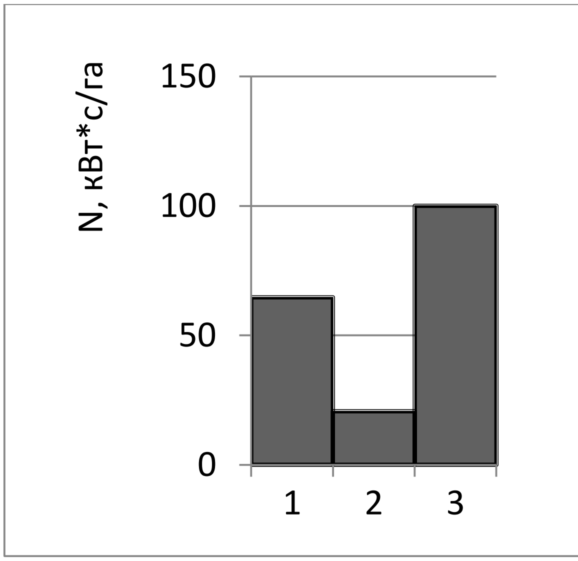
1-table

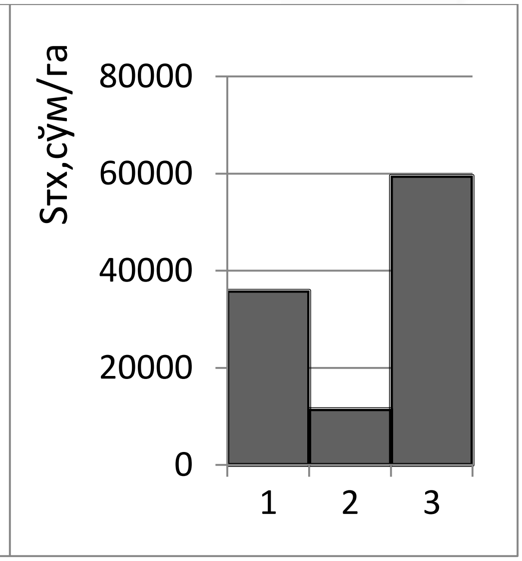
Aggregate options	Indicates				
	Ws,ha / hour	Zm.x, hour / ha	G l / ga	Nga,kW * h	Stxso'm / g
VT-150 + PLP-6-35	1,7	0,58	15,5	64,7	35823,5
ClaasArion-630C + Lemken- 4-40	5,3	0,18	5,2	20,7	11490,5
MTZ-82.10 + PLN- 3-35	0,6	1,67	0,6	100	59546,6



Go to our website https://agir.academiascience.org for more

ISSN: 2776-1010 Volume 2, Issue 5, May, 2021





We consider the maximum (permissible) performance of the aggregates in the following areas, in areas there the size and contour of the field are different.

40-45% of irrigated and non-irrigated lands in the country are five to six hectares. The remaining 55-60% are on average ten, fifteen, twenty, and so on. hectares.

The productivity of a machine-tractor unit is the amount of work done per unit of time. Productivity is measured in hectares (ha), m3, t, t * km, l. It differs in hourly, shift, daily, seasonal, annual work output. Theoretical performance is determined taking into account the design parameters and technical details of the unit (Vn, Vn, T). Technical performance is the actual parameters of the unit, including the coefficient of utilization of the coverage area of the unit b = Vi / Vn; speed utilization factor xv = Vi / Vn; the operating time utilization factor is determined taking into account t = Ti / Tsm. Operational efficiency is determined by taking into account the power utilization factor (xNe) and the readiness factor (Kt) of the unit.

Suppose that an aggregate with a coverage width V moves at a speed V in time t, travels a distance S, and processes the field W. In this case, the work done is recorded as follows:

W = BS = BVt = 1000BVt, m2 / hour;

W = BVt = 0.1BVt, ha / h.

So the theoretical result is written as follows:

W = 0,1BnVnTn, ga / shift (1)

There Bn, Vn, Tn are the theoretical width, speed and operating time.

The productivity of technical work, taking into account the coefficients b, xv, is determined as follows:

Wtexn = 0.1BnbVnxvTnt (2)

Operational productivity:

Weks = 0,1BnbVnxvTntKtxNe (3)

The performance of the unit also depends on the power of the tractor. This can be explained by the following ratios:

ISSN: 2776-1010 Volume 2, Issue 5, May, 2021

A = RS; Nile = RS / 3.6; Nile = KVVT / 3.6. (4)
KVVT = 3.6Nil; Wtex = 0.36Nil / K, ha / h; Wtex = 0.36KtxNilNil / K.
The shift time balance consists of the following components:
Tsm = Tt + Ti + Ts + Tt.s + Ttexn.s + Tb + Tn.t + Tf, (5)
There Tt + Ti + Ts + Tt.s + Ttexn.s + Tb + Tn.t + Tf - according to the preparation of the unit for work, performance of work, salt movement, maintenance of MTA, technological service, stoppage due to failure, for unorganized reasons stopping, stopping times for a person's physiological needs.
From the balance equation of shift time, the time spent on the technological process is determined as follows:
Ti = Tsm -Ts-Tt.s-Ttexn.s-Tb -Tn.t-Tf
Shift time utilization factor:
t = Ti / Tsm
Energy consumption
According to operational calculations, Ail is beneficial, Ae is effective, and At is complete
energy consumption is used.
Efficient energy consumption is determined as follows:
When the unit is working in the field, Si.y presses the working path,
Example: The best option for plowing the land with VT-150, Claas Arion-630C and MTZ-82.10 tractors is Kpl. Let = 50 kN / m2, a = 0.30 m.
The resistance force (Rk) of the plug and the resistance (Rpl) of the plug in one housing were calculated accordingly.
Calculated by expressions (2) and (3) above. The ratio of the surface area to the width of the aggregate coverage indicates how many times the aggregate will plow the field, and it is as follows. Aggregate

(1) According to the expression, the productivity is as follows:
Ws.ga = 0.36 * 2.3 * 2.8 * 0.84 = 1.94, ha / h;
Ws.ga = 0.36 * 3.5 * 3 * 0.85 = 3.21, ha / h;
Ws.ga = 0.36 * 4.7 * 1.84 * 0.86 = 2.67, ha / h.
Fuel consumption is determined by expression (4).
g = Gt.o'r / Ws, l / ga (4)
For selected aggregate options.
Gt.n1 = 30 l / s, Kt1 = 0.85, Gt.o'r1 = Gt.n1 * Kt1 = 30 * 0.85 = 25.5 l / s;
Gt.n2 = 30 l / s, Kt2 = 0.87, Gt.o'r2 = Gt.n2 * Kt2 = 30 * 0.87 = 26.1 l / s;
Gt.n3 = 17.6 l / s, Kt3 = 0.89, Gt.o'r3 = Gt.n3 * Kt3 = 17.6 * 0.89 = 15.6 l / s.
Coverage width is 2, respectively; 1.6; Fuel consumption for units of 1.05 m is as follows.
g1 = 25.5 / 1.94 = 13.1, l / ha;
g2 = 26.1 / 3.21 = 8.1, l / ha;
g3 = 15.6 / 2.67 = 5.8, l / ha.
Labor costs

Academicia Globe: Inderscience Research

ISSN: 2776-1010 Volume 2, Issue 5, May, 2021

Zm.x = nish / Ws, hour / ha (5)
nish - the number of workers in the unit.
Nga1 = 110 / 1.94 = 56.7, kW * h / ha;
Nga2 = 110 / 3.21 = 34.26, kW * h / ha;
Nga3 = 60 / 2.67 = 37.4, kW * h / ha.
Direct costs [3].
Stx = Ss / Ws, sum / ha (7)
Here: Ss- the direct cost of the unit operating for one hour is UZS. The procedure for calculating the total salary of the operator is based on the rates of 215 soums per hour for the sixth category and 190 soums per hour for QXM.
Average value for selected options.
Ss = 215 + 190 = 405, (7) soums,
Costs per hectare are calculated by formula (7).
Stx1 = 405 / 1.94 = 208.7, UZS / ha;
Stx2 = 405 / 3.21 = 126.1, sum / ha;
Stx3 = 405 / 2.67 = 151.6, UZS / ha.
The performance of our options "by power" is determined by the following formula (8).

References

1. Yo. KHOLYOROV, A.ALIKULOV, O.MURODOV, SUMMER PLOWING-IMPORTANT EVENT // UZBEKISTAN AGRICULTURE. 2008.№7. 6 B.
2. F.HASANOVA, A.TUXTAQOZIEV. QUALITY PREPARATION OF LAND IS A GUARANTEE OF PRODUCTIVITY.// UZBEKISTAN AGRICULTURE. 2008, №3, 5 B.
3. R.BOYMETOV, S.ALIQULOV. AUTUMN PLOWING LAND MADOR.// UZBEKISTAN AGRICULTURE. 2007, №11, 3 B.
4. M.Toshboltaev, A.Tukhtako'ziev. Quality of summer plowing.// Agriculture of Uzbekistan. 2007, №7, 7 p.
5. S.Alikulov. Is your technique ready for the season? // Agriculture of Uzbekistan. 2008, №2, 2b.
6. S.Suloymonov, U.P.Umirzakov, I, M, Marupov, T, Abdillaev, X, I, Ibrogimov. Results of mutual comparison of technical and economic indicators of plowing units used in cotton growing.//Mechanization of cotton growing.1997, №8, 32-33 p.
7. M. Toshboltaev. As the technical level of the tractor increases, its efficiency increases even more.//Mechanization. 2001. №4, 55-56b.
8. M.Toshboltaev, M.Qobulov. Service cost of driving units.// Agriculture of Uzbekistan. 2005, №11, 33-34 p.
9. Korsun A.I., Farmonov E.T. Use of machine-tractor park. -T .: ToshDAU. 2011 35-44b.