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THE CHOICE OF THE OPTIMAL DEPRECIATION METHOD OF FIXED ASSETS

This article investigates the question of the optimal choice of the method of depreciation according to the product life cycle.

Keywords: fixed assets, depreciation, the product life cycle.

Statement of the problem. *There is not enough attention to the enterprises of Ukraine on the depreciation calculation at different stages of the product life cycle at the moment. So this problem needs further research.*

Analysis of recent research and publications. *Problems of choice of depreciation methods were studied both by domestic and foreign scientists as Slovinian l. G., Sopko V., Hendriksen, E. S., Yushko S. and others.*

Part of the previously unsolved problem., *The question of choice of the best method of depreciation calculation of fixed assets remain unexplored at the moment, especially in modern conditions.*

The purpose of the article *is to define the methods of depreciation calculation that you want to apply at different stages of the life cycle of products produced by fixed assets.*

The main material. *When you choose a method of depreciation of fixed assets, you must take into account the following factors:*
- *the product life cycle; changes in tax policy;*
- *volume of production and profits;*
- *the minimum valid date of operation of fixed assets;*
- *the necessity of generating own financial resources during the period of depreciation.*

Since 1 January 2011 the depreciation of fixed assets both in taxation and accounting has been calculated by five methods: rectilinear method, productive method, methods of reduction of remaining cost and accelerated reduction of remaining cost, and cumulative. But there are no specific recommendations on the selection of the methods of depreciation calculation at the moment. Each of these five methods has its drawbacks. For example, the rectilinear method does not take into account the number of units issued (because it is not possible to take the effect of the tax savings), and accelerated methods generally not correspond the economic sense of depreciation. The use of the productive method is limited in practice, since it has flaws, similar to rectilinear, and this method is allowed only for groups of fixed assets #4 and 5. But for tax planning the most profitable are accelerated methods of depreciation. Therefore, when you choose the optimal method of depreciation, special attention must be paid to the product life cycle, which is produced by this fixed asset, because there are four main stages of the product life cycle: development, stabilization, maturity and decline.

To ground this assertion through calculations performed on the machine, price of which is 20000 UAN, liquidating cost – 2000 UAH, and the valid date of operation of fixed asset is 5 years. The calculations are given in table 1.

The calculations of depreciation sums (UAN)

Year	Primary cost	Depreciation sums	Accumulated depreciation	Balance cost
Rectilinear method				
1	20000	3600	3600	16400
2	20000	3600	7200	12800
3	20000	3600	10800	9200
4	20000	3600	14400	5600
5	20000	3600	18000	2000
Methods of reduction of remaining				
1	20000	7200	7200	12800
2	20000	4608	11808	8192
3	20000	2949,12	14757,12	5242,88
4	20000	1887,4	16644,55	3355,44
5	20000	1355,44	18000	2000
Method of accelerated reduction of remaining cost				
1	20000	8000	8000	12000
2	20000	4800	12800	7200
3	20000	2880	15680	4320
4	20000	1728	17408	2592
5	20000	592	18000	2000
Cumulative method				
1	20000	5940	5940	14060
2	20000	4860	10800	9200
3	20000	3600	14400	5600
4	20000	2340	16740	3260
5	20000	1260	18000	2000

Depreciation sums for the different depreciation methods at the different phases of the life cycle of products are in the pic.1.
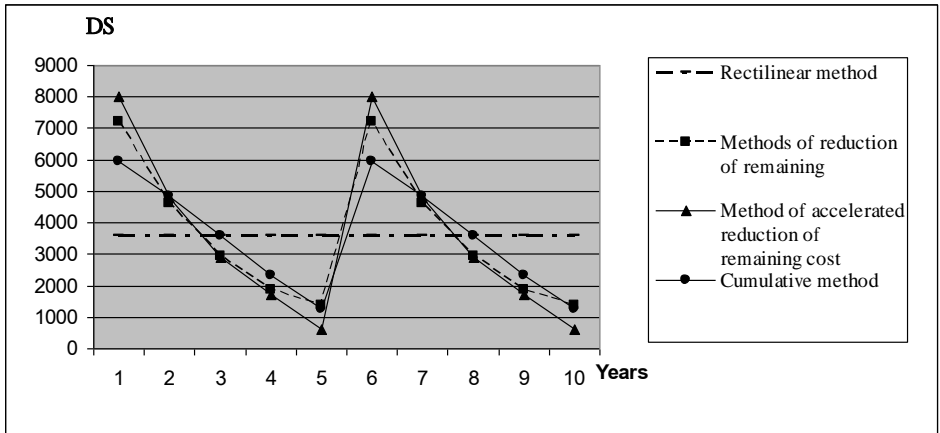
Fig.1. Depreciation sums by the different depreciation methods

We can see that when the valid date of operation of fixed asset will be closed (i.e., it will already be worn and not be able to be used effectively), the production will be at the phase of stability and maturity. The calculation of depreciation according to the life cycle of the products will be follow (table 2). In this case we can see that at the end of the third year will be renewed more than 95% of the primary cost of the machine at the stage of stability. This will allow the company to buy a new machine (or take it on credit or leasing).

Table 2

Calculation of depreciation sums (UAH) according to the product life cycle

Year	Primary cost	Depreciation sums	Accumulated depreciation	Balance cost	Depreciation method
1	20000	3600	3600	16400	Rectilinear.
2	20000	6560	10160	9840	
3	20000	7200	17360	2640	
У кінці 3-го року на стадії стабілізації придбано новий верстат					
4	22640	9053	9056	13584	ARRC
5	22640	5434	14490	8150	ARRC
6	22640	3260	17750	4890	ARRC
7	22640	1956	19706	2934	ARRc
У кінці 7-го року на стадії зрілості придбано новий верстат					
8	22934	4187	4187	18747	Rectilinear
9	22934	4187	8374	14560	Rectilinear
10	22934	4187	12561	10373	Rectilinear
11	22934	4187	16748	6186	Rectilinear
12	22934	4187	20934	2000	Rectilinear

During the phase of development it is recommended to use rectilinear or productive methods, because they are methods of proportional calculation of depreciation. The increase of depreciation sums over time of small volume of production can lead to decrease in demand. The use of accelerated methods is inappropriate because there are large depreciation sums at the first part of valid period.

Phases of stabilization and maturity are characterized by a reduction in production; increase in demand and, as a result, achievement of profit maximization. At these phases financial resources are effectively outlaid on the extended recreation of the fixed assets, consequently, the use of accelerated methods is appropriate.

At the decline stage there is a need to use proportional methods of depreciation (rectilinear method and productive method), because decrease in sales and profits is typical of this stage.

Therefore, if you calculate the depreciation under this method, during the all life cycle of product you may use three machines that will allow you to maximize production at periods of stability and maturity of the product and bring additional profit due to re-equipment.

Conclusion. One of the main directions of efficiency use of fixed assets is their updates and upgrades. This can be achieved through effective use of depreciation policy (the choice of the optimal depreciation method of fixed assets according to the different stages of the product life cycle). As a result, the net cash flow will increase, and you will have positive effect of the operating activities of the enterprise, its investment strategy due to re-equipment.

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