DEPRECIATION

The concept of depreciation is involved in some of the methods of valuation. It is, therefore, important to understand this concept and its various methods of calculation. Depreciation implies a decline in the value of a given asset due to its use, wear and tear and absolescene. There are two views regarding the depreciation concept: 1) it shows a loss in value of an asset due to use in business to produce income; and 2) it is a way to spread the original cost of an asset over its useful life. It is not correct to deduct the full purchase price in the year of purchase as the asset is used for producing income over many years. It is always appropriate to spread the depreciable amount, obtained by deducting the salvage value from the purchase price, over the useful life of the asset.

Salvage value is the assigned value to an asset at the end of its useful life. A positive salvage value should be assigned to an asset if it can be disposed off as scrap or can be sold before it is completely worn out. In general, the longer the useful life, the lower the salvage value. Useful life of an asset is the expected number of years, the asset will be used in the business.

Various methods of computing depreciation are: a) Annual revaluation; b) Straight line method; c) Declining balance method; and d) Sum-of-the-year-digits method.

a) Annual Revaluation

In this method the cost is reduced every year, the difference between the value of the asset at the beginning of the year and the value at the end of the year is called the depreciation or appreciation. This method is useful for livestock in early years of appreciation stage, i.e., male and female calves.

b) Straight Line Method

This is the most commonly used and is the easiest method of calculating depreciation. The amount of depreciation is the same for each year. This is also the slowest method for claiming

depreciation. Annual depreciation is computed by applying the following formula:

$$D = \frac{C-S}{L},$$

Where;

D = annual depreciation.
C = the purchase price of the asset.
S = salvage value and
L = expected useful life in years.

In straight line method, depreciation can also be computed using an alternative formula:

$$D = (C-S) \times R,$$

where R is the annual depreciation rate found by dividing 100 percent by the useful life of the asset.

For example, assume the purchase price of fodder chaffing machine is Rs. 10000. Its salvage value is Rs. 2000 and its useful life is 10 years. Annual depreciation using the first formula would be

$$\frac{10000-2000}{10 \ years} = Rs.800/-$$

Using the second formula, the percentage rate would be 100 percent divided by 10 or 10 percent and the annual depreciation is

(10000 - 2000). 10 % = Rs. 800

The total depreciation over the 10 years would be Rs. 800 x 10 = Rs. 8000., reducing the machine's book value to its salvage value of Rs. 2000.

C) Declining Balance Method

In this method, a fixed rate of depreciation is applied for every year to the value of the asset at the beginning. No salvage value is deducted from the original cost when computing annual depreciation. The amount of depreciation is calculated by applying a constant percentage rate to the book value, which declines each year by an amount equal to the previous year's depreciation.

Several types of declining balance depreciation are possible, but the most common is the double declining balance. i.e., depreciation rate is double the straight line rate. This method gives higher depreciation charges during the earlier years of the life of an asset and lower charges for later years.

Using the previous example of fodder chaffing machine, the double declining balance rate would be 2 times 10 percent i.e., 20 percent. This procedure is explained in Table 5.23.

Table 5.23 Declining Balance Method of Depreciation

Year	Value at the beginning	Annual depreciation	Remaining balance
I	10,000	2000	8000
II	8000	1600	6400
III	6400	1280	5120
IV	5120	1024	4096
V	4096	820	3276
VI	3276	656	2620
VII	2620	524	2096

We should continue to take 20% of the remaining value, until salvage value is reached, as in this case about Rs. 2096.

d) Sum-of-the-year's Digits

In this method high depreciation charges are obtained for the first few years of the use of an asset and low charges for the later years. In this method, no undistributed balance is left over as was in the case of declining balance method. The annual depreciation is calculated from the following equations:

$$D = (C-S) \times \frac{RL}{SYLA}$$

Where, D, C and S have already been defined. RL shows the remaining years of useful life at the beginning of the year when depreciation is being computed.

SYLA represents the sum of years of useful life. For example, for a ten-years useful life SYLA=1+2+3+....8+9+10=55 and for five-years useful life SYLA= 1+2+3+4+5=15.

Continuing with the previous example of fodder chaffing machine SYLA = 55. The annual depreciation will be calculated as follows:

$$Year\ I = (Rs.10000 - Rs.2000) x \frac{10}{55} = 1454.55$$

$$Year\ II = (Rs.10000 - Rs.2000) x \frac{9}{55} = 1309.09$$

$$Year\ III = (Rs.10000 - Rs.2000) x \frac{8}{55} = 1163.64$$

$$Year\ IV = (Rs.10000 - Rs.2000) x \frac{7}{55} = 1018.18$$

$$Year\ V = (Rs.10000 - Rs.2000) x \frac{6}{55} = 872.72$$

$$Year\ VI = (Rs.10000 - Rs.2000) x \frac{5}{55} = 727.28$$

$$Year\ VII = (Rs.10000 - Rs.2000) x \frac{4}{55} = 581.82$$

$$Year\ VIII = (Rs.10000 - Rs.2000) x \frac{3}{55} = 436.36$$

$$Year\ IX = (Rs.10000 - Rs.2000) x \frac{2}{55} = 290.90$$

$$Year\ X = (Rs.10000 - Rs.2000) x \frac{1}{55} = 145.45$$

e) Comparison of Depreciation Methods

Figure 5.2 compares the annual depreciations computed using three methods. Declining balance and sum-of-the-year's digits methods have higher annual depreciation than the straight line method during the early years, while reverse is true for the later years. These various depreciation methods affect only the pattern of distribution over time and do not change the total depreciation over the useful life. Choice of an appropriate method depends on the type of property; for example, in case of machinery like tractors, actual market value tend to decline more rapidly during the early years and more slowly in the later years. Fast depreciation methods, i.e., declining balance and sum-of-the-year's digits should be used. For building, which have little or no market value and provide uniform flow of services, straight line method would be more appropriate.