

Accounting issues related to timber industry specific operations

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Abstract

Forest has always been considered a human partner in its evolution. With the passage of time, a new relationship has been imposed so that the forest has turned into a resource and wood is a great asset. At present, the forest area accounts for 42% of the total European Union surface area, the main agricultural product being raw wood. At international level, accounting in this area was not a priority, and therefore only in 2003 a standard for agricultural regulation was approved: IAS 41 "Agriculture". When products from biological assets of an entity are harvested, IAS 41 is applied, but if they are subsequently processed, they will be subject to IAS 2 standard. Considering the complexity of calculating the assessment of biological assets, the study concludes that it is easier to apply fair value than historical cost to the accounting, the latter providing a less accurate understanding of the real situation

Keywords: biological assets, recognition, fair value, forest, wood.

1. Introduction

A biological asset is a living animal or a living plant. The agricultural product is the product from the biological assets. Biological assets are the basic assets of agricultural activities and are mainly held for their ability to transform. Biological assets are involved in two types of production: the first involves modifying assets, for example by increasing or improving quality, by quantitative or quality deterioration, or by reproduction; and the second regards the creation of separate products, which is called agricultural production [1].

In the past, accounting provisions for agricultural activities did not exist, thus enterprises guided their accounting under the rules in IAS 2 Inventories, IAS 16 Tangible assets and IAS 18 Revenue. The interpretation of these standards in the agricultural field has led to a reduction in the ability to assess the financial performance of enterprises and to compare those in the same sector [2]. An example provided by the two authors was in the forest sector, and some companies assessed the timber at the initial cost, recording the depreciation only to the extent of the net harvest, and the reforestation costs were recorded as expenses; other companies capitalized the costs of reforestation and recorded depreciation, others assessed forest land at the net updated value of expected future cash flows.

The forest is viewed and sustained by two types of assets: land and trees. From the forestry point of view, the assessment of the land is carried out according to Faustmann's formula, and for the evaluation of the trees, a separate study is carried out.

There has long been a strong link between forest culture and wood exploitation. Andreescu and Amzică [3] emphasize that the exploitation of forests is considered to be a "fine forestry" implemented with specific means.

2. Recognition and assessment of biological assets

In order to be recognized, biological assets to be in an entity's accounting must meet the following criteria in accordance with IAS 41 [4]: the entity controls the asset as a result of

past events; it is probable that the future economic benefits associated with the asset will flow to the entity; the fair value or cost of the asset can be measured reliably.

In order to achieve the proposed objectives in paper, the Găboavele Forest was chosen as research location in Galati County, a landscape planner unit with echien tree, has the composition: 251,45 ha of oak, 99,38 ha of acacia and 9,23 ha of ash.

When the products of an entity's biological assets are harvested, IAS 41 applies, but if they are subsequently processed, they will fall under the scope of IAS 2. For example, cut trees from a particular plantation are an agricultural product being harvested by biological assets [5]. After harvest, processed products (timber, logs) will be evaluated in accordance with IAS 2 - Inventories.

Biological assets should be valued at both the initial and closing dates of each financial year at fair value less costs to sell [6]. Point-of-sale costs that are deducted from the fair value determined include commissions from intermediaries, taxes imposed by public authorities or commodity exchanges, transfer taxes and customs duties. Transport and other costs are deducted when the fair value is determined, so the fair value determined is market value without transportation and other costs that are determined for the marketing of that biological asset.

The impact of the fair value measurement is primarily visible in the case of biological assets that have an economic life span over the financial year, such as trees grown in a wooded plantation to obtain wood. Thus, biological transformation influences the value of the biological asset, and therefore it is recommended to use the fair value, which would replace the historical cost-based assessment with the true nature of the biological assets, because some biological assets as they are subjected to biological changes their value increases what can not be reflected by historical cost.

IAS 41 accepts an exception to the fair value model. This exception exists only at the time of initial recognition. Thus, if there is no market price for a biological asset and the other fair value estimation methods are not reliable, the asset may be measured at acquisition or production cost minus depreciation and depreciation. But when the market has a reliable estimate, the entity must recognize the asset at fair value.

Agricultural products are valued, at initial recognition under IAS 41, at fair value less costs to be estimated at the time of sale. Harvesting is the time at which the enterprise can move from the application of IAS 41 to IAS 2 for certain harvested products. The explanation for this is that if the products to be marketed are to be processed, this activity does not form part of an agricultural activity and IAS 41 ceases to apply.

The trees on a forest surface are physically attached to the land on which they are located. Given that there is no active market on which these assets are traded, the fair value will be measured after deducting the fair value of the land. But the fair value of the land is measured without considering the existence of the biological asset on that land.

3. Assessing the forest fund

The assessment of a forest area aims to establish its market value. The forest is viewed and sustained by two types of assets: land and trees, although the true value of a forest as a whole is given by: land, trees, hunting ground and non-timber forest products (medicinal plants, forest fruits, fish, and salmon culture). According to the forest code, there are various methods of assessing a forest fund [7]. It will be estimated for all forest types the base value of the soil separated from the value of the tree.

Land as such can be assessed objectively using Faustmann's formula or using market value. The market value can be estimated using the average price per hectare of previous transactions in the area or can be determined using a regression function in which the sales price is variable and the explanatory variables are, for example, the distance to the nearest public or forest road, the degree of erodibility, or other variables.

The forest itself can be considered an investment where the land on which it is located will be considered as a production means, rated as a capital that generates periodic rents, the result of which is an estimate of net present value (VPN).

In order to make revenue or expense comparable at certain time intervals, they need to be capitalized over that time period. Hence, the operating profit, that is, the sum of all revenue over a production cycle, updated by time and interest rate, is given by the formula:

$$R = E + \sum_{i=1}^n I_i^{(t)} p^{r-t} - \frac{c}{p} - C(1+p)^r$$

Where:

E - gross income at exploitation

I - the intermediate income at age t, from the "i" - the thinning made in year t of the cycle r

R - exploitable age (variable, it is chosen the value for which VPN is the maximum)

p - interest rate, C - the cost of regeneration

c - annual forest management costs (including guard and protection)

According to Faustmann's formula, the net present value VPN of a hectare of forest is given by the following relationship, in which all periodic revenues and expenses, updated according to the production cycle and the interest rate, to the denominator only the production cycle and the interest rate.

$$VPN = \frac{E + \sum_{i=1}^n I_i^{(t)} (1+p)^{r-t} - C(1+p)^r - \frac{c}{p}}{(1+p)^r - 1}$$

Gross Income Exploitation (E). Economic exploitation is the name given to exploitation in the case of stands intended to ensure maximum production of wood of the highest quality, in relation to the uses that can be given to the respective species, the state in which the stands fulfil in optimal conditions this purpose. In view of the identification of exploitable trees, due to the fact that they reach old age, their economic efficiency will also decrease, which will vary according to their age.

Intermediate income (I). During the biological growth process of the trees in the forest, a series of cleaning and thinning works took place. Clean-ups consist of extracting dry, depreciated and small specimens. Thinning is the work by which the composition of the species is corrected by works of extraction of specimens from the lower forestry (acacia) species in favour of the valuable species (oak, ash tree). *Interest rates (p).* Interest rates are calculated according to the Regulation In this case we take the average interest rate of 0.99% as the reference date, according to NBR data. *Cost of regeneration (C).* According to the forest accountancy data, the cost of tree regeneration per year is 3.125 lei / ha. Therefore, for an area of 359 ha, the total cost of regeneration is 1,121,875 lei / year. *Annual costs of forest management (c).* According to the forest accountancy data, forest management costs are 90 lei / ha / year. Therefore, for an area of 359 ha, the total administration expenses amount to 32,310 lei / year.

The following formula is used to evaluate the trees: $V = \pi R^2 h / 3$

Table 1 Value of tree species

Tree species	$\left(\frac{d}{2}\right)^2$	height	Volume	Price	Value
Oak	256	18 m	4823 mc	230 lei/mc	1.109.290 lei
Ash tree	121	15 m	1900 mc	180 lei/mc	342.000 lei

Tree species	$\left(\frac{d}{2}\right)^2 \pi$	height	Volume	Price	Value
Accaccia	100	20 m	2093 mc	200 lei/mc	418.600 lei
TOTAL					1.869.890 lei

4. Conclusions

Biological assets are the basic assets of agricultural activities and are mainly held for their ability to transform. The trees on a forestry area, from the accounting point of view, are biological assets. The timber obtained by processing is an agricultural product.

Applying International Accounting Standards as well as national rules provide a great opportunity to identify and recognize all patrimonial items. They help us identify the economic and financial reality of companies studied, As well as field sas well as their consequences on social, human and institutional life. Thus, biological assets may be recognized on the basis of IAS 41 "Agriculture", which aims to prescribe, in relation to agricultural activity, accounting treatment, presentation of financial statements and disclosures. The central idea of the Standard is to evaluate the biological assets and agricultural products on a fair value basis, so the biological assets will be valued at the initial recognition and at each balance sheet date. Fair value is the free market price.

The fair value measurement approach minus the estimated costs of the asset sales point is used both at the time of recognition and at each balance sheet date enables the link between the presentation of the data from the agricultural activity to the specific of this activity. The rationale behind this assessment method is biological transformation that is natural and logical for biological assets. For the agricultural products obtained, the state in which they are to be marketed must be known and therefore the rules of two standards apply at the time of harvesting the IAS 41 standard and if they will be subject to IAS 2.

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