

## Review Article

# Accounting for biological assets: Transformation, measurement, and valuation

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### ABSTRACT

This paper defines the agricultural produce, which is the harvested produce of the entity's biological assets, at the point of harvest and considers the current market value methodologies used to value agricultural assets. It begins by identifying the different approaches within the agricultural industry that a valuer can utilize and defines such methods. The entity uses the fair value model for those biological assets, for which fair value is readily determinable and cost model is employed for all other biological assets. According to the study, historical cost is appropriate for bearer plants, the fair value measurement of which is suitable for living animals.

**Keywords:** Agriculture produce, biological assets, IAS 41, measurement, fair value

**Submitted:** 30-08-2022, **Accepted:** 15-08-2022, **Published:** 30-09-2022

## INTRODUCTION

Agriculture may be a standout among the oldest human activities and has a paramount part to global economy toward its produced financial assets. In the global economy, as it contributes a crucial part, but accounting for its actions has been paying a smaller amount of attention from accounting standard regulators and researchers until the International Accounting Standard (IAS) 41 – Agriculture<sup>[1]</sup> was approved. IAS 41, Agriculture is a little standard, along with a broad space as well a noteworthy impact for the individuals' substances inside its scope. It applies to entirely (but merely) substances to make profit by developing or rearing biological assets. Biological asset is defined to be a living animal or plant furthermore incorporates produce developing on bearer plants. Moreover, it defines agricultural activity as management about harvest<sup>[2]</sup> of biological assets likewise biological transformation; and biological change comprises different techniques that cause quantitative and qualitative transforms in the biological asset.

Initially, biological assets should be measured and at every year end period consequently, at fair value minus estimated costs to sell. Agriculture produce is also measured, at the moment of harvest, at fair value minus estimated costs to sell. IAS 41 contains a rebuttable presumption that fair value might be established for all agricultural produce and biological assets. The presumption can be rebutted only on the initial recognition for such assets due to the lack of market-determined prices or values that are not available and for which alternative estimates of fair value are determined to be clearly unreliable.

In addition, a recent International Accounting Standards Board (IASB) proposal suggests removing the requirement to fair value certain biological assets, those referred to as "bearer plants." Bearer plant is living plant that is used in the production or supply of agricultural produce, expected to bear produce for more than one period, and has remote likelihood of being sold as agricultural produce except for incidental scrap sales. Inside the context of the corresponding project settled by IASB<sup>[3]</sup> has proposed to improve a study in Malaysia to

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identify the factors that impact bearer biological assets and subsequently establish a fair value model.

Biological assets during the process of transformation from biological assets (forests, orchards, and livestock) to agricultural products – are treated according to IAS 41 for accounting purposes. Biological assets fair value alteration less sell costs are included in net loss or net profit for the relevant period. This standard applies to agricultural items, that is, biological asset's harvested product only at the harvesting moment. After this moment, that is, after processing of biological assets, the IAS 2 – Inventories – is applied.

## BIOLOGICAL ASSETS

Biological asset consists by an animal or a plant that encompasses the development of living animals or plants, reduction in output due to age or disease and the creation of new biological assets through carefully managed reproductive programme. That transformation framework makes the individuals systems from asserting developing, anatomic deterioration of living cells, creation, or breeding, which motivation behind way or amount progress of the biological asset. An agriculture produce or a living resource requirement help accounted just if those monetary substance controls the advantage as a result of past occasions, and the future money related benefits made by the benefit are acquired through the element, where the fair value or cost may make sensibly evaluated. Biological asset may be assessed on the beginning accounting also at the end of the accounting period, minus costs to sell.

As shown in Figure 1, in the process of transformation of biological assets, products from biological assets are produced/harvested; as well some biological assets are obtained from the assets themselves.

## AGRICULTURAL PRODUCE

An agricultural produce derived from the entity's biological assets should be measured at fair value, based on the evaluation of the estimated cost of sale, at harvest; this measurement is represented by the cost recorded at the date when IAS 2 or another accounting international standard will be applied. Agricultural produce at the collecting side of the point is really the harvested item and the biological asset of the

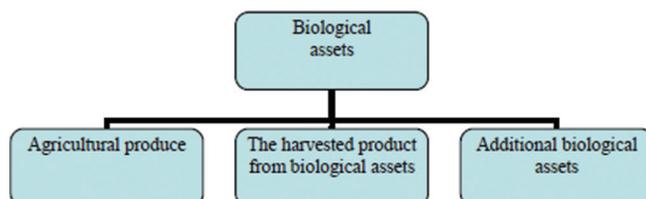


Figure 1: Transformation process of biological assets

particular organization. That harvest will be the unit for process manifestation the biological asset or ceasing those crucial procedures of a biological asset. The harvested agricultural produce transform must be evaluated also accounted on base of the results, toward its fair values, less costs to sell throughout harvest. As stated by IAS 2 – Inventories, this assessment prompts the information costs to the harvest estimation. The fair value estimation to be determined as to following order:

1. The quoted value in a full of life marketplace for the actual agricultural produce or biological asset (most seemingly for expendable biological asset)
2. Market-determined values or costs (for example, the foremost current market sector benchmarks or value of transaction) once a present market does not exist
3. Assets when market-determined values or prices may not be available in its present situation after that the present value of estimated net cash flows is defined for biological assets.

## RECOGNITION AND TRANSFORMATION

For a biological asset to be recognized, the entity should control the asset as a result of past events, it should be probable that future economic benefits associated with the asset will flow to the entity and the fair value or cost of the asset can be measured reliably. On initial recognition, the biological asset (including growing produce on a bearer plant) is required to be measured at its fair value less costs to sell since it is presumed that the fair value can be measured reliably. It is pertinent to note that the cost – benefit exemption cannot be invoked and any claim that fair value measurement would be “clearly unreliable” would need to be supported by strong evidence, such as, including the outcome of an actual valuation exercise. Further, such presumption can be rebutted only on initial recognition when quoted market prices are not available, and for which alternative fair value measurements are determined to be clearly unreliable. If such presumption is rebutted, the biological asset is measured at its cost less any accumulated depreciation and any accumulated impairment losses.

The biological assets can be classified either as mature or immature assets. The mature biological assets are the ones that achieved harvest characteristics and, therefore, are consumable biological assets, as shown above [Table 1]. This category also comprises the biological assets that can be periodically harvested (in case of the bearer biological assets).<sup>[4]</sup>

## MEASUREMENT

Due to explore biological process of transformation, which leads to qualitative and quantitative change 4s in the biological asset – process of growth, quality changes, production, and reproduction, each of which can be measured. It indicates their

economic benefit – how changes in the value of biological assets affect the important income and expenses entries. It also evaluates the effects of applying the fair value as an asset evaluating method and the effects of fair evaluation on the balance statements of agricultural enterprises. Overall, all other stakeholders benefit from this essay, because they will be better informed about measurement practices and its determinants.

The measurement of biological assets at the entry in an agricultural entity patrimony can be represented as follows

[Table 2]; for agricultural produce, the alternatives of the accounting registration at the entry into the entity patrimony and financial years will be as follows [Table 3].

In essence, the measurement criterion of agricultural produce is the same as the one indicated for the biological assets, but if for the last ones, IAS 41 allows the measurement at the cost criterion, if the fair value cannot be reliably estimated, for the agricultural produces, the fair value will be applied in all circumstances.

**Table 1: The most common biological assets, agricultural products, and additionally obtained biological assets**

Biological assets	Agricultural produce	Harvested product from biological assets	Additional biological assets
Dairy cattle	Milk	Milk products	Calves
Meat cattle	Beaf	Beaf products, leather	Calves
Poultry	Eggs, poultry meat, feathers	Poultry and egg products, down	Chicken, ducklings, goslings
Bees	Honey, pollen, wax	Wax products, bee bread, cosmetic and homeopathic products	Queen bees
Sheep	Wool, meat	Yarn, clothes, meat products	Lambs
Horses	Horsehair	Horsehair products	Foals
Potato plantings	Potatoes	Potato Starch, Potato products	Potato seedlings
Cereals	Grains, straw, seeds	Bread, malt, hay, etc.	Cereal sprouts
Fruit trees	Pickled fruits, berries, seeds	Jam, Juice, frozen products, etc.	Saplings, sprouts and shoots
Trees planted in forest	Logs, seeds	Timber products	Saplings of trees
Ornamental Plants	Cut flowers, ornamental bush	Floristry products	Saplings, sprouts and shoots of ornamental plants
Freshwater fish	Caught fish	Fish products	Fish fry
Ornamental fish	Caught fish	Fish aquarium	Fish juvenile

Source: Compiled by the authors according to IAS 41-Agriculture

**Table 2: Measurement of biological assets at the entry in an agricultural entity patrimony and in the subsequent financial years**

Initial registration	Financial year N	Financial year N+1	Financial year N+2
Fair value less estimated costs at the point of sale	Costs less accumulated depreciation and impairment losses	Costs less accumulated depreciation and impairment losses	Costs less accumulated depreciation and impairment losses
Fair value less estimated costs at the point of sale	Fair value less estimated costs at the point of sale	Fair value less estimated costs at the point of sale	Fair value less estimated costs at the point of sale

**Table 3: Measurement of biological assets at the entry in an agricultural entity patrimony and in the subsequent financial years**

Initial registration	Financial year N	Financial year N+1	Financial year N+2
Costs less accumulated depreciation and impairment losses			
Costs less accumulated depreciation and impairment losses	Fair value less estimated costs at the point of sale	Fair value less estimated costs at the point of sale	Fair value less estimated costs at the point of sale

## VALUATION

The results obtained from the designated research will immensely be helpful toward the development of accounting in financial statements for agricultural activity – the transformation of biological assets, recognition, measurement, and valuation. The IAS 41 states that a biological asset is any living plant or animals owned by the business. In addition, the most relevant method of recognition, measurement, and valuation of biological assets in accounting are to use of the current fair value for the investors.

Biological transformation is a natural change in a biological asset. It includes growth of living animals or plants, reduction in output due to age or disease and the production of new biological assets through a managed reproductive program. In the case of assertion of financial position, the world broadly spread opinion has been to make certain that assets and debts of a company are reported with inside the assertion of financial position in a way that could assist to reflect the financial outcomes of the maximum quantifiable terms (e.g., the impact of inflation, adjustments in interest rates, and foreign exchange rates) and different factors (the risk of state interference, the weather) on these items. It can be achieved with the application of multiple valuation models, including the concept of fair value of assets and liabilities, concerning biological, and agricultural produce. The biological assets that it would value include agriculture, forestry floriculture fisheries livestock and poultry.

## CONCLUSION

The paper compares financial reporting of agriculture activities. Biological assets and agriculture produce

evaluation, recording and reporting are stated in IAS – 41: Agriculture and in an International Financial Reporting Standards for SMEs section 34.<sup>[5,6]</sup> Biological assets are measured on initial recognition and at each reporting date at fair value less cost to sell. The current definition of fair value in IAS 41 is the amount, for which the asset could be exchanged between knowledgeable, willing parties in an arm's length transaction. It represents a market price for the asset based on current expectations. IAS 41 includes an unofficial hierarchy of valuation measures, similar to those found in IAS 36, "Impairment of assets," and IAS 39, "Financial instruments: Recognition and measurement."

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