A practical guide to accounting for agricultural assets

November 2009

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Introduction

IAS 41, 'Agriculture', is a small standard with a wide scope and a significant impact on those entities within its scope. It applies to most (but not all) entities that grow or rear biological assets for profit. The principle of the standard is that increases in value are recognised as the asset grows and not solely on harvest or sale.

The standard raises some challenges:

- Which entities are in its scope?
- What is the asset to be recognised and measured?
- How is the asset measured?
- How is agricultural activity disclosed in the entity's financial statements?

This practical guide seeks to answer some of the frequently asked questions by entities that are new to IFRS.

Some definitions from IAS 41

Agricultural activity – the management by an entity of the biological transformation of biological assets for sale, into agricultural produce or into additional biological assets.

Biological transformation – comprises the processes of growth, degeneration, production and procreation that cause qualitative or quantitative changes in a biological asset.

Biological asset – a living animal or plant.

Agricultural produce – the harvested product of the entity's biological assets.

1. Scope

1.1 What is agricultural activity in the scope of IAS 41?

Agricultural activities are distinguished by the fact that management facilitates and manages biological transformation and is capable of measuring the change in the quality and quantity of biological assets. Management of biological transformation normally takes the form of activity to enhance, or at least stabilise, the conditions necessary for the process of growth, degeneration, production and procreation that cause qualitative or quantitative changes in a biological asset to take place.

1.2 What are some common examples of agricultural activity?

Examples of agricultural activity include:

- Raising livestock, fish or poultry
- Stud farms (for example, breeding horses or cattle)
- Forestry
- Cultivating vineyards, orchards or plantations
- Floriculture

1.3 Is managing animal-related recreational activities agricultural activity?

No. Managing recreational activities – for example, game parks and zoos – is not agricultural activity, as there is no management of the transformation of the biological assets but simply control of the number of animals.

1.4 Is the natural breeding of animals in zoos and game parks agricultural activity?

No. The natural breeding that takes place is not a managed activity and is incidental to the main activity of providing a recreational facility. A managed breeding programme carried out to produce animals for sale would be considered agricultural activity.

1.5 When an entity rears or grows biological assets under contract for a third party, which entity is in the scope of IAS 41?

It depends on the facts and circumstances and judgement is required in each case. The contract-grower entity needs to determine whether its exposure to risk is that of a receivable (secured credit risk) or that of a biological asset (physical inventory and fair value changes). Where the risks and rewards relating to ownership of the biological assets are with the contract growing entity, management should account for them as its biological assets.

1.6 Is ocean fishing agricultural activity?

No. Harvesting biological assets from unmanaged sources, such as ocean fishing, is not agricultural activity.

1.7 Is fish farming agricultural activity?

Yes. Managing the growth of fish for subsequent slaughter or sale is agricultural activity within the scope of IAS 41.

1.8 Does the development of living organisms such as cultures, cells, bacteria and viruses represent agricultural activity?

It depends. The development of organisms for research purposes does not qualify as agricultural activity, as those organisms are not being developed for sale, or for transformation into agricultural produce or additional biological assets. If the organisms are being developed for those purposes, the activity is agricultural activity in the scope of IAS 41 – for example, the development of cultures for use in dairy products.

1.9 Is the growing of plants to be used in the production of drugs an activity within the scope of IAS 41?

Yes. If a pharmaceutical or biotechnology entity grows plants from which particular drugs are produced, that activity will fall within IAS 41's scope.

1.10 What is biological transformation?

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 programme.

1.11 What are biological assets?

Biological assets include the following.

- Sheep, pigs, beef cattle, poultry and fish.
- Dairy cows.
- Trees in a forest.
- Plants for harvest (for example, wheat and vegetables).
- Trees, plants and bushes from which agricultural produce is harvested (for example, fruit trees, vines and tea bushes).

1.12 Is the produce or harvest from a biological asset another biological asset?

No. The produce or harvest from a biological asset (for example, milk, tea leaves and lumber) is inventory. The harvested produce is transferred to inventory at fair value less costs to sell; it is thereafter accounted for in accordance with IAS 2, 'Inventories'. However, while the produce is still growing or still attached to the biological asset, its value forms part of the value of the biological asset.

1.13 Is land related to agricultural activity a biological asset in terms of IAS 41?

No. Land owned by the entity and used for agricultural activity is subject to the recognition and measurement principles of IAS 16, 'Property, plant and equipment'. Land owned by a third party and rented to the entity for the purposes of agricultural activity is likely to be the third party's investment property and is accounted for in accordance with IAS 40, 'Investment Property'.

Mixed businesses

1.14 In an integrated business, are all the activities treated as being in the scope of IAS 41?

No. Consider the following examples.

Example – Cattle farm

Entity A raises cattle, slaughters them at its abattoirs and sells the carcasses to the local meat market. Which of these activities are in the scope of IAS 41?

The cattle are biological assets while they are living. When they are slaughtered, biological transformation ceases and the carcasses meet the definition of agricultural produce. Hence, entity A should account for the live cattle in accordance with IAS 41 and the carcasses as inventory in accordance with IAS 2.

Example – Vineyard

Entity B grows vines, harvests the grapes and produces wine. Which of these activities are in the scope of IAS 41?

The grapevines are biological assets that continually generate crops of grapes. When the entity harvests the grapes, their biological transformation ceases and they become agricultural produce. The grapevines continue to be living plants and should be recognised as biological assets.

Assets such as wine that are subject to a lengthy maturation period are not biological assets. These processes are analogous to the conversion of raw materials to a finished product rather than biological transformation.

Therefore, the entity should account for the grapevines in accordance with IAS 41 and the harvested grapes and the production of wine, as inventory in accordance with IAS 2.

2. Measurement

2.1 How are biological assets measured under IAS 41?

IAS 41 requires biological assets to be measured on initial recognition and at each balance sheet date at their fair value less costs to sell, except in limited circumstances.

2.2 What are the circumstances where an entity can depart from using fair value?

There are two occasions where the standard permits departure from current fair value: at the early stage of an asset's life; and when fair value cannot be measured reliably on initial recognition.

The first exemption is a practical expedient. The standard allows that cost may approximate fair value where little biological transformation has taken place since the initial cost was incurred (for example, for fruit tree seedlings planted immediately before the balance sheet date). The same applies when the impact of the biological transformation on price is not expected to be material (for example, for the initial growth in a 30-year pine plantation cycle) [IAS 41 para 24].

The second exemption – that fair value cannot be reliably measured – is almost never relevant. The standard includes a presumption that fair value can be measured reliably for a biological asset. That presumption can be rebutted only on initial recognition for a biological asset for which market-determined prices or values are not available and for which alternative estimates of fair value are determined to be clearly unreliable.

In determining whether an estimate is 'clearly unreliable', a history of large variations in outcome of the biological transformation process is not relevant, as this should be factored into the measurement model. Similarly large fluctuations in the price of the final produce are not a justification for an estimate to be clearly unreliable. The fact that the asset has a very long production cycle and there is no forward market price is not an excuse not to measure the asset at fair value. Only when the asset is unique or of a very special nature may estimates be unreliable. The term 'clearly unreliable' is not used elsewhere in the IFRS literature, and based on the objective of the standard it is a high hurdle to clear.

In the event that the estimate of its fair value is deemed to be clearly unreliable, that biological asset is measured at its cost less any accumulated depreciation and any accumulated impairment losses [IAS 41 para 30]. Note that determining whether an asset is impaired requires an estimate of its value.

As the exemption is only available on initial recognition, to rebut the presumption an existing preparer must either have been gifted an asset that cannot be valued or be able to demonstrate that the price paid for the asset was not an arm's length market price. A first-time adopter can only use this exemption until such time as the asset has a market price or can be valued using a valuation technique. Once the biological asset has been fair valued, the cost model no longer applies.

2.3 What is fair value?

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'.

2.4 What is the fair value hierarchy in IAS 41?

The hierarchy may be summarised as follows:

- Price for the asset in an active market.
- Recent transaction price for the asset if there is no active market.
- Market prices for similar assets, adjusted for the points of difference.
- Sector benchmarks.
- Present value of the future cash flows expected to be generated from the asset.

Many biological assets have relevant market-determined prices or values available, as biological produce in general are basic commodities that are traded actively. For example, there are usually market prices for calves and piglets, as there is an active market for these assets.

When market-determined prices or values are not available for a biological asset in its present condition, present value of expected net cash flows from the asset should be used. Consistent with the objective of estimating fair value, the cash flows should be based as far as possible on market data. For example, while there is a market for fully grown salmon, there is no market for a partly grown salmon. The fair value of a partly grown salmon is measured by projecting the cash inflows from the sale of the salmon fully grown, less the cash outflows needed to grow the salmon to its marketable weight and discounting them to a present day value.

2.5 What cash inflows and outflows are included in a cash flow model?

The cash flow model should include all directly attributable cash inflows and outflows and only those cash flows. The inflows will be the price in the market of the harvested crop for each crop over the life of the asset; the outflows will be those incurred raising or growing the asset and getting it to market – for example, direct labour, feed, fertilizer and transport to market. The 'market' is where the asset will be sold. For some assets, this will be an actual market; for others, it may be the 'factory gate'.

If significant other assets are used to support the biological asset, the cash flow model should reflect the economics of this, otherwise the fair value will be overstated. For example, if an entity owns its land, the cash flows should include a notional cash outflow for 'rent' of the land to be comparable with the asset of an entity that rents its land from a third party. The fair value of a biological asset is independent of the land on which it grows or lives.

2.6 When is a contract price relevant?

Contract prices are not necessarily relevant in determining fair value, because fair value reflects the current market in which a willing buyer and seller would enter into a transaction.

At the date a contract is signed between willing parties, the contract price would be the best estimate of the future market price and would therefore be a relevant price to use in a cash flow model. At a later date, historical contract prices may bear no relevance to the current fair value of the biological asset itself. Therefore, the fair value of a biological asset or its agricultural produce is not influenced by the existence of a contract unless the contract prices represent current market prices.

In some cases, a contract for the sale of a biological asset or agricultural produce may be an onerous contract, as defined in IAS 37, 'Provisons, contingent liabilities and contingent assets', and would be measured in accordance with that standard. The existence of an onerous contract does not affect the fair value of the biological asset.

2.7 What is included in 'costs to sell'?

Costs to sell are the incremental costs incurred in selling the asset. They include commissions paid to brokers and dealers, transfer taxes and duties and fees paid to regulatory agencies or commodity exchanges. Costs to sell do not include the cost of transporting the asset to market (as this is included in its fair value) or income taxes and finance costs.

3. Presentation and disclosure

3.1 What is revenue in the context of IAS 41?

The sale of agricultural produce is clearly revenue as defined by IAS 18, 'Revenue'. Revenue comprises the fair value of the consideration received or receivable only for the sale of agricultural produce and/or biological assets. It is stated net of sales taxes, rebates and discounts.

IAS 18 specifically scopes out revenue arising from changes in fair value and initial gains and losses for agricultural assets and produce. Fair value gains are income in accordance with the Framework; fair value losses are expenses. Fair value gains may be shown as part of total income but separately from revenue.

3.2 What are the unique categories of income related to IAS 41?

Income under IAS 41 can be classified into:

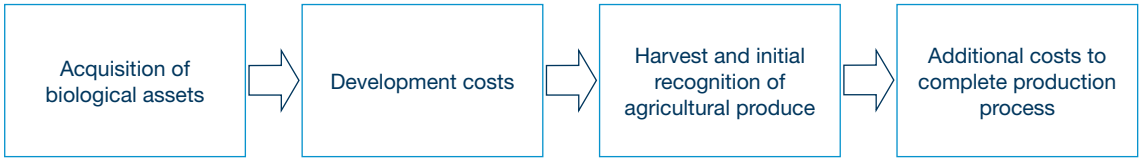
- Initial gain or loss on biological assets.
- Changes in fair value less costs to sell of biological assets.
- Initial gain or loss on agricultural produce.

Initial losses on biological assets typically arise when a biological asset is purchased. The cost of the biological asset is often higher than the fair value less costs to sell, as the latter represents an exit price, and transaction expenses therefore create a loss. Initial gains on biological assets arise when new biological assets are generated – for example, when a calf or a piglet is born.

Changes in fair value less costs to sell of biological assets represent the difference in value from period to period, normally on an aggregated basis. It is therefore sometimes difficult to distinguish from the initial gain due to procreation. The value typically increases due to growth, procreation and higher prices, but may decrease due to degeneration, sickness and lower prices.

Initial gains or losses on agricultural produce represents the difference between the change in carrying value of the biological assets due to harvest and the fair value less costs to sell of the harvested agricultural produce. It reflects the last stage of the value creation of the biological process, and the harvested produce is transferred to inventory. There may be further costs involved in preparing the inventory for market.

The different stages in the accounting life of a biological asset are shown in the simple diagram below.



3.3 How should the various income categories under IAS 41 be disclosed?

IAS 41 requires all gains and losses arising under the standard to be disclosed on an aggregated basis [IAS 41 para 40]. It should be noted that the standard does not require or encourage disaggregating the gain or loss. Further, disaggregating gains and losses arising from initial recognition and changes during the year may be impracticable.

3.4 Where should the various income categories under IAS 41 be disclosed?

The disclosure may be given on the face of the income statement or in the notes, as there is no specific requirement in IAS 41 on where to show it. In practice, most entities show this on a separate line in the income statement. IAS 1, 'Presentation of financial statements', requires revenue to be shown in the income statement; disclosure only in the notes is not acceptable.

3.5 If an entity chooses to show gains and losses arising under IAS 41 in the income statement, where should they be presented?

The standards are silent on this issue. Based on the examples following IAS 41 and current practice, the presentation of change in fair value should be near the top of the income statement. As the change in fair value may be both a positive as well as a negative amount, it is most appropriate to present the change in fair value after revenues and other income, but before expenses. The presentation should take into consideration the unique characteristics of the production of the entity.

3.6 How should subsequent expenses relating to agricultural activity be presented?

It depends. Such costs may include feeding, veterinary services, planting, weeding, irrigation, fertilizer, and harvesting and slaughtering costs. IAS 41 does not prescribe the treatment of such costs. Prior to adoption of IAS 41, many agricultural businesses had a policy of capitalising some of these costs, particularly those relating to the development of immature plants or livestock up to the point they were productive. As IAS 41 does not prescribe the treatment of subsequent expenditure, such a treatment would still be permissible under IAS 41. However, difficulties may be encountered in defining what should be capitalised and what should be expensed; many entities now adopt a policy of treating all such expenditure as a 'cost of production'. This is also permissible. However, the measurement of the aggregate gain or loss arising during the current period on initial recognition of biological assets and agricultural produce and from the change in fair value less costs to sell of biological assets, which has to be disclosed in accordance with IAS 41 para 40, will be directly affected by whether any part of these costs has been capitalised, so the accounting policy for the treatment of such costs should be disclosed.

Both IAS 2 and IAS 16 exclude biological assets from their scope, but they can be used by analogy if the entity adopts the policy of capitalising such costs. Therefore, those costs related to the development of biological assets are capitalised by using the criteria of those standards and adjusted periodically by the re-measurement of the biological assets at its fair value. Management should use judgement to determine which costs would be eligible for capitalisation (that is, labour costs of those employees directly involved with the management of biological assets could be capitalised, but labour costs related to selling staff would not).

Example

Capitalising costs		Expensing costs	
1. Direct labour costs incurred			
Dr Biological assets	100	Dr Cost of production	100
Cr Cash	100	Cr Cash	100
2. Fair value adjustments at the year end			
Dr Biological assets	50	Dr Biological assets	150
Cr Gain on re-measurement	50	Cr Gain on re-measurement	150
3. Net impact in the income statement			
Gain on re-measurement	50	Gain on re-measurement	150
Cost of production	nil	Cost of production	100
Net impact	50	Net impact	50

3.7 Agricultural produce is measured at fair value less cost to sell on initial recognition, which becomes cost of the agricultural produce. How should the cost of the agricultural produce be presented when the produce is sold?

There is no guidance on this in the standards. Best practice is to present the cost of the produce as a cost of goods sold, thereby separating the production phase from the selling phase, as IAS 1 para 32 does not permit offset or showing a net position. The example in the Appendix to this practical guide illustrates the presentation.

3.8 Is an entity required to disclose the fair value less costs to sell of agricultural produce harvested in a period?

Yes. This applies whether the quantity is sold or not. Such disclosure is normally given in the notes [IAS 41 para 48].

3.9 Are quantitative disclosures of the volumes produced or sold in a period required?

Yes. The standard requires such information to be disclosed unless presented elsewhere in information published with the financial statements [IAS 41 para 46].

3.10 Is a full roll-forward of the carrying value of a biological asset required?

Yes. The standard requires the entity to show a roll-forward of the carrying value of biological assets, either in total or per group of biological assets if this gives more relevant information. Information to be given includes the following [IAS 41 para 50]:

(a) the gain or loss arising from changes in fair value less costs to sell;
(b) increases due to purchases;
(c) decreases attributable to sales or reclassification to held for sale (IFRS 5);
(d) decreases due to harvest;
(e) increases resulting from business combinations;
(f) net exchange differences; and
(g) other changes.

Note that changes due to procreation that results in new assets such as calves, lamb and piglets fall under point (g) unless an entity labels them separately, which is preferable.

3.11 Are quantitative disclosures of the volumes of biological assets at the end of the period required?

Yes. The standard requires such information to be disclosed unless presented elsewhere in information published with the financial statements [IAS 41 para 46].

Appendix – Examples

Entity A is a beef cattle farm, breeding and maturing cattle for future selling as the main business.

Example 1 – Beef cattle farm no slaughtering activity

The following assumptions apply:

- The company was created as at 31 December 2008; at that time, 100 immature calves and 50 mature stock were acquired.
- Cattle become mature after one year.
- During the period under analysis, all the movements and transactions took place at 31 December of each year.
- Transportation costs are given per unit (variable cost). In practice, it is likely to be a fixed cost.

General information about the fair value for both mature and immature cattle as well as costs to sell is as follows:

	(OBS) 2008	2009	2010	2011
Fair value per unit (immature)	100.00	105.00	110.00	116.00
Fair value per unit (mature)	150.00	153.00	156.00	159.00
Cost to sell:				
– Auctioneer's fee (5%)	5.00	5.25	5.50	5.80
– Transportation (total cost to be paid for any transaction)	0.30	0.32	0.34	0.36

Measurement

Biological assets are measured on initial recognition and at each reporting date at fair value less cost to sell (FVLCTS). For Entity A, it was assumed that the cost to sell would include the auctioneer's fee and the transportation costs of the fair value (that is, obtained in an active market). At 31 December 2008, considering Entity A has a total of 100 immature calves (see table of the movements of immature cattle below), the fair value less cost to sell of the biological asset was calculated as follows:

FVLCTS = 100 x (100–5.00–0.30) = 9,470.00

For the analysed period, the movements and fair values of immature cattle are as follows:

	(OBS) 2008	2009	2010	2011
Immature cattle				
Opening balance	–	100.00	115.00	115.00
Acquisitions	100.00	105.00	105.00	115.00
New born	–	10.00	10.00	20.00
Transfer to mature	–	100.00	115.00	115.00
Sales	–	–	–	–
Closing balance	100.00	115.00	115.00	135.00
FVLCTS (total)	**9,470.00**	**11,434.45**	**11,978.40**	**14,828.40**
FVLCTS (per unit)	**94.70**	**99.43**	**104.16**	**109.84**

During the same period, the movements and fair values of the mature cattle are as follows:

	(OBS) 2008	2009	2010	2011
Mature cattle				
Opening balance	–	50.00	100.00	115.00
Acquisitions	50.00	–	–	–
Transfer from immature	–	100.00	115.00	115.00
Sales	–	50.00	100.00	115.00
Closing balance	50.00	100.00	115.00	115.00
FVLCTS (total)	**7,235.00**	**14,743.00**	**17,268.40**	**17,576.60**
FVLCTS (per unit)	**144.70**	**147.43**	**150.16**	**152.84**

Changes in fair values

Changes in fair value may be due to both physical changes and price changes in the market. A reconciliation of changes in the carrying amount of biological assets between the beginning and the end of the period is required under IAS 41 para 50. Companies are encouraged to present separately in the reconciliation the gains and losses due to physical changes and price changes. For Entity A, the reconciliation presents separately the changes due to new acquisitions, physical changes, price changes, new born cattle and sales. Separate reconciliations of changes in fair value for both mature and immature cattle are presented below. A consolidated reconciliation is also acceptable.

For immature cattle:

	(OBS) 2008	2009	2010	2011
Changes in fair value (immature cattle)				
At the beginning of the year	–	9,470.00	11,434.45	11,978.40
Due to acquisitions	9,470.00	10,440.15	10,936.80	12,631.60
Due to price changes	–	473.00	543.95	653.20
Due to new born cattle	–	994.30	1,041.60	2,196.80
Due to physical changes (transferred to mature)	–	(9,943.00)	(11,978.40)	(12,631.60)
Due to sales	–	–	–	–
Total changes in fair value	**9,470.00**	**1,964.45**	**543.95**	**2,850.00**
At the end of the year	**9,470.00**	**11,434.45**	**11,978.40**	**14,828.40**

For mature cattle:

	(OBS) 2008	2009	2010	2011
Changes in fair value (mature cattle)				
At the beginning of the year	–	7,235.00	14,743.00	17,268.40
Due to acquisitions	7,235.00	–	–	–
Due to price changes	–	136.50	273.00	308.20
Due to physical changes (transferred from immature)	–	14,743.00	17,268.40	17,576.60
Due to sales	–	(7,371.50)	(15,016.00)	(17,576.60)
Total changes in fair value	**7,235.00**	**7,508.00**	**2,525.40**	**308.20**
At the end of the year	**7,235.00**	**14,743.00**	**17,268.40**	**17,576.60**

In this reconciliation, the fair values of biological assets are trued-up on the date of sale or transfer. A simplified approach would be not truing-up the fair values and using the figures of the last reporting period as the basis for recording disposals and transfers to other classes of biological assets or inventories. This approach is also acceptable.

Companies are also encouraged to present a reconciliation of non-financial measures or estimates of the physical quantity. The table above with the movements in the number of calves is an example of this disclosure.

Classification and presentation

The accounting would be:

	2008	2009	2010	2011
Opening balance sheet (at 31 December 2008)				
Dr. Biological assets (immature)	9,470.00	–	–	–
Dr. Biological assets (mature)	7,235.00	–	–	–
Dr. FV loss on initial recognition of biological assets	1,590.00	–	–	–
Cr. Cash (cattle and inventories acquired; acquisition costs)	18,295.00	–	–	–
Newborn calves				
Dr. Biological assets (mature)	–	994.30	1,041.60	2,196.80
Cr. FV gain on initial recognition of biological assets	–	994.30	1,041.60	2,196.80
New calves aquired				
Dr. Biological assets (immature)	–	10,440.15	10,936.80	12,631.60
Dr. FV loss on initial recognition of biological assets	–	1,169.70	1,226.40	1,416.80
Cr. Cash (cattle acquired plus transportation and fees)	–	11,609.85	12,163.20	14,048.40
Calves sold				
Dr. Cash (proceeds from the sale less selling expenses)	–	7,371.50	15,016.00	17,576.60
Dr. Selling expenses	–	278.50	584.00	708.40
Cr. Revenue	–	7,650.00	15,600.00	18,285.00
Remeasurement of biological assets				
Dr. Biological assets (immature)	–	1,964.45	543.95	2,850.00
Dr. Biological assets (mature)	–	278.50	584.00	708.40
Cr. FV gains on remeasurement of biological assets	–	9,472.45	3,069.35	3,158.20

As a consequence, the income statements would be:

	2008	2009	2010	2011
Revenue	–	7,650.00	15,600.00	18,285.00
FV gains/(losses) on initial recognition of biological assets	(1,590.00)	(175.40)	(184.80)	780.00
FV gains/(losses) on remeasurement of biological assets	–	9,472.45	3,069.35	3,158.20
Selling expenses	–	(278.50)	(584.00)	(708.40)
Operating profit/(loss)	(1,590.00)	16,668.55	17,900.55	21,514.80

In this example, the fair value gains and losses are presented separately with the purpose of giving a more comprehensive understanding of the changes in fair values due to both initial recognition and remeasurement of biological assets. IAS 41 para 40 allows a simplified approach whereby all the changes in fair value can be presented on an aggregated basis.

This example can be expanded to look at a cattle farm that matures and slaughters the cattle to sell the carcasses.

Example 2 – Beef cattle farm with slaughtering activity

The following assumptions apply:

- General assumptions are the same as in Example 1.
- The movements of immature cattle are the same as described in Example 1.

The movements of mature cattle would be as follows (movements of immature cattle are the same as described in Example 1):

	(OBS) 2008	2009	2010	2011
Opening balance	–	50.00	100.00	115.00
Acquisitions	50.00	–	–	–
Transfer from immature	–	100.00	115.00	115.00
Sales	–	20.00	80.00	90.00
Slaughter	–	30.00	20.00	25.00
Closing balance	**50.00**	**100.00**	**115.00**	**115.00**

Measurement

Reconciling the changes in fair values may be a complex task due to the range of subcategories within the main category of each biological asset (for example, mature cattle, immature cattle). A practical approach is to calculate the new fair value of the gross herd and then deduct the fair values of cattle disposed and slaughtered.

	(OBS) 2008	2009	2010	2011
Fair value less cost to sell	**–**	**50.00**	**100.00**	**115.00**
FVLCTS of gross herd	7,235.00	22,114.50	32,284.40	35,153.20
FVLCTS of sold cattle	–	2,948.60	12,012.80	13,755.60
FVLCTS of slaughtered cattle	–	4,422.90	3,003.20	3,821.00
FVLCTS of remaining biological asset	**7,235.00**	**14,743.00**	**17,268.40**	**17,576.60**
FVLCTS (per unit)	**144.70**	**147.43**	**150.16**	**152.84**

The reduction in the biological asset due to sale and slaughtering are calculated based on the proportion of cattle disposed.

Changes in fair values

Changes in fair values of immature cattle are the same as in Example 1. Changes in fair values of mature cattle for Example 2 will have an additional line of changes due to slaughtering. The total movements are the same for both Examples 1 and 2, as the total amount of cattle sold in the first equals the sum of total cattle sold and slaughtered in the latter.

	(OBS) 2008	2009	2010	2011
Changes in fair value (mature cattle)				
At the beginning of the year	–	7,235.00	14,743.00	17,268.40
Due to acquisitions	7,235.00	–	–	–
Due to price changes	–	136.50	273.00	308.20
Due to physical changes (transferred to mature)	–	14,743.00	17,268.40	17,576.60
Due to sales	–	(2,948.60)	(12,012.80)	(12,631.60)
Due to slaughtering (transferred to inventories)	–	(4,422.90)	(3,003.20)	(3,821.00)
Total changes in fair value	**7,235.00**	**7,508.00**	**2,525.40**	**308.20**
At the end of the year	**7,235.00**	**14,743.00**	**12,016.82**	**17,576.60**

Slaughtering activity

Entity A also has slaughtering activity. The cattle ceases to be a biological asset from the point it is slaughtered, and becomes agricultural produce. IAS 41 scope encompasses agricultural produce up to the point of harvest. IAS 41 para 13 states that agricultural produce is measured at FVLCTS at the point of harvest and is subsequently accounted in accordance with IAS 2, 'Inventories'.

Information about the carcasses is as follows:

	(OBS) 2008	2009	2010	2011
Fair value per unit	180.00	189.00	198.00	208.00
Cost to sell:				
– Transportation (total cost to be paid for any transaction)	0.50	0.53	0.56	0.59
Cost to slaughter (2%)	4.00	4.20	4.42	4.64

In this example, all the carcasses are immediately sold.

Classification and presentation

The accounting entries will be:

	2008	2009	2010	2011
Opening balance sheet (at 31 December 2008)				
Dr. Biological assets (immature)	9,470.00	–	–	–
Dr. Biological assets (mature)	7,235.00	–	–	–
Dr. FV loss on initial recognition of biological assets	1,590.00	–	–	–
Cr. Cash (cattle acquired plus transportation and fees)	18,295.00	–	–	–
Newborn calves				
Dr. Biological assets (mature)	–	994.30	1,041.60	2,196.80
Cr. FV gain on initial recognition of biological assets	–	994.30	1,041.60	2,196.80
New calves aquired				
Dr. Biological assets (immature)	–	10,440.15	10,936.80	12,631.60
Dr. FV loss on initial recognition of biological assets	–	1,169.70	1,226.40	1,416.80
Cr. Cash (cattle acquired plus transportation and fees)	–	11,609.85	12,163.20	14,048.40
Calves sold				
Dr. Cash (proceeds from the sale less selling expenses)	–	2,948.60	12,012.80	13,755.60
Dr. Selling expenses	–	111.40	467.20	554.40
Cr. Revenue	–	3,060.00	12,480.00	14,310.00
Cattle slaughtered				
Dr. Inventories	–	5,654.10	3,948.80	5,185.25
Cr. FV gain on initial recognition of inventories	–	1,105.20	857.20	1,248.25
Cr. Biological assets (mature)	–	4,422.90	3,003.20	3,821.00
Cr. Cash (cost of slaughtering cattle)	–	126.00	88.40	116.00
Carcasses sold				
Dr. Cash (proceeds from the sale less selling expenses)	–	5,654.10	3,948.80	5,185.25
Dr. Selling expenses	–	15.90	11.20	14.75
Cr. Revenue	–	5,670.00	3,960.00	5,200.00
Dr. Cost of production	–	5,654.10	3,948.80	5,185.25
Cr. Inventories	–	5,654.10	3,948.80	5,185.25
Re-measurement of biological assets				
Dr. Biological assets (immature)	–	1,964.45	543.95	2,850.00
Dr. Biological assets (mature)	–	7,508.00	2,525.40	308.20
Cr. FV gains on remeasurement of biological assets	–	9,472.45	3,069.35	3,158.20

As a consequence, the income statements would be:

	2008	2009	2010	2011
Revenue – sales of cattle	–	3,060.00	12,480.00	14,310.00
Revenue – sales of carcasses	–	5,670.00	3,960.00	5,200.00
FV gains/(losses) on initial recognition of biological assets	(1,590.00)	(175.40)	(184.80)	780.00
FV gains/(losses) on initial recognition of inventories	–	1,105.20	857.20	1,248.25
FV gains/(losses) on remeasurement of biological assets	–	9,472.45	3,069.35	3,158.20
Cr. FV gain on initial recognition of biological assets	–	994.30	1,041.60	2,196.80
Cost of production	–	(5,654.10)	(3,948.80)	(5,185.25)
Selling expenses	–	(127.30)	(478.40)	(569.15)
Operating profit/(loss)	**(1,590.00)**	**13,350.85**	**15,754.55**	**18,942.05**

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