A practical guide to accounting for agricultural assets

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 20x1; 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:

	20x1	**20x2**	**20x3**	**20x4**
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 20x1, 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:

	20x1	**20x2**	**20x3**	**20x4**
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:

	20x1	**20x2**	**20x3**	**20x4**
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: $

	20x1	**20x2**	**20x3**	**20x4**
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: $

	20x1	**20x2**	**20x3**	**20x4**
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:

	20x1	**20x2**	**20x3**	**20x4**
Opening balance sheet (at 31 December 20x1)				
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 acquired				
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
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:

	20x1	**20x2**	**20x3**	**20x4**
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):

	20x1	20x2	20x3	20x4

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.

	$			
	20x1	**20x2**	**20x3**	**20x4**
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.

	$			
	20x1	**20x2**	**20x3**	**20x4**
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:

	20x1	**20x2**	**20x3**	**20x4**
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:

	20x1	20x2	20x3	20x4
Opening balance sheet (at 31 December 20x1)				
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 acquired				
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	
		20x1	**20x2**	**20x3**	**20x4**
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:

	20x1	**20x2**	**20x3**	**20x4**
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**

Source: PricewaterhouseCoopers – A practical guide to accounting for agricultural assets