

# Accounting for Agricultural Operations

The accounting profession has provided only limited industry specific guidance for agricultural issues. “*Statement of Position 85-3, Accounting by Agricultural Producers and Agricultural Cooperatives*”, issued by the American Institute of Certified Public Accountants (AICPA) in April 1985 provides accounting guidance for inventories, development costs of land, perennial crops, and breeding livestock. The related “*Audit and Accounting Guide*”, issued by the AICPA with conforming changes as of May 1, 1993, covered a few additional issues, including accounting for income taxes and government programmes. Unfortunately, the examples of financial statements included in the Guide were very summarised and of limited use to agricultural producers and lenders for analytical purposes.

The primary forces behind the evolution of farm financial reporting and analysis have been the agricultural lending community, accountants, financial analysts, and the land grant universities. The definitions and processes used by these individuals, while consistent at a very basic level, were not subjected to any formal attempt at consistency and standardisation. Even though the potential benefits of achieving consistency have long been acknowledged, previous attempts have had only limited success.

## Diversity of Practice

Presently, there are a number of accounting practices among

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**Agriculture has played a major role in the Indian economy since its formation. As an industry, it is unique because of the large number of participants and the diversity of individual firm production, financial, and marketing characteristics. The industry comprises primarily small, family-owned firms. The complexity of financial transactions and the volatility of market prices have dramatically increased the focus on farm financial reporting.**

agricultural producers that represent substantial deviations from GAAP. The reasons for this diversity are varied, but can be related to three fundamental characteristics of agricultural operations:

1. Since many farm operations are single-family operations, with the owners having limited training in finance and accounting, the record keeping systems that developed over the years had basic design objectives of simplicity and ease of use. These systems are predominantly cash-based systems that focus on generating certain amounts of production information. A complete, double-entry system of accounting with the periodic generation of

financial statements, which was almost unheard of ten years ago, is still in general use by only a small percentage of full time, commercial farms.

2. The primary external user of farm financial statements has been the agricultural lending community, using the statements as one of the key indicators of financial position and financial performance. Because of the minimal capabilities of farm record keeping systems, lenders are forced to focus their analysis on the information that can reasonably be obtained from the farmer. Since few non-cash transactions (e.g., perpetual inventories, charge-off of pre-pays, accrual of liabilities) are recorded by the farmer, a cash-based system is the primary source of information on net cash income. Further, since periodic balance sheets are usually not compiled, the lender is forced to accept a balance sheet as of the loan application date because that is the only way to verify the accuracy of inventory and liability amounts. The result is a set of financial statements that are not interrelated and provide only a minimal amount of information regarding the financial position and financial performance of the agricultural producer.
3. The primary focus in the preparation of financial position (balance sheet) and owner equity calcula-

tions has been on market value rather than historical cost or other valuation methods.

This focus has become necessary because of:

- (a) the lender's need to determine the reasonableness of collateral values;
- (b) the lack of records to track and accumulate historical costs;
- (c) the hybrid nature (personal and business) of many farm financial statements;
- (d) the dramatic increase in investment in capital assets during a period of time when the value of these assets was appreciating substantially, causing the true value of these assets to bear little resemblance to their historical cost, adjusted for depreciation.

A number of changes have taken place in agriculture that have increased the need for more complete and accurate farm financial information. These changes include increased volatility in net income, increased complexity of the financial structure of farm operations and their accounting transactions, and more stringent loan review requirements for lenders. Lenders, accountants, academicians, and others in the agricultural finance field have responded to this need with countless educational programmes, software packages, forms, and other tools to assist the farmer in providing complete information. In most cases, however, these tools are designed to provide more detailed information by not imposing greatly different recordkeeping requirements or accounting system changes on part of the farmers. Therefore, the "financial statements" that are being used by many farmers

and lenders today are, in fact, abbreviated accounting systems.

*International Accounting Standard IAS 41, Agriculture*, is the first standard that specifically covers the primary sector. The Standard becomes operative for annual financial statements covering periods beginning on or after 1<sup>st</sup> January 2003. IAS 41 introduces a fair value model to agriculture accounting. This is a major shift away from the traditional cost model widely applied in primary industry.

Agricultural activity is a specialised activity defined as an entity's management of the biological transformation of biological assets for sale, into agricultural produce or into additional biological assets. A diverse range of activities fall under agricultural activities. Examples are raising livestock, forestry, annual or pe-

sets are not those harvested from unmanaged sources. Rather they are the product of controlled processes by an entity to manage their growth and maturation. 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.

Biological assets may be sold, transformed into agricultural produce, or into additional biological assets. IAS 41 will particularly impact those agricultural activities where the income-producing biological assets are expected to have economic lives that stretch beyond one accounting period.

IAS 41's recognition and measurement rules should be applied as follows:

| The following are examples of each category of biological assets. |                            |                      |                              |
|---|----------------------------|----------------------|------------------------------|
| Biological assets   | Biological assets for sale | Agricultural produce | Additional biological assets |
| Dairy cattle  | Livestock                  | Carcass/Milk/Hides   | Calves                       |
| Sheep   | Livestock                  | Carcass/Wool         | Lambs                        |
| Trees   | Trees                      | Logs/Rubber          | Saplings/Seeds               |
| Vines   | Vines                      | Harvested grapes     | Saplings/Seeds               |
| Fruit trees   | Fruit trees                | Harvested fruit      | Saplings/Seeds               |

renial cropping, cultivating orchards and plantations, floriculture and aquaculture (including fish farming). Common feature of agricultural activities are capability of change, management of change and measurement of change. Managing recreational activities such as zoos and game parks is not agricultural activity.

Biological assets are living animals or plants, such as sheep, trees and vines. Agricultural produce such as wool, logs and grapes is the harvested product of biological assets. Biological as-

- biological assets for sale should be accounted for in accordance with IAS 41 up to the point of sale;
- additional biological assets should be recognised as biological assets at the point of generation; and
- agricultural produce should be recognised as inventory at the point of harvest.

### Coverage of the Standard *IAS 41 applies to:*

1. Biological assets (living plants or animals – for ex-

ample, trees in a plantation or orchard, cultivated plants, sheep, cattle) related to *managed agricultural activity* (for example, raising livestock, forestry, annual or perennial cropping, fish farming), that are in the process of growing, degenerating, regenerating and/or procreating and which are expected to eventually result in agricultural produce (the harvested product of biological assets);

2. Agricultural produce at the point of harvest.

*IAS 41 does not apply to:*

1. Agricultural produce after the point of harvest, for example: wool, meat, fruit, rubber, logs that are processed subsequently (IAS 2, *Inventories*, applies);
2. The land on which the biological assets grow, regenerate and/or degenerate (IAS 16, *Property, Plant and Equipment*, IAS 17, *Leases*, or IAS 40, *Investment Properties*, applies as appropriate);
3. Any intangible asset associated with the agricultural activity, for example: licenses and rights (IAS 38, *Intangible Assets*, applies);
4. Agricultural activity that is not managed, for example: harvesting from ocean fishing;
5. Minerals, oil, natural gas and similar non-regenerative resources (not yet covered by IAS).

The following accounting standards specifically do not apply to *biological assets related to managed agricultural activity* because of the specific coverage in IAS 41:

- IAS 2, until beyond the point at which agricultural produce is harvested;
- IAS 16, IAS 17, IAS 40;

- IAS 18, *Revenue*, in respect of revenue arising from the initial recognition of agricultural produce, and initial recognition and changes in fair value of biological assets;
- IAS 20, *Accounting for Government Grants and Disclosure of Government Assistance*;
- IAS 36, *Impairment of Assets*, when biological assets are measured at fair value.

*The main issues addressed by IAS 41 are:*

- When should a biological asset or agricultural produce be recognised on the balance sheet?
- At what value should a recognised biological asset or agricultural produce be measured?
- How should the differences in value of a recognised biological asset or agricultural produce between two balance sheet dates be accounted for?

**Recognition:** IAS 41 specifies the usual tests in order that a biological asset or agricultural produce be recognised on the balance sheet, namely:

- **Control:** The enterprise must have ownership or rights of control akin to ownership that result from a past event;
- **Value:** Future economic benefits are expected to flow to the enterprise from its ownership or control of the asset;
- **Measurement:** The cost or fair value of the asset must be measured with reliability.

**Measurement:** Biological assets should be measured initially, and at each balance sheet date subsequently, at fair value less estimated point-of-sale costs. Agricultural produce is

measured, at the point of harvest, at fair value less estimated point-of-sale costs. The point of harvest represents the transition between accounting for agricultural produce assets under IAS 41 and IAS 2. Fair value less estimated point-of-sale costs at the point of harvest forms 'cost' for the purposes of IAS 2. Point-of-sale costs include commissions to brokers and dealers, levies by regulatory agencies and commodity exchanges, and transfer taxes and duties. Point-of-sale costs exclude transport and other costs necessary to get assets to a market.

IAS 41 contains a rebuttable presumption that fair value can be established for all biological assets and agricultural produce. Only on the initial recognition of such assets can the presumption be rebutted because of:

- the lack of market-determined prices;
- values that are not otherwise available;
- alternative estimates of fair value that are clearly unreliable

*The estimation of fair value can be determined by reference to:*

- the quoted price in an active market for the particular biological asset or agricultural produce (most likely for consumable biological assets);
- market-determined prices or values (for example, the most recent market transaction price or sector benchmarks) when an active market does not exist; or
- the present value of expected net cash flows from the asset when market-determined prices or values may not be available for a biological asset in its present condition (see the for-

estry example later in this article).

The Standard offers the following guidance on determination of the discount rate: "The objective of a calculation of the present value of expected net cash flows is to determine the fair value of a biological asset in its present location and condition. An enterprise considers this in determining an appropriate discount rate to be used and in estimating expected net cash flows. The present condition of a biological asset excludes any increases in value from additional biological transformation and future activities of the enterprise such as those related to enhancing the future biological transformation, harvesting, and selling."

The Standard specifically requires that fair value not be determined by reference to a future sales contract. 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. As a result, the fair value of a biological asset or agricultural produce is not adjusted because of the existence of a contract.

The difficulty in establishing the fair value of a biological asset increases when the asset is a bearer asset (which itself will not eventually become agricultural produce) and the more long-lived the asset is. For example, in the established vineyards in France, grapevines have long lives and it is not uncommon to have productive vines that are over 100 years old which are capable of continued production for a similarly long time. The Standard does not require external

independent valuations but in such cases where fair values are otherwise difficult to determine, it may be possible and appropriate to apply IAS 36 to determine both the value in use and the net selling price of the asset and to use the higher of the two amounts to represent valuation.

When the presumption that fair value can be established is rebutted, and until such time as a fair value becomes measurable with reliability, the asset is carried on the balance sheet at cost less any accumulated depreciation and any accumulated impairment losses. IAS 41 contains additional disclosure requirements in such a situation.

**Example 1:** Establishing fair value when market-determined prices or values may not be available for a biological asset in its present condition:

As on 31 December 20X1, a plantation consists of 100 Pinus Radiata trees that were planted 10 years ago. Pinus Radiata takes 30 years to mature, and will ultimately be processed into building material for houses or furniture. The enterprise's weighted average cost of capital is 6% p.a. Only mature trees have established fair values by reference to a quoted price in an active market. The fair value (inclusive of current transport costs to get 100 logs to market) for a mature tree of the same grade as in the plantation is:

As on 31 December 20X1: 171

As on 31 December 20X2: 165

As on 31 December 20X1, the mature plantation would have been valued at 17,100.

As on 31 December 20X2, the mature plantation would have been valued at 16,500.

Assuming immaterial cash flow between now and the point of harvest, the fair value (and therefore the amount reported as an asset on the balance sheet) of the plantation is estimated as follows:

As on 31 December 20X1:  $17,100 \div [(1+6\%)^{20}] = 5,332$ .

As on 31 December 20X2:  $16,500 \div [(1+6\%)^{19}] = 5,453$ .

## Gains and Losses

At initial recognition, the fair value (less estimated point-of-sale costs) of a biological asset is reported as a gain or loss in the income statement. A loss may arise on initial recognition when the estimated point-of-sale costs

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exceed the fair value of the asset in its present state. The change in fair value (less estimated point-of-sale costs) of a biological asset between two balance sheet dates is reported as a gain or loss in the income statement.

A gain or loss arising on initial recognition of agricultural produce at fair value less estimated point-of-sale costs is included in net profit or loss for the period in which it arises. Referring to the forestry example above, the difference in fair value of the plantation between the two balance sheet dates is 121 (5,453 - 5,332), which will be reported as a gain in the income statement (regardless of the fact that it has not yet been realised). The

aggregate gain of 121 is attributed to two factors:

1. The effects of change in market price; and
2. The physical change (growth) of the trees in the plantation.

*The aggregate gain is analysed as follows:*

1. The **price** change, which represents, at the biological asset's state as at the previous balance sheet date: the value of the biological asset at prices prevailing as at the current balance sheet less the value of the biological asset at prices prevailing as at the previous balance sheet date:  
$$= (16,500 \div [(1+6\%)^{20}]) - (17,100 \div [(1+6\%)^{20}]) = 5,145 - 5,332 = 187 \text{ (loss).}$$
2. The **physical** change, which represents, at current prices: the value of the biological asset in its state as at the current balance sheet less the value of the biological asset in its state as at the previous balance sheet date:  
$$= (16,500 \div [(1+6\%)^{19}]) - (16,500 \div [(1+6\%)^{20}]) = 5,453 - 5,145 = 308 \text{ (gain).}$$

IAS 41 requires disclosure 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 estimated point-of-sale costs of biological assets. In recognising that reporting the aggregate gain or loss according to its distinct causes may not be practical in all circumstances, the Standard does not require reporting of the gain or loss on a disaggregated basis (that is, analysed between the gain and/or loss due to price and physical factors) but encourages such disclosure because it is useful in appraising current period per-

formance and future prospects, particularly when there is a production cycle of more than one year.

### Government Grants

The recognition of government grants related to a biological asset differs, depending on whether the grant is conditional or unconditional. An unconditional grant that relates to an asset should be recognised as income when it becomes receivable. Where there are conditions associated with a government grant, such as the entity engaging or not engaging in a particular activity, then the entity should recognise the grant when the conditions are met.

### Disclosure

Extensive disclosure is required by IAS 41, including:

- the aggregate gain or loss for the period on:
  - initial recognition of biological assets;
  - initial recognition of agricultural produce;
  - change in fair value less estimated point-of-sale costs of biological assets;
- a description of, and the nature of its activities involving, each group of biological assets;
- non-financial measures or estimates of the physical quantities of agricultural produce output for the period and biological assets as at balance sheet;
- methods and significant assumptions in determining fair value;
- the fair value less estimated point-of-sale costs of agricultural produce harvested for the period;

- restrictions on title, pledges and commitments in respect of biological assets;
- financial risk management strategies related to agricultural activity;
- a reconciliation of changes in the carrying amount of those biological assets.

For biological assets measured at cost less any accumulated depreciation and any accumulated impairment losses, the Standard requires the following additional disclosures:

- a description of those biological assets;
- an explanation of why fair value cannot be measured reliably;
- the range of estimates within which fair value is highly likely to lie (if possible);
- the gain or loss recognised on disposal of those biological assets;
- impairment losses (if any), reversals of impairment losses (if any) and depreciation expense;
- the depreciation method used;
- the useful lives or the depreciation rates used;
- the gross carrying amount and the accumulated depreciation at the beginning and end of the period.

In addition, if the fair value of biological assets previously measured at cost less any accumulated depreciation and any accumulated impairment losses subsequently becomes reliably measurable, an enterprise should disclose a description of the biological assets, an explanation of why fair value has become reliably measurable, and the effect of the change. Disclosure is also required in respect of government grants relating to managed agricultural activity. □