

# Definitions of Terms used in Farm Business Management

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First edition	1965
Revised	1970
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## Foreword

Widespread adoption of standard definitions of terms in farm business management is essential for farmers, growers, advisers and others in the industry to communicate effectively. A booklet of terms was first issued in 1965 with a second edition published in 1977. There has been much change within and around farm businesses since. Management techniques, the Common Agricultural Policy, the nature of farm businesses and structure of the industry have all changed, pretty well beyond recognition.

It is therefore very timely to produce a third edition. This has been drafted by Defra economists with a special interest in farm business management. Agricultural economists engaged in the Farm Business Survey and other organisations and individuals working in the field have also contributed, including the Institute of Chartered Accountants in England and Wales, the Institute of Agricultural Management and the Royal Institute of Chartered Surveyors.

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Department for Environment, Food and Rural Affairs.  
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# Introduction

The booklet provides standard definitions of terms used in farm business management. There are ten sections; Section one covers accountancy terms that are used in the farm's *financial* accounts. Sections two to five cover terms specific to *management* accounts.

The different types of management accounts are covered in section six. The central issue of valuations is covered at section seven.

Section eight covers assessment of performance and efficiency while section nine looks at budgeting and investment appraisal. Section ten looks at some particular techniques for cost analysis.



## Accountancy Terms used in Financial Accounts

Nearly all farms have financial accounts, often prepared for tax purposes.

Financial accounts are quite helpful, but are much more valuable if converted into *management* accounts. Management accounts and the terms used in them are covered in sections 2 to 5.

Commonly found terms in financial accounts are below. Financial accounts vary in the degree of detail shown – not all accounts will include every term below.

*The following terms apply generally to accountancy transactions. They may be prefixed by the words 'trading', 'capital' and 'personal' according to the particular accounts of the business to which they relate.*

**Sales** are the value of goods sold, for cash or on credit, before the addition of Value Added Tax (VAT).

**Grants and subsidies** (revenue, not capital). This includes payments from agri-environment schemes. It also includes the single payment, unless recorded elsewhere in the account. Capital grants and subsidies (in respect of new buildings or machinery for example) are excluded from here and recorded later in the account, usually within depreciation.

**Receipts** are monies received during the accounting period for the sale of goods<sup>1</sup>, the provision of services, and from revenue grants and subsidies (but not capital grants and subsidies).

**Revenue (or turnover)** is *Receipts* adjusted for debtors at the beginning and end of the accounting period. (i.e. with opening debtors deducted from receipts and closing debtors added).

**Farmhouse consumption and benefits in kind** – in principle, in financial accounts, farmhouse consumption and benefits in kind to the farmer are included in turnover, and benefits in kind for employees are included in labour costs. In practice however all these may be excluded from the accounts if not material. However even if adjustments are not reflected in the accounts, the issue will need to be recognised for tax purposes.

**Sundry revenue** is any general revenue, including income from rent, way leaves, hiring out machinery or labour, income from non agricultural diversified activities, such as recreation, tourist accommodation, catering, interest received. Insurance receipts are also included if they relate to loss of income (eg crop damage) rather than loss of capital assets (such as damage to machinery).

**Purchases** are the value of goods and services bought, for cash or on credit. The value excludes VAT if VAT is reclaimed. Purchases covers purchased livestock, bought feed, fertiliser, chemicals, vet and medicine costs and sundry items such as baler twine, silage wrap, ear tags, and packing materials.

**Payments** are monies paid during the accounting period.

<sup>1</sup> When practical, receipts should be gross, i.e. before the deduction of farm marketing expenses such as commission.

## Accountancy Terms used in Financial Accounts

**Expenditure or expenses** is *Payments* adjusted for creditors at the beginning and end of the accounting period (i.e. with opening creditors deducted from payments and closing creditors added).

**Opening valuation** is the value at the start of the accounting period, of livestock, crops and produce in store, bought and home-grown feedingstuffs and fodder, seeds, fertilisers, pesticides and tillages (that is cultivations and newly sown or growing crops). Livestock, crops and produce are valued at the cost of production or market value after taking account of marketing costs. For more on valuations see section 7.

**Closing valuation** is the value of the same items at the close of the accounting period.

**Cost of sales** is **opening valuation** plus **purchases** minus **closing valuation**.

**Gross profit** is sales plus grants and subsidies plus sundry revenue plus single payment, less cost of sales.

**Overheads (or fixed costs)** are **expenditure or expenses** that cannot readily be traced to processes that produce particular single products. It includes the following: wages and salaries (including casual labour, although note that in *management* accounts casual labour is often treated as a *variable* cost), machinery repairs, fuel and oil, contract charges, other machinery expenses (includes renting or hiring machinery, vehicle tax), rent, rates (including drainage charges), property repairs, power, electricity and heat, professional fees, interest payments and bank charges, insurance (not including insurance for labour) water charges, subscriptions, advertising, telephone charges, pest clearance, travel and subsistence (farm share), stationery.

**Depreciation** (of machinery glasshouses, permanent crops and buildings). In financial accounts depreciation is usually based on historic cost. See page 14 for a description of depreciation.

**Profit (or loss) on sale of assets** is the profit or loss on the sale of machinery, glasshouses, fixed equipment, permanent crops (including orchards) and buildings. The profit or loss on sale is the difference between the depreciated value of the asset at the opening valuation and the sale value if sold during the accounting year.

**Net profit** is gross profit less overheads less depreciation plus profit (or loss) on sale of assets.

## Management Accounting: Output Terms

The terms below are those used in management accounts, as opposed to financial accounts. When measuring output the two main differences between management accounts and financial accounts are:

(i) in management accounts, opening and closing values of livestock and crops in store are usually based on market value rather than cost of production.

(ii) in management accounts the output from each harvest is recorded separately.

**Enterprise** is an identifiable sector of the farm or horticultural business, for which output includes valuations of unsold stocks produced by the enterprise.

**Crop Enterprise Output** is the total value of the crop produced; it equals the value of sales from the crop plus the market value of any part of the crop used on farm, including straw.

**Adjustment for disposal of the previous year's** crops occurs when output is calculated on a 'harvest year' basis. It is the difference between the opening value of a crop in store from a previous year's harvest and its sale value when eventually sold. The adjustment is made when output is on a harvest year basis because the output from the most recent harvest is recorded separately from previous harvests.

**Opening and closing valuation** is the value at the start and end of the accounting period, of livestock, crops and produce in store, home-grown fodder and tillages (i.e. cultivations and newly sown or growing crops). Livestock, crops and produce, together with home-grown fodder are valued at market value where possible (i.e. market prices less marketing costs). Tillages are valued at costs incurred up to the point of valuation.

**Rearing Livestock Enterprise Output** is the value of finished sales plus value of store or unfinished sales plus value of transfers-out plus closing valuation less purchases less value of transfers-in less opening valuation.

In general the *Enterprise Output* will relate to the recording year, but where the production cycle differs, it will relate to that period<sup>2</sup>.

**Breeding Livestock Enterprise Output** is the value of the secondary product (eg milk, wool, eggs) plus closing value of same, plus progeny sales, and transfers-out of progeny and closing value of progeny, less herd depreciation. Normally, *Enterprise Output* relates to the recording year, but where the production cycle is less than or greater than one year, it can relate to that period if so desired.

**BLSA (breeding livestock stock appreciation)** is the change in value of breeding livestock between the opening and closing value that is due to general market price changes rather than changes in the quality or age of the herd. BLSA can be positive or negative. In the presentation of accounts, gains or losses resulting from BLSA are excluded from *Enterprise Output* of the relevant individual breeding livestock enterprise. The reason being that breeding livestock represent a long term investment and fluctuations in the paper value of breeding livestock are not relevant to the trading profit of the farm. (See page 25 for a fuller description of BLSA).

**Herd depreciation** is spreading the cost of a breeding animal over its useful life. Herd

<sup>2</sup> eg veal calves, barley beef, pigs and poultry.

## Management Accounting: Output Terms

depreciation equals opening value plus purchases and transfers-in plus BLSA minus sales and transfers-out minus closing value (where the closing value includes BLSA). For more on herd depreciation see page 25.

### Derivation of Enterprise Output by Type of Enterprise

Crop enterprise	Rearing livestock enterprise	Breeding livestock enterprise
Crop sales	Livestock sales	Progeny sales
plus	plus	plus
Value of crop used on farm	Transfers-out	Transfers-out of progeny
plus	plus	plus
Sales of secondary product (eg straw) and value if used on farm	Closing value	Sales of secondary product (eg milk)
plus	minus	minus
Closing value of crop in store and closing value of secondary product in store	Livestock purchases	Herd depreciation
	minus	
	Transfers-in	
plus	plus	
Area payment (eg proteins and nuts)	Opening value	
equals	equals	equals
Enterprise output	Enterprise output	Enterprise output

**Output from home grown fodder crops grown for sale** is the output of fodder crops such as hay, silage and root crops where these are grown for sale. Sales also include sales of standing fodder crops such as maize. Output equals fodder crop sales plus closing value of fodder crops in store or in-field, ready for sale, less opening value. Stored fodder crops and crops in field intended for sale should be valued at market value. The value of home grown fodder (eg silage, hay, fodder roots) for use on farm is not included. The output from these is included with 'tillages' (see below).

**Output from tillages and forage** is the output from growing crops, cultivations and home grown forage for farm use, including that in store. Growing crops, cultivations and forage crops in store are valued on the basis of an estimate of variable costs, labour and machinery costs, from when the cultivations commenced, up to the point of valuation. The output, which can be negative, is the change in valuation between the opening and closing value.

**Output from non-agricultural diversification enterprises** is output from non agricultural diversified activities, such as recreation, tourist accommodation, catering, and crafts. It includes output from separable as well as inseparable diversified activities.

**Separable diversified activities** are diversified activities that are undertaken on a distinctly separate footing from the remainder of the business. For example, enterprises that use their own labour and capital, rather than that of the main farm business, or enterprises that have a separate set of accounts. Conversely inseparable diversified activities use the farm's labour or do not have separate accounts.

**Miscellaneous revenue** is any general revenue, including income from agri-environment schemes, rent, way leaves, interest payments, hiring out machinery or labour, Insurance receipts are included if they relate to loss of income (eg crop damage) rather than loss of capital assets (such as damage to machinery).

**Single payment is** revenue from the single decoupled payment.

**Total Farm Output** is total crop enterprise output plus adjustment for output from previous year's crops plus total livestock enterprise output plus output from home grown fodder crops plus output from tillages and forage plus output from non-agricultural diversified activities plus miscellaneous revenue plus single payment.

### Derivation of Total Farm Output

Total crop enterprise output
plus
Adjustment for output from previous year's crops
plus
Total rearing livestock enterprise output
plus
Total breeding livestock enterprise output
plus
Output from home grown fodder crops grown for sale
plus
Output from tillages and forage
plus
Output from non agricultural diversified enterprises
plus
Miscellaneous revenue (including agri-environment payments and other grants and subsidies)
plus
Single payment
equals
Total farm output

## Management Accounting: Input Terms

The terms below are those used in management accounts, as opposed to financial accounts. With inputs, the differences between management accounts and financial accounts are that: (i) costs are categorised into variable and fixed costs, (ii) depreciation is based on current replacement cost of the depreciating asset and is net of profit (or loss) on asset sales. The other difference is the occasional practice of imputing a rental value for owner occupied farms and a notional charge for unpaid labour. However, this practice is not universal in management accounting.

**Inputs** are resources used in the production process, eg feed, materials, labour and machinery, measured in physical or financial terms.

**Costs** are divided into two types: *variable costs* and *fixed costs*. The definitions are below. **Note however** that 'variable cost' and 'fixed cost' are quite arbitrary terms – certain 'fixed costs', such as tractor fuel, can behave more like variable costs in many situations. (Heating fuel for glasshouses is a variable cost).

**Variable Costs** are costs that are readily allocated to an enterprise and which will vary in approximately direct proportion to the scale of the enterprise. Examples of *Variable Costs* are fertilisers, pesticides, seed, concentrate feeding stuffs (purchased or home-grown), and purchased fodder. Sometimes casual labour and contract charges are treated as variable costs – see reference to these below in *Fixed Costs*. Purchases of livestock are not treated as variable costs.

**Fixed Costs** are those costs which either cannot readily be allocated to a specific enterprise or do not vary with small changes in the scale of the individual enterprise. Examples of *Fixed Costs* are labour (including payments in kind), machinery repairs and depreciation, rent and rates, general expenses, interest. Although casual labour and contract charges are often regarded as variable costs, they are essentially substitutable with labour and machinery costs. For this reason they can be regarded as fixed costs to aid comparisons of costs across farms.

*Fixed Costs* normally include the Depreciation (see description below) of items of capital expenditure, including machinery. Depreciation is after adjusting for profit (or loss) on sale of the asset:

*Fixed costs* exclude:

- i) the value of purchased stores used in the farmhouse (eg coal, electricity), or sold off the farm;
- ii) allowances for the private use of farm vehicles;
- iii) the rental value of the private share of the farmhouse;
- iv) any labour and materials used in capital projects.

**Depreciation** is spreading the cost of an asset over its useful life. In management accounts depreciation is based on current replacement cost rather than original historic cost. Machinery depreciation includes machinery purchased under a hire purchase or a finance leasing arrangement. With machinery, depreciation is calculated on the reducing balance method using current replacement cost. With buildings and fixed equipment, depreciation is calculated on a 'straight line' basis, again using current replacement cost. In management accounts depreciation sometimes includes **profit (or loss) on sale of assets** (as described on page 10. Otherwise it is shown separate from depreciation

**Interest** comprises financing charges (excluding repayment of capital) paid on loans, overdrafts, hire purchase and finance loans used by the farm business. It is net of any interest earned when these accounts are in surplus.

**Labour overheads and machinery overheads** are those labour costs and machinery costs that cannot easily be allocated to enterprises but are necessarily allocated in the derivation of enterprise **net margin**. Examples of labour and machinery overheads are labour costs and machinery costs incurred with activities such as hedge trimming, drainage, depreciation and maintenance of small tools.

**General Overheads** include rates, office expenses, bank charges, professional fees, insurance premia, upkeep of buildings, fences and ditches, and other similar expenses.

**Ownership Charges** are those *General Overheads* appropriate to the owned land, buildings and fixed equipment.

**Managerial Input** is activities that are involved in making decisions in farm business policy. Examples are benchmarking, preparing or interpreting budgets and cash flows, choosing farm enterprises, choosing non-agricultural activities, choosing husbandry techniques. 'Routine' administrative tasks, such as completing support payment claim forms, completing census or survey forms, ordering inputs and paying bills are not included.

**Paid Managerial input** is the value of managerial input undertaken by a paid manager or worker.

**Rental value** is the imputed rental value of owner-occupied land, buildings and improvements. The basis of assessment is rents paid by established farmers in a given area on similar farms. It excludes the rental value of the private share of the farm house.

On tenanted farms, a notional rent incorporating a depreciation allowance for any buildings or improvements owned by the tenant may be estimated. This is **Imputed rent on tenants improvements**.

**Net field rent** is the actual rent paid on tenanted land plus imputed rent on tenant's improvements plus imputed rental value (notional rent) of owner-occupied land.

**Unpaid manual labour** costs are based on the time spent on manual work by non principal partners, directors and their spouses and family workers (other than the farmer and spouse), who are not paid a regular wage, valued at the appropriate prevailing hourly earnings of agricultural workers.

**Unpaid manual labour of the farmer and spouse** is based on time spent by the farmer and spouse on manual work on the farm, valued at the appropriate prevailing hourly earnings of agricultural workers.

**Adjusted fixed costs** are those fixed costs deducted to derive net margin. They include unpaid manual labour, including the farmer and spouse, and net field rent but exclude interest.

### Direct Costs and Indirect Costs

In management accounting, when monitoring profitability and planning changes to the business, it is useful to treat costs on a case by case basis, rather than necessarily regarding them as 'variable' or 'fixed'. For example, when considering a significant change to the size of a dairy enterprise, it is important to consider all the costs that are readily allocated to the enterprise, including 'fixed' costs such as the herdsman's wages. The term often used for such costs is '*Direct*' costs.

## Management Accounting: Input Terms

**Direct costs** are those costs, variable and fixed, that are readily allocated to an enterprise.

Indirect costs are those costs that are not readily allocated to an enterprise. Examples are costs incurred for overhead machinery, eg hedge trimmers, depreciation, repairs to general purpose buildings, and general expenses such as stationery.



## Management Accounting: Margin, Profit and Income Terms

The following terms describe the various levels of financial surplus after the deduction of inputs from output. These terms apply at enterprise level or at whole-farm level.

### Enterprise level terms

**Enterprise Gross Margin** is *Enterprise Output* less the *Variable Costs of the enterprise*.

**Gross margin of a forage based livestock enterprise** is *Output* from the enterprise less the *Variable Costs*, including the allocated variable costs of grass and other forage.

#### Derivation of enterprise gross margin

The derivation of gross margin for the three broad categories of agricultural enterprises (crop enterprises, non-forage based livestock enterprises and forage based livestock enterprises) is shown below.

Crop enterprise	Non – forage based livestock enterprise	Forage based livestock enterprise
Enterprise output	Enterprise output	Enterprise output
less	less	less
Variable costs (seed, fertiliser, crop protection, other crop costs, fuel for crop drying, fuel for glasshouse heating)	Variable costs (concentrate feed, vet and medical, other livestock costs, bedding, litter)	Variable costs (concentrate feed, vet and medical, other livestock costs, bedding, litter, allocated share of forage variable costs)
equals	equals	equals
Enterprise gross margin	Enterprise gross margin	Gross margin before forage costs
		less
		Allocated share of forage variable costs (seed, fertiliser, crop protection, other crop costs)
		equals
		Enterprise gross margin

**Gross margin from home grown fodder crops grown for sale** is the output from home grown fodder crops grown for sale, less the variable costs. (Because it is normally insignificant compared to gross margins for the more mainstream enterprises on the farm, gross margin from home grown fodder crops grown for sale is not usually separately shown in management accounts).

**Gross margin from tillages and forage** is the **output from tillages (cultivations) and forage** less the variable costs. In practice, variable costs are often zero unless there is a significant change in the value of tillages between the opening and closing valuation. Care must be taken to avoid double counting variable costs allocated to tillages and forage as they are very likely to have already been allocated to another enterprise, such as a forage based livestock enterprise

## Management Accounting: Margin, Profit and Income Terms

(dairy, beef, sheep) or an arable enterprise in the case of tillages. Because it is normally insignificant compared to gross margins of the other enterprises on the farm, gross margin from tillages and forage is not usually separately shown in management account.

**Total farm gross margin** is total crops gross margin plus adjustment for output from previous year's crops plus total livestock gross margin plus gross margin from home grown fodder crops grown for sale plus gross margin from tillages plus gross margin of non agricultural diversified enterprises plus miscellaneous revenue plus single payment.

Alternatively it equals **Total Farm Output** less **Total Variable Costs**

### Derivation of total farm gross margin

Total crop enterprise gross margin
plus
Adjustment for output from previous year's crops
plus
Total livestock enterprise gross margin
plus
Gross margins of home grown fodder crops grown for sale
plus
Gross margin of tillages and forage
plus
Gross margin of non agricultural diversified enterprises
plus
Miscellaneous revenue (including agri-environment payments and other grants and subsidies)
plus
Single payment
equals
Total farm gross margin

**Net Margin** of an enterprise equals gross margin less **adjusted fixed costs** allocated to the enterprise. A flow chart to show the derivation of enterprise net margin on this basis is shown below.

## Management Accounting: Margin, Profit and Income Terms

### Derivation of enterprise net margin

Enterprise gross margin
less
Paid and unpaid labour costs allocated to the enterprise
less
Machinery costs (fuel, repairs, depreciation and contract charges)
less
Building costs (repairs and depreciation)
less
General overheads and tenant type repairs
less
Machinery and labour overheads allocated to the enterprise
less
Net field rent
equals
Enterprise net margin

The allocation of Fixed Costs must be clearly stated, as has been done above. If only some items are subtracted from the Gross Margin, the result may be described as, for example, "Gross margin less direct labour and machinery costs."

### Whole farm level terms

**Farm Business Income** (sometimes referred to as *Farm Business Profit*) is *Total Farm Gross Margin* less the sum of the *Fixed Costs* incurred, before any charges for unpaid labour or notional rent on owner occupied land. Alternatively it is *Total Farm Output* less the sum of *Variable* and *Fixed Costs*. It therefore represents the surplus or deficit before imputing any *Notional Charges* such as *Unpaid Family Labour Costs* and *Rental Value*. In terms of broad definition, farm business income is very similar to net profit as used in financial accounts. The key differences are in valuations, depreciation, breeding livestock stock appreciation and the range of diversified non agricultural activities included. Farm Business Income includes all inseparable and separable diversified activities, See page 26 for definitions of these.

Farm Business Income represents the financial return to all unpaid labour (farmers and spouses, non-principal partners, directors and their spouses and family workers) and on all their capital invested in the farm business, including land and buildings.

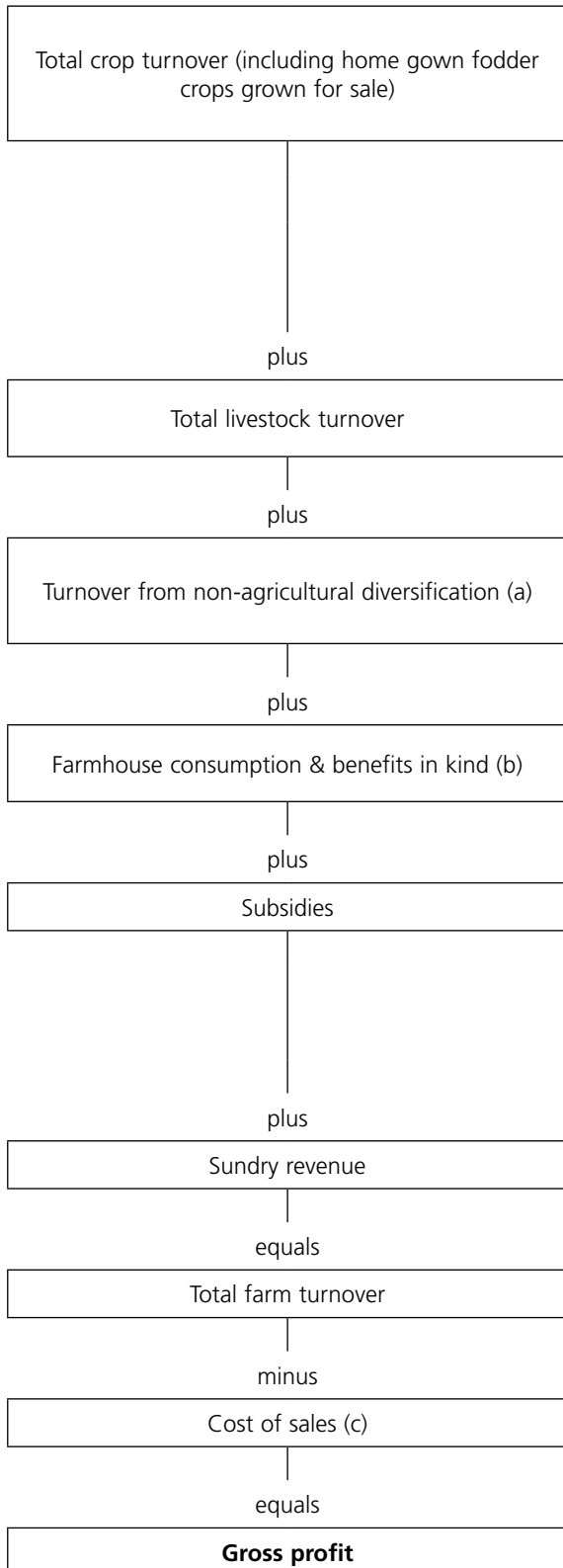
The chart below illustrates the derivation of *Net Profit*, in financial accounting and *Farm Business Income*, in management accounting. The derivation of two further income measures, *Farm Corporate Income* and *Farm Investment Income*, are also shown for completion.

The derivation of other income measures: *Cash Income*, *Net Farm Income*, *Management and Investment Income* and *Labour Income* is shown at Appendix 4.

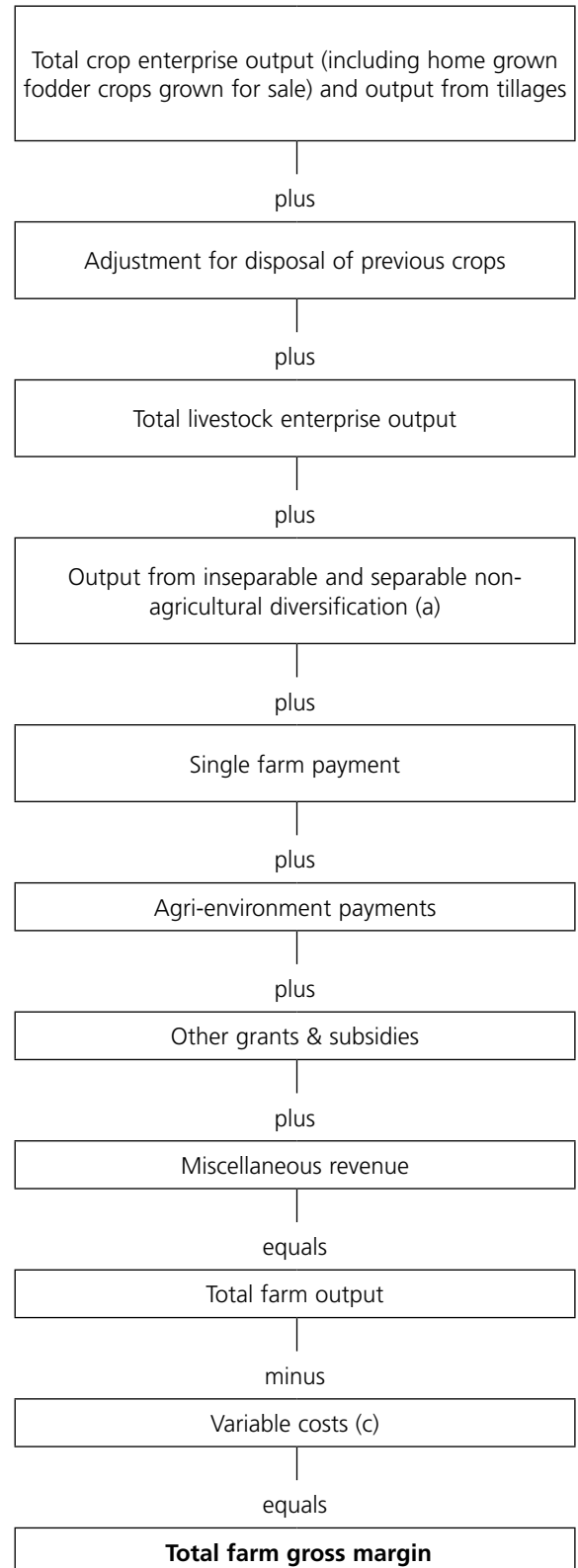
## Management Accounting: Margin, Profit and Income Terms

### Flow chart of income measures

#### Financial Accounting

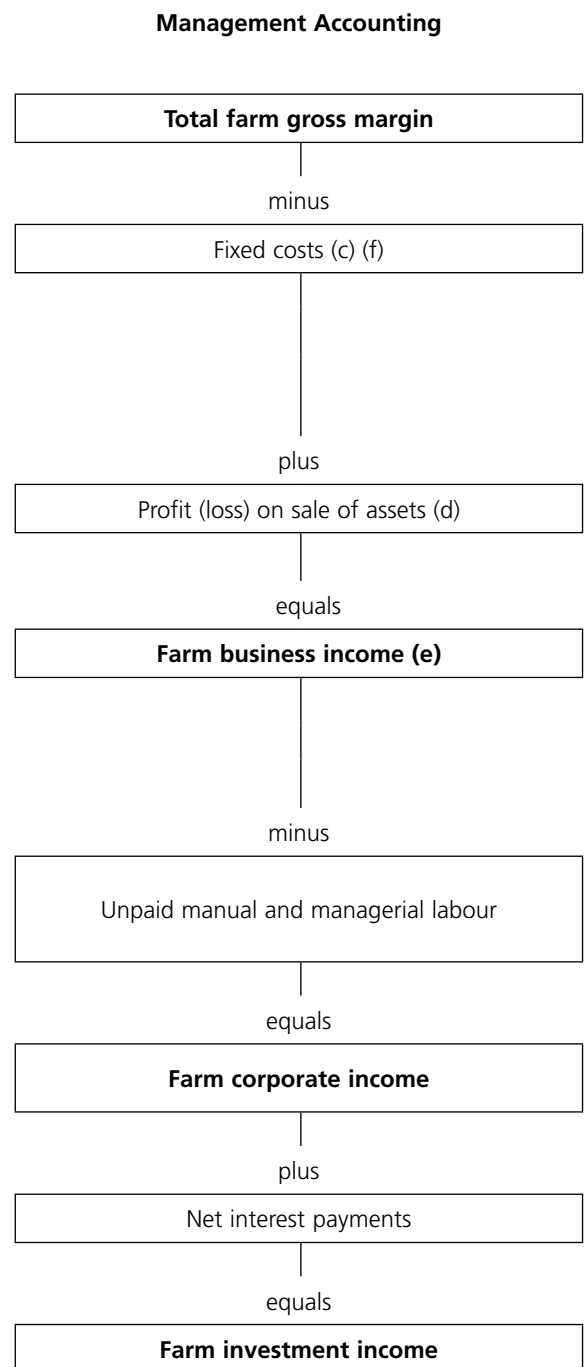
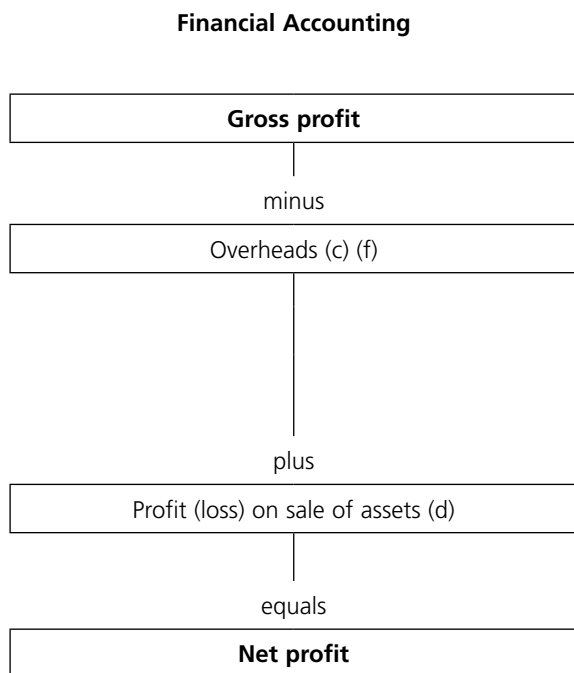


#### Management Accounting



## Management Accounting: Margin, Profit and Income Terms

### Flow chart of income measures (continued)



## Management Accounting: Margin, Profit and Income Terms

### Flow chart of income measures (*continued*)

- (a) In financial accounting, the picture is mixed in terms of which diversified enterprises are included in Net Profit as prepared by accountants and it must not be assumed that Net Profit includes separable as well as inseparable diversification activities. (For a description of separable and inseparable diversified activities see pages 26 and 27).
- (b) In principle in financial accounts farmhouse consumption and benefits in kind are included in total turnover and benefits in kind are included in labour costs; in practice they may be excluded as not material.
- (c) Including those from non-agricultural diversification.
- (d) Assets in this context refer to tenant type assets such as machinery, equipment, glasshouses and permanent crops. The number is negative if there is a loss on sale of assets. For a description of profit (loss) on sale of assets see page 10.
- (e) In broad definition terms, Farm Business Income (sometimes referred to as Farm Business Profit) is very similar to Net Profit. In practice they are likely to differ because Net Profit is derived from financial accounting principles and Farm Business Income is derived from management accounting principles. For example in financial accounting output stocks are usually valued at cost of production, whereas in management accounting they are usually valued at market price. In financial accounting depreciation is usually calculated at historic cost whereas in management accounting it is often calculated at replacement cost. A further difference is that Net Profit includes breeding livestock stock appreciation but Farm Business Income excludes it. As noted at (a) there might also be differences in terms of the range of diversified enterprises included within net profit and farm business income.
- (f) Overheads and fixed costs include Director's emoluments because Directors of companies are essentially employees. Their emoluments (pay and perks) are therefore included in overheads/fixed costs and hence are deducted in deriving Net Profit/Farm Business Income.

## Management Accounting: Other Terms

### Terms relating to land areas, livestock units and stocking density

*Note: when per unit area measures are used, the area basis should be clearly stated, eg hectares grown or Ordnance Survey area.*

**Total Area of farm** comprises total farm hectares including crops, grass, rough grazing, buildings, woodlands, waste-land, roads, etc.

**Utilisable Agricultural Area (UAA)** comprises the area of crops, grass and rough grazing, fallow and any uncropped land that could be returned to agricultural production.

**Adjusted Utilisable Agricultural Area** is UAA reduced by the conversion of rough grazing into the equivalent area of average quality grassland.

**Total area farmed** is utilisable agricultural area plus land hired in for less than one year less land let out for less than one year.

**Forage Crops** are all crops, grass and rough grazing grown on the farm specifically for grazing livestock, but not crops harvested as grain and pulses.

**Forage Area** comprises the area of *Forage Crops* grown for consumption on the farm, including land hired in, net of land let out, less any land used exclusively by outdoor pigs or poultry. It includes the land equivalent in hectares of any home-grown fodder fed to intensively-reared, non-grazing livestock, eg veal calves and barley-beef and the area equivalent of grazing from cash crops of hay or seed, but only if this is very significant<sup>3</sup>.

**Livestock Units** are based on estimated energy requirements. Standard ratios are used for converting animals of different species and ages into *Livestock Units* with one unit usually representing a mature 'black and white' dairy cow. An example of one commonly used set of ratios is given in Appendix 1.

**Grazing Livestock Units** are the *Livestock Units* of grazing livestock (cattle, sheep, horses, deer and goats). Appendix 1 lists grazing livestock units for a range of grazing livestock categories.

**Stocking Density** is *Grazing Livestock Units* per forage hectare. This may be calculated separately for each type of grazing livestock enterprise (where the necessary allocation of *Forage Area* is both possible and useful). Stocking density may also be measured in terms of *Livestock Unit* grazing days. For specific categories of intensive livestock *Stocking Densities* may be expressed as floor area per unit of production.

<sup>3</sup> Where sales of seed or fodder crops, such as hay, are a regular part of farm policy, they should be regarded as sale crops not *Forage Crops*.

### Labour terms

**Standard labour requirement** – represents the approximate average labour requirement for a livestock or crop enterprise. SLR's are expressed on an hours per-head or hours per-hectare basis.

They are inevitably fairly broad measures which vary across farms and are not intended to make precise estimates of the labour requirements on an individual farm, but rather to broadly separate between, for example, a one person and a two person farm.

SLRs are representative of labour requirements under typical conditions for enterprises of average size and performance. SLRs are generally standard across the UK, but are higher for field enterprises in Northern Ireland to reflect smaller field size.

SLR's represent the 'typical' labour requirement under typical conditions for enterprises of average size and performance.

The SLR's can give an estimate of the annual hours required for the annual agricultural production on the farm. This has the advantage of translating easily into a Full Time Equivalent (FTE).

**Full time equivalent** is the annual hours of a full time worker (i.e. 1 FTE is 1900 hours per annum).

**Standard person-day** represents 8 hours work by an adult worker under average conditions.

### Terms relating to capital

**Tenant-type capital** comprises assets normally provided by tenants and includes livestock, machinery, crops and produce in store, stocks of bought and home-grown feedingstuffs and fodder, seeds, fertilisers, pesticides, medicines, fuel and other purchased materials, work-in-progress (tillages or cultivations), cash and other assets needed to run the business. Orchards, other permanent crops, such as soft fruit and hop gardens and glasshouses, are also generally considered to be tenant-type capital. There is no standard way of determining the average tenant type capital invested in a farm business. One of several methods may be used depending on the information available and the purpose for which the estimate is needed. Generally, the measurement of Tenant Type Capital relates to the annual average of capital which has been employed, rather than to peak requirements, and will be the capital needed to run an established business rather than that required to create a new one. The simplest method is to take the average of the *Opening and Closing Valuations* (see section 7) of machinery, crops, livestock and stores (or alternatively the closing valuation only can be taken). Since a valuation refers only to a point in time, it does not take account of fluctuations during the year and may over – or understate the total resources needed to run a farm business during a year. More accurate estimates can be obtained by calculating the annual average value from a number of valuations during the year.

**Working Capital** for a farm business comprises *Current Assets* (see page 29) less *Current Liabilities*. *Working Capital* required for an enterprise production cycle usually comprises livestock purchases and *Variable Costs*, plus a proportion of *Fixed Costs*.

**Landlord-type Capital** comprises land and buildings, including improvements to these.



### Terms relating to cash flow

**Revenue (or turnover)** represents the total trading *Receipts* for the accounting period, adjusted for debtors at the beginning and end of the accounting period (i.e. with opening debtors deducted from receipts and closing debtors added).

**Cash Flow** is movement of funds into (and out of) the business over a defined period and is represented by *Receipts* and *Payments*.

**Net Cash Flow** is the difference between *Receipts* and *Payments*.

Three categories of *Cash Flow* can be distinguished:

**Trading Net Cash Flow** is the net flow of funds relating to the trading activities of the business. It is the difference between *Receipt* and *Payment* items which are included in the *Trading and Profit and Loss Account*.

**Capital Net Cash Flow** is the net flow of funds relating to those business items of a capital nature usually found in the *Balance Sheet*.

**Personal Net Cash Flow** is the net flow of funds relating to the non farm items of *Receipts* and *Payments*. These include funds withdrawn for personal use and tax payments, and also income received from non farm sources.

Cash flows prepared for the farm business usually combine the items falling under trading, capital and personal cash flows, all in the same overall cash flow.

### Breeding Livestock Stock Appreciation and Herd Depreciation

**BLSA (breeding livestock stock appreciation)** is the change in value of breeding livestock between the opening and closing value that is due to general market price changes rather than changes in the quality or age of the herd. BLSA can be positive or negative. In management accounts, BLSA is excluded from *Enterprise Output* of the breeding livestock enterprise. The reason being that breeding livestock represents a long term investment and fluctuations in the paper value of breeding livestock are not relevant to the trading profit of the farm. However, in management accounts BLSA does have an important role in that it allows herd depreciation to be calculated properly.

**Herd depreciation** is spreading the cost of a breeding animal over its useful life. Breeding animals lose value as they move nearer to the stage where they are culled. Herd depreciation equals opening value plus purchases and transfers-in plus BLSA minus sales and transfers-out minus closing value (where the closing value includes BLSA). Therefore an estimate of the BLSA is required to calculate herd depreciation. In turn, this means valuing the breeding animals in a robust and methodical way. See section on 'valuations' for more guidance.

### Contract Farming, Share Farming and other joint arrangements (including machinery rings and labour rings)

There are various farming arrangements which entail the bringing together of land, capital and skilled management in an agreement between two or more parties, The commonest arrangements are:

1. Contract farming, 2. Share farming, 3. Contract rearing 4. Labour & machinery sharing. In general, agreements are tailored, not standard.

**Contract farming** – each party (the contract farmer and the land provider) continues to run their own business, rather than forming a new partnership. The contract farmer pays a fee to the land provider (usually the landowner) for use of the land and any other assets as built into the arrangement. The land provider pays a fee to the contract farmer for farming the land. Any residual profit from the sale of produce is shared between the two parties at a pre-arranged rate. The contract farmer usually owns the produce. (Note: contract farming is completely different to farming with contractors where a farmer contracts out some, or possibly all, operations on short term contracts to external contractors who operate on a piece work rate but do not share in any of the residual profit).

**Share farming** – is effectively one business run by two people. Each party provides capital (eg livestock, machinery) or resources (eg labour) into the arrangement. Unlike contract farming, there is no transfer of money between the two parties. Profit from the sale of produce is divided between the parties at a pre-arranged rate.

**Contract rearing** – an arrangement whereby the owner of livestock pays a fee to a separate farmer to rear or keep the livestock.

**Joint ventures (including machinery rings and labour rings)** – joint ventures entail joint control and joint element of risk via a contractual arrangement. The parties retain their own businesses but jointly run the shared enterprise. The control and running is shared jointly and there is an element of risk in venturing capital and assets into the joint enterprise. There is typically one or a small number of activities that are pooled and controlled jointly whilst the remainder of the farm operations and finances are run by the owners of those businesses independently. Contract farming does not really meet the definition of a joint venture. In accounting, a joint venture appears on balance sheets as an asset and on income statements as share of profits from the JV.

**Machinery rings and labour rings** – these are the best examples of joint ventures in farming. With a machinery ring, the individual members provide machinery for use by the ring or the ring collectively owns machinery in its own right. Labour rings follow the same principle. Examples of other joint ventures might be setting up a processing, distribution or retail facility.

### Diversification enterprises or activities

These include enterprises such as farm retailing, letting out buildings or land, farm tourism. Contracting work, including that undertaken on other farms, is also included.

Diversification enterprises can be split between *inseparable*, and *separable* enterprises. Potentially, any type of diversified enterprise can fall into the inseparable or separable category depending on the situation at business level.

***Inseparable enterprises*** are those which use farm resources (i.e. land, buildings, labour, and capital) and the enterprise is fully integrated into the farm business, eg it has no separate internal accounts and does not employ extra staff.

***Separable enterprises*** are those which use farm resources (i.e. land, buildings, labour, capital) but where there is a degree of segregation from the farm business, eg separate internal accounting, employment of extra staff because of the scale of the enterprise.

If, however, the enterprise is more-or-less entirely separate from the normal farming business, e.g. has at least two of the following: separate management, separate financing, separate VAT registration, then it is regarded as outside the farm business and is excluded from Farm Business Income.

## Types of Management Account

### The Trading and Profit and Loss Account

A *Trading and Profit and Loss Account* records the financial transactions and the resulting Farm Profit or Loss for the accounting period, normally one year. It includes an opening valuation (see section 7) of livestock, crops, cultivations (tillages) and stocks of purchased materials on the farm at the beginning of the period; the costs and trading *Revenue* for the same period; and a closing valuation of livestock, crops, cultivations (tillages) and stocks of purchased materials on the farm at the end of the period.

### The Balance Sheet

The Balance Sheet shows the *Assets* and *Liabilities* of the business at a specific point in time, usually the last day of the accounting period.

It is made up of two sections – one showing the value of all the assets owned by the business, the other showing all the liabilities.

In a Balance Sheet prepared in conjunction with a *Trading and Profit and Loss Account*, valuations (see section 7) in each should be consistent. Asset values can change between the opening and closing valuation. Where a revaluation occurs, *assets* are revalued on the basis of current agricultural market values. Any notional gains or losses between successive Balance Sheets arising as a result of this revaluation may be shown separately. The following terms are associated with the use of the farm Balance Sheet for management purposes.

**Liabilities** are the total value of claims on the *Assets* of a business by the various suppliers of funds to it.

**Total Liabilities** comprise *Long and Medium Term Liabilities*, *Current Liabilities* and *Net Worth*.

**Long Term and Medium Term Liabilities** are loans, mortgages and other debts not liable to early recall under normal circumstances. Examples include mortgages, bank term loans, hire purchase, finance leases and private and family loans (whether bearing interest or not).

**Current Liabilities** are claims on the business which may have to be met within a short period of time, usually not longer than a year. Examples include sundry creditors, bank overdrafts and short-term loans.

**Net Worth (or Owner Equity)** is the *Balance Sheet* value of *Assets* available to the owner of the business after all other claims against these *Assets* have been met. The change in *Net Worth* between successive *Balance Sheets* is commonly presented in a capital account which incorporates adjustments for 'Profit or Loss' in the relevant trading period, personal funds introduced (excluding loans) and withdrawals for personal expenditure, taxes paid and off-farm investments, etc. The change in *Net Worth* will include the appreciation in value of business assets, which may be identified separately.

**Assets** are anything of value in the possession of the business and claims on anything of value in the possession of others. In valuing the assets of a business, current market value is the preferred approach.

**Total Assets** are usually considered under two headings, fixed and current.

**Fixed Assets** are durable assets representing relatively long term investments that are used for more than one production cycle. Examples are breeding livestock, plant and machinery (including plant and machinery on hire purchase or finance lease), land and buildings. Fixed assets may also include a sub-heading for intangible assets such as purchased quotas or goodwill.

**Current Assets** are usually sub-divided into two parts:

i) **Physical Working Assets** comprising temporary assets normally intended for conversion into cash within a short space of time (generally a year or less). Examples are livestock (other than breeding stock), harvested and growing crops, stocks of livestock produce and other stocks of purchased materials, such as seed, feeding stuffs and fertilisers.

ii) **Liquid Assets** comprising the value of cash either in hand or at the bank, pre-payments and 'near cash' assets such as debtors.

**Net Assets** are *Total Assets less Current Liabilities*.

## The Flow of Funds Statement

**Flow of funds statement** shows how the business makes funds available (sources) and how this money is spent (disposals). It also shows the importance of profit from the business as a source of funds compared to other sources, such as sales of assets, withdrawals from saving deposits, increased borrowing or private sources.

**Sources** comprises (i) farm business income, (ii) non cash items (for example machinery depreciation<sup>4</sup>) which have been deducted to derive farm business income but must then be added back to derive the cash position, (iii) change in short term deposits (for example savings accounts), (iv) change in outstanding loans (an increase in loans outstanding or borrowing means the source of funds increases). (v) other funds introduced.

**Disposals** comprises (i) valuation change between the opening and closing valuation, (this is the change in value of livestock, crops in store, cultivations, home grown forage, purchased feed and fodder, purchased goods in store). A positive valuation change is treated as a disposal as it is a non-cash item that is included in farm business income but has to be deducted from income to get to the cash position. (ii) capital spending (includes for example buying property, farmland, woodland, entitlements to single payment, investment in buildings and landlord type improvements, (iii) purchases of machinery and equipment net of sales of same. (iv) spending on non farm items, for example private transactions or tax, (v) funds transferred out of the business.

<sup>4</sup> After adjustment for profit (or loss) on sale of assets where this is not already included within depreciation. If adjustment is required, profit on sale of assets is deducted from depreciation, and loss on sale of assets is added to depreciation. However, where depreciation is already net of profit (or loss) on asset sales, no adjustment to depreciation is required.

## Valuations in Management Accounts

The process of valuation is essentially estimation. The basis should be clearly stated and consistent throughout the accounting period.

**Saleable crops in store** are valued at estimated net market value, ie market value net of marketing costs.

**Saleable crops ready for harvesting** but still in the ground should preferably be valued in the same way as 'Saleable crops in store' less the estimated costs of harvesting. Alternatively they may be treated as 'growing crops'.

**Growing crops (and cultivations)** are valued at estimated accrued cost up to the date of valuation. This may be either at variable costs or at estimated total costs. For most purposes, variable costs are preferable. Residual manurial values need to be taken into account only on change of tenancy.

**Fodder stocks (home grown)** may be valued at accrued variable costs or estimated net market value. If net market value is used, stocks of non-saleable crops, such as clamped silage, should be valued in relation to saleable fodder, such as hay or baled silage, with the value adjusted according to quality.

**Stocks of purchased materials (including fodder)** are valued at cost, net of any discounts and subsidies.

**All livestock**, whether for breeding, production or sale, are valued in their present condition at current market value, net of marketing expenses. In the case of breeding livestock this will include Breeding Livestock Stock Appreciation. For more on BLSA see below. Changes in market values of livestock which are expected to be temporary should be ignored.

**Breeding livestock** are valued at market value, net of marketing expenses. The closing value will include an element of Breeding Livestock Stock Appreciation, which is the change in value due to movements in market prices between the opening and closing valuation. It is necessary to identify the BLSA in order to calculate **herd depreciation**. Therefore a methodical approach to valuation is required. To do this it is probably worth dividing the herd into different age groups. Each group can be valued according to the age of the animals and how the quality and average age of the herd has changed between the opening and closing value. BLSA should be considered at the time the valuation is made. The aim should be to get a realistic market value of the herd at the opening and closing valuation and to then decide how much of the change in value is due to BLSA, so as to derive a plausible figure for herd depreciation.

**Vehicles, machinery and implements** are valued at current replacement cost (net of grants), less accumulated *Depreciation* to date of valuation. The value so derived should approximate to the market value in it's current condition.

**Buildings and fixed equipment** are valued on a replacement cost basis, less accumulated *Depreciation* to date of valuation.

# Efficiency Measures

## Whole farm level efficiency measures.

### Management Ratios

Relationships between and within components of the Trading and Profit and Loss Account and the Balance Sheet can be expressed as management ratios. The method of valuation used in the Balance Sheet and Trading and Profit and Loss Account (see section 7) will affect these relationships and it may be necessary to make adjustments before constructing management ratios.

The more commonly used management ratios are:

Return on tenants capital\* (%)

Return on total capital\* (%)

Labour costs per £100 turnover

Machinery costs per £100 turnover

Labour plus machinery costs per £100 turnover

Farm business income per £100 turnover

Liquidity Ratio: ratio of Liquid Assets to Current Liabilities.

Ratio of Net Worth (or owner equity) to Total Assets. Gearing Ratio (ratio of debt to net worth)

*\* there is no widely accepted definition in agriculture of return on capital. In any calculation the basis of both the measure of return (numerator) and of the capital (denominator) must be clearly stated.*

Other whole farm measures commonly used as indicators of efficiency are:

### Output and gross margin

i) Total Farm Output per hectare.

ii) Total Farm Gross Margin per hectare.

### Profitability

Farm Business Income per hectare

i) Farm Business Income as percentage of turnover

Other whole farm measures of profitability:

ii) Net Farm Income per hectare.

iii) Management and Investment Income per hectare.

### Costs

Whole farm measures that are sometimes used are based on costs:

i) Servicing costs (rent plus interest paid plus rates) as a percentage of turnover or whole farm gross margin

ii) Servicing costs in £ per hectare of total farm area. This is sometimes referred to as 'rental equivalent'.

### Enterprise efficiency measures.

Output (see section 2 ) and physical yields of an enterprise may be expressed per unit of land, labour, capital, production or time, eg crop output per hectare or per square metre of glass, milk output per cow.

Inputs (see section 3), either financial or physical, may be expressed in appropriate units and terms, eg £ or kg of concentrates\*, hours of labour, kg of nitrogen, tractor hours, etc. They can also be expressed per unit of production, per head, per herd, per litre, per hectare and per unit of time.

Feed may be charged at its purchase price, or market value. Home-grown concentrates should be charged at market value.

Margin over concentrates is a commonly used measure in dairy farming. It is the value of milk produced less the cost of concentrates\* fed. In dairying other similar margins are often used, eg margin over all purchased feed or margin over purchased feed and fertilisers.

\* Concentrates are compounds, straight cereals and pulses, protein cakes, dried grass, urea, dried sugar beet pulp, fish meals, milk powder, additives, minerals, vitamin supplements, and the dry weight equivalent of brewers' grains etc.

**Physical efficiency terms** measure the physical output of an enterprise per unit of production, i.e. per head, per unit of measurement and/or per time period. Most of the terms used are self-explanatory, eg tonnes per hectare, litres per cow; others, including those requiring finer definition, are listed below.

#### *i) Crops*

Yield per hectare or per square metre under glass.

#### *ii) Livestock*

Annual average numbers: the sum of the number of animals on the farm at the beginning of the year and at the end of each month of the year and divided by 13.

Milk yield per cow in herd: total milk production, (consisting of the quantity of milk sold, saleable milk fed to livestock plus milk supplied to the farmhouse and employees) divided by the average number of cows (in milk and dry) in a given period. Usually milk yield per cow is an annual figure, relating to production over one year, part of which will be a dry period. Sometimes however it relates to a lactation, which typically lasts for 10 months. The average yield per cow in the herd is sometimes referred to as 'herd average'.

Calving percentage: number of calves born per 100 cows and heifers put to the bull.

(Note: heifers become cows at first calving).

Lambing percentage: lambs weaned per 100 ewes put to the ram.

Litters per sow or gilt per annum: litters from the entire herd during the year, divided by the average number of sows and gilts throughout the year.

#### *iii) Livestock mortality*

For cattle, sheep and pigs, mortality may be calculated in various ways; the basis should be clearly stated, eg deaths as a percentage of: average stock numbers, or breeding stock numbers mated, or numbers in opening valuation plus purchases.



For poultry, mortality is calculated as follows,

- (i) for laying hens it is deaths as a percentage of laying birds initially housed,
- (ii) for broilers, ducks and turkeys it is deaths per opening stock numbers for each batch.

Feed conversion ratios are quantities of concentrates or other feed used per unit of production (yield or weight).

### Financial efficiency terms

Financial efficiency terms are normally used as measures of financial performance and can be expressed on a unit basis of area, per head or unit of cost, eg

- (i) Enterprise Output per hectare (crops) or per head (livestock)
- (ii) Gross Margin “
- (iii) Net Margin “
- (iv) Enterprise Output per £100 feed costs

Net Margin of an Enterprise is its Gross Margin less *adjusted fixed costs*. The allocation of Fixed Costs must be clearly stated: if only some items are allocated and subtracted from the Gross Margin, the result may be described as, for example, “Gross margin less direct labour and machinery costs”.

# Budgeting Terms

## Budgeting

**Budgeting** is the preparation of a detailed financial statement of planned future events or possibilities for a whole farm business (farm plan), a change in the farm plan or a change in the individual enterprise.

**Partial budgeting** is budgeting in relation to a partial change to a given farm plan or system. It takes into account only those items of Costs and Revenue which alter, and forecasts the effect in financial terms.

**Break-even or Sensitivity Budgeting** is a form of budgeting used where there is uncertainty with quantifying an important component of price or quantity. It determines the amount of the component necessary to result in the enterprise or business breaking even (i.e. where revenue and costs are the same). Then a judgement is required on whether the break-even quantity or price is likely in practice to be achieved. If it is, then there is less risk in running the enterprise or business at a loss.

**Cash Flow Budgeting** deals with anticipated movements of cash within prescribed time periods for the whole business or separately for the trading, capital or personal sectors. It shows the projected peak cash requirement of a plan, the time at which this will occur and the pattern of the Cash Flows through the planning period.

## Cost Analysis

### Relevant Cost Analysis and Target Cost Analysis

For farm business budgeting, in addition to a whole farm budget or partial budgets (based on gross or net margins) there are two refined approaches that can also be used. Here they are referred to as 'Relevant Cost Analysis' and 'Target Cost Analysis'. The two approaches are commonly used by accounting practitioners and consultants but without necessarily being named as such. In effect the two methods look at the economics of the production process from different sides. At its most basic, Relevant Cost Analysis is concerned with identifying the output price required to deliver a given level of profit after covering a given level of costs. Target Cost Analysis, at its most basic, is concerned with identifying the costs required to deliver a given level of profit after selling at a given level of price. Reducing costs is not necessarily the objective from either method – but finding the optimum level of costs and output is.

### Relevant cost analysis

Relevant costs are sometimes also referred to as incremental costs and will include opportunity costs when appropriate. Costs are allocable to an enterprise or non-allocable: non-allocable fixed-costs are grouped into a category of their own. The difference between relevant revenues and relevant costs is the contribution from a course of action. The most basic form of relevant cost analysis is break-even analysis. This involves identifying the achievable level of costs and then identifying the output price required to cover the costs.

#### *Relevant costing as a strategic tool*

Where profitability is low, a decision may be required on whether to discontinue an enterprise if it does not achieve a profit above relevant marginal costs. Relevant cost analysis provides a break-even price around which the farmer can both make the decision and then review it against price movements.

The key problem in agriculture for the assessment first of a break-even point and then the contribution is the presence of discontinuities and stepped costs, for example the step from one machine to two, or one full time person to two. Therefore relevant cost analysis, including break-even, often has to be based on the longer term cost picture.

A further example of how relevant cost analysis can be used is in the wake of a cost price squeeze. A cost-price squeeze occurs when output falls or costs rise – particularly variable costs like feed and fertiliser, and so called 'fixed' costs that are actually variable in nature, such as fuel. To restore the breakeven point, farmers must try to reduce whatever fixed costs remain – for example through operational changes in use of machinery or labour.

Relevant cost analysis also lends itself readily to contract farming. The decision, for example, of whether or not to take on another farm contract could be analysed by assessing the incremental costs and benefits of the decision. If appropriate, the opportunity costs of pursuing the course of action can also be included. A hypothetical example is given below. A similar approach could be taken to the acquisition of new machinery, or diversification enterprise.

**Example** (possibility to expand farm business by contract farming a further 200 hectares of wheat, but thereby forgoing opportunity to rent machinery out to neighbouring farm)

## Cost Analysis

	£ per ha
Incremental income from contract farming	581
Less: variable costs (seed, fertiliser, etc)	257
incremental fixed costs	127
opportunity cost (forego opportunity to rent machinery out)	40
Contribution	157

### Target cost analysis

Target cost analysis identifies the optimum response for production to produce a given profit at a given output price. Target costing leads to rationalising the operational processes on the farm to achieve the aims of the business, rather than simply reducing costs.

#### *Target costing methodology*

Target costing can be thought of as a process of first assessing a target price and then designing a product to meet this price and generate sufficient profit. It is essentially a three stage process: identify a target price, establish a target cost that must be met to ensure a target profit margin is met and lastly, 'design' processes that will enable these targets to be met. Target costing imposes discipline on the production process and pushes those using it to find innovative approaches to production.

The key factor is that it is primarily a forward looking process, a way of thinking about possible future prices, customers and costs: most other methods, including relevant costing and budgeting rely on past record keeping.

#### *Target costing in agriculture*

In arable farming, for example, to make crop production processes more cost effective various options can be considered, such as joining a machinery ring, fewer passes with machinery to save fuel, making more use of contractors and precision farming. These are all examples of target costing when output prices are unlikely to increase and the production processes needs to be re-engineered to achieve a profitable outcome.

Another example of target costing is in the dairy sector where maximum profitability is not always the result of higher yields or more hectares. Sometimes the route to maximum profitability is low yields and low costs.

These examples indicate that the underlying philosophy of target cost management is that cost control is not merely a function of scale.

A simple hypothetical target cost profile for wheat is given in the table below. Figures are for illustration only. It shows that on the basis of overheads at £165 per ha (equivalent to 30% of output), to achieve a profit margin of 20%, the target for the direct costs (variable costs) is £275 per ha.

<b>Target Cost Profile (wheat enterprise)</b>	£/ha	£/tonne
Target value of output	550	65
Profit Margin (20% of output)	110	13
Enterprise target cost to achieve the profit margin	440	52
Overheads (non-direct costs) (estimated as 30% of output)	165	20
Target direct costs (variable costs)	275	32

## Livestock Unit Coefficients

(these are ratios for converting numbers of animals into Livestock Units)

Type of Stock	Livestock Units	Type of Stock	Livestock Units
<b>Cattle</b>		<b>Sheep</b>	
Dairy cows	1.00	Rams	0.08
Dairy Bulls	0.65	Lowland ewes	0.11
Beef Cows	0.75	Upland ewes	0.08
Beef Bulls	0.65	Hill ewes	0.06
Heifers in calf	0.80	Store lambs, under 1 year	0.04
Other Cattle (excluding intensive beef systems)		Breeding ewe hoggs, 6 to 12 months	0.06
0 – 12 months	0.34	Other sheep over 1 year	0.08
12 – 24 months	0.65	<b>Pigs</b>	
over 24 months <sup>(a)</sup>	0.80	Boars	0.35
Barley Beef	0.47	Breeding sows	0.44
<b>Poultry</b>		Gilts in pig	0.20
Cocks, hens, pullets in lay	0.0017	Maiden gilts	0.18
Pullets one week to point of lay	0.0030	Other pigs	0.17
Broilers	0.0017	<b>Other Livestock</b>	
Other table chicken	0.004	Horses	0.80
Turkeys	0.005	Breeding female goats	0.16
Ducks, geese, other poultry	0.003	Other goats	0.11

(a) Reduced in proportion to time animal is on farm

### Notes:

- (1) A Livestock Unit is usually defined in terms of feed requirements. The ratios in the table above are based on metabolisable energy requirements, with one livestock unit being considered as the maintenance of a mature black and white dairy cow yielding an average annual milk yield.
- (2) To calculate the stocking density of grazing livestock, allowances should strictly be made for variation in output e.g. yield per cow or live weight gain per head, and also for quantities of non forage feed consumed by each category of stock.
- (3) To calculate the total Livestock Units on a farm the appropriate Livestock Units should be multiplied by the monthly average livestock numbers, except in the case of lambs and purchased stores where throughput should be used.
- (4) Because of the range in breed and type of animal in any one category (e.g. Friesian/Holstein and Channel Island dairy cows) the results obtained from the use of these figures must be interpreted with care.

# Farm Classification

## Introduction

To assist analysis of data on UK farming, including data from the Farm Business Survey and the June Survey, farms are classified by type of agriculture and size of business. 'Agriculture' here means the science, art, or practice of cultivating the soil, growing crops and raising livestock – as opposed to 'farming' which is the business of agricultural activities and other activities, including agri-environment and diversification activities.

## Why classify farms?

1. to identify where market trends, policy or economic conditions affect a particular group of farms more than others.
2. to help researchers assess the likely impact of market conditions and government policy on different agricultural sectors and farm sizes.
3. to enable comparative analysis ('benchmarking') of farms against each other.

## Classifying by type of farming

In classifying by type of farming, the UK classification system is based on standard gross margins. The share of total gross margin that is attributable to each agricultural activity or 'enterprise' is calculated. The farm is allocated to a type depending on the relative contribution of each enterprise to total farm gross margin.

The Standard Gross Margin is a financial measure founded on the concept of gross margin for farming enterprises. The gross margin of an enterprise is the value of total output less the variable costs which are directly attributable to it. A more detailed description of gross margin is at page 12.

Because gross margins are not available for each farm in the population, standards or norms are calculated by the UK Departments of Agriculture. For England these are calculated for each of the three EU 'super' regions, North, East and West. Separate SGM's are calculated for Scotland, Wales and Northern Ireland. SGM's are normally calculated as three year averages to 'iron out' yearly fluctuations due to price or yield changes.

The total SGM for each farm is calculated by multiplying the SGM per head or per hectare by the appropriate number of livestock or area of crops as recorded in the June survey and then summing the SGM's of the individual enterprises to a whole farm figure. As such, SGM's are acting as a means of weighting together numbers of livestock and areas of crops into a common measure of the economic size of a farm.

## Why use SGM's to type farms?

In classifying by type of farm, the method needs to take account of the quality and intensity of farmed land. This rules out certain physical measures such as area for determining farm type. Agriculture is characterised by the sale and purchase of intermediate goods, with value added whilst they are on the farm. When classifying farms into different types it is the value added by

different enterprises that is taken into account. SGM's are a measure of the value added and are therefore very suitable for classifying farms into different types. Note, however, approaches with other factors are possible, including the use of Standard Output values for different enterprises. (The EU System of farm type classification is based on Standard Outputs).

## Farm types

Farm type is determined by the relative contribution of each enterprise to total SGM. For example, if more than two thirds of the farms total SGM is attributable to dairy cows, the farm is classified as 'dairy'.

The UK system has 10 'robust' types, and it is these which are commonly used to present results when analysing agriculture. The robust types are: cereal farms, general cropping farms, horticulture, specialist pigs, specialist poultry, dairy, LFA grazing livestock, lowland grazing livestock, mixed, other (including specialist horses).

Results for 'other' are rarely published – more detailed descriptions of the 9 commonly published farm types is below:

<b><i>Dairy</i></b>	Farms where the dairy enterprise, including followers, accounts for over two-thirds of their total SGM.
<b><i>LFA grazing livestock</i></b>	Farms with more than two-thirds of their total SGM in cattle and sheep except holdings classified as dairy. A farm is classified as in the LFA if 50% or more of its total area is in the EC Less Favoured Area (both Disadvantaged and Severely Disadvantaged).
<b><i>Lowland grazing livestock</i></b>	Farms with more than two-thirds of their total SGM in cattle and sheep except holdings classified as dairy. A farm is classified as "lowland" if less than 50% of its total area is in the EC Less Favoured Area.
<b><i>Cereals</i></b>	Farms on which cereals, oilseeds, peas and beans harvested dry and land set aside account for over two-thirds of their total SGM (holdings with more than two-thirds of their total SGM in set-aside are excluded from the survey results).
<b><i>General cropping</i></b>	Farms with over two-thirds of their total SGM in arable crops (including field scale vegetables) or a mixture of arable and horticultural crops; and holdings where arable crops account for more than one-third of total SGM and no other grouping accounts for more than one-third.
<b><i>Specialist pigs</i></b>	Farms on which pigs account for over two-thirds of their total SGM.
<b><i>Specialist poultry</i></b>	Farms on which poultry account for over two-thirds of their total SGM.
<b><i>Mixed farms</i></b>	Farms where crops account for one-third, but less than two-thirds of total SGM and livestock accounts for one-third, but less than two-thirds of total SGM. It also includes holdings with mixtures of cattle and sheep and pigs and poultry and holdings where one or other of these groups is dominant, but does not account for more than two-thirds of the total SGM.
<b><i>Horticulture farms</i></b>	Farms where fruit (including vineyards), hardy nursery stock, glasshouse flowers and vegetables, market garden scale vegetables and outdoor bulbs and flowers account for more than two thirds of total SGM.

### Classifying farms by Economic Size

There are several ways that the economic size of a farm can be measured and each has advantages and disadvantages:

#### *Standard Gross Margins*

The difficulties with using SGM's are:

- (i) They can have negative values
- (ii) They are sensitive to fluctuations in prices and yields
- (iii) They do not lend themselves to an easy definition of part time or full time farms.
- (iv) They are not easily expandable beyond agriculture to reflect diversification and agri-environment activities.

#### *Asset based measures*

As well as the same drawbacks with SGM's they have the added difficulty of not being usable on the whole farm population because standard measures of levels of assets are not available and it would not be possible to derive robust figures for these.

#### *Labour input based measure – Standard Labour Requirements (SLR's)*

They have the advantages of:

- (i) Being transparent and intuitive
- (ii) Extendable outside agriculture
- (iii) Providing a clear and direct measure of the part and full time threshold.

#### *Output value based measures*

Have the advantage of being extendable beyond agriculture but are sensitive to fluctuations in market prices and physical yields. (The EU system of farm size classification is based on Standard Outputs).

#### *Profit based measures*

The chief difficulties with these are that profits are volatile and, like asset based measures, they cannot readily be used on the whole farm population and sufficiently robust measures of standard profit that could be applied to every farm in the population are not available.

### Measuring Economic Size Using SLR's

In the UK, Standard Labour Requirements are used to classify farms by economic size. Farms are classified according to whether they are, for example, a one-person business or a two-person business. Standard Labour Requirements (SLRs) are calculated for different livestock and crop types and are used to find the total amount of standard labour required on the farm.



## What are SLRs and how are they calculated?

Information on individual labour usage by enterprise on each farm is not always available and could vary across farms, for example depending on the extent to which the farmer chose to substitute machinery for labour. Standard figures for the labour requirements associated with different livestock and crop types are therefore used, on an hours per-head or hours per-hectare basis. SLRs are representative of labour requirements under typical conditions for enterprises of average size and performance. SLRs are generally standard across the UK, but are higher for field enterprises in Northern Ireland to reflect smaller field size.

More detailed information on SLR's is at Appendix 3 below

## Standard Labour Requirements (SLR)

These represent the approximate average labour requirements for livestock and crop enterprises. They are inevitably fairly broad measures which vary across farms and are not intended to make precise estimates of the labour requirements on an individual farm, but rather to be able to broadly separate between, for example, a 1 person and a 2 person farm.

SLRs are based on a range of data sources – but rely predominantly on Defra special studies and analysis of England FBS data. Clearly there are substantial difficulties in standardising labour requirements and it is important to remember that SLR's represent the 'typical' labour requirement under typical conditions for enterprises of average size and performance.

The SLR's can give an estimate of the annual hours required for the annual agricultural production on the farm. This has the advantage of translating easily into a Full Time Equivalent (FTE). The annual hours of a full time worker (i.e. 1 FTE) is 1900. On this basis the size categories are:

Size band		SLR based definition (hours)
Very small	Spare time	< 0.5 FTE
	Part time	0.5 < 1 FTE
Small	Full time	1 < 2 FTE
Medium	Full time	2 < 3 FTE
Large	Full time	3 < 5 FTE
Very large	Full time	5 or more FTE

SLR's for a range of enterprises are shown below:

### Standard Labour Requirements by Type of Enterprise (Year 2000)

(Coefficients are per head or per hectare per year)

	Coefficient	Herd (head) Crop (hectares) size implied by SLR*
Cereals**	20	95
Oilseeds**	15	125
Hops	60	30
Sugar Beet	33	60
Field peas & beans	10	190
Main crop Potatoes	90	20
Early Potatoes	120	15
Outdoor Vegetables and salad**	100	19
Other peas and beans	500	3.8
Vining Peas	25	75
Top and soft fruit	450	4.2
HNS	1500	1.25
Vegetables under glass	5000	–
Flowers & plants under glass	25000	–
Mushrooms	7220 (or 0.044 hrs/lb)	0.25
Set aside	1	1900
Dairy cows	39	50
Beef cows	12	160
Other cattle	9	210
Ewes and rams (lowland) 1	5.2	365
Ewes and rams (lfa)1	4.2	450
Other sheep (lowland)1	3.3	575
Other sheep (lfa)1	2.6	730
Sows	14	136
Finishing & rearing pigs	1.9	1000
Piglets (<20kg)	0.2	9500
Table fowl	0.04	47500
Laying hens	0.17	11175
Growing pullets	0.12	15800
Other poultry	0.045	42000

## Standard Labour Requirements (SLR)

	Coefficient	Herd (head) Crop (hectares) size implied by SLR*
Fodder crops**	6	315
Horse	150	13
Goats	20	95
Deer	15	125
Grassland**	4	475
Rough grazing**	1.5	1265

\*\*For Northern Ireland data, the SLRs for these items are multiplied by a factor of 1.5 to take account of different field sizes.  
For mushroom production in Northern Ireland an SLR of 1,050 per tunnel is used.

\*Working year = 1900 hrs.

(1) Based on farm type classification – e.g. for LFA Cattle & Sheep farms the LFA coefficients are applied to all relevant livestock on the farm.

## Derivation of Cash Income, Net Farm Income, Management and Investment Income and Labour Income from Farm Business Income

In addition to the main measure of income, **Farm Business Income** (described at section 4), there are other measures of income which are sometimes used: *Cash Income*, *Net Farm Income*, *Management and Investment Income* and *Labour Income*.

Cash income is revenue less expenditure. The costs exclude any imputed costs and depreciation charges. Cash income also excludes valuation changes. These can be very significant, particularly on livestock farms.

It is equivalent to Farm Business Income, gross of valuation changes and depreciation, and net of any profit/loss on sale of assets.

As cash income excludes depreciation, it is the widest measure of income and, compared to the other income measures provides a better indication of the short term income position.

The three remaining income measures, *Net Farm Income*, *Management and Investment Income* and *Labour Income* are based on a slightly narrower measurement of income than Cash Income in that they exclude separable diversification activities. They are also based on including imputed costs for unpaid labour and an imputed rental value on owned land and buildings.

**Net Farm Income** is *Farm Business Income* after adding back *Interest* (net of any interest received) and *Ownership Charges*, minus *Unpaid Manual Labour Costs* and the emoluments of the principal director(s) and *Rental Value and income from separable diversified activities*. It represents the reward to the farmer and spouse for their own manual labour, management and on tenant-type capital invested in the farm, whether borrowed or not and before separable diversified activities. (For a description of separable diversified activities see pages 26 and 27).

**Management and Investment Income** is *Net Farm Income* minus unpaid manual labour of the farmer and spouse plus *Cost of paid managerial input (whether from the manager or not)*. Alternatively it is *Total Farm Gross Margin* minus *Adjusted Fixed Costs* or *Total Farm Output* minus *Total Inputs*. It represents the reward to management, both paid and unpaid labour and the return on tenant-type capital invested in the farm, whether borrowed or not.

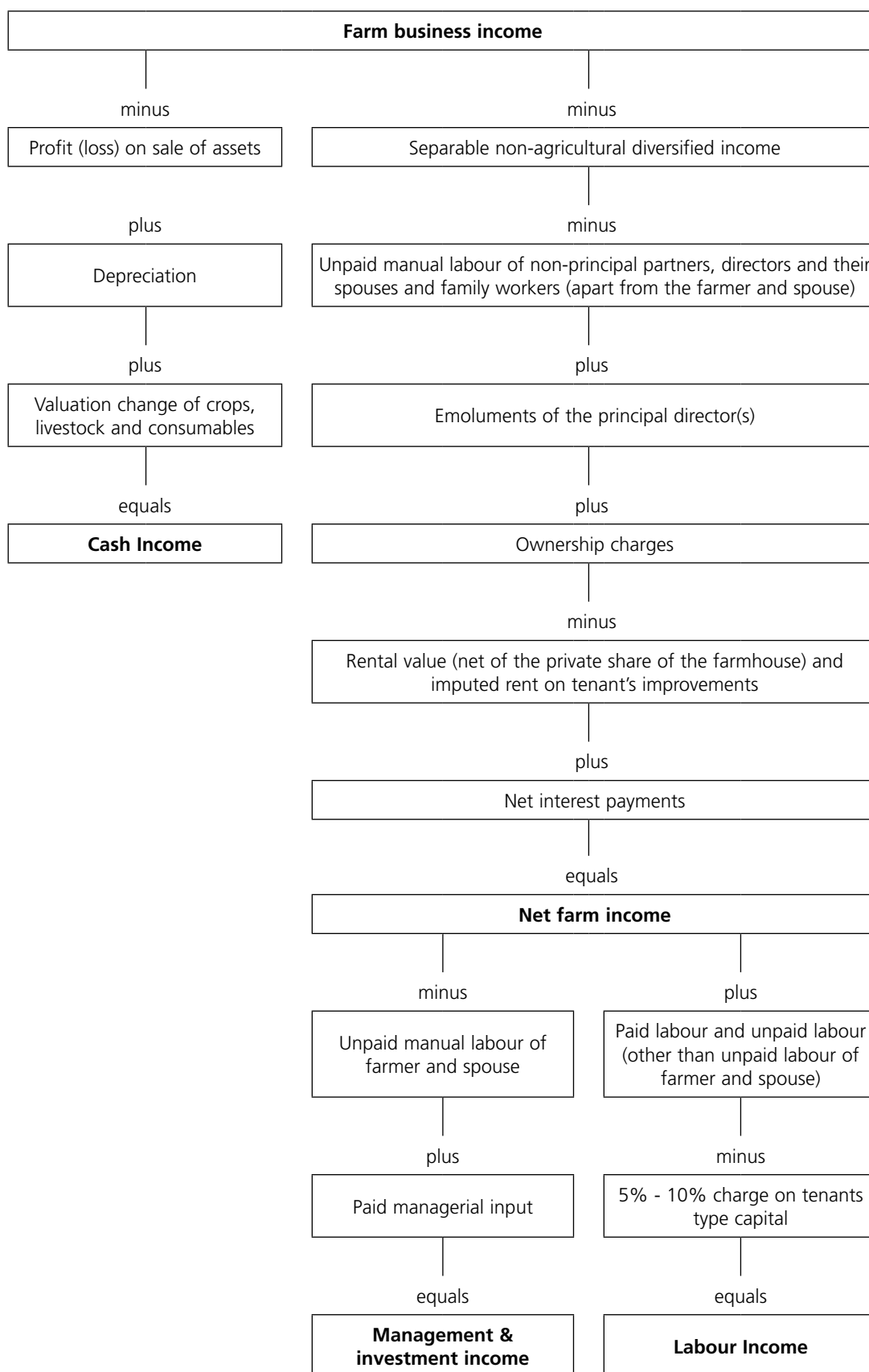
Labour Income is the return to the total labour force of the farm including the farmer, the farmer's family and hired labour. It is equivalent to Farm Business Income plus paid labour plus ownership charges plus net interest payments minus separable non-agricultural income minus rental value minus imputed rent on tenants improvements minus a notional return on tenant-type operating capital, charged at between 5% and 10%.

Alternatively it is Net Farm Income plus all labour costs (paid and unpaid), less a notional return on tenant-type operating capital, charged at between 5% and 10%.

The chart below shows the derivation of Cash Income, Net Farm Income, Management and Investment Income and Labour Income, all from the starting point of Farm Business Income.

## Appendix 4

### Derivation of Cash Income, Net Farm Income and Management and Investment Income and Labour Income from Farm Business Income



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