

ACCOUNTING DEVELOPMENTS AND IMPLICATIONS
FOR FARM BUSINESS

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THE AGRICULTURAL ECONOMICS RESEARCH UNIT
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The Agricultural Economics Research Unit (AERU) was established in 1962 at Lincoln College, University of Canterbury. The aims of the Unit are to assist by way of economic research those groups involved in the many aspects of New Zealand primary production and product processing, distribution and marketing.

Major sources of funding have been annual grants from the Department of Scientific and Industrial Research and the College. However, a substantial proportion of the Unit's budget is derived from specific project research under contract to government departments, producer boards, farmer organisations and to commercial and industrial groups.

The Unit is involved in a wide spectrum of agricultural economics and management research, with some concentration on production economics, natural resource economics, marketing, processing and transportation. The results of research projects are published as Research Reports or Discussion Papers. (For further information regarding the Unit's publications see the inside back cover). The Unit also sponsors periodic conferences and seminars on topics of regional and national interest, often in conjunction with other organisations.

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PREFACE

The need for farmers to undertake effective management and accounting practices for their businesses is always present and is especially important in times of financial constraint. In general, farm accounting appears to be based mainly on preparing external reports for taxation purposes. The growth of the importance of outside investors, especially in horticultural developments, will mean that the need for meaningful external reporting will become greater and the preparation of reports providing better information than "tax return" documents will be required.

The area of management accounting as it applies to farming has received little attention. Management accounting techniques have a major contribution to make to improve farmer decision making. The concepts involved are relatively simple; the benefits from their use are potentially large.

This Discussion Paper has been prepared by Professor Roger Juchau, Professor of Finance and Accounting at Lincoln College. The Paper presents a discussion of some of the techniques available for financial reporting and management accounting and suggests that the adoption of some of the newer techniques (even the improved use of old techniques) would make a substantial contribution to the efficiency of analysis and resource use in the agricultural sector.

The AERU has a close association with both the Farm Management and Rural Valuation and the Agricultural Economics and Marketing Departments and undertake to publish suitable material from both Departments. This Discussion Paper represents a significant contribution to the debate on farm accounting practices.

R G Lattimore
Director

ACCOUNTING DEVELOPMENTS AND IMPLICATIONS FOR FARM BUSINESS

Recent developments in accounting research and professional prescriptions have a number of implications for accounting within the farm business context. This article considers some of these developments in the light of present accounting views and practices in farm business.

1. PROFIT CONCEPT

The conventional measurement rules and ideas that underlie the historic profit concept have been subjected to vigorous criticism from academics and practitioners alike. For many, the historic concept is unacceptable because it disregards both general and specific price variations and admits judgemental data (inventory costing, foreign exchange gains and losses and depreciation measurement) into profit calculations.

Alternative concepts of profit have been proposed based on various forms of current and market price accounting. They deal with price variations, limit the levels of profit distribution and, in a few proposals, narrow the scope for including some judgemental data. It is now possible for any business entity to have a variety of profit data based on the same trading conditions as depicted in Table 1.

TABLE 1

A VIEW OF PROFIT CONCEPTS
[after Lee, 1984, p.29]

VALUATION BASE OF ASSETS	CAPITAL MAINTENANCE	MONEY	PURCHASING POWER	OPERATING CAPABILITY
HISTORIC PRICE		X	X	-
REPLACEMENT PRICE		X	X	X
SALE PRICE		X	X	-

The question of which profit concept is best is essentially normative. Political and professional forces determine which concept endures. In the present business context, current tax laws, cost-benefit considerations and the actions of conservative professionals determine that the historic profit concept is upheld in most financial reporting systems.

In the Australia and New Zealand farming context, the little empirical and anecdotal evidence that exists, suggests no trend to depart from the conventional mode of profit calculation. Under the tax and cash-driven historic accounting systems there is little scope or motivation to move towards a current or market-value profit concept, even though price inflation continues to undermine capital positions. Professional farm managers argue that alternative profit concepts are inapplicable, too costly, too subjective, too complex and unhelpful for evaluation. They argue that they have other superior informal ways of assessing the impact of price inflation on operations and results, although there is little evidence to demonstrate that such informal methods are widely used.

At present, there is some concern that many farm entities are allowing their capital positions to be eroded by not reviewing, formally and systematically, the impact of price variation on operations, thus ensuring that private (especially) and business distributions of profit are warranted. Not to undertake formal and systematic reviews, given the low farm returns being experienced, will prevent many farms from recognising that they are inadvertently slipping into untenable capital positions.

2. INFORMATION UTILITY

Accounting is widely viewed as having an information and communication function - to inform various external groups which are affected by and have a direct interest in financial accounting reports. The information produced must relate to the decisions of principal report users (investors, lenders, creditors, employees). The nature of their decisions - to commit, extend, contract or withdraw resources - is paramount in determining the nature and scope of reported information. The role of accounting information is essentially predictive to enable users to improve predictions about future returns and risks.

If one considers those other parties who have an interest in financial reports - regulators, management, auditors and information intermediaries - the scope of the information required is considerable. Given the varied roles of these groups, and the others referred to before, the task of providing relevant information to all groups in one set of financial reports becomes overwhelming. Inevitably, there will be a lack of consensus on what is the best financial reporting system.

Some reformists in accounting advocate a solution to the diverse claims on financial reporting by providing relevant base-level information, free from the difficulties associated with the various profit concepts, that will service all user decision models. The common information required is claimed to be reported cash flow, realised and realisable. It is alleged that all groups require information on historic, current, and prospective cash disposition. This information can be provided by a cash-based system of accounting, with cash flows and sale prices as the basic ingredients. The system proposed by Lee [1984], for example, serves this purpose by reporting, among other things, actual and potential cash flows, revealing profit in cash-flow terms and financial position in actual and potential cash terms.

If one observes the constituents in the farm-business reporting environment, the array of decision models requiring servicing by financial reports is again extensive. Proponents of the cash-based system would argue that their system should appeal because it could be readily installed using the cash tax-based systems widely practised in Australia and New Zealand. A statement of financial position for a farm business under the 'Lee' system, for example, would appear as shown in Table 2.

TABLE 2

STATEMENT OF FINANCIAL POSITIONCANTERBURY FARMS LIMITED31ST DECEMBER 1985

[ASSETS DESCRIBED IN SALE PRICE TERMS]

CASH ASSETS		
BANK		\$1000
READILY REALISABLE ASSETS		
DEBTORS	\$ 2000	
GRAIN	4000	
VEHICLES	7000	
PROPERTY	20000	
SHARES	5000	
CATTLE	9000	

		\$ 47000
LESS SHORT TERM LIABILITIES		
CREDITORS	7000	
TAX PAYABLE	2000	
MORTGAGE	3000	

		12000

		35000
NOT READILY REALISABLE ASSETS		
SUPPLIES	1000	
MACHINERY	7000	

		8000
NET ASSETS		
\$44000		
LESS LONG TERM LIABILITIES		
MORTGAGE	17000	

		17000

TOTAL NET ASSETS		\$27000
		=====
OWNERS EQUITY		
CONTRIBUTED CAPITAL		10000
RETAINED EARNINGS		17000

TOTAL OWNERS EQUITY		\$27000
		=====

The statement describes the net assets of the farm in sale-price terms, providing aggregate information on the actual and potential cash available to the farm. Assets and liabilities are ranked to provide report users a basis to predict cash flows in a reasonably objective way, using market prices when these are available.

This cash flow system appears highly suited to the farm business under present market conditions, where there is a constant need to closely monitor financial viability, cash flow generation potential, and capacity to adapt to change. The financial reports from such a system would, according to Lee [1984, p. 83], reflect financial viability by providing information on cash availability from operations, the relative reliance on cash funding from internal and external sources, and the use of cash for investment and distribution. By revealing both realised and realisable cash flows, cash-generation potential is communicated. Suppliers, to whom payment obligations exist, can assess the potential of the farm to meet payment schedules. Cash is the usual means to altering a farm's asset structure (to adapt to a changing environment) but it requires a reporting of the farm's command over cash, both realised and realisable. This gauges the farm's general condition of adaptability; the more adaptable the farm, the less likely its survival will be threatened in a rapidly-changing world (in terms of cost price changes).

3. CONSEQUENCES OF FINANCIAL INFORMATION

The impact of financial disclosure and financial statement data on the decision-making behaviour of report users has received considerable attention in finance and accounting literature.

Some studies have raised concern about the need to assess the impact of reported information carefully. The following highlights some general economic consequences of financial information in the context of farm business.

The varying quality and timeliness of reported financial data of farm entities, and the degree of access to that data by the suppliers of funds can affect the distribution of wealth among these suppliers. Suppliers who have access to superior information, such as a branch bank, may command better debt-servicing performance from a farm business, or more promptly secure their equity, by pre-emptive action, when debt delinquency seems imminent. Suppliers with access only to inferior information, such as a local hardware business, may suffer losses through not being sufficiently informed to enforce a better financial linkage or take protective action to make good their contractual interest.

The wealth-accumulation effects of this superior-inferior information may have further economic consequences on the distribution of wealth between city-based and rural-based lenders and creditors. Informed and networked, city and rural, lending and credit institutions, with headquarters in major cities, may accumulate wealth at the expense of their rural based competitors, thereby putting further financial stress on the economy of rural towns. In parts of rural Australia and New Zealand evidence of such adverse-distribution effects can be found in the relatively high bad debt losses being experienced by local creditors of farm operators.

Financial disclosure can alter investors' and lenders' perceptions of the relative rewards and risks in various farm-business opportunities and, consequently, funds will be allocated to those opportunities which appear more desirable. There is, of course, the danger that funds may be misallocated to entities whose managers fail to disclose the effects of adverse trading and finance conditions by, for example, deferring recognition of period costs and losses.

In the scramble for investors' dollars, agricultural and horticultural business ventures, both proposed and existing, present financial data which, occasionally, misrepresent the levels of risk and rewards. The levels of investment allocated to these ventures have alarmed some analysts because of the growing imbalance in some farm investment portfolios in Australia and New Zealand. This imbalance becomes worrying when one realises that some of these ventures continue to attract funds even though their financial performances lack strong corroboration.

Within this scenario of agri-horti joint ventures, special-partnership and corporate farm schemes, the provision of publicly available financial information is critical to limiting the scope of scheme sponsors and managers for making abnormal profits and misleading investors. More disclosure - perhaps regulated - that requires the regular reporting of performance and cash-flow data to external investors could improve accountability and redress this potentially damaging information access skew.

4. MANAGEMENT ACCOUNTING

The major issues of management accounting relate to the conflict of accounting information roles, accountability versus decision enhancement, and the thrust and relevance of empirical research.

The goal of management accounting is to optimise the use of resources committed to a business. This is assisted through the use of specific data-accumulation systems and reports which service directly the critical operational

decisions affecting resource allocation. Data systems and reports under such conditions incorporate data with objective and subjective, numerical and physical, retrospective and prospective dimensions. Internal accounting data has qualities, to afford flexible treatment, which would not be tolerated when servicing the more prescriptive and rigid information demands of a number of interested external report users, such as taxation authorities, finance companies, and stock exchanges.

A potential conflict exists between the use of data for internal decision purposes and using the data for servicing interested external parties who are involved with financial transfers to and from the firm. Their demand for objective and verifiable data frequently forces data-accumulation systems to focus on these external needs at the expense of internal needs [Kaplan 1982, Ch 1].

In a farm business, where funds allocated to accounting systems and services are generally at a minimum, satisfying the information needs of external parties frequently gets priority over internal reporting requirements. A constant complaint of accounting firms servicing the farm-business sector is that they cannot install good management accounting procedures because farmers are not prepared to allocate funds beyond a level necessary to service external accounting obligations, especially to taxation authorities.

Apart from decision enhancement within business, management accounting has a valued role in its accountability - assessment function, evaluating the performance of managers and decision makers. However, performance criteria and the performance-evaluation process involve managers who are able to interpose and skew the process or criteria, and so maximise their position at the expense of their employer. As observed by Kaplan [1982, p. 15] once managers learn that information elicited for decision-making will also be used for evaluation, there will be incentives to misrepresent or distort the requested information. So, there are fundamental conflicts between users of accounting data for decision-making and users of accounting data for control purposes. The continuing challenge for management accounting is to resolve these conflicts by developing measures useful both to decision-making and to establishing accountability relationships. These kinds of conflicts are inherent in the emerging managed-orchard schemes where city-based owners are vulnerable to managers who can easily put owners' interests on low priority, and invoke reports to mislead on such matters as crop development and performance.

The nature and scope of management accounting systems in farm business are very much dependent on farm size, farm activity, farm resources and farm ownership structure. In large corporate, capital-intensive, multi-product farming the need for and the value of management accounting systems

for decision and accountability roles are obviously considerable. In the small, family-owned, single-activity farm, management accounting systems are of low complexity, entailing basic cost-capture and budgeting routines. A number of computer packages are now available to the smaller farm business to assist analysis and interpretation of historic and prospective production, income and cost data.

There is a need for farmers to become more conversant with the relatively simple techniques which can assist farm decision making. For example, the scope and potential of discounting procedures appear to be poorly understood and are often not employed in evaluations of new investments. Some professional advisors do not reference the available techniques on the basis of "the farmer doesn't understand the method". Some recent analyses of irrigation investment options have suffered from the lack of application of discounting techniques. Such concepts of "sunk cost" and "salvage value" also appear to have low understanding and application among many farmers. Both these concepts can make significant contributions to the analysis of investment options.

A further area of special concern is the apparent lack of appreciation of the contribution of marginal analysis. All new business expenditure can be assessed on the basis of the extra return or benefit that is likely to result from that expenditure. The analysis of current levels of new farm expenditure with respect to the increments in returns expected from the expenditure can materially assist efficiency reviews.

Also of concern is the low recognition of the effects of fixed and variable costs. When there is pressure on farm returns, cost analysis becomes especially important. The higher the proportion of fixed costs within farm expenditure, the more vulnerable the farm is to adverse changes in the level of returns. Some unwarranted land acquisitions during the early 1980's and their levels of fixed cost debt servicing are examples of inappropriate assessments of the relative levels of fixed and variable costs and associated risk.

The continuing concern of farm-finance advisors and consultants is to extend management accounting knowledge and technology among the larger-scale farms by raising the level of analysis and decision support beyond that required to effect basic planning and control routines by budget and enterprise analysis. Closer monitoring and review of cost behaviour, price and cost parameters, price-output decisions, allocation methods and alternative marketing and production strategies is required to extract those efficiency benefits that will pay dividends in a climate of rising costs and stagnant prices for farm produce.

The difficulty faced by advisors is to effect the transfer of this knowledge and technology to current farm business. Problems arise because there are few innovators who can act as reference points. Farmers tend to be highly suspicious of innovations in accounting and before adopting new schemes they expect to see how well these new procedures work in practice. What is required is more extensive use of these procedures so that a credible basis for disseminating information is achieved.

In many farm operations there are fundamental changes occurring in production modes. Among these are enhanced mechanisation of crop maintenance and harvesting, intensive - sheltered cropping systems, flexible machinery - land - labour management policies, and weather - soil sensitive fertilizer and irrigation systems. The management accounting implications of these more advanced production and production-support systems have received little investigation, so consequently farm accounting texts and guidelines continue to outline management accounting applications using simplified cropping and livestock production operations. Further, with the advent of computer-aided horticultural production systems, which enable efficient production of limited quantities of customised produce - shape, maturity, colour, size - a new era is clearly arriving for management accounting development in agribusiness.

Those farm businesses which are responding to changes in their environment by introducing new organisational arrangements and new technology for production require the close involvement of management accountants to ensure that data for decision support is appropriately captured, measured and communicated. This, and the developments outlined before, indicate that new directions in accounting practice and research within farming are required.

One further line of research in management accounting, which is now providing a major benefit to an understanding of intra-firm managerial decision-making is research by the National Association of Accountants [1975] on normative models (listed below in Table 3) in managerial decision-making. The research has delineated the nine most common models of managerial-decision processes drawn from accounting, management, marketing and finance functions. Separate studies, on each of the models, involving empirical (descriptive) research on actual decision processes, have been carried out to analyse the information actually used in managerial-decision processes. Ultimately, a reconciliation will be attempted between the normative and descriptive results to develop theories and hypotheses about how managers use information.

Table 3

NINE DECISION MODELS

1. New Product Decision
2. Distribution Channels Decision
3. Acquisition Decision
4. Divestment (Product Abandonment) Decision
5. Capital Expenditure Decision
6. Make or Buy Decision
7. Lease or Buy Decision
8. Pricing Decision
9. Manpower Planning Decision

Nine models were chosen because these were commonly encountered in both the normative literature and the real world, and because these would reflect a reasonable mix of the decision processes common to a manufacturing firm.

Extending this kind of research to farm business has considerable appeal. There are prescriptions for key decision areas in farming, such as development expenditure, lease or buy machinery, acquisition of new processes, and new cropping-system decisions. Anecdotal evidence suggests that the prescriptions set out in popular texts and guidance manuals are not widely upheld in practice. Divergence between the decision models and actual decisions require, as for manufacturing business, explanations and theories on how farm managers make use of information. Continued concern about why practitioner or academic-inspired models are not taken up among high performance farmers can only be allayed by getting acquainted with the situational and human factors, and assessing those decision processes used in practice.

A considerable research brief exists if we are to fill this knowledge gap, and if we are to ascertain the potential for developing management-accounting systems that are more consistent with actual decision processes and managerial uses of accounting information within these high-performance farm businesses.

5. ACCOUNTING FOR FARM TRADING AND PRODUCTIVE ASSETS

Some specific issues relating to the way operational assets of farm business are priced and reported in financial statements under present accounting conventions require comment in this review. There are no specific accounting standards in Australia and New Zealand dealing with the pricing of assets in farm business contexts. General standards do exist for inventories, for example, but these do not accommodate the special conditions under which many farm assets are developed, held and marketed.

Principal farm assets can be divided, for analytical purposes, into the two groups shown in Table 4.

Table 4Farm Asset Categories [After AICPA, 85-3]

- (1) Crop Inventories - growing and harvested
[grain, vegetables, nuts, fibre]
- (a) Growing Crop - A field, row, tree, bush or vine
crop before harvest.
- (b) Harvested Crop - product gathered but unsold.
- (2) Longer-Term Assets
- (a) Land Development
Permanent [terraces] & Limited Life [fences]
- (b) Trees and Vines
Orchards, Vineyards and Groves
Production - varying number of years
Development - varying cost incidence
grafting
pruning
spraying
cultivation, etc.
- (c) Intermediate - Life Plants
Growth and production cycles greater than
1 year but less than those of trees and
vines
[artichokes, alfalfa, grazing grasses]

Development - land and plant preparation
Cultural Care - until commercial
quantities produced.
- (d) Animals [for productive use or sale]
Sheep, Pigs, Horses, Poultry, Cattle, etc.
- Care and Maintenance
- raised stock and progeny
- purchased stock
- Finishing Off
- Transfer to breeding
production
feeding
market

Turning to crop inventories first, the valuation debate (we will not consider taxation law specifications) has centred on whether these should be reported at market price or at cost, ie, the total of all direct and indirect historic costs incurred to grow and harvest.

The conventional view, adopted to preclude early profit recognition, requires inventories of unsold crops to be stated at cost, unless market value is less than cost. Many practitioners, particularly those in the USA, urge departure from this convention and adherence to a market price. Common arguments for such practice are:

- (a) Cost cannot be easily determined (cost capture being both expensive and difficult)
- (b) Gains or losses on production should be separated from marketing activity.
- (c) Availability of established markets provides accessible quoted market prices for many agricultural commodities.
- (d) Lenders and creditors to farm business are believed to prefer inventories at market price to facilitate collateral assessment.
- (e) Cost data-accumulation systems for many farm products are an unacceptably high-cost burden to many farm businesses.

While the historic cost convention is upheld and the other accounting systems previously referenced remain shelved, there is little chance that valuing crop inventories will move away from the cost basis, in spite of the arguments just outlined.

The only authoritative guide we have in the English-speaking world concerned with accounting for farming largely endorses the cost basis. This recent guide, Statement of Position, No. 85-3 produced by the AICPA states:

All direct and indirect costs of growing crops should be accumulated and growing crops should be reported at the lower of cost or market.

An agricultural producer should report inventories of harvested crops held for sale at (a) the lower of cost or market, or (b) in accordance with established industry practice, at sale price less estimated costs of disposal, when all the following conditions exist:

- The product has a reliable, readily determinable and realizable market price.
- The product has relatively insignificant and predictable costs of disposal.
- The product is available for immediate delivery. [AICPA, 85-3, pp 17 - 18]

The second paragraph contains a concession to market advocates, especially when the industry position is strongly entrenched.

For longer-term assets, the cost-reporting implications of the categories in Table 4 are quite extensive.

In practice, a considerable variety of approaches to cost reporting among these longer-term assets exists. Farmers capitalise and amortise expenditures in a bewildering pattern. For example, cost reporting practices for orchards, vineyards and groves, are so diverse and inconsistent that, aside from those who uphold taxation authorities' dicta, there is clearly no consensus on cost determination and allocation. The motives of those who capitalise annual operating expenses and who immediately expense major capital expenditures require close analysis and systematic study.

The lack of public disclosure of reporting practices makes evaluation of these cost practices a difficult undertaking. However, as many of the larger agri-horti enterprises enter the various capital markets for debt and equity funds, scrutiny of the longer-term assets of these enterprises will be more exacting and questions can be raised about the varied cost reporting practices.

Statement of Position 85 - 3, referred to previously, is again the only specific authoritative guide to cost reporting for longer-term assets. The recommendations of the statement are:

Permanent land-development costs should be capitalised and should not be depreciated or amortised since these have, by definition, an indefinite useful life.

Limited-life land-development costs and direct and indirect development costs of orchards, groves, vineyards, and intermediate-life plants should be capitalised during the development period and depreciated over the estimated useful life of the land development, or that of the tree, vine or plant.

All direct and indirect costs of developing animals should be accumulated until the animals reach maturity and are transferred to a productive function. At that point, the accumulated development costs, less any estimated salvage value, should be depreciated over the estimated productive lives of the animals.

All direct and indirect development costs of animals raised for sale should be accumulated, and the animals should be accounted for at the lower of cost or market until available for sale. Agricultural producers should report animals available and held for sale (a) at the lower of cost or market or (b) in accordance with established industry practice at sales price, less the estimated costs of disposal, when all the following conditions exist:

- (1) There are reliable, readily determinable and realisable market prices for the animals.
- (2) The costs of disposal are relatively insignificant and predictable.
- (3) The animals are available for immediate delivery.
[AICPA, 85-3, pp 21-22]

These prescriptions help to provide a more delineated path through the jungle of reporting practices. Ultimately, the pricing of assets has to be based on a commonly agreed perspective of the roles of accounting information - contractual and/or predictive - and the financial reporting system that effectively serves that perspective.

6. CONCLUDING REMARKS

This article has traversed a number of accounting issues of relevance to farm business. Financial accounting and management accounting present challenges to accounting practitioners and researchers who have interests in farm business. In the long term, we require agreed procedures and reports to service the information requirements of key decision areas so that resource allocations within the agricultural and horticultural sectors meet the universal criteria of efficiency, effectiveness and equity.

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