

FACING UP TO NEW REALITIES: THE CASE FOR USING RELEVANT COST AND TARGET COST APPROACHES IN AGRICULTURE

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Abstract

The use of management accounting in the agricultural industry has received very little attention by accounting researchers. Agriculture is currently in an era of significant change and adjustment, where change in accounting practice needs to occur in response to external pressures. The traditional use of the gross margin system of accounting has tended to underline a notion that has had a powerful influence on farm business planning that most costs are fixed and that the best way of reducing them to achieve profit maximisation is to spread them by increasing the scale of operation. This logic has been supported by an economic environment heavily influenced by agricultural policy measures that focused on artificial support for market prices and/or direct payments linked to production activities. We argue that the decoupling of support from production has combined with a number of other changes related to payments and cost structures (including those linked to the recent dramatic rise in the price of oil) to provide a very different economic context for farm business planning. The response we advocate to this changed situation is to make greater use of two alternative methods of cost analysis; namely relevant costing and target costing. These have been developed and applied outside agriculture. They have not so far been used in a formal sense within agriculture but have links to existing methodologies used in farm business planning, such as partial budgeting, and in intuitive approaches already adopted by farmers as revealed in recent fieldwork.

1. Introductory Background

The principle methodology for the costing of farm enterprise performance for the purposes of planning and analysis since the 1950's has been the allocation of direct costs to produce gross margins, treating all other costs as 'fixed' (Barnard and Nix, 1979). Bright (2003, p.599) observes that 'over the years the gross margin format has become deeply entrenched within farming parlance, data presentation and farm business appraisal...Despite occasional dissenting strains, ...the gross margin continues to hold sway'. Malcolm (2004, p.398) refers to the Australian 'fetish' with gross margins and Jack (2005) has discussed the institutionalised nature of the practice.

Despite an attempt in the 1970's to promote the use of net margins (Giles 1986 and 1987) this was never adopted very widely and importantly the Farm Business Survey continued to base its results on the gross margin format. This may have been partly due to a need to refine the methodology (as explained by Kerr, 1988). But perhaps it is a sign of changing times that the UK Farm Business Survey (administered by DEFRA) has now decided to present information in net margin form and allocate costs on an enterprise basis. The cost allocation required will form an integral part of their method of data collection in future. This change in approach is described by Wilson and Seabrook (2005) as 'one of the most substantial changes to the survey in its history' (p.1).

Partly as a result of using the gross margin system farm business planning has in the past been steered by the underlying assumptions that most costs are fixed and that therefore the best way of reducing costs and increasing profit is to spread them by increasing the scale of operation. The net margin approach goes some way towards allowing a fuller consideration of costs. However it does not deal with the degree of fixity of those costs. As a support for management decision making it does not give an adequate indication of short or long run marginal costs. We argue therefore that alternative methods need to be considered which demonstrate enterprise viability.

In 2005, farmers in Europe faced a fundamental reform of the financial support they receive under the Common Agricultural Policy (CAP). In the UK, production linked subsidies were replaced by a Single Payment based on keeping farmland available for production but not necessarily in productive use. This process is referred to as the 'decoupling' of subsidy from production. The long-term aim of the CAP is for subsidy to be increasingly linked to environmental protection requirements rather than production and thus avoid claims that it distorts trade.

Giles (1986, p.143) pointed out that in the late sixties, as price support mechanisms were replaced by production subsidies, the question farmers asked was, 'which are my profitable enterprises?' which led to the leap of logic that the least profitable enterprises should be cut out, rather than to questions of which mix of enterprises could be more profitable. He advocated net margins as being more appropriate to this type of question.

Twenty years on, the questions appear to be changing to whether to produce or not to produce (Jones, 2005) or to diversify or not to diversify? Decoupling subsidy from production is indicative that the new reality is not about how to maximise production but how to ensure that any production that does take place is profitable. Neither gross margin nor net margin analysis by themselves are adequate to the task.

Thus there is a growing need for new decision-making accounting tools in the farming industry, to meet not only the new realities of decoupling but other pressures identified by the authors from their experiences of carrying out research and consultancy projects in the field. These other pressures include the changing nature of so-called fixed costs due to changes in operational methods, increasing costs and decreasing commodity prices.

This paper sets out firstly the new realities facing farmers that should make the search for strategic – rather than tactical – accounting tools an immediate concern. In the second part of the paper two accounting methods that are well established in outside agriculture are explored and their potential for providing new decision-making tools in this industry are assessed. This issue should be of interest as an insight into how management accounting techniques that are well used in the mainstream of industry can nevertheless be neglected in their application within a specialised sector such as agriculture and are just waiting to be ‘discovered’.

2. The new realities that make a change in accounting methodology appropriate

There are principally five developments that together add up to a sufficiently fundamental change to cost structures that we argue there should now be a change in the approach to farm costings to allow farm planning to take them into account successfully.

2.1 Costs have become less fixed

There has been a gradual change in the resourcing of production activities which has made the cost structures much less fixed than they were. This has been brought about by such practices as the use of casual labour, contractors, machinery rings, machinery and job sharing with neighbours, machinery leasing and part-time working. These trends can to a certain extent be detected in the FBS results. But it is not always that easy to do so. Tiffin (2002, p.27) observed that ‘Small cereal farms make significant use of informal contracting services provided by other farmers on a non-cash payment basis, for harvesting and other crop services’. These exchange or barter arrangements will not be identifiable as contract costs.

The changes to date are best described evolutionary rather than revolutionary. Tiffin found that although 16.8% of cereal farms showed an increase in the use of contractors 4.4% showed a decrease and 54.1% experienced no change in their use between 1995/96 and 2000/01. About a quarter did not use contractors at all (Tiffin, 2002, Table 2.4, p.28). Nevertheless there is a long term trend towards the cost of (formal) contracting

arrangements representing a greater proportion of total labour, machinery and contracting costs as shown in Table 1.

Table 1 Contracting as a percentage of overall labour and machinery costs on arable farms in Central Southern England, 1984, 1994 and 2004

	2004	1994	1984
Small cereal farms	18.7%	15.9%	11.3%
Larger cereal farms	9.1%	5.9%	4.6%
Arable cash cropping farms	13.6%	9.3%	4.1%

Source: Reading University FBS published in Reading University (2006), *Farm Business Data 2006*, Department of Agricultural and Food, The University of Reading and earlier editions.

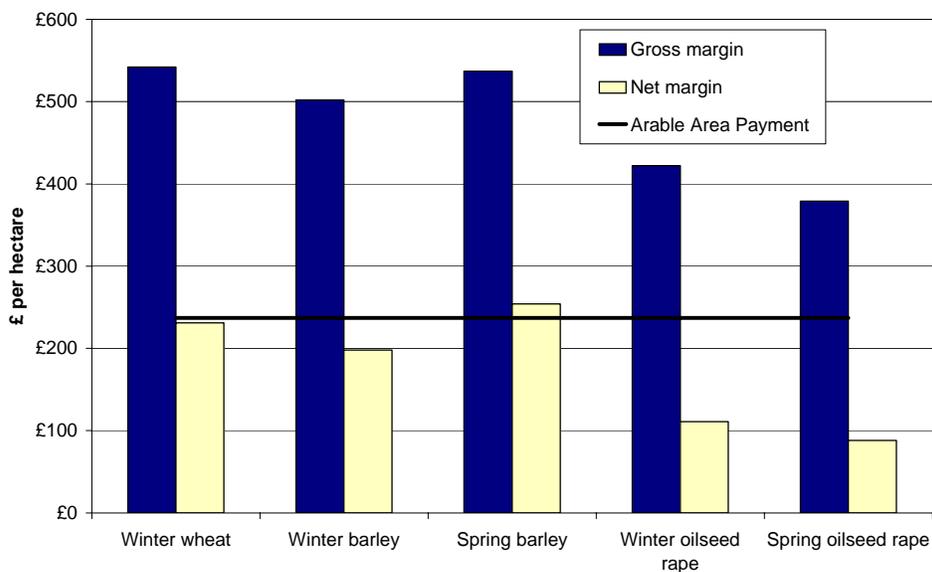
Out of a sample of 506 farms of all types Tiffin (2002) found only 27 (5%) made use of machinery rings and only just over a third knew of a machinery ring in their area (p.31). So the uptake of this is bound to be patchy geographically. Machinery sharing on an informal basis was found to be much more common but was still only undertaken by 12% of the farms in the sample (p.32).

Therefore despite these trends being gradual rather than dramatic they are clearly significant for an increasing number of farms and of growing importance generally.

2.2 Decoupling of support payments

The reform of the Common Agricultural Policy (CAP) does represent a dramatic change with profound implications. It has at a stroke removed most direct payments that were linked to production. The effect of removal of the Arable Area Payment (AAP) in the combinable crop sector can be seen in Figure 1. This shows the relative level of gross margins and net margins for wheat, barley and oilseed rape including the AAP that was included within them for harvest year 2004 (the last before subsidy decoupling took place). It also includes a line representing the amount of the AAP which would be lost should the subsidy be removed. It can be seen that on average performance these farms would struggle to make a positive net margin without the area payment for cereals and would have achieved a low gross margin or a negative net margin for oilseed rape. As a result one can expect that with below average performance conditions that production may no longer be economically viable. This was far less likely when the withdrawal from production also meant the loss of the area payment.

Figure 1 Gross margins, net margins and the Arable Area Payment for cereals and oilseed rape in Central Southern England harvest year 2004



Source: Birt, R. and Davies, B. (2006) 'Recent investigations and research projects' Section 5 of Reading University (2006), *Farm Business Data 2006*, Department of Agricultural and Food, The University of Reading.

A negative gross margin clearly makes it uneconomic to remain in production but this does not necessarily follow with a negative net margin. This is because net margins generally contain some cost elements such as rent which will not be lost when production ceases. The issues surrounding what does determine the point at which profit is maximised by ceasing to produce have been discussed in some depth by Jones (2005)a. Jones explores sensitivities to output price and grain yield against a range of assumptions on cost structure. It is clear from this that the degree of management control over cost is as important as the overall level of cost. Farms run by contractors make greater cost savings when production ceases than those where labour is mostly provided at a nil or notional cost by the farming family and the machinery used is all owned by the business. Hence we argue for a more sophisticated means of determining costs than that used in net margins. What farmers need to plan their business is a measure of profitability that lies somewhere between the gross margin, that does not identify sufficient of the costs that might be saved, and the net margin that allocates more costs than can be saved by quitting production. Figure 1 shows gross margin profits and net margin losses without the benefit of production subsidies. Prior to decoupling both measures showed a profit. The dilemma is clear.

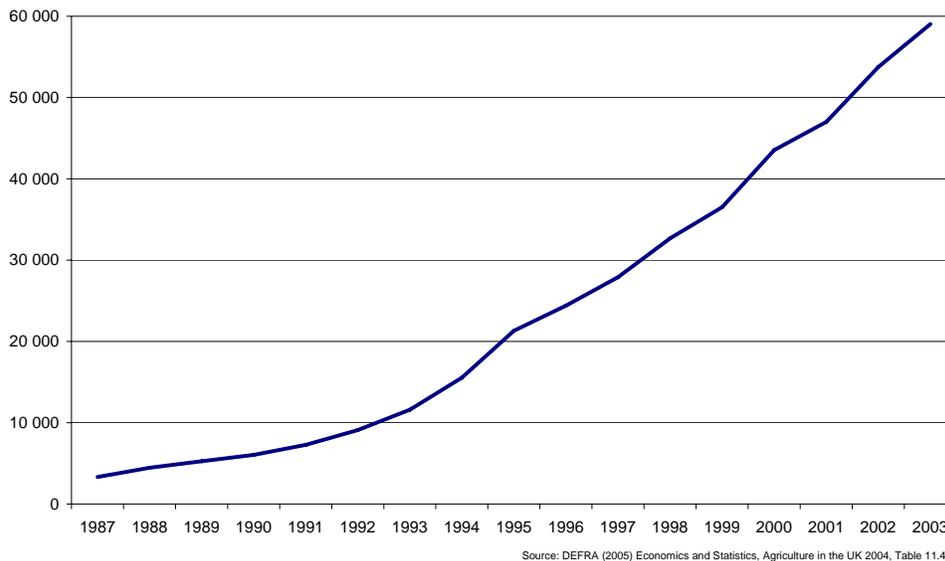
The change to more slender production margins also alters the nature of the scale incentive to spreading fixed costs making this more risky. Under the old support regime increasing the scale of production was 'underwritten' by additional subsidy support payments. This is no longer strictly true (although the Single Payment whilst it is not linked to production is linked to land area). As a result returns from increasing the scale of production must come solely from the market increasing the sensitivity to changes in

price and output performance. Scaling up production therefore also scales up risk and exposure to market movements.

2.3 Support for cutting production under agri-environment schemes.

There has been a substantial growth of agri-environment schemes aimed at reducing the intensity of agricultural production for environmental purposes in the UK, the EU and across the world. The growth in the number of agreements in force in the UK is shown in Figure 2. The advent of ‘broad and shallow’ agri-environment schemes, such as Entry Level Environmental Stewardship in England, should expand these numbers greatly.

Figure 2 The number of agri-environment agreements in the UK 1992 – 2003

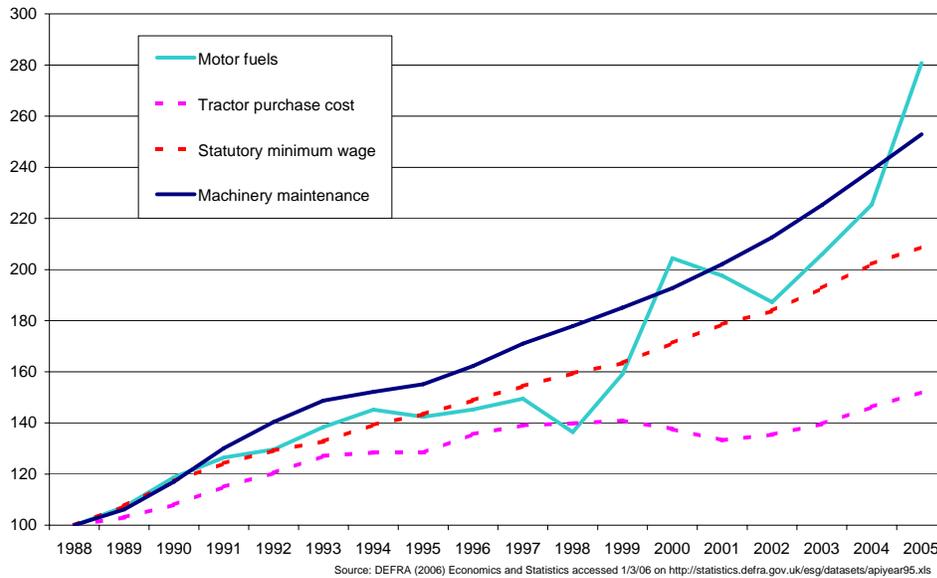


Agri-environment prescriptions typically aim to reduce the intensity of production by lowering stocking rates, cutting fertiliser or chemical use, providing uncropped margins etc. The financial advantage of doing this often depends crucially on the extent to which overhead costs, particularly of labour and machinery, are reduced as a result. In a detailed case based assessment of three farms in lowland England Jones (2005)b showed that there was considerable variability in the level of cost reduction for a given agri-environment prescription based on the overhead cost structure of the business. Treating all overhead costs as fixed would not have given a true reflection of the potential cost-benefit of agri-environment scheme participation. The more that CAP funding becomes redirected towards agri-environment and the more widespread the schemes the greater the need to look at costs in an appropriate manner to assess the impact of reducing production intensity.

2.4 Factor cost changes

The recent sharp increase in the price of oil has accelerated inflation in elements of cost that are most closely related to it – notably fuel oils and nitrogen fertiliser. This makes it more important to consider costs such as fuel use which in the past have tended to be considered along with other unallocated costs as part of ‘fixed costs’. Figure 3 shows the trend in the unit costs of four major elements of labour and machinery cost two of which are ‘fixed’ or at least can only alter by integers and two of which are ‘variable’ in the sense that they vary according to the amount of work done. The ‘fixed’ or ‘integer’ cost components are wage rates, represented by the statutory minimum wage, and the capital purchase cost of machinery represented by an index of tractor prices. The ‘variable’ elements are fuel prices and the cost of maintenance of machinery. This shows that up until 1997 fixed and variable elements maintained trends that did not depart dramatically from one another and inflation in fuel costs had fallen behind that of wages. After this the fuel cost increased erratically but strongly far outstripping wage inflation and the low inflation in the capital costs of machinery. The fixed elements of cost are those that are influenced most by economies of scale. Whilst the fastest rising unit costs were on those that are treated as fixed it helped to underpin the idea that economies of scale were vital. Rising fuel and repair costs can’t be combated very effectively by increasing scale. A more subtle approach to cost assessment and control is required to do this than can be provided by gross or net margins.

Figure 3 Trends in the indexed unit costs of ‘fixed’ and ‘variable’ elements of labour and machinery costs 1988 – 2005

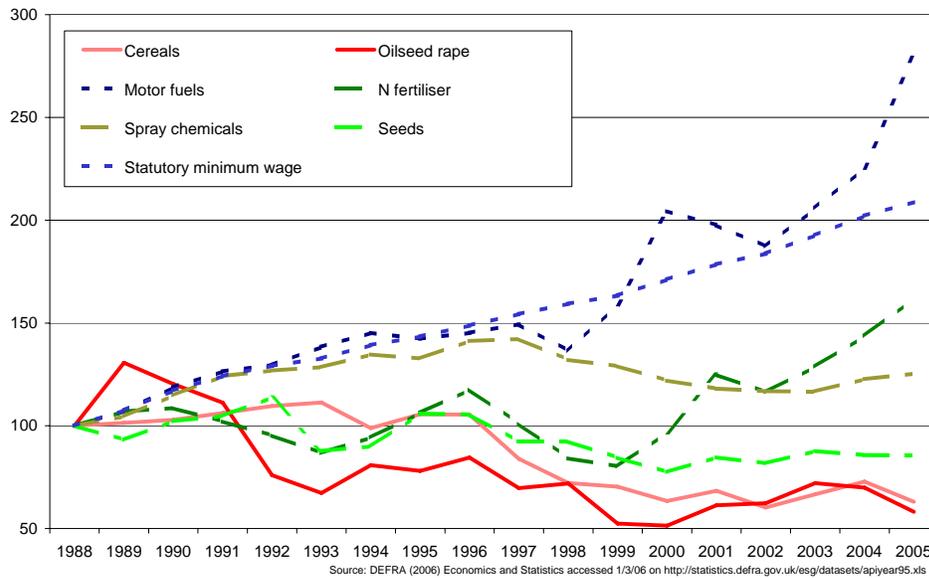


Concern to make more recognition of the variability of some elements treated as part of fixed costs is not new (Warren, 1998). However the divergence in cost inflation between the fixed and variable elements within the overhead cost structure make this an ever more pressing concern.

2.5 The cost-price squeeze

There has been a progressive trend for output prices to decline or remain static and for unit costs to rise. This in turn creates obvious pressure on profit margins. Figure 4 below demonstrates that overhead cost elements have taken the lead in this. Direct costs have generally shown a lower rate of inflation with spray chemical and seed costs tending to fall since the mid 1990's. But nitrogen fertiliser has increased sharply in cost under the same inflationary pressures as the motor fuels since 1999. Overall it is clear from the graph that inflation trends have created a wider and wider gap between major cost elements and the price of the main element of output.

Figure 4 Trends in the indexed unit prices inputs and outputs 1988 – 2005



2.6 The overall effect

The most dramatic and most important change that justifies a new way of examining costs and margins is the decoupling of agricultural subsidies. But this comes on top of growing trends that would have made it more justifiable in any case. In particular the recent sharp increase in the oil price has added to the cost-price squeeze and created more emphasis on some elements that do vary with the work done but have hitherto been treated as fixed costs. In combination we believe these influences combine to make a strong case for a new and more subtle approach to management accounting than either the gross margin or the net margin approach currently in use in agriculture.

3. Alternative accounting methodologies

There are two management accounting practices from outside agriculture that we feel could provide the answer to coping with the new realities facing farming businesses. These are relevant cost and target cost accounting. The research behind the ideas presented is based on a review of the current (albeit sparse) academic literature, practitioner publications and interviews carried out with farmers and their advisors in 2005¹.

3.1 *Relevant costing*

This concept is not entirely new in agriculture: partial budgets are a form of relevant cost analysis and both are based on the marginal concept. The key difference between marginal costing in agriculture and in other industries is that in agriculture the use of gross margins is based on the concept of marginal income based on units of input, whilst in other industries, marginal costing is based on units of output.

The primary focus in conventional accounting is break-even analysis and the making of marginal decisions such as whether to make or buy in an element of service or production; whether to offer a discount generally or on a one-off contract; or whether to keep a branch or division open.

Relevant costs and revenues are those future costs and revenues that will be changed by a decision (Drury, 1997: 26). They are sometimes also referred to as incremental costs and include opportunity costs. Costs are defined as allocable or non-allocable: non-allocable fixed-costs are grouped and these must be covered for any decision to be viable. The difference between the relevant costs and revenues is the contribution: if a marginal decision produces a positive contribution, then aside from any qualitative factors, the decision should be made in favour of the positive contribution. As with net margin analysis, the contributions from all activities are aggregated and the non-allocable fixed costs are subtracted from the aggregate.

Relevant cost analyses, or contribution analyses, are used for marginal, short-term decisions. A number of bankers and other advisors interviewed were adamant that farmers should at least be employing the more basic form of relevant costing – break-even analysis – claiming that successful farmers were those that knew their costs and their break-even point.

3.2 *Relevant costing as a strategic tool*

One advantage of relevant costing and break-even analyses are that they lend themselves to visual presentation. The key problems in agriculture for the assessment first of a break-even point and then contribution analysis is the presence of discontinuities and stepped costs. Break-even analyses are rarely straight-line, short-term affairs, given the longer term nature of farming decision making.

Cost-price squeezes can be demonstrated as the sales line falls and the variable cost line rises – albeit that this gives a rather depressing visualisation. However, in order to restore the breakeven point, farmers must consider strategies to reduce whatever fixed costs remain – for example through operational changes in use of machinery (Markham and Chapman, 1998) or labour – and to reduce variable costs such as fuel through, for example, purchasing groups or more astute use of machinery.

Contribution analysis lends itself most readily to contract farming. The decision of whether or not to take on another farm contract or to dispose of an existing contract could be analysed by assessing the incremental costs and benefits of the decision (including opportunity costs). A hypothetical outline example of a contribution analysis is given in Table 2. A similar approach could be taken to the acquisition of new machinery, to make lease or buy decisions, to enter into a diversification enterprise or to assess the benefits of entering into a machinery ring.

Table 2: Outline Example

Contribution analysis outline (e.g. contract another 200 hectares of wheat, forgo opportunity to rent machinery out)	
	Per hectare
	£
Incremental income	581
<i>Less:</i> variable costs (seed, fertilisers etc)	(257)
Incremental fixed costs	(127)
Other future cash flows	-
Opportunity costs/benefits	<u>(40)</u>
Contribution	<u>157</u>

4 Target Costing

Target costing has been proposed in the context of livestock (Theuvsen, Essmann and Brand-Sassen, 2005) but has generally so far received little attention in agriculture. Interview findings indicated that the decision-making thought processes of some farmers was close to the pattern of thinking required in target costing.¹ Further, although accounting research into the methodology has tailed off recently (Roslender and Hart, 2000), it has been identified as a tool which could be usefully applied in supply chains. In other words, there are indicators that this strategic management tool could be more widely explored in the context of a changing agriculture. In this section, we first outline the nature of target costing, and then look at its possible application to arable farming.

4.1 Target costing methodology

Target costing has been defined as ‘a process of first assessing a target price and then designing a product to meet this price’ (Hergeth, 2002). Another definition is ‘a process for ensuring that a product launched with specified functionality, quality and sales price can be produced at a life-cycle cost that generates a satisfactory level of profitability’ (Cooper and Slagmulder, 1997). The key factor is that it is primarily a strategic management process, a way of thinking about prices, customers and costs that is forward

¹ Research interviews conducted by Lisa Jack involving around thirty farmers in East Anglia and the West Country, accountants, advisors, bankers and consultants were carried out between 2002-2005.

looking: traditional costing methods, including relevant costing and budgeting rely on past record keeping.

The methods originated in Japan, in the automotive and audio-visual products manufacturing industries, where significant costs are incurred in the planning, design and development stages of the product life cycle. Reducing these costs can make a new product far more competitive. However, target costing has spread to the US and to other industries, and is being considered in the context of service industries and recently within agriculture but only in one example involving intensive livestock rearing (Theuvsen et al, 2005). Target cost management has become a recognised management strategy, and involves not just accountants, but multi-functional teams of sales, marketing, design and engineering staff. For smaller businesses, the methodology has potential. 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.

Furthermore, target costing has an application in supply chains. Lockamy and Smith, (2000, p.210) comment that 'Target Costing is a better choice for supply chain management. Notwithstanding the name, target costing focuses less on cost than on customer requirements. Cost is viewed as a result, an economic umbrella, whereas customer requirements are viewed as binding competitive constraints. Under target costing, the supply chain incurs whatever costs are necessary to satisfy customers' expectations for price, functionality, and quality. Cost rationalization not minimization is the goal'.

4.2 Target costing in agriculture

What is the equivalent of the planning and design stages in agricultural production? Theuvsen et al (2005) explore 'whether it is possible to implement more animal-friendly husbandry conditions for turkey fattening in Germany without sacrificing competitiveness'. They conclude that the method is, in principle, a 'useful approach for identifying economically acceptable measures for improving animal welfare' but that the weakness lay in assessing the customers' willingness to pay using market research data. More importantly, they identify a role for target costing in informing policy decisions: legislative requirements for improved welfare are often not cost effective or competitive for farmers, and cheaper imports provide a substitute for domestic production. With target cost information, more rational legislation could be devised.

In arable farming, the planning and design process encompasses a number of points made earlier in this paper. It is evident that consultants are advising farmers on schemes to make crop production processes more cost effective. Machinery rings are one example of this advice, as are methods which involve fewer passes with machinery to save fuel. Contracting arrangements, less intensive methods of farming or precision farming would also come under this heading. The thinking behind these schemes is closely aligned to target costing: given that prices are unlikely to increase, processes need to be re-

engineered. To achieve a profitable outcome, some target must have been envisaged, if not calculated. (Markham and Chapman, 1998)

Another factor that became apparent during our research is that profitability is not always the result of higher yields or more hectares. In one dairy benchmarking group, the most profitable farm had one of the lowest yields but also one of the lowest cost bases. All the farms in the group had moved to block calving and all had seen some increase in profitability. Again, although the term target costing is not employed, the thinking patterns are similar. Figures provided by Grant Thornton (2004) indicate that farm income was maximised for medium sized arable farms of 500-1000 acres and not for the larger size group. Although not conclusive evidence, it is indicative that seeking to achieve a reasonable level of profit, based on reasonable costs for prices available to the farmer, which is the underlying philosophy of target cost management, is a rational aim given the new realities outlined in Section 2 and that cost control is not merely a function of scale. Markham and Chapman (1998, pp.16-17) identify crop establishment operations as the key focus for cost saving, citing minimum tillage practices, procurement of drills that cope with high levels of trash, combination seed-bed cultivators or tandem cultivator-drills as approaches as ways of cutting labour and machine hours without 'compromising good agronomy'.

A hypothetical target cost profile for wheat is given in Table 3 based on figures for top quartile performance for farms in a survey by Grant Thornton. This is indicative and the methodology is not fully worked out in practice: it can easily be seen that the problem of allocating overheads remains whichever method of costing is used. Assuming a small number of enterprises however, reduces the incidence of non-allocable fixed costs.

Example

Table 3: Margin after labour and machinery on production of a tonne of wheat, excluding subsidy, Grant Thornton Farm Income Survey 2003-2004, Harvest 2003

Target Cost Profile			
Wheat Enterprise			
Price/cost element	% Factor	Price/acre £	Price/tonne £
Target Price		222	65
Profit Margin	20%	<u>44</u>	<u>13</u>
Enterprise target cost		178	52
Overheads less			
contracting	40%	<u>89</u>	<u>26</u>
Target direct costs		<u>89</u>	<u>26</u>

	Top 25%	Average	Bottom
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			25%
Variable costs (£ per acre)	89	90	93
Paid Labour (£ per acre)	23	30	42
Machinery (£ per acre)	88	95	116
Less contracting income (£ per acre)	(22)	(17)	(10)
Total per acre (£ per acre)	178	198	241
Wheat yield (tonnes per acre)	3.42	3.34	3.13
Cost of production (£ per tonne)	52	59	77

4.3 *Customer orientation and supply chains*

As an approach to inculcating strategic farm management, target cost management has a market, customer-oriented focus that farmers are now finding that they have to face. Where the customer is part of a longer food supply chain, then the adoption of target cost management as a collaborative exercise with customers (food processors, retailers) has the potential to increase awareness of farm costs in customers and to assist farmers in acquiring the information and assistance in implementing innovative changes in operational processes. How effective target cost management is within a supply chain depends on the nature of the relationships within it: Lockamy and Smith (2000, pp.216-7) suggest that the closeness of the working relationship will determine the methodology. Open-market negotiations and simple co-operative arrangements are probably suited to a price-based approach whilst those involved more closely with processors and retailers to simplify the chain and improve products might take a more value based approach.

5 *Target costing and Relevant costing as an intuitive accounting methodology*

Öhlmer and Lönnstedt (2004) found that ‘farmers using an intuitive decision-making process have a higher ability of detecting a farm problem if the information was designed to fit the intuitive process’. Interestingly, although analytic farmers reached higher levels of decision-making effectiveness than the intuitive farmers, they benefited more from intuitive information than the latter. Although this research was preliminary in nature, it indicates that a method such as target costing, which is very intuitive in form, may be rapidly diffused as an innovation through the industry, as gross margin accounting was in the early 1960s (Jack, 2005).

Relevant cost analysis appears a more formalised analytical technique but is based on intuitive reasoning – what costs arise as the result of a decision made? Similarly, break-even analysis is appealing because it provides a visual picture of the decision-making process.

6 Conclusions

The agricultural industry is facing a time of great change. The reform of the agricultural policy has removed most of the links between agricultural production and support. The Single Farm Payment is not linked to production but it is vital to the viability of many farming businesses. Farmers know that this support is likely to be transitional and it will be both whittled away and converted to payments for non-market goods – mainly in the form of enhancement to wildlife and the environment. This is encouraging many to consider at least a partial withdrawal from production. This however does not mean that they will simply give up their land. Most farmers will want to continue to maintain their land holdings to enjoy the benefits of the new subsidy (which is paid on a land area basis). Giving up land is an emotional wrench for farmers and a ‘last resort’. There are also some important taxation and lifestyle implications.

However within the framework of retaining the land holding there is scope for discontinuing or substituting activities that do not achieve a profit over and above relevant marginal costs. Gross margin and fixed cost analysis and net margin approaches that do not attempt to isolate relevant costs are the traditional methods of management accounting used in agriculture. They will not provide the answer required. Relevant cost analysis provides the perfect solution and also provides a break-even price around which the farmer can both make the decision and subsequently review it against price movements and fixed priced forward contracts that might tempt him or her back into production again.

Target cost approaches also have a place to help farmers come to terms with what we have termed the ‘new realities’. These require subtle and strategic approaches. The business climate in agriculture is becoming subject to more regulation affecting the production process. This is coming from both government and buyers. The regulatory constraints from buyers can come with attractive price offers (or threats) and without direct payment support production has to justify itself based purely on market returns and hence dancing to the tune of the buyer's demands is vital. Organic farming is the ultimate extension of the imposition of a set a rules in exchange for a (generally) much enhanced price. Consumers are driving this whether it is from a demand for free range, welfare friendly, accredited, specific breeds, quality assured, wildlife friendly or GM free, the conditions represent both a cost and a benefit to the producer. Target costs are a way of meeting this challenge. The question is can these conditions be accommodated at a profit? The answer is to work back from a given price or price incentive to work out the optimum response. The farmer may not always be able to meet that target but again conventional management accounting in agriculture is not best placed to offer the solution.

Farmers are already intuitively working with both kinds of approach to isolate relevant costs and meet cost targets, and case data is gradually being collected. Agricultural economists and farm consultants are already very familiar with the principles involved if not the specific methodology. Partial budgeting is a very familiar method in agriculture

and it works in a similar fashion to relevant cost analysis. Two things are required to achieve greater acceptance of both approaches. Firstly, practical demonstrations of their potential value and secondly, research to explore how problems inherent in the complexities of cost sharing within agricultural systems can be resolved. The authors themselves are involved in building up case study data, talking to practitioner groups and developing theory. Earlier versions of this paper presented at conferences has attracted attention from those working on national projects to develop farm decision making and one possibility for disseminating the ideas contained in this paper is as part of such projects. Gross margin accounting itself was disseminated in this way (Jack, 2005). However the ideas are spread, feedback from one farmer to the authors was simply, 'you'll be knocking on an open door with this just now'. The time is right to try and put both approaches to work in agriculture to provide better and more refined answers to the kind of questions that are being thrown up by the new business climate in agriculture.

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Deleted: Both relevant costing and target costing provide methods of analysis which are not reliant on a division of costs into agreed categories of fixed and variable costs. In the first, a cost is relevant if it arises as the result of a decision being made, which enables costs which may previously have been categorised as fixed but are in reality substantially variable can be integrated more fully into a cost-benefit analysis. In target costing, all costs are treated as manageable, and are aligned to future operational processes rather than past cost patterns. Problems remain in the treatment of unavoidable, non-allocable fixed costs. ¶

¶ Farmers have to an extent been moving in this direction intuitively. There are technical hurdles to overcome which have been addressed outside agriculture. Although agriculture presents a special case with some of its own particular problems to relevant and target costing these are not sufficient to rule out the application of either technique. Further work however is required to identify these problems and to experiment with solutions to them.¶

¶ Both methods are suited to strategic management thinking, rather than the operational level thinking associated with production-yield based methods of costing. The decisions facing farmers under the new realities require careful analysis and a strategic approach to decision making. Strategic accounting/management methods should be developed and disseminated by academics and consultants to meet the needs of farmers under new and challenging circumstances.¶

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